

DOUTORAMENTO
CIÊNCIAS DE ENFERMAGEM

Ansiedade dos adolescentes no período perioperatório: Desenho de um programa de intervenção em enfermagem

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D
2021



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perioperatório: Desenho de um programa de intervenção em enfermagem



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Tese de Candidatura ao grau de Doutor em Enfermagem,
submetida ao Instituto de Ciências Biomédicas de Abel
Salazar da Universidade do Porto.

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Aos meus sobrinhos,

Válter, Gustavo, Bernardo, Sofia, Margarida, Miriam, Letícia e Maria

A infância de Herberto Helder

No princípio era a ilha
embora se diga
o Espírito de Deus
abraçava as águas

Nesse tempo
estendia-me na terra
para olhar as estrelas
e não pensava
que esses corpos de fogo
pudessem ser perigosos

Nesse tempo
marcava a latitude das estrelas
ordenando berlindes
sobre a erva

Não sabia que todo o poema
é um tumulto
que pode abalar
a ordem do universo agora
acredito

Eu era quase um anjo
escrevi relatórios
precisos
acerca do silêncio

Nesse tempo
ainda era possível
encontrar Deus
pelos baldios

Isso foi antes
de aprender a álgebra

Agradecimentos

O desenvolvimento desta tese não teria sido possível sem aqueles a quem quero deixar expresso o meu sincero agradecimento:

- À Professora Doutora Lurdes Lomba, orientadora desta tese, por ter aceitado acompanhar-me nesta etapa académica. Pela partilha de conhecimento, pela disponibilidade, pela orientação e por encontrar soluções sempre que o caminho parecia mais difícil. Estou-lhe muito grata pela amizade, pelo desafio constante, pelo incentivo à autossuperação e por nunca me ter deixado estagnar ou perder o foco.
- À Professora Doutora Margarida Reis Santos, co-orientadora desta tese, por me acompanhar em mais uma etapa do meu percurso académico. Estou grata pelo seu olhar crítico, pelo apoio e desafio para fazer mais e melhor. O meu muito obrigada pela partilha de conhecimento, pelas discussões construtivas, pela criação de oportunidades e pelo compromisso mantido ao longo de todo o estudo. Também pela amizade.
- Ao Professor Doutor João Apóstolo, pela criação de oportunidades, pela motivação e pelos momentos de discussão em fases cruciais do desenvolvimento deste trabalho.
- Ao Professor Doutor Luís Loureiro que, numa fase muito inicial desde trabalho, deu um contributo muito importante sobre o tópico estudado.
- À Professora Doutora Maria do Céu Barbieri pela agilização dos processos burocráticos para que pudesse participar em eventos formativos e científicos relacionados com o desenvolvimento deste estudo.
- À Professora Doutora Guiomar Oliveira, ao doutor Gabriel Matos e ao doutor Aurélio Reis por autorizarem a realização do estudo no Departamento Pediátrico, serviço de ortopedia pediátrica e serviço de cirurgia pediátrica, respetivamente.

- Aos adolescentes e aos seus pais/tutores legais que participaram no estudo. Foram de uma generosidade enorme, em todos os momentos.
- Aos colegas enfermeir@s dos serviços de cirurgia pediátrica, ortopedia pediátrica e bloco operatório, que colaboraram no desenvolvimento deste estudo.
- À Anabela Cotrim, enfermeira e designer gráfica. Pela disponibilidade, brio e perfeccionismo na elaboração gráfica de todas as figuras incluídas neste estudo.
- À Andreia Gonçalves e à Cláudia Chaves. Pela amizade, apoio, colaboração e partilha.
- Aos colegas do IX Doutoramento em Enfermagem pelas partilhas, discussões e momentos de convívio.
- À Joana Mendes e à Anita Catlin. Pela amizade, pelas palavras de compreensão e todo o apoio que me deram, principalmente na fase final deste processo.
- A todos os colegas e amigos que participaram, em coautoria, nos estudos apresentados nesta tese. Pela Vossa disponibilidade, crítica, colaboração e contributo.
- Um agradecimento muito especial à minha família. Pela motivação, apoio e, sobretudo, por acreditarem em mim.
- À Adriana. Sem o teu apoio, este percurso teria sido muito mais moroso. Foste muito generosa ao adiar os teus projetos pessoais, ficando a apoiar-me neste processo, indo muito para além do papel de irmã. Foste o ouvido e abraço amigo, a terapeuta e a *expert* onnipresente. Dificilmente encontrarei palavras suficientes para te demonstrar a minha gratidão e reconhecimento pelo teu cuidado, preocupação e presença nestes últimos quatro anos.

A todos, Muito Obrigada.

Márcia

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RESUMO

Introdução: Anualmente, milhares de adolescentes são submetidos a um procedimento cirúrgico. Cerca de 80% dos adolescentes apresentam níveis moderados de ansiedade antes da realização do procedimento cirúrgico.

Objetivo: Desenvolver um programa perioperatório para prevenção da ansiedade em adolescentes (3P2A).

Métodos: A investigação seguiu as etapas da fase de desenvolvimento do modelo de intervenções complexas do *Medical Research Council*. Foram realizados seis estudos: revisão integrativa; *scoping review*; revisão sistemática de efetividade com meta-análise; três estudos qualitativos, dois envolvendo adolescentes (n=40); e outro com três grupos focais de enfermeiros especialistas em saúde infantil e pediátrica (n=19).

Resultados: A experiência perioperatória dos adolescentes é multifatorial e influenciada por aspectos psicológicos, emocionais, físicos, sociais, organizacionais e experiências cirúrgicas anteriores. Adolescentes expressaram medo e ansiedade relacionados com a realização do procedimento cirúrgico e manifestaram vontade em ser envolvidos no processo de cuidados perioperatórios. As intervenções não-farmacológicas mais utilizadas em adolescentes em contexto perioperatório foram a música/musicoterapia e a hipnose/imaginação guiada. Os enfermeiros foram os profissionais mais envolvidos na implementação destas intervenções, que se revelaram benéficas na redução da ansiedade perioperatória dos adolescentes. Contudo, apesar de consideradas clinicamente relevantes, não se verificou diferença estatisticamente significativa a favor da implementação dessas intervenções, quando comparadas com os cuidados habituais (SMD 0.14, 95% CI 0.48 to 0.20, p=0.42). Apurou-se que o Modelo de Sistemas de Neuman é adequado para sistematizar os cuidados de enfermagem aos adolescentes em situação perioperatória. Os enfermeiros especialistas em saúde infantil e pediátrica consideraram relevante que um programa para prevenção de ansiedade em adolescentes no período perioperatório incluísse a avaliação pré-operatória de adolescentes; cuidados aos adolescentes e pais; respondesse aos desafios sentidos pelos enfermeiros no cuidar de adolescentes; e englobasse uma consulta de enfermagem pré-operatória. Foi desenvolvido um programa para prevenção de ansiedade em adolescentes no período perioperatório, com integração dos resultados obtidos em todos os estudos realizados.

Conclusões: O desenvolvimento dos diferentes estudos permitiu conhecer as experiências dos adolescentes relacionadas com a preparação e recuperação perioperatória, identificar as suas manifestações de ansiedade e necessidades no período perioperatório. A síntese da informação sobre as intervenções não farmacológicas utilizadas com adolescentes, a identificação do Modelo de Sistemas de Neuman para sistematizar os cuidados e implementar o processo de enfermagem, assim como, ouvir adolescentes e enfermeiros contribuíram para o desenho de um programa ajustado às características da população e ao contexto perioperatório.

Palavras-chave: Adolescente; Ansiedade; Período perioperatório; Prevenção; Intervenções não farmacológicas.

ABSTRACT

Introduction: Every year, thousands of adolescents undergo surgical procedures. Approximately 80% of them express moderate levels of anxiety before the surgical procedure.

Objectives: To develop a program for the prevention of adolescents' anxiety in the perioperative period (3P2A).

Methodology: The research followed the steps of the development phase of the complex interventions model of the Medical Research Council (2008, 2021). Six studies were conducted: integrative review; scoping review; systematic review of effectiveness with meta-analysis; three qualitative studies, two involving adolescents (n=40); and another with three focus groups of pediatric nurse specialists (n=19).

Results: It was found that adolescents' perioperative experience is multifactorial and influenced by psychological, emotional, physical, social, organizational aspects and previous surgical experiences. The adolescents expressed fear and anxiety related to the surgical procedure and wanted to be involved in the perioperative care preparation. The non-pharmacological interventions commonly used in adolescents in the perioperative period were music/music therapy and guided hypnosis/imagination. Nurses were most involved in implementing these interventions, which proved to be beneficial in reducing the adolescents' perioperative anxiety. However, despite being considered clinically relevant, no statistically significant difference was found in favor of implementing these interventions compared with usual care (SMD 0.14, 95% CI 0.48 to 0.20, $p=0.42$). Neuman's Systems Model was found to be adequate to systematize the nursing care provided to adolescents during the perioperative period. The pediatric nurse specialists considered that a program for the prevention of anxiety in adolescents during the perioperative period should include adolescents' preoperative assessment; caring for adolescents and parents; addressing the challenges experienced by nurses in caring for adolescents; and encompassing a preoperative nursing consultation. A program for the prevention of anxiety in adolescents in the perioperative period was developed, integrating the results obtained in all the studies conducted.

Conclusions: Different studies' development allowed us to understand the adolescents' experiences related to perioperative preparation and recovery and identify their manifestations of anxiety and needs in the perioperative period. The synthesis of information on non-pharmacological interventions used with adolescents, the identification of Neuman's Systems Model to systematize and implement the nursing care process, as well as listening to adolescents and nurses, contributed to the design of a program adjusted to the characteristics of the population and the perioperative context.

Keywords: Adolescent; Anxiety; Perioperative period; Prevention; Non-pharmacological interventions.

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LISTA DE SIGLAS E ABREVIATURAS

3P2A	Programa Perioperatório para Prevenção de Ansiedade em Adolescentes
COREQ	Consolidated Criteria for Reporting Qualitative Research
CReDECI	Criteria for Reporting the Development and Evaluation of Complex Interventions in healthcare)
EESIP	Enfermeiros Especialistas em Saúde Infantil e Pediátrica
INF	Intervenções Não Farmacológicas
JB	Joanna Briggs Institute
MSN	Modelo de Sistemas de Neuman
MRC	Medical Research Council
OMS	Organização Mundial de Saúde
ONU	Organização das Nações Unidas
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PRISMA-ScR	Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews
ScR	Scoping Review
SQUIRE 2.0	Standards for Quality Improvement Reporting Excellence
SR	Systematic Review / Revisão Sistemática
UCPA	Unidade Cuidados Pós Anestésicos

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Introdução

Atualmente, em todo o mundo, milhões de adolescentes são submetidos a procedimentos cirúrgicos.¹ Destes, cerca de 80% apresentam níveis elevados de ansiedade.² Por outro lado, sabe-se que os níveis de dor no pós-operatório correlacionam-se com os níveis de ansiedade apresentados pelos adolescentes antes da cirurgia.³

As últimas décadas foram marcadas por avanços no aperfeiçoamento das técnicas cirúrgicas e pelo desenvolvimento de agentes e fármacos anestésicos.⁴ Estas inovações, em concomitância com pressões financeiras impostas pelas organizações, contribuíram para que o tempo de internamento hospitalar para realização de uma cirurgia fosse drasticamente reduzido.⁵ Este facto levou a que muitos dos procedimentos cirúrgicos passassem a ser realizados em regime de ambulatório, deixando crianças e adolescentes mais vulneráveis ao stress envolvente e com menos tempo para se prepararem, adaptarem e gerirem o stress e ansiedade no período perioperatório.⁴

Os programas de preparação perioperatória, de crianças e adolescentes, centrados na aquisição de competências de gestão da dor e da ansiedade, embora considerados essenciais, deixaram de ser oferecidos em ambientes cirúrgicos, tanto pela falta de tempo, como por constrangimentos económicos.^{3,5,6} A gestão dos cuidados perioperatórios aos adolescentes segue, habitualmente, um modelo biomédico e centra-se em resultados a curto prazo.⁷ No entanto, e dada a complexidade das variáveis relacionadas com a realização de um procedimento cirúrgico na adolescência, vários autores defendem a implementação de uma abordagem abrangente e integrativa, centrada no adolescente (modelo biopsicossocial), como sendo a mais adequada.^{7,8} A política do “tamanho único” (do inglês, *one size fits all*) aquando da planificação de cuidados de enfermagem em contexto perioperatório nem sempre se adequa a clientes pediátricos. Isto torna-se particularmente válido e relevante quando dois adolescentes, submetidos ao mesmo procedimento exigem preparações diferentes. Tal deve-se ao facto de a idade biológica dos adolescentes não refletir, com precisão, a fase de desenvolvimento em que se encontram.⁹ Desta forma, os cuidados de enfermagem devem ser individualizados e adaptados ao adolescente devendo o

enfermeiro identificar as expectativas que têm relativamente à cirurgia e permitir a exteriorização dos fatores causadores de stresse e ansiedade.^{10,11} Se para alguns adolescentes a experiência é “simples” e não perturbadora do seu equilíbrio, para outros, pode levar a que experienciem stresse intenso e ansiedade, antes e após o evento cirúrgico, que se pode prolongar por vários meses no período pós-operatório.^{1,2,12}

Mais comumente, o desenvolvimento de estudos no contexto perioperatório pediátrico realiza-se com amostras só de crianças ou conjuntas de crianças e adolescentes.^{11,13-17} Este facto pode levar a que os resultados obtidos possam ou não refletir o que é efetivamente expresso por cada grupo, quando avaliado separadamente. Apesar da existência de estudos abordando este tema, a evidência encontra-se dispersa, necessitando de ser mapeada e sintetizada para identificação das melhores provas e de estratégias recomendadas para gerir a ansiedade em adolescentes durante o período perioperatório. Igualmente escassos são os estudos que caracterizem o contexto e/ou identifiquem as experiências dos adolescentes submetidos a um procedimento cirúrgico de caráter eletivo.

O objetivo geral do estudo é desenvolver um programa perioperatório para prevenção da ansiedade em adolescentes (3P2A) seguindo a primeira fase do modelo de intervenções complexas do *Medical Research Council*. Desta forma, sentiu-se a necessidade de realizar estudos, de caráter primário e secundário, com o propósito de responder aos objetivos específicos, nomeadamente: conhecer as experiências dos adolescentes no período perioperatório; sintetizar a investigação disponível sobre as manifestações de ansiedade e necessidades expressas pelos adolescentes no período perioperatório; mapear as intervenções não-farmacológicas utilizadas no período perioperatório para prevenir a ansiedade nos adolescentes; avaliar a eficácia das intervenções não farmacológicas utilizadas no período perioperatório para gerir a ansiedade em adolescentes; implementar o processo de enfermagem, fundamentado no Modelo de Sistemas de Betty Neuman; e descrever as perspetivas e sugestões dos enfermeiros sobre um programa para prevenção da ansiedade nos adolescentes no período perioperatório.

Estão incluídos seis estudos. Três de revisão de literatura (um de revisão integrativa, um de *scoping review* e outro de revisão sistemática), dois estudos envolvendo adolescentes (um qualitativo com realização de entrevistas individuais e outro de estudo caso, com sistematização de cuidados utilizando o Modelo de Sistemas Neuman) e um outro qualitativo cujos participantes foram enfermeiros especialistas em enfermagem de saúde infantil e pediátrica.

A tese encontra-se organizada em introdução, onde se realiza uma abordagem teórica sobre os temas em estudo. Inicia-se com a definição de adolescência e características de desenvolvimento do adolescente, seguindo-se uma contextualização sobre a enfermagem perioperatória, sua evolução e as particularidades dos cuidados perioperatórios pediátrico, concluindo com uma abordagem geral sobre a ansiedade

e manifestações de ansiedade dos adolescentes no período perioperatório. Depois segue-se a apresentação dos objetivos do estudo, e a apresentação do método, com uma breve abordagem a cada um dos estudos desenvolvidos e a sequência lógica entre eles. Posteriormente, são reproduzidos os seis artigos publicados em revista científica da área de enfermagem e os dois que se encontram aceites para publicação, mas ainda em fase de edição.

Por fim, nas conclusões e perspetivas futuras apresenta-se uma súmula dos resultados mais relevantes, por objetivo e estudo desenvolvido, realçando os aspetos pertinentes, limitações e implicações, tanto para a prática clínica como para o desenvolvimento de outros estudos de investigação.

Notas sobre a terminologia e idiomas utilizados na tese:

1. Ao longo do trabalho aparece o termo “pais” ou “parents” que, por questões linguísticas, refere-se à pessoa que acompanha e assume a responsabilidade pelo adolescente aquando da necessidade de cuidados no período perioperatório. Pode ser o pai ou a mãe, biológico ou não biológico, algum outro membro da família, ou alguém a quem é atribuída a responsabilidade legal pelo adolescente.
2. Apesar da tese ter como população alvo os adolescentes, por vezes, são utilizados os termos “criança”, “pediatria”, “pediátricos”, “child” ou “pediatrics”. Mantivemos estes termos para não deturpar o significado dos aspetos aos quais nos referimos e que dizem respeito aos cuidados prestados a menores de idade (18 anos) no qual estão incluídos os adolescentes.
3. Os artigos incluídos na tese estão escritos em idiomas diferentes, de acordo com as regras de publicação das revistas às quais foram submetidos. Assim, há artigos em Português e Inglês, com as devidas adaptações e particularidades linguísticas consoante o país e critérios das revistas onde foram submetidos e/ou publicados.

Adolescência

Há cerca de 1,2 mil milhões de adolescentes (10-19 anos de idade) em todo o mundo.^{18,19} A palavra adolescência deriva do Latim *adolescere*, que significa ‘crescer’ ou ‘crescer e atingir a maturidade’.²⁰ A adolescência é um período dinâmico de transição da infância para a vida adulta, com profundas mudanças a nível, biológico, cognitivo, emocional, psicossocial e económico, que afetam a forma como os adolescentes se sentem, pensam, tomam decisões e interagem com o mundo.^{20,21} Embora eles sejam agentes cada vez mais ativos no seu processo de desenvolvimento, ainda necessitam de apoio e de ambientes securizantes que lhes permitam um crescimento saudável.²⁰ Definir esta etapa da vida é difícil e há muito que representa um desafio.^{19,22}

Há mais de 50 anos, a Organização Mundial da Saúde (OMS) definiu a adolescência como o período correspondente à segunda década de vida, ou seja, entre os 10 e os 20 anos de idade.²³ Mais tarde, na Convenção das Nações Unidas sobre os Direitos da Criança (1985), a criança foi definida como um indivíduo com idade entre os zero e os 18 anos.

O conceito de adolescência como o conhecemos atualmente, período entre os 10 e os 19 anos, foi formalmente estabelecido pela Organização das Nações Unidas (ONU) e é atualmente reconhecido pela OMS.^{18,22,24,25} Não obstante, as definições e limites temporais de criança e adolescente, acabariam por parcialmente se sobrepor ao termo ‘juventude’, definido como o período entre os 15 e 24 anos de idade.²⁶ Assim, atendendo às definições apresentadas, poder-se-á inferir que uma pessoa com 16 anos pode ser simultaneamente considerada criança, adolescente e jovem.^{18,22,26,27}

A adolescência engloba elementos de crescimento biológico e importantes transições de papéis sociais que se foram alterando no século passado. É comumente aceite que tem início entre os 10-12 anos, com o aparecimento dos primeiros sinais da puberdade.^{18,20,22} Relativamente ao seu término, tem sido mais difícil chegar a um consenso.^{20,22,25} Se por um lado, o desenvolvimento cerebral e a sua plasticidade continuam a desenvolver-se até meados dos ‘vintes anos’,²⁰ por outro, o aumento

da escolaridade, a coabitação mais prolongada com a família de origem e a entrada mais tardia no mundo laboral, têm empurrado o seu final para a terceira década de vida.²² Por essa razão, alguns autores definem adolescência como o período entre os 10 e os 24 anos.^{20,22,25,28,29} Na figura 1 estão representadas, graficamente, as idades associadas a expressões específicas, que são utilizadas para definir o período de transição que ocorre entre a infância e a vida adulta.

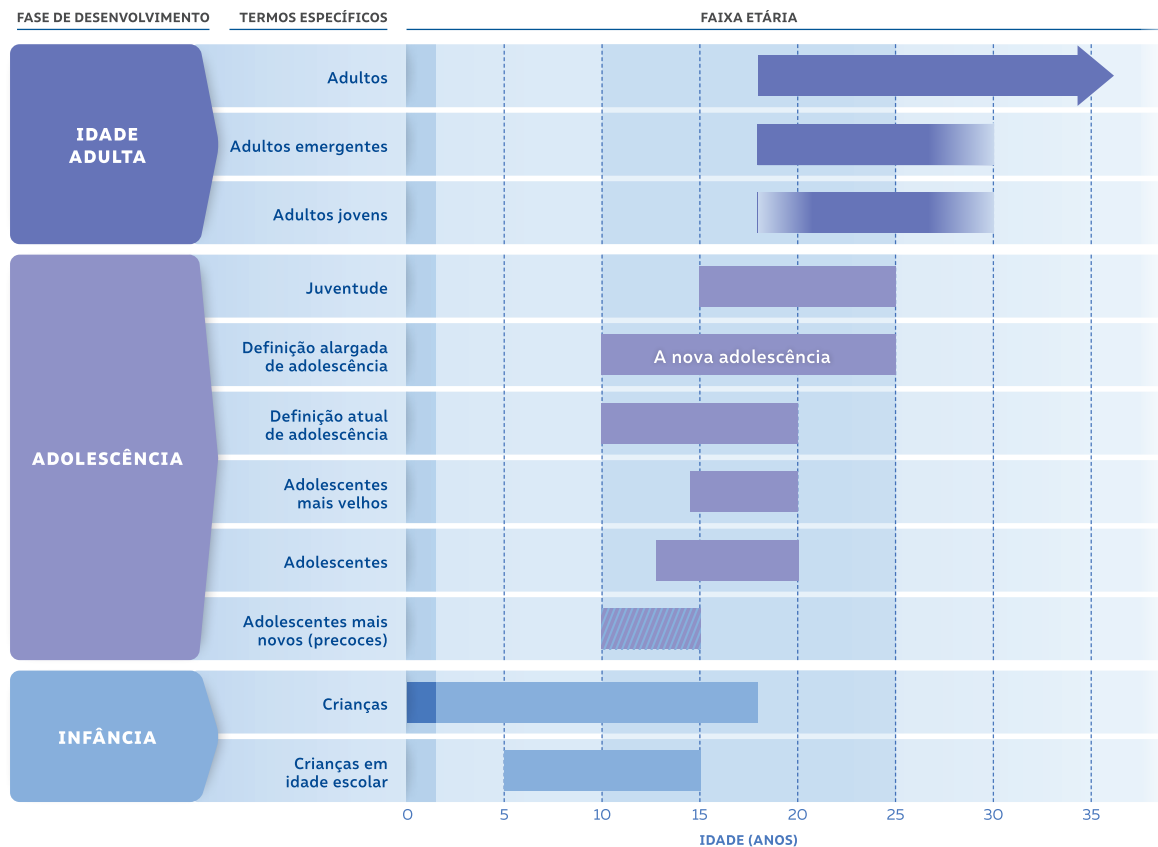


Figura 1. Idade e termos específicos relevantes para a adolescência

Legenda: O sombreado a cor realça a variação nos limites de idade inferior e superior do termo. As riscas denotam um termo que se situa em mais do que uma fase de desenvolvimento.

In: Sawyer SM, Azzopardi PS, Wickremarathne D, Patton GC. The age of adolescence. Lancet Child Adolesc Health. 2018;2(3):223-8.

Nota: Figura traduzida e reproduzida mediante autorização da primeira autora e da editora (Elsevier) que publicou o artigo.

Atendendo a características de desenvolvimento, a adolescência pode ser dividida por fases ou estádios.^{21,22} Se, por um lado, há autores que a dividem nas fases inicial (10-12 anos),²⁰ intermédia (13-15 anos)²⁰ ou (15-17 anos)²¹ e tardia (16-18 anos)²⁰ ou (18-21 anos)²¹ outros, apenas a delimitam em inicial (10-14 anos) e tardia (15-19 anos).^{22,24,25} A proposta de idade para a definição alargada da adolescência (10-24 anos)^{20,22,25,28,29} acrescenta, às fases inicial e tardia, o adulto jovem (20-24 anos).^{20,22,25}

Durante este período da vida, ocorre um rápido crescimento físico, cognitivo e psicossocial,³⁰ durante o qual o cérebro passa por múltiplas transformações. Eventos

stressantes – como uma cirurgia – podem interferir com o processo normal de desenvolvimento do adolescente,³¹ levando a que a maturidade psicológica não acompanhe o ritmo do crescimento físico.^{22,32} Além das mudanças físicas, psicológicas e emocionais que decorrem de cada uma das fases da adolescência, as oportunidades, pressões sociais, desafios e recursos disponíveis para os adolescentes também interferem em todo o processo de desenvolvimento.²¹ Neste período, adicionalmente, a quantidade de tempo despendido pelos adolescentes com os pais diminui, enquanto o tempo passado com os pares aumenta consideravelmente.³³ No entanto, os pais continuam a desempenhar um papel fundamental no desenvolvimento do seu adolescente.^{33,34} Pelo exposto, falar em limites de idade para cada uma das fases de desenvolvimento é um pouco arbitrário,³⁵ dado que este é um período complexo de desenvolvimento, em que um conjunto de variáveis podem interferir no processo. Como tal, cada adolescente deve ser considerado um ser individual, com capacidades intelectuais, interesses e vivências muito próprias.³⁶

A adolescência inicial é caracterizada por mudanças físicas internas e externas, sendo as últimas facilmente observáveis. Ambas são decorrentes da puberdade, e envolvem respostas emocionais, alterações na morfologia corporal, no desenvolvimento sexual e cerebral.^{21,37} Nesta fase, habitualmente, o adolescente caracteriza-se pela baixa resistência à influência dos pares, pelos baixos níveis de orientação futura, baixa percepção do risco, e uma autorregulação deficitária.²⁴ Os ambientes escolar e familiar são os contextos sociais mais críticos.²⁵

A fase intermédia da adolescência é caracterizada pela transição de uma orientação centrada no adulto cuidador para a influência dos pares.²¹ O adolescente foca a sua atenção no eu, preocupa-se com o vestuário e com a aparência física, mesmo que transpareça o contrário.^{38,39} Nesta fase podem ocorrer grandes variações do desenvolvimento cognitivo, de género, de interação com os pares, exploração de carreiras futuras, bem como a experimentação de comportamentos sociais, incluindo a sexualidade e o uso de substâncias psicoativas.²¹

A fase final da adolescência caracteriza-se pela maturação pubertária, mas visualmente de forma menos óbvia, especialmente nos rapazes. Nesta fase, o cérebro continua a ser extremamente ativo, em particular, a região do córtex pré-frontal.³⁷ Ocorre também o desenvolvimento contínuo das competências executivas e autorreguladoras, levando a uma maior orientação futura, assim como a maior capacidade para avaliar as implicações das decisões a curto e a longo prazo.^{21,25} As influências familiares passam a ser diferentes, uma vez que muitos adolescentes gozam de maior autonomia, mesmo que ainda coabitem com as suas famílias. Os contextos educativos continuam a ser muito importantes; é nesta fase que muitos adolescentes entram no mundo do trabalho ou do ensino superior, estabelecem a sua própria identidade e começam a dedicar-se à construção do mundo onde estão inseridos.^{24,25} Na figura 2 encontram-se sumarizadas algumas das características do crescimento e desenvolvimento que ocorrem nas diferentes fases da adolescência.

Na maioria dos países, a adolescência corresponde ao período de vida com a taxa de mortalidade mais baixa, o que se deve ao facto de estar situada entre os picos da mortalidade precoce na infância e da mortalidade por doenças crónicas na vida adulta.²⁵ Por esta razão, a adolescência é considerada a fase mais saudável do ciclo de vida podendo perceber-se que os adolescentes apresentam menos necessidade de cuidados de saúde, quando comparados com crianças e adultos.²⁵ No entanto, a adolescência é um período de desenvolvimento muito delicado no qual a puberdade e a maturação cerebral conduzem a novos conjuntos de comportamentos e capacidades que desencadeiam ou permitem transições nos domínios da família, dos pares, assim como na adoção de comportamentos que podem interferir com a saúde.⁴⁰

	Adolescência Inicial 10-12/14 anos	Adolescência Intermédia 13-15/17 anos	Adolescência Final 16-19 anos
Crescimento	Aceleração rápida do crescimento / Pico máximo de crescimento / Aparecimento dos caracteres sexuais secundários.	Desaceleração do crescimento nas raparigas / A estatura atinge 95% da altura adulta / Caracteres sexuais secundários em fase avançada de desenvolvimento.	Maturidade física / Crescimento estrutural e reprodutivo quase completo.
Cognição	Explora novas capacidades / Pensamento abstrato ainda limitado / Descoberta de novos valores / Comparação da "normalidade" com pares do mesmo sexo / Maior interesse no presente, com pensamentos limitados sobre o futuro / Os interesses intelectuais expandem-se e ganham importância / Maior capacidade de trabalho (físico, mental, emocional).	Desenvolve a capacidade de pensamento abstrato / Aprecia os poderes intelectuais, muitas vezes em termos idealistas / Preocupação com os problemas filosóficos, políticos e sociais.	Pensamento abstrato estabelecido / Maior preocupação com o futuro, que vai para além do ensino secundário / Capaz de ver os problemas de forma abrangente / Identidade intelectual e funcional estabelecida.
Identidade	Preocupação com mudanças corporais rápidas / Experimentação de vários papéis / Medição da atratividade através da aceitação ou rejeição pelos pares / Conformidade com as normas do grupo / Diminuição da autoestima.	Modificação da autoimagem Autocentrado / Aumento do narcisismo / Tendência para a experiência interior e autodescoberta / Vida rica em fantasia / Idealista / Capaz de perceber as implicações futuras do comportamento e decisões atuais.	Definição da imagem corporal e do papel de género praticamente consolidados / Identidade sexual amadurecida / Aumento da autoestima / Confortável com o crescimento físico / Papéis sociais definidos e articulados.
Relação com os Pais	Definição de limites de independência-dependência / Forte desejo de permanecer dependente dos pais enquanto tenta separar-se / Sem conflitos importantes com o controlo parental.	Conflitos importantes sobre independência e controlo / Ponto baixo na relação pai-filho / Maior impulso para a emancipação / Libertação emocional final e irreversível dos pais.	Separação emocional e física dos pais completa / Independência da família com menos conflitos / Emancipação praticamente assegurada.
Relação com os Pares	Procura afiliações com os pares para enfrentar a instabilidade gerada pelas mudanças rápidas / Aumento de amizades próximas com membros do mesmo sexo / Luta pela perfeição no grupo de pares.	Forte necessidade de identidade na afirmação da autoimagem / Padrões comportamentais definidos pelo grupo de pares / Aceitação pelos pares extremamente importante – medo de rejeição / Exploração da capacidade de atrair o sexo oposto.	O grupo de pares perde importância a favor das amizades individuais / Experimenta relações românticas contra a possibilidade de uma aliança permanente / Relacionamentos caracterizados por dar e partilhar.
Sexualidade	Autoexploração e avaliação / Namoro limitado, habitualmente no grupo / Intimidade limitada / Mostra timidez, ruborização e modéstia / As raparigas desenvolvem-se mais precocemente do que os rapazes / Aumento do interesse pelo sexo, pode ser com o oposto, com o mesmo, ou com ambos / Preocupações com a atratividade física e sexual / Relações em constante mudança.	Relações plurais múltiplas / Identificação interna de atrações heterossexuais, homossexuais ou bissexuais / Exploração do "self-appeal" / Sentimento de "estar apaixonado" / Tentativa de estabelecer relacionamentos.	Formas estáveis de relacionamento e vinculação a outros / Capacidade crescente de mutualidade e reciprocidade / Namoro romântico com um par / Sentido firme da identidade sexual / Pode identificar-se publicamente como homossexual ou bissexual / Considera que a intimidade envolve compromisso e não exploração e romanticismo.
Saúde psicológica	Grandes oscilações de humor / Sonha acordado de forma intensa / Externalização da raiva com mau humor, explosões de temperamento e insultos verbais.	Tendência para experiências interiores, mais introspectivo / Tendência para se retirar quando magoado ou aborrecido / Vacilação nas emoções em termos de tempo e variedade / Sentimento de inadequação / Dificuldade em pedir ajuda.	Maior estabilidade emocional / Maior capacidade de ocultar a raiva.

Figura 2. Crescimento e fatores de desenvolvimento na adolescência

Adaptado de: Derouin (2019). Health promotion of adolescent and family. In M. J. Hockenberry & D. Wilson (Editors.), Wong's nursing care of infants and children (11th ed., pp. 523-550). Missouri: Elsevier Health Sciences.

Enfermagem Perioperatória

Os primeiros programas de formação para enfermeiras surgem na segunda metade do século XIX, no Reino Unido, com Florence Nightingale. No ensino de enfermagem lecionava-se ‘enfermagem sanitária’ e assegurava-se que as enfermeiras estagiárias conheciam os produtos antissépticos e desinfetantes, por ser seu dever prevenir infeções.⁴¹ Até ao final do século XIX, as enfermeiras que assistiam à cirurgia eram as mesmas que cuidavam dos doentes cirúrgicos nas enfermarias, no pré e no pós cirurgia.⁴¹ Posteriormente, passou a haver diferenciação entre enfermeiras que cuidavam dos doentes no pré e pós cirurgia e as que atuavam na sala de operações.⁴² Nos escassos registos existentes sobre a evolução da ‘enfermagem de sala de operações’ lê-se que esta foi a primeira especialidade reconhecida em enfermagem.^{41,43} As enfermeiras de sala de operações, além de trabalharem em proximidade com o cirurgião, assistindo-o na instrumentação, eram responsáveis pelo controlo do ambiente na sala, pela prevenção da infeção, preparação do equipamento necessário e prestação dos cuidados à pessoa durante a realização da cirurgia.⁴² No entanto, a inexistência de uma definição única e inclusiva desta área de especialidade, associado ao facto do trabalho desenvolvido pelas enfermeiras em contexto de sala de operações aparecer muito ligado ao trabalho do cirurgião, dificulta uma descrição precisa da sua evolução ao longo do tempo.

A expressão “enfermagem perioperatória” surge, pela primeira vez, na década de 70 do século XX⁴²⁻⁴⁴ mas apesar de ter entrado no vocabulário moderno, não é unanimemente aceite. A definição de ‘enfermagem perioperatória’ continua frequentemente limitada aos cuidados prestados na sala de operações,⁴³ contudo há definições mais abrangentes, como é o caso da que consta no regulamento das competências do enfermeiro especialista à pessoa em situação perioperatória, que refere “a intervenção do Enfermeiro Especialista na área de Enfermagem à pessoa em situação perioperatória desenvolve-se em cinco áreas de atuação complementares entre si: consulta perioperatória, anestesia, circulação, instrumentação e cuidados pós anestésicos. Este período comporta as fases pré, intra e pós-operatório”.^{45, p.19366}

Período perioperatório

O *período perioperatório* engloba três fases ou períodos distintos: o pré-operatório, o intraoperatório e o pós-operatório.⁴⁶⁻⁴⁹

O *período pré-operatório* tem início no momento em que a pessoa, ou alguém que a represente, é informada da necessidade da cirurgia e aceita realizar o procedimento. Inclui a preparação para a cirurgia, antes e depois da admissão na instituição, e termina com a transferência para o bloco operatório.⁵⁰

A forma como cada pessoa reage a uma cirurgia eletiva é muito variável. Desta forma, ao planear cuidados de enfermagem são vários os aspetos que devem ser tidos em consideração, como a idade, as diferenças individuais físicas, psicológicas e emocionais, as características de desenvolvimento, o contexto sociocultural, o tipo e as circunstâncias que medeiam a necessidade da realização da cirurgia.⁹ Neste contexto, a colheita de informação no pré-operatório é determinante para identificar necessidades físicas, necessidades de ensino e de apoio psicológico para a pessoa e, se necessário, para os familiares.^{46,50}

É inegável que a cirurgia é um acontecimento significativo e stressante. Independentemente da sua natureza (seja ela *major* ou *minor*), a pessoa e os elementos da sua família apresentarão ansiedade. Não obstante, nesta fase pré-operatória, o nível de ansiedade apresentado poderá não ser, necessariamente, proporcional à magnitude do procedimento cirúrgico.⁴⁴

Neste contexto, a capacidade da enfermeira para ouvir ativamente e compreender, tanto as mensagens verbais como as não verbais, é um elemento imperativo para estabelecer uma relação de confiança com o cliente e com a sua família.⁴⁶ Partindo de uma avaliação global da pessoa, a enfermeira planeia as intervenções de enfermagem, assim como desencadeia o pedido de colaboração de outros profissionais e solicita cuidados de apoio, caso os considere necessários. É neste período que são implementados os cuidados preventivos e de gestão de ansiedade, assim como a realização de ensinios relacionados com a preparação para a cirurgia.⁵⁰

Para crianças e adolescentes, considerando que as necessidades psicológicas diferem em função da idade, a avaliação e preparação pré-operatória têm um papel crucial na garantia de uma experiência perioperatória tranquila.⁵¹ Idealmente, é neste período que é iniciada a preparação para a alta da cirurgia, assim como dos cuidados a ter no período pós-operatório promovendo, desde uma fase inicial, uma recuperação bem-sucedida.⁴⁶

O *período intraoperatório* começa imediatamente após o término do período anterior e termina com a transferência do cliente, no final da cirurgia, para a unidade de cuidados pós anestésicos (UCPA) ou unidade de recobro. É no seu decurso que ocorrem os eventos anestésicos e a concretização do procedimento cirúrgico em si.⁵⁰ O foco

dos cuidados incide sobre proporcionar à pessoa um ambiente seguro e confortável, na vigilância das funções vitais e fisiológicas, apoio emocional e controlo da dor.⁴⁶

O *período pós-operatório* começa quando o cliente é transferido da sala de operações para a UCPA ou unidade de recobro, para iniciar a recuperação pós-anestésica. Nesta fase, a pessoa fica em vigilância e são avaliadas as funções vitais, o estado de consciência, a dor e despistadas complicações decorrentes da realização do procedimento anestésico e cirúrgico.⁴⁶ O apoio emocional também é essencial, porque a pessoa encontra-se numa posição de vulnerabilidade e de dependência.⁵⁰

O tempo de permanência nesta unidade depende do tipo de cirurgia, assim como do estado de recuperação pós-operatória que o cliente apresenta. Na fase mais tardia de pós-operatório, o foco incide na preparação para a alta, disponibilização de informação e realização de ensinamentos à pessoa e à família.⁴⁶

Cuidados perioperatórios pediátricos

A evolução tecnológica, a criação de protocolos anestésicos, a realização de cirurgias minimamente invasivas e a implementação de normas de segurança associadas aos cuidados cirúrgicos permitiu que os cuidados perioperatórios pediátricos fossem alvo de um enorme progresso nas últimas décadas.^{52,53} Paralelamente, somam-se os contributos do trabalho das equipas multidisciplinares, desenvolvidos por profissionais com formação e treino para cuidar da população pediátrica em ambiente perioperatório prestando cuidados baseados na evidência.^{52,54,55}

Os enfermeiros pediátricos olham para a criança/adolescente com necessidade de cuidados cirúrgicos de uma forma abrangente.⁵⁶ O seu foco não se limita apenas à necessidade da criança/adolescente realizar uma cirurgia, mas sim a todas as particularidades que ela apresenta, incluindo a atenção que deve ser dada aos pais.⁴⁴

Na pesquisa realizada só se encontrou uma definição para o trabalho desenvolvido pela enfermeira perioperatória pediátrica. Apresentamos aqui a sua tradução integral:

“a enfermeira perioperatória pediátrica utiliza a abordagem de cuidados centrados na criança e na família para cuidar das crianças que precisam de cuidados perioperatórios. Ela atua com base na evidência, para proteger, promover e otimizar a saúde e as capacidades das crianças que necessitam de cuidados anestésicos e cirúrgicos, desde o nascimento até ao final da adolescência. Estas enfermeiras atuam na área clínica, na investigação, na educação, na supervisão e na gestão em prol da qualidade dos cuidados a prestar à criança e adolescente com necessidade de cuidados perioperatórios. É ainda dever da enfermeira perioperatória pediátrica esforçar-se pela prevenção de doenças e lesões, por restaurar a saúde e maximizar o conforto, tanto em condição de saúde como no fim da vida, através

da correta atividade diagnóstica, tratamento e gestão da condição da criança que necessita de cuidados perioperatórios” (a).⁵⁷

Tal como em outros contextos da prestação de cuidados, também em ambiente perioperatório, os cuidados devem seguir as orientações do processo de enfermagem e serem norteados por um referencial teórico. No entanto, desconhece-se que algum modelo tenha sido desenvolvido com o propósito de ser aplicável exclusivamente à pediatria. Por outro lado, houve a tentativa de adaptar os modelos desenvolvidos com adultos à pediatria, mas nenhum deles menciona os cuidados à criança/adolescente em contexto perioperatório.⁵⁶

O adolescente em situação perioperatória

Milhões de crianças e adolescentes são operados anualmente.^{1,58,59} Na Europa, um estudo realizado em 25 países relatou que uma média de 177 000 crianças com menos de 14 anos de idade são tratadas nos centros cirúrgicos pediátricos. No entanto, o estudo revelou grande variabilidade entre os países e centros cirúrgicos que participaram ou responderam (92 000 a 475 000).⁶⁰ Apesar de em grande parte dos países europeus a idade limite para o atendimento em serviços de pediatria ser os 18 anos,⁶¹ os adolescentes com mais de 14 anos não foram incluídos no estudo. Parece não haver dados disponíveis sobre o número de casos anuais, por ano, relativos a procedimentos cirúrgicos realizados na população adolescente.⁶² Em Portugal, dados do Instituto Nacional de Estatística, referentes a 2018, revelam que das 970.200 cirurgias (excluindo pequenas cirurgias) realizadas nesse ano, 17.482 ocorreram em idade pediátrica.⁶³ Destas, 5224 foram realizadas no centro onde foi realizado o nosso estudo, sendo que 3823 ocorreram de forma eletiva e 1418 em urgência.

De um modo global, as cirurgias realizadas de forma eletiva em adolescentes são excisão de *sinus pilonidal*,⁶⁴ cirurgia bariátrica,^{65,66} procedimentos de cirurgia plástica,¹ correção de escoliose,⁶⁷ correção de *pectus excavatum*⁶⁸ ou varicocelectomia.⁶⁹

A incidência de *sinus pilonidal* é de 1,2-2/10 000 indivíduos.⁶⁴ A prevalência da escoliose entre adolescentes é de 0,5-5,2%, afetando principalmente as raparigas, numa razão de 3:1.⁶⁷ A incidência de *pectus excavatum* tem uma razão entre 1 em 300-400 indivíduos, e os rapazes são mais afetados do que as raparigas, numa razão que varia entre 2:1 e 9:1.^{68,70,71} Por outro lado, as raparigas têm até oito vezes

(a) “The pediatric surgical nurse uses the patient and family centered care approach to provide for patients requiring surgical intervention in a variety of settings. Utilizing evidence-based practice guidelines pediatric surgical nurses focus on the protection, promotion, and optimization of health and abilities for children from newborn through young adulthood with an array of surgical issues. They serve as clinicians, researchers, educators, mentors, advocates, and administrators. Pediatric surgical nursing strives for the prevention of illness and injury, the restoration of health and the maximization of comfort in health conditions and at the end of life, through diagnosis, treatment and management of the child’s condition that requires surgical intervention.”

mais probabilidade de contrair uma lesão do joelho que os rapazes.⁷² Do total de colecistectomias realizadas, cerca de 4% ocorrem em idade pediátrica.⁷³

As lesões traumáticas, como as fraturas e outras causadas durante a prática desportiva, também contribuem para um número considerável de ocorrências entre adolescentes, e são causa de tratamento cirúrgico, não só eletivo, como também de carácter urgente.^{72,74,75}

Há adolescentes que apresentam outros problemas, não referidos, e que carecem de tratamento cirúrgico eletivo. No entanto, não é nosso propósito fazer uma descrição minuciosa dos mesmos e mencionamos apenas aqueles que encontramos descritos como sendo os mais frequentes. De acrescentar que publicações científicas, especificando os cuidados a adolescentes em condição perioperatória são ainda relativamente escassas.

Ansiedade

A ansiedade é caracterizada frequentemente como uma sensação difusa, desagradável e vaga de apreensão ou antecipação de um perigo ou infortúnio futuro, muitas vezes acompanhada por uma sensação de preocupação, angústia ou sintomas autonómicos tais como cefaleia, sudorese, palpitações, opressão torácica, desconforto abdominal, e inquietação, traduzida por uma incapacidade de se sentar ou ficar parado por muito tempo.⁷⁶⁻⁷⁸ O foco do perigo pode ser interno ou externo.⁷⁷ Os sintomas podem variar de ligeiros a graves e a sua duração, tipicamente experimentada por pessoas com perturbação de ansiedade, torna-a mais crónica do que episódica.⁷⁹

Na antiguidade clássica, a ansiedade já era identificada como uma doença.^{80,81} O conceito teve origem no período grego clássico e evoluiu ao longo dos tempos até aos dias de hoje.^{80,81} No entanto, é uma construção ambígua que foi conceptualizada de muitas maneiras por diferentes autores. Freud distinguiu a ansiedade em objetiva ou real, neurótica e moral.⁸² A ansiedade objetiva ou real referia-se ao medo de um estímulo objetivamente perigoso. A neurótica referia-se a um conflito do *id versus ego*, enquanto a ansiedade moral a um conflito do *id versus superego*.⁸² Em 1966, Spielberger começou a desenvolver o modelo de ansiedade-traço e ansiedade-estado, que se baseia na conceção dualista de ansiedade proposta por Cattell e Scheier, em 1961.⁸³ Para Spielberger, a ansiedade-traço refere-se ao modo habitual e consistente de resposta do indivíduo. Esta é uma característica de personalidade relativamente estável. Em contraste, a ansiedade-estado reflete um estado emocional transitório que varia de intensidade e flutua ao longo do tempo.⁸⁴ Este estado caracteriza-se por sentimentos subjetivos, conscientemente percebidos, de tensão e apreensão associados a uma ativação do sistema nervoso autónomo.⁸⁴ A ansiedade-estado será baixa em circunstâncias não stressantes, não ameaçadoras e nas quais um perigo não é percebido como ameaçador. Contrariamente, será elevada em circunstâncias percebidas como ameaçadoras pelo indivíduo. Assim, a ansiedade-estado é situacionalmente determinada e de natureza transitória.⁸⁴ Para avaliar estes dois tipos de ansiedade, Charles Spielberger desenvolveu o Inventário de Ansiedade Traço-Estado.⁸⁵ Este ins-

trumento é considerado o *gold standard* para avaliar tanto os níveis habituais como os níveis transitórios de ansiedade, tanto a indivíduos adultos como em crianças.⁸⁶ O inventário é composto por dois formulários, cada um com 20 itens, usando escalas de *Likert* de quatro pontos, variando a pontuação total entre 20 e 80 pontos na versão para adolescentes e adultos, e 20 e 60 pontos na versão adaptada a crianças.^{85,87}

De uma perspetiva evolutiva ou epigenética, a ansiedade é uma reação adaptativa que promove a sobrevivência, estimulando o indivíduo a afastar-se do perigo.⁸⁰ O juízo errado ou a distorção da situação leva geralmente a reações mal adaptativas e contradiz o princípio básico da ansiedade em *stricum sensum*.

Os indivíduos com ansiedade-traço também experienciam e expressam muitas vezes ansiedade-estado, em situações em que a maioria das pessoas não vivencia tais respostas. Pensa-se que este viés reflete um viés cognitivo-percetual. Ao nível cognitivo, existe uma interpretação negativa e distorcida da informação, que é congruente e fomenta as respostas ansiosas. Ao nível percetual, existe um enviesamento da atenção para estímulos ameaçadores. Ao nível da memória, há um excesso de informação ameaçadora. Estes três vieses são comuns em indivíduos com personalidades do tipo ansiedade-traço.⁸⁸

Ansiedade no período perioperatório

A primeira definição de ansiedade pré-operatória foi estabelecida por Ramsay em 1972,⁸⁹ como sendo um estado desagradável de mal-estar ou tensão que é secundário a um indivíduo preocupado com a doença, hospitalização, anestesia e cirurgia, ou com o desconhecido.⁹⁰

O período perioperatório pode ser muito stressante e desencadear respostas emocionais, cognitivas e fisiológicas específicas no doente. Durante este período, os níveis de ansiedade variam individualmente e podem ter início antes da cirurgia e persistir até ao período pós-operatório tardio.⁷⁶ Pessoas diferentes reagem aos eventos ocorridos no período perioperatório de formas diferentes. Algumas experimentam um alívio, pois irão ter uma vida livre da doença, outras consideram-no como um dos eventos mais stressantes da sua vida, podendo estar preocupadas com o desconforto, com o insucesso da cirurgia, ou sentir medo antecipando problemas profissionais e familiares que possam advir do estado pós-operatório relacionados com a sua saúde física e/ou dificuldades de adaptação à nova condição.⁷⁶

Muitos fatores podem levar à ansiedade perioperatória, e podem ter um efeito cumulativo. A cirurgia, por si só, aumenta o stress e a ansiedade do cliente, independentemente da extensão ou da complexidade do procedimento cirúrgico.⁹⁰ O evento cirúrgico também está associado à perceção de perda de controlo, devido à necessidade de sedação/anestesia ou ao tempo de recuperação, que exigirá que o

doente confie a terceiros a satisfação das suas necessidades básicas.⁹¹ Outros fatores incluem a preocupação com a família, o medo das complicações, o medo de sentir dor no período pós-operatório, preocupação com a alteração da imagem corporal/ resultado da cirurgia, a separação dos entes queridos e o ambiente desconhecido.^{90,91} A espera pré-operatória foi referida em vários estudos como desencadeadora de ansiedade.^{76,92} Os longos tempos de espera, a pouca disponibilidade dos profissionais para atender às preocupações dos doentes associados à escassez de informação têm sido apontados como fatores que agravam a ansiedade.⁹² O ambiente da sala operatória, como os alarmes e o ruído resultante da abertura do invólucro dos instrumentos cirúrgicos podem, também, ter um efeito significativo no aumento da ansiedade.⁹² O dia da admissão também pode ser muito stressante, uma vez que os doentes têm de lidar tanto com o stresse da hospitalização como com a ansiedade sobre a realização iminente da cirurgia.⁷⁶

Embora a ansiedade perioperatória seja considerada uma parte normal da experiência cirúrgica, poderá desencadear um conjunto de processos, incluindo respostas de stresse fisiológico, que aumentam o risco de complicações no período intraoperatório e atrasam o processo de recuperação no período pós-operatório.^{91,92} No entanto, a ansiedade foi reconhecida não só como um fator de risco potencial, como também prevenível, permitindo evitar ou minimizar complicações no período perioperatório.⁹⁰ O risco correlaciona-se com o aumento da necessidade de fármacos anestésicos, consumo de analgésicos para controlo da dor pós-operatória, risco de infeção, diminuição da atividade física (com consequente aumento do risco de eventos trombóticos), diminuição da resposta imunitária e diminuição da satisfação com a experiência perioperatória, assim como com o prolongamento do período de internamento.^{76,92} A ansiedade está, também, associada à angústia psicológica e à tendência para somatizar a dor no período pós-operatório, ambas correlacionadas com resultados menos favoráveis.^{76,90,92} A relação entre ansiedade pré-operatória e a gravidade da dor aguda pós-operatória foi descrita como sendo curvilínea, razão pela qual a ansiedade pré-operatória tem sido associada a consumo de doses mais elevadas de anestésicos intravenosos durante a indução e na manutenção anestésica intraoperatória.⁹⁰ De igual modo, quanto mais elevada for a ansiedade pré-operatória, maiores serão as necessidades de analgesia pós-operatória.⁹⁰

Entre os fatores que permitem prevenir e atenuar a ansiedade identificam-se a educação e a informação sobre o procedimento cirúrgico, a anestesia e o contexto perioperatório.⁹⁰

A ansiedade pré-operatória é difícil de medir com precisão. No entanto, pode ser estimada, indiretamente, através do aumento da pressão arterial e do pulso, da diminuição da variabilidade do ritmo cardíaco e da irritabilidade do doente. Pode também ser estimada, diretamente, através do nível de cortisol plasmático e do nível urinário de catecolamina.⁷⁶ Já existem vários instrumentos validados que servem para avaliar a ansiedade no período perioperatório permitindo intervir em coerência, prevenindo-a.⁷⁶

Ansiedade dos adolescentes no período perioperatório

A ansiedade manifestada durante o período perioperatório interfere tanto na preparação do adolescente para o evento cirúrgico, como nos resultados e consequente recuperação do procedimento cirúrgico, tal como referimos na secção anterior.

O desenvolvimento físico e emocional dos adolescentes pode ter implicações nos seus cuidados,^{21,93} pois apesar do seu estado fisiológico se assemelhar mais ao de um adulto, o seu nível de maturidade emocional ainda está a desenvolver-se.⁹³ Embora existam diferentes procedimentos cirúrgicos a que os adolescentes são submetidos, as suas experiências e manifestações de ansiedade são semelhantes, devido às suas características de desenvolvimento.⁹⁴ Aquando da necessidade da realização de um procedimento cirúrgico, os profissionais devem ter em consideração as características desenvolvimentais do adolescente, entre elas, o pensamento abstrato, a independência, a autodeterminação, a importância que os pares têm na sua vida e a sua visão realista sobre a morte.^{56,95,96}

Neste período, a ansiedade manifestada pelo adolescente, pode resultar do medo do desconhecido, da incapacidade de acordar ou da morte após a anestesia, da perda de controlo e de autonomia, da dor e do isolamento da vida social.^{56,97-99} Pode ser influenciada por variáveis como a idade, a maturidade, o temperamento, as experiências cirúrgicas anteriores, a história de dor, o nível de ansiedade manifestado pelos pais e o padrão de ligação mãe-filho.^{2,13,14,58,100,101}

Após a realização do procedimento cirúrgico, alguns adolescentes experimentam pesadelos, dificuldade em dormir ou acordam com uma intensa sensação de angústia e medo, que pode prolongar-se por muito tempo.¹² Tal como nos adultos, também nos adolescentes existe uma associação positiva entre a ansiedade e a dor manifestada no período perioperatório,¹⁰²⁻¹⁰⁴ devido à ansiedade interferir com a vida instintiva e por conseguinte, com os princípios básicos de sobrevivência. Por isso é que a sensação de ansiedade, nestas situações, está invariavelmente presente, variando a intensidade consoante a maturidade do adolescente, conhecimento sobre o procedimento e riscos inerentes, bem como experiências prévias na área médico-cirúrgica.

Prevenção de ansiedade em adolescentes no perioperatório

Nas últimas décadas, o tempo de internamento para a realização de uma cirurgia foi drasticamente reduzido, tanto devido aos avanços médicos e tecnológicos como às pressões financeiras impostas pelas organizações de saúde.⁵ Decorrente disto, os programas de preparação pré-operatórios, centrados na aquisição de competências para a gestão da dor e da ansiedade, não são proporcionados à maioria das crianças/adolescentes e famílias que necessitam de cuidados cirúrgicos perioperatórios.⁶

Para ajudar os adolescentes a lidarem com os seus medos, eles devem ser encorajados a expressar as suas preocupações e o que os assusta. Neste sentido, a preparação do adolescente e da sua família para a anestesia e cirurgia deve começar logo aquando do agendamento da cirurgia.^{105,106} Os estudos mostram que eles querem obter informações que lhe permitam compreender a sua situação de saúde, assim como serem ouvidos em relação às suas necessidades de cuidados.¹⁰⁷⁻¹⁰⁹

Objetivos

O objetivo geral desta tese é desenvolver um programa perioperatório para prevenção da ansiedade em adolescentes (3P2A) seguindo a primeira fase do modelo de intervenções complexas do *Medical Research Council*.

Os objetivos específicos determinados visam o objetivo geral do estudo:

- 1) Sintetizar a investigação disponível sobre as manifestações de ansiedade e necessidades de controlo expressas pelos adolescentes no período perioperatório.
- 2) Conhecer as experiências dos adolescentes no período perioperatório.
- 3) Mapear as intervenções não-farmacológicas utilizadas no período perioperatório para prevenir a ansiedade nos adolescentes.
- 4) Avaliar a efetividade das intervenções não farmacológicas utilizadas no período perioperatório para gerir a ansiedade em adolescentes.
- 5) Implementar o processo de enfermagem, fundamentado no Modelo de Sistemas de Neuman e terminologia da Classificação Internacional da Prática de Enfermagem, nos cuidados perioperatórios a uma adolescente submetida a cirurgia.
- 6) Descrever as perspetivas dos enfermeiros sobre um programa para prevenção da ansiedade nos adolescentes no período perioperatório.

Método

Um programa de prevenção de ansiedade para adolescentes em situação perioperatória pode ser considerado como ‘complexo’, seja pela sua globalidade ou pela natureza das intervenções que o compõem e que interagem entre si, originando um vasto número de variáveis e resultados.^{110,111} Para o desenvolvimento do programa perioperatório de prevenção da ansiedade em adolescentes (3P2A) utilizou-se como referencial teórico o modelo de intervenções complexas do *Medical Research Council* (MRC).¹¹⁰ Este modelo é composto por quatro fases distintas: desenvolvimento; viabilidade/pilotagem; avaliação; e implementação.¹¹⁰ Em 2018, a fase de ‘desenvolvimento’ foi otimizada¹¹² e às três etapas constantes do modelo original, identificação da evidência de base (*identifying the evidence base*); identificação/desenvolvimento de teoria (*identifying/developing theory*); modelagem do processo e resultados (*modelling process and outcomes*)¹¹⁰ foi acrescentada uma quarta, validação dos componentes do programa (*face validity*).¹¹²

Com a finalidade de responder ao objetivo geral (desenvolver um programa de enfermagem para prevenção de ansiedade em adolescentes no período perioperatório), foram desenvolvidos diferentes estudos. Na figura 3 estão representadas as etapas de desenvolvimento da intervenção, os estudos realizados e os artigos a que deram origem, por objetivo específico.

O estudo sobre as manifestações de ansiedade e necessidades dos adolescentes no período perioperatório que teve o propósito de responder ao primeiro objetivo específico materializa-se numa revisão integrativa de literatura¹¹³ apresentada no artigo 1.¹⁰⁹

Para dar resposta ao segundo objetivo específico, desenvolveu-se um estudo de abordagem exploratória qualitativa,^{114,115} que compreendeu a realização de entrevistas semiestruturadas a adolescentes e posterior análise temática.^{116,117} No processo de amostragem não-probabilística e intencional, foram selecionados 40 adolescentes, submetidos a cirurgia eletiva, que foram entrevistados, individualmente, em dois momentos distintos, seguindo o guião de entrevista semi-estruturada (ANEXO I).

O primeiro momento ocorreu no dia da intervenção cirúrgica e o segundo, sete dias após a realização do procedimento cirúrgico. Este estudo é apresentado no artigo 2,¹¹⁸ que seguiu os critérios para a elaboração de relatórios de investigação qualitativa - *Consolidated criteria for reporting qualitative research* (COREQ).¹¹⁹

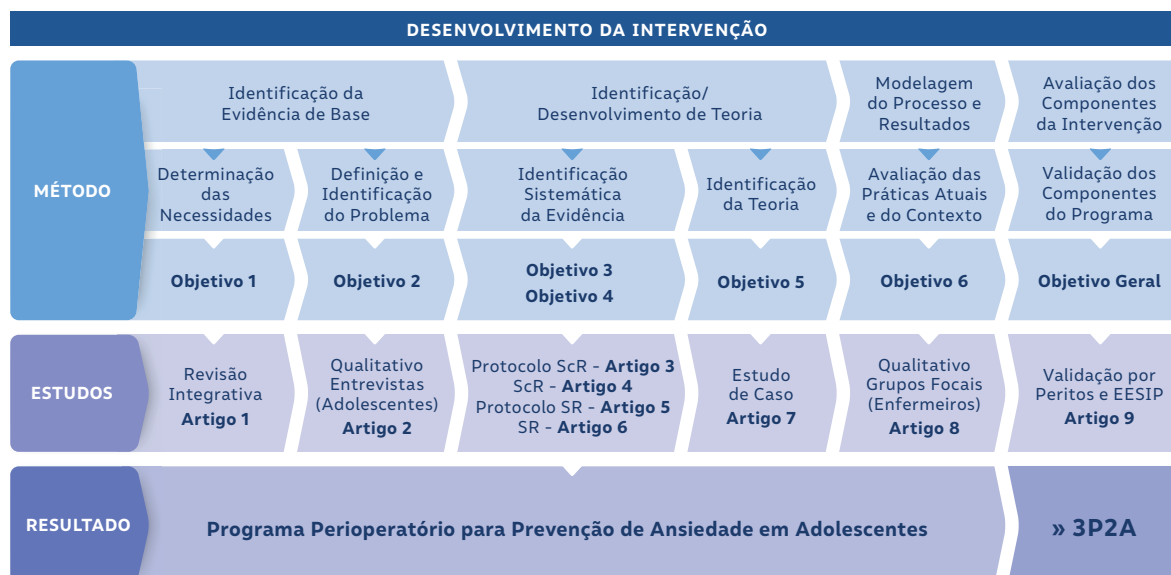


Figura 3. Desenvolvimento do programa de intervenção 3P2A.

Identificadas as necessidades, foram mapeadas as intervenções não farmacológicas utilizadas em adolescentes no período perioperatório. O protocolo deste estudo é apresentado no artigo 3,¹²⁰ e seguiu as orientações do *Joanna Briggs Institute* (JBI) para realização de revisões *scoping*¹²¹ e teve o propósito de responder ao terceiro objetivo específico. O artigo 4⁶² - *The non-pharmacological interventions used in perioperative period to prevent anxiety in adolescents: a scoping review* apresenta o relatório da revisão *scoping*, que seguiu os critérios para a elaboração de relatórios de revisão *scoping* de literatura (PRISMA-ScR).¹²² Previamente à publicação, o protocolo foi registado no *Open Science Framework* (<https://osf.io/jhwca/>).

No artigo 5¹²³ é apresentado o protocolo de revisão sistemática. O propósito deste estudo foi responder ao quarto objetivo: avaliar a eficácia dessas intervenções não farmacológicas na gestão da ansiedade dos adolescentes no período perioperatório. O estudo de revisão sistemática apresentado no artigo 6¹²⁴ - *Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: A systematic review and meta-analysis* - foi conduzido de acordo com a metodologia do JBI para revisões sistemáticas de efetividade¹²⁵ e o relatório elaborado seguindo os critérios da *Preferred Reporting Items for Systematic Reviews and Meta-analyses* (PRISMA).¹²⁶ O protocolo de revisão foi previamente registado no PROSPERO (CRD42020184386).

Com o propósito de identificar teoria e responder ao quinto objetivo, realizou-se uma pesquisa com o intuito de selecionar o metaparadigma de enfermagem que melhor se adapta ao adolescente (pessoa), em contexto perioperatório (ambiente), aos fatores que interferem com a sua condição (saúde) e à natureza dos cuidados (de enfermagem). Entre os modelos e teorias disponíveis, selecionou-se o Modelo de Sistemas de Neuman (MSN).¹²⁷ Optou-se pela metodologia de estudo de caso¹²⁸ para apresentar o processo de cuidados guiado pelo MSN. A redação do artigo 7¹²⁹ - Modelo de Neuman no cuidado de enfermagem perioperatório de adolescente com escoliose idiopática juvenil - seguiu as os critérios da *Standards for Quality Improvement Reporting Excellence* (SQUIRE 2.0).¹³⁰

Identificado o problema, as necessidades dos adolescentes, realizada a síntese de evidência e identificada a teoria, faltava avaliar as práticas atuais e o contexto onde será implementado o programa de intervenção. Com este propósito, desenvolveu-se um estudo qualitativo¹¹⁴ com recurso a entrevistas de grupo¹¹⁵ (ANEXO II) a 19 enfermeiros especialistas em saúde infantil e pediátrica, selecionados por amostragem não probabilística e intencional, distribuídos por três grupos focais.^{131,132} Foi realizada análise temática,^{116,117} da informação e o resultados é apresentado no artigo 8¹³³ - *Nurses' views to design a program to prevent adolescents' anxiety in the perioperative period*, que foi elaborado seguindo os critérios para relatórios de investigação qualitativa (COREQ).¹¹⁹ Este artigo dá resposta ao sexto objetivo.

O trabalho apresentado no artigo 9¹³⁴ – *Programa de intervenção de enfermagem para prevenção da ansiedade perioperatória em adolescentes: 3P2A*, teve o propósito de responder ao objetivo geral do estudo, e encerra a apresentação do programa 3P2A. A abordagem metodológica seguiu a versão otimizada das orientações relativas ao procedimento para o desenvolvimento uma intervenção complexa do MRC.¹¹² Nesta etapa, todos os itens foram validados por peritos. Na elaboração deste artigo, foram seguidos os critérios para a fase de desenvolvimento de intervenções complexas em cuidados de saúde (*Criteria for Reporting the Development and Evaluation of Complex Interventions in healthcare*) CReDECI).¹³⁵

Para a realização dos estudos que envolvem os adolescentes e enfermeiros, submeteu-se previamente um pedido à Comissão de Ética para a Saúde do Centro Hospitalar e Universitário de Coimbra, que obteve parecer positivo, com referência CHUC-001-19 (ANEXO III). Para além da explicitação do estudo a desenvolver, também foram submetidos os documentos termo de consentimento informado a assinar pelos adolescentes, pais e enfermeiros (ANEXO IV).

Artigo 1

Ansiedade perioperatória em adolescentes: Manifestações e necessidades de controlo. Revisão integrativa.

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- 1º Prémio Comunicação Oral - XIX Congresso Nacional da AESOP. 2020. Lisboa, Portugal.

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ANSIEDADE PERIOPERATÓRIA EM ADOLESCENTES: MANIFESTAÇÕES E NECESSIDADES DE CONTROLO. REVISÃO INTEGRATIVA

Perioperative anxiety in adolescents: manifestations and control needs.
An integrative review

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Abstract

Background: In a phase of development as complex as adolescence, the surgical experience is a great challenge. While there is some knowledge about manifestations of anxiety in children, less is known about manifestations of anxiety in adolescents. Likewise, the knowledge about adolescents needs for control of anxiety in the perioperative period is missing.

Aims: To synthesize the existing research on the manifestations of anxiety in adolescents in the perioperative period and to identify the adolescents needs for control of anxiety in the perioperative period.

Methods: An integrative review was conducted using a literature search in five different health databases. Only original studies related to the study topic were included. A six-step method was used to develop the revision and to analyze the results.

Results: Of the 251 articles initially selected, only five met the inclusion criteria. A total of 114 adolescents from five different countries were represented. The manifestations of anxiety were grouped in psychological, social and physical. These manifestations were mostly related with fear of surgery, how would they deal with pain, body image change, anxiety itself and the separation from their friends. The needs were 'to be informed' and 'to be involved in the decisions about their own care process'.

Conclusions: The adolescents have manifestations of anxiety and specific needs to deal with perioperative anxiety, which need to be taken into account in the planning of perioperative care. Further research is needed to promote the development of an evidence-based program tailored to answer to the adolescent's needs and to minimize their manifestations of anxiety in the perioperative period.

KEYWORDS: ADOLESCENT, ANXIETY, PERIOPERATIVE PERIOD, PERIOPERATIVE NURSING, NEEDS ASSESSMENT

INTRODUÇÃO

Anualmente, em Portugal, são realizados 17000 procedimentos cirúrgicos a crianças e adolescentes⁽¹⁾. No Canadá são operados 65000⁽²⁾ e nos EUA são realizadas sete milhões^(3,4) de cirurgias a adolescentes, por ano. Ainda assim, e apesar da adolescência ser considerada a fase mais saudável do desenvolvimento, acredita-se que o número de intervenções cirúrgicas, nesta população, aumente nos próximos anos⁽⁴⁾. Nos EUA, alguns dos procedimentos cirúrgicos mais comumente realizados em adolescentes são no âmbito da cirurgia plástica⁽⁴⁾, correção de escoliose⁽⁵⁾ e pectus excavatum⁽⁶⁾. A prevalência de escoliose nos adolescentes situa-se entre 0,5% e 5,2%, diferindo na proporção de 3:1 entre mulheres e homens⁽⁵⁾. A incidência de pectus excavatum é de 0,1 a 0,8 por 100 indivíduos, sendo o sexo masculino mais afetado que o sexo feminino, numa proporção que varia entre 2:1 a 9:1⁽⁶⁾. Os estudos realizados com adolescentes para avaliar a ansiedade perioperatória, relacionam-na com o momento de indução anestésica^(7,8), com a dor⁽⁹⁻¹¹⁾, com a imagem corporal⁽¹²⁾, com a presença parental⁽¹³⁾ e com a disponibilização de informação⁽¹⁴⁾. Neste sentido, compreendemos que a experiência cirúrgica apresenta desafios para os adolescentes, que têm necessidades de autocontrolo, privacidade e interação com os pares⁽¹⁵⁾. Associado às necessidades que apresentam, e independentemente da idade ou procedimento cirúrgico a realizar, os adolescentes podem apresentar um conjunto de sinais e sintomas que se relacionam com a manifestação de ansiedade perioperatória⁽¹⁶⁾. Estas manifestações incluem preocupação, medo, tristeza e, às vezes, até mesmo mudanças de comportamento evidentes.

Também podem surgir respostas como tensão muscular, taquipneia, taquicardia, hipertensão, sudorese e náuseas⁽¹⁶⁾. As manifestações de ansiedade perioperatória nos adolescentes podem estar presentes no pós-operatório, em casa, e incluir pesadelos, transtornos alimentares, ansiedade de separação e sentimentos de impotência⁽¹⁷⁾.

Do ponto de vista do adolescente, os riscos da cirurgia podem estar relacionados com a separação das pessoas significativas, especialmente dos colegas, com a dor física, o medo da mutilação corporal, com a alteração das suas rotinas habituais, incluindo as atividades escolares, as atividades desportivas e convívio com os colegas, com a falta de mobilidade, deficiência temporária ou permanente e com a alteração da imagem corporal⁽¹⁸⁾. Desta forma, eles necessitam que a informação disponibilizada pelos profissionais seja coerente com aquilo que querem saber, contribua para o seu bem-estar e influencie na sua recuperação^(4,18). Neste sentido, no perioperatório é importante o enfermeiro estar desperto para as particularidades do desenvolvimento e preocupações específicas do adolescente, de modo a implementar intervenções que deem resposta às necessidades que eles apresentam⁽⁴⁾. Caso contrário, se as necessidades e experiências que os adolescentes trazem para o seu evento perioperatório⁽⁴⁾ não forem identificadas previamente, os profissionais de saúde podem investir recursos e energias na implementação de mudanças, para melhorar a prestação de cuidados, que podem ter pouca ou nenhuma importância para os visados⁽¹⁸⁾. Apesar dos estudos realizados com adolescentes, a identificação das manifestações de ansiedade, assim como a compreensão das necessidades de controlo da ansiedade no

perioperatório, carece de melhor explicitação.

OBJETIVOS

Os objetivos desta revisão são sintetizar a investigação existente sobre as manifestações de ansiedade expressas pelos adolescentes no perioperatório e identificar as necessidades de controlo da ansiedade referidas pelos adolescentes no perioperatório. Para alcançar os objetivos propostos, definimos as seguintes questões para revisão: Quais as manifestações de ansiedade expressas pelos adolescentes no perioperatório? Quais as necessidades de controlo de ansiedade referidas pelos adolescentes no perioperatório?

MÉTODOS

Processo de revisão

A revisão integrativa é um método que permite que o investigador sintetize a literatura disponível sobre uma área de interesse, de uma forma integrativa, gerando uma nova compreensão e novas perspetivas⁽¹⁹⁾. A revisão decorreu em seis etapas: 1) elaboração da questão orientadora; 2) realização da pesquisa na literatura; 3) categorização dos estudos; 4) avaliação dos estudos incluídos no trabalho; 5) interpretação dos resultados; 6) síntese da revisão desenvolvida⁽¹⁹⁾. As questões de orientação do estudo foram: Quais as manifestações de ansiedade expressas pelos adolescentes no perioperatório? Quais as necessidades de controlo de ansiedade referidas pelos adolescentes no perioperatório? A elaboração das questões seguiu a mnemónica PICO, definindo como população de estudo adolescentes entre os 10 e 19 anos, conforme definição da Organização Mundial da Saúde⁽²⁰⁾. O >



QUADRO 1.

EXEMPLO DE ESTRATÉGIA DE PESQUISA
REALIZADO NA MEDLINE VIA PUBMED

```
(((((adolescen*[Title/Abstract]) OR "Adolescent"[Mesh])) AND
(((anxiety[Title/Abstract] OR psychologic*[Title/Abstract])) OR
"Anxiety"[Mesh:NoExp])) AND (((perioperative[Title/Abstract] OR
preoperative[Title/Abstract] OR postoperative[Title/Abstract])) OR
(("Perioperative Care"[Mesh]) OR "Perioperative Period"[Mesh]))))
AND ((need*[Title/Abstract]) OR "Needs Assessment"[Mesh])
```

Filtros aplicados: Published in the last 10 years; Language: English; Portuguese.

contexto é o período perioperatório, no qual se inclui o pré-operatório, o intra-operatório e o pós-operatório. Os fenômenos de interesse são as manifestações de ansiedade e as necessidades de controle da ansiedade. Os resultados foram analisados numa ótica exploratória.

Critérios de inclusão e exclusão

Os critérios definidos para a inclusão dos artigos na revisão integrativa foram estudos publicados em inglês e português, primários, realizados com adolescentes com idade compreendida entre 10 e 19 anos. O período selecionado foi entre janeiro de 2009 e maio de 2019. Os critérios de exclusão incluíram estudos sem resultados específicos para a população adolescente, não abordar o tema em estudo, artigos de revisão, artigos de opinião e texto completo indisponível.

Estratégia de pesquisa

A pesquisa da literatura foi realizada em maio de 2019 pelas autoras MP-S e CP. Foram utilizadas cinco bases de dados para realização da pesquisa, Medline via Pubmed, CINAHL (Cumulative Index to Nursing and Allied Health Literature), LILACS via Portal Regional da Biblioteca Virtual em Saúde, SciELO e RCAAP (Repositórios Científicos de Acesso Aberto de Portugal), para encontrar artigos que se relacionassem com o tópico de pesquisa, publicados entre janeiro de 2009 e

maio de 2019. Os descritores selecionados para pesquisa incluíram os termos em linguagem natural "perioperative", "postoperative", "preoperative", "adolescent*", "anxiety", "psychologic*" e "need*" combinados através dos operadores booleanos 'AND' e 'OR'. Foram ainda utilizados os termos MeSH (Medical Subject Heading): "adolescent", "perioperative period", "perioperative care", "needs assessment", "anxiety". A pesquisa inicial foi construída na Medline via Pubmed, como apresentado no **Quadro 1**, e posteriormente adaptada às bases de pesquisa subsequentes para refletir a sintaxe entre as diferentes bases de dados utilizadas.

Utilizou-se o gestor de referências bibliográficas EndNote X9. Na pesquisa inicial encontraram-se 251 resultados, correspondentes a 248 encontrados nas bases de dados e três foram adicionados manualmente. Depois de eliminados os 14 estudos repetidos, foram incluídos um total de 237 para leitura de título e resumo. Com base na leitura de título e resumo, os estudos não relevantes para o objetivo deste estudo foram eliminados. A inclusão e leitura de título e resumo obteve consenso mútuo (MP-S e CP). De seguida, os artigos originais foram recuperados e lidos na íntegra para delimitação do *corpus* de análise. Foram avaliados 64 estudos, dos quais 59 foram excluídos por não cumprirem os critérios de

inclusão. Os motivos de exclusão foram: não abordarem o tema em análise (n=35), não apresentarem resultados para adolescentes (n=10), texto completo indisponível (n=5), artigos de revisão de literatura (n=5) e artigos de opinião (n=4). Um total de cinco estudos⁽²¹⁻²⁵⁾ cumpriram os critérios de inclusão. Estes artigos foram analisados por MP-S e discutidos com AP-S, MRS e LL. O processo de seleção de triagem dos artigos está representado no fluxograma da **Figura 1**, elaborado com base no Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Foi elaborado um instrumento específico para extração dos dados dos artigos. O resumo é apresentado no **Quadro 2**. Trata-se de um quadro que nas colunas inclui dados sobre os artigos, nomeadamente, ano de publicação, país, autores, desenho, objetivo, amostra, resultados e conclusões. A cada linha correspondem os dados de cada um dos artigos considerados para análise.

Avaliação da qualidade metodológica

Para avaliação da qualidade metodológica dos artigos utilizaram-se duas *checklist*: The Critical Appraisal Skills Programme (CASP)⁽²⁶⁾, composta por 10 questões, para avaliação dos estudos qualitativos e a Newcastle-Ottawa Quality Assessment Scale (adaptada para estudos transversais)⁽²⁷⁾, composta por sete questões. A avaliação dos estudos foi feita de forma independente por duas investigadoras (MP-S e CP). Houve concordância entre as investigadoras.

Esta etapa foi considerada com o intuito de dispor de uma maior confiabilidade dos resultados e conclusões a apresentar neste estudo.

RESULTADOS**Características dos estudos**

Os cinco estudos selecionados

QUADRO 2

RESUMO DOS ARTIGOS ANALISADOS

AUTORES, ANO E PAÍS	DESENHO E MÉTODO DE ANÁLISE	OBJETIVO	AMOSTRA (M/F) IDADE DOS PARTICIPANTES	MÉTODO DE COLHEITA DE DADOS	RESULTADOS/ CONCLUSÕES
Rullander, A-C, et al (2013) Suécia ⁽²¹⁾	Qualitativo Análise de conteúdo	Descrever as experiências dos adolescentes que realizaram cirurgia para correção de escoliose	6 adolescentes (2M/4F), 15-18 anos	Entrevista individual	Resultados: Identificados três temas principais: Aspectos emocionais - Pesadelos, dificuldade em dormir; acordar com medo intenso, ansiedade aquando das consultas no pós-operatório. Aspectos físicos - Dor; náuseas; alteração da imagem corporal; imobilização. Aspectos sociais - Perda de autonomia; separação dos amigos; interrupção das atividades letivas e desportivas por um longo período. Os participantes referem querer estar no controle da situação, e a ausência desse controle afetava o seu bem-estar. Conclusões: Os cuidados perioperatórios aos adolescentes necessitam de otimização. Para melhorar a preparação psicológica antes da cirurgia, as enfermeiras pediátricas e equipa interdisciplinar, devem conhecer melhor o adolescente e as suas necessidades, para planear cuidados holísticos. Os aspetos físicos, emocionais e sociais devem ser avaliados após a alta.
Honeyman, C & Davison, J (2016) Reino Unido ⁽²²⁾	Qualitativo Análise temática	Explorar a forma como os adolescentes interpretam a sua experiência cirúrgica	6 adolescentes (2M/4F), 15-18 anos	Entrevista individual	Resultados: Foram identificados quatro temas principais: Choque, medo do desconhecido, preocupações com a cirurgia e ajuda dos pais no perioperatório. Conclusões: Os adolescentes lidaram bem com a cirurgia, aceitaram as dificuldades associadas, mostraram-se motivados e otimistas. No entanto, revelaram necessitar do acompanhamento dos pais no hospital.

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Índice

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Chan, P, et al (2016) Estados Unidos da América ⁽²³⁾	Estudo quantitativo, transversal Análise estatística (teste t 2 amostras)	Avaliar as preocupações dos adolescentes [e dos pais] para tratá-las com aconselhamento pré-operatório adequado	48 adolescentes (5M/43F), 10-18 anos; 48 pais; 4 cirurgiões de ortopedia infantil	Questionário elaborado pelos autores	Resultados: Os adolescentes [e os pais] mostraram-se preocupados com a dor pós-operatória. Os três grupos de participantes referiram estar preocupados com o risco de lesão neurológica. Conclusões: A preparação pré-operatória, baseada nas necessidades dos adolescentes, representa um desafio. Esta deve abordar temas como a dor e a lesão neurológica. A implementação de intervenções que abordem estes temas poderá ajudar a minimizar a ansiedade pré-operatória e a otimizar os resultados da experiência perioperatória dos adolescentes.
Bogusaite L, Razlevici I, Lukosiene L, Macas A (2018) Lituânia ⁽²⁴⁾	Estudo quantitativo exploratório Análise estatística descritiva	Determinar as necessidades de informação pré-operatória das crianças e pais antes da anestesia para cirurgia eletiva	43 adolescentes, 10-17 anos; 92 pais; 23 anestesiológistas pediátricos	Questionário elaborado pelos autores	Resultados: As informações, relacionadas com o perioperatório, mais solicitadas pelos adolescentes foram sobre a recuperação pós-operatória incluindo da anestesia, o controle da dor pós-operatória e o tempo de duração da anestesia. Os adolescentes referiram preferir que as informações pré-operatórias fossem fornecidas por escrito e consideraram que o melhor momento para as disponibilizar seria no dia anterior à realização da cirurgia. Conclusões: A elaboração de um folheto informativo para distribuir no pré-operatório, contribuirá para: melhorar a qualidade do serviço disponibilizado, reduzir a ansiedade dos adolescentes e aumentar a satisfação com a experiência clínica e cirúrgica.

abordam as necessidades manifestadas pelos adolescentes no perioperatório.

No global participaram 114 adolescentes. Dependendo do estudo, as amostras variaram entre 6 a 48 participantes. Quatro^(21-23,25) dos cinco estudos distinguem o sexo dos adolescentes, verificando-se que o sexo feminino era o mais repre-

sentativo, com cerca de cinco vezes mais participantes em comparação com o sexo masculino. As idades dos adolescentes variaram entre os 10 e os 18 anos.

Os estudos foram desenvolvidos em cinco países, representando culturas diferentes: Canadá⁽²⁵⁾ Reino Unido⁽²²⁾, Lituânia⁽²⁴⁾, Estados Unidos da América⁽²³⁾ e Suécia⁽²¹⁾.

No que respeita ao desenho, três estudos são de natureza qualitativa^(21,22,25) e dois são quantitativos^(23,24).

Três dos estudos abordam, numa ótica exploratória, as manifestações de ansiedade e necessidades referidas pelos adolescentes no perioperatório^(21,22,25). Os outros^(23,24) abordam, separadamente, as neces-

McCulloch R, et al (2009) Canadá ⁽²⁵⁾	Qualitativo Análise de conteúdo	Determinar a percepção das necessidades de informação e apoio dos adolescentes com escoliose [propostos para cirurgia]	11 adolescentes (2M/9F) 10-18 anos	Entrevistas individuais e Grupos focais	Resultados: Foram identificadas necessidades relacionadas com a: Recuperação em casa e no hospital; aparência pós-cirúrgica; impacto emocional da cirurgia e <i>coping</i> ; interferência da cirurgia na realização das atividades diárias; impacto da cirurgia no percurso escolar, relacionamentos entre pares e outras interações sociais; tomada de decisão sobre cirurgia; estar no centro cirúrgico e preocupação com o futuro. Conclusões: Os adolescentes atribuíram parecer positivo à criação de um website que fosse centrado nas suas necessidades, com informação abrangente e inclusão da oportunidade de apoio entre pares. Pediram ainda que este website fosse moderado por profissionais de saúde.
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sidades dos adolescentes e as preocupações dos pais e médicos. Dos cinco estudos analisados, quatro^(21-23,25) foram desenvolvidos com adolescentes em situação perioperatória para correção de escoliose. Da análise dos estudos emergiram quatro temas, dos quais, três relacionados com as manifestações de ansiedade e um sobre as necessidades dos adolescentes. Os temas identificados foram 'manifestações psicológicas', 'manifestações sociais', 'manifestações físicas' e 'necessidade de estar informado e de ser envolvido nas decisões'.

Manifestações psicológicas

O impacto emocional da cirurgia no pré e pós-operatório e a forma como os adolescentes lidaram com os seus pensamentos, sentimentos e preocupações relacionados com a cirurgia emergiram como um tópico significativo. As manifestações psicológicas apresentadas pelos adolescentes foram referidas em quatro^(21-23,25) dos cinco estudos analisados.

A ansiedade é expressa por motivos díspares. Por um lado, os adolescentes querem 'o problema resolvido'⁽²⁵⁾, por outro a ansiedade surge pela incerteza do resultado da cirurgia⁽²¹⁻²³⁾. Uma vez presente, este problema pode prolongar-se por um longo período no pós-operatório, dependendo da experiência cirúrgica vivida pelo adolescente⁽²¹⁾, interferindo com o seu estado emocional, repetindo-se nas vindas futuras ao hospital.

No pré-operatório, o medo manifestado pelos adolescentes relaciona-se com a anestesia^(21,24) e com o risco de ocorrência de lesão neurológica grave durante a cirurgia ou com a dor no pós-operatório⁽²⁴⁾. Atendendo experiência perioperatória, houve adolescentes que referiram sentir pesadelos, dificuldade em dormir e/ou acordar ao meio da noite com medo intenso⁽²¹⁾.

Manifestações Sociais

O impacto da cirurgia na consecução das atividades escolares e nas relações entre os pares foi

também mencionado pelos adolescentes^(21,25). Alguns referiram que perder o contacto com os amigos foi uma das coisas mais difícil de lidar, dado o tempo de recuperação e as alterações ocorridas durante o processo⁽²¹⁾. Houve adolescentes que mencionaram terem ficado angustiados quando os amigos não estavam satisfeitos com a sua decisão de realizar a cirurgia ou não os visitavam durante o processo de recuperação⁽²⁵⁾.

Os adolescentes referiram que o apoio disponibilizado pela família foi útil no processo de recuperação. No entanto, essa dependência súbita foi considerada um desafio para os adolescentes^(21,25). Por outro lado, alguns adolescentes reportaram a necessidade de ter os pais, geralmente a mãe, consigo no hospital⁽²²⁾, como forma de apoio, ajuda e 'proteção'.

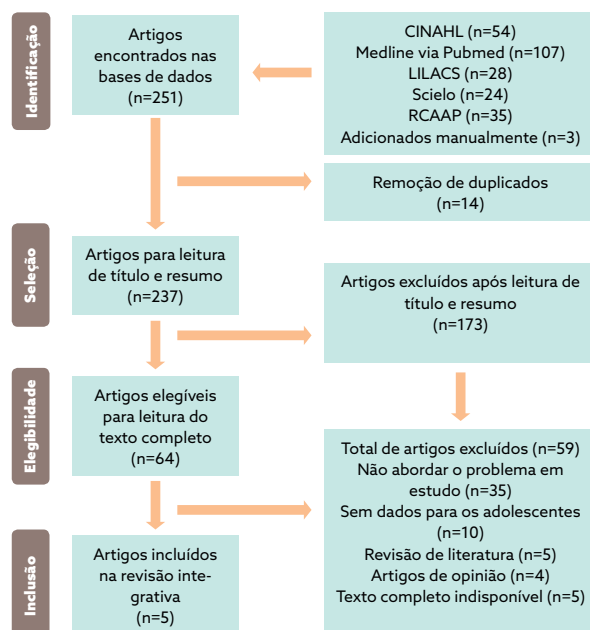
Manifestações físicas

Das manifestações de carácter físico referidas pelos adolescentes, a dificuldade em lidar com a dor no



FIGURA 1

FLUXOGRAMA PRISMA: ILUSTRAÇÃO DO PROCESSO DE SELEÇÃO DOS ARTIGOS



pós-operatório foi referenciada em todos os estudos⁽²¹⁻²⁵⁾. Houve adolescentes que manifestaram não se sentirem preparados para lidar nem com a dor nem com o desconforto^(22,23,25). Alguns adolescentes também referiram estar preocupados com a dependência de analgésicos no pós-operatório⁽²⁵⁾. As alterações gastrointestinais, relacionadas com a presença de náuseas também foram mencionadas⁽²¹⁾. A preocupação relacionada com alteração da imagem corporal, devido à presença das cicatrizes, foi referida pelos participantes de três dos estudos^(21,22,25). Houve ainda adolescentes que referiram não estar preparados para a alteração física global resultante da cirurgia^(21,25). O facto de não estarem preparados

para a forma como iria decorrer o processo de recuperação, nomeadamente a imobilização⁽²¹⁾ e a perda de autonomia, também foi manifestado pelos adolescentes⁽²⁵⁾.

Necessidade de estar informado e de ser envolvido nas decisões

Os adolescentes referiram vontade de manterem a sua autonomia, serem escutados e terem oportunidade de participar nas decisões sobre os cuidados pré e pós-operatórios^(21,22,25). Expressaram ainda a necessidade de receber informação prévia relacionada com o controlo da dor, recuperação pós-operatória, no hospital e em casa, com a sua aparência e impacto que este evento crítico iria ter nas atividades escolares⁽²⁵⁾. Para além da informação habitual disponibilizada, a

maioria dos adolescentes, de dois dos estudos, solicitou informação adicional^(24,25).

DISCUSSÃO

As manifestações psicológicas, que incluem o controlo da ansiedade e do medo referidos pelos adolescentes em situação perioperatória, estiveram presentes nos relatos dos adolescentes^(21-23,25). Algumas razões para estas manifestações podem ser justificadas com as incertezas dos acontecimentos, dos riscos inerentes à realização de uma cirurgia e das suas consequências a longo prazo⁽²⁸⁾. Os traços de personalidade dos adolescentes também podem influenciar estes resultados, uma vez que adolescentes menos sociáveis apresentam níveis de ansiedade mais elevados durante o período perioperatório⁽²⁹⁾. A ansiedade pré-operatória também tem sido relacionada com a presença de dor pós-operatória^(11,29), e adolescentes com níveis mais elevados de ansiedade, antes da cirurgia, apresentam níveis de dor mais elevados no pós-operatório⁽¹¹⁾. Verificámos que nos estudos incluídos, os adolescentes mostraram-se preocupados com as alterações da imagem corporal decorrentes da cirurgia^(21-23,25). Uma das razões para a ocorrência desta manifestação pode estar relacionada com a expectativa pré-operatória dos adolescentes, daí a importância da avaliação das expectativas dos adolescentes, relativamente à sua aparência e imagem corporal, antes da cirurgia⁽¹²⁾. As manifestações físicas, que interferem sobre como podem lidar com a dor, são referidas em todos os estudos analisados nesta revisão. Estas são as mais comumente relacionadas com a presença da ansiedade nos indivíduos em situação perioperatória^(10,11,30). Pela falta de informação, de conhecimento e de preparação, prévios à cirurgia, os adolescentes podem exacerbar

a descrição da dor^(30,31). Por outro lado, capacitar os adolescentes para a utilização de estratégias de *coping* da dor pode ajudá-los a reduzir a dor antes da cirurgia e a otimizar os resultados relacionados com a dor no pós-operatório^(4,10,32). A necessidade de obter informação sobre a gestão da dor, nomeadamente, acerca das estratégias farmacológicas e não farmacológicas, são tópicos mencionados pelos adolescentes, quer no pré quer no pós-operatório, quando falam da sua experiência perioperatória⁽⁴⁾. Também pode acontecer os adolescentes não questionarem os profissionais no pré-operatório, por não saberem o que perguntar, ou nem estarem cientes do que necessitam questionar⁽³¹⁾. Uma sugestão apresentada, por alguns autores, para ajudar a reduzir a dor pós-operatória, é treinar as habilidades dos adolescentes para lidar com a dor e manipular o equipamento de auto gestão de analgesia, por exemplo, analgesia controlada pelo doente^(11,32). A manifestação de náuseas foi referida⁽³¹⁾ enquanto resposta à presença de ansiedade⁽¹⁹⁾. A necessidade de obter informação sobre as rotinas escolares, assim como acerca do contacto com os amigos foi outro fator relevante nos estudos analisados^(21,25). Dadas as características de desenvolvimento dos adolescentes, a família, os colegas, os namorados e namoradas são considerados apoiantes importantes nos esforços para alcançar a normalidade durante o período de recuperação perioperatória⁽¹⁷⁾. A necessidade de obtenção de informação sobre o processo perioperatório foi referida nos estudos analisados^(24,25). A disponibilização da informação deve ser considerada uma componente importante da preparação psicológica aquando uma cirurgia⁽¹⁸⁾, assim como uma fonte de apoio importante para o controlo da ansiedade do adolescente⁽¹⁴⁾. Entrevistar o adolescente no pré-operatório aumenta

a possibilidade de se obter uma compreensão mais aprofundada e individualizada permitindo personalizar a informação e a preparação pré-operatória^(18,33). A educação perioperatória, baseada nas necessidades, diminui a ansiedade no pré-operatório e aumenta a satisfação, comparativamente à educação padronizada⁽³⁴⁾. Neste mesmo estudo, as investigadoras verificaram que a educação baseada nas necessidades demonstradas pelo indivíduo requer menos tempo, pois aproximadamente metade dos participantes preferiu uma abordagem mais concisa da informação, em comparação com a modalidade padronizada. Os adolescentes demonstram a necessidade de ter os pais junto a si no perioperatório⁽²²⁾. No entanto, também manifestam necessidade de envolvimento nas decisões sobre os seus cuidados perioperatórios^(21,22,25). O desenvolvimento do senso de identidade do adolescente, o aumento da autoconsciência e o desejo de autonomia⁽⁴⁾ denotam que o enfermeiro deve incluir o adolescente nas discussões relacionadas com a experiência cirúrgica⁽³⁵⁾. O envolvimento dos adolescentes, assim como a otimização da informação de suporte disponibilizada pode constituir um ativo inestimável, melhorando o conforto pós-operatório e aliviando potenciais efeitos colaterais relacionados com os cuidados perioperatórios⁽¹⁴⁾. Como limitações, consideramos que a inclusão de estudos tanto qualitativos como quantitativos complexificou o processo de análise e extração de resultados. No entanto, também pode ser tido como um ponto favorável, pois uma maior variedade no tipo de metodologias tem o potencial de aumentar a profundidade e abrangência das conclusões da revisão⁽¹⁹⁾. Apesar de optarmos por um intervalo de 10 anos (2009-2019) para realização da pesquisa, apenas cinco estudos foram incluídos nesta revisão, sen-

do dois deles realizados há mais de cinco anos^(21,25). O número limitado de artigos incluídos revela a reduzida investigação existente e publicada neste âmbito. Os estudos qualitativos^(21,22,25), embora com reduzido número de participantes cada, são os mais referenciados ao longo da nossa análise, dada a riqueza do conteúdo. De referir que quatro^(21-23,25) dos cinco artigos analisados se reportam a estudos realizados com adolescentes submetidos a cirurgia de correção de escoliose. Sendo este um procedimento muito específico, as necessidades manifestadas pelos adolescentes submetidos a outro tipo de cirurgia, podem ou não coincidir com as aqui analisadas. Outra limitação a assinalar é a dos participantes dos estudos serem maioritariamente do sexo feminino, ou não serem distinguidos, como acontece num dos estudos⁽²⁴⁾. Este facto não nos permite perceber se há diferenças entre as manifestações de ansiedade e as necessidades referidas, de acordo com o sexo dos adolescentes. Um dos motivos para que o maior número de participantes nos estudos seja do sexo feminino pode ter a ver com o facto da prevalência da escoliose ser superior nas raparigas, em comparação com os rapazes⁽⁵⁾.

CONCLUSÕES

No presente estudo, identificamos as manifestações psicológicas, sociais e físicas relacionadas com a ansiedade dos adolescentes no perioperatório. As mais evidentes são o medo dos riscos da realização da cirurgia, como lidar com a dor, a alteração da imagem corporal, a ansiedade em si, a separação dos amigos e a alteração das rotinas. Identificamos, também, as necessidades referidas pelos adolescentes. Estas prendem-se com a obtenção de informação acerca da cirurgia e as necessidades relacionadas com a vontade de ser envolvido nas decisões sobre os seus cuidados. Não

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obstante, e apesar de privilegiarem a sua independência, os adolescentes manifestam necessidade de ter os pais junto a si durante o perioperatório. Porém, a avaliação da ansiedade e suas manifestações nos adolescentes, assim como, a descrição das necessidades que estes apresentam no perioperatório, continuam a representar tópicos

de interesse que ainda carecem de investimento, dada a escassez de estudos encontrados sobre este tema.

É, também, importante investigar se há diferenças nas necessidades manifestadas pelos adolescentes do sexo feminino e masculino e integrar nos estudos adolescentes submetidos a procedimentos ci-

rúrgicos diversos da correção de escoliose.

Os programas perioperatórios para preparação dos adolescentes para serem efetivos devem ser desenhados tendo em consideração as manifestações de ansiedade e as necessidades de controlo de ansiedade dos adolescentes no perioperatório. ▀



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Artigo 2

Adolescents' perioperative experiences about inpatient and outpatient elective surgery – a qualitative study

Pestana-Santos M, Pestana-Santos A, Santos MR, Lomba L.
Scand J Caring Sci. 2021;00:1–11.

Disciplina: Public Health, Environmental and Occupational
Health (Q2).

JCR® (2019): 2,34.

SJR® (2020): 0,68.

Received: 12 June 2021 | Accepted: 31 October 2021

DOI: 10.1111/scs.13046

EMPIRICAL STUDIES



Adolescents' perioperative experiences in relation to inpatient and outpatient elective surgery – a qualitative study

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Funding information

There is no funding for this study

Abstract

Background: Perioperative experience can be very distressing in adolescence if not managed properly by healthcare professionals. In the clinical context, the emotional expression of the adolescent is less spontaneous, which makes the assessment of anxiety, pain or even the desire to be involved in the perioperative process, difficult. Listening to their perioperative experiences will permit an understanding of their difficulties and expectations, regardless of the surgical intervention undergone.

Aim: To explore the adolescents' perioperative experiences in relation to inpatient and outpatient elective surgery.

Methods: Qualitative exploratory study, with thematic analysis approach. A purposive sample of 40 adolescents aged 14–18 years and in the perioperative period, from two paediatric surgery settings in a university hospital, was questioned from January to July 2020. Data were collected using a semi-structured interview and analysed inductively with qualitative thematic analysis.

Results: The data yielded one major theme, five themes, and 14 sub-themes. The major theme, Adolescent in perioperative period, included the five themes: (1) emotional and psychological aspects; (2) physical aspects; (3) social aspects; (4) organizational aspects; (5) previous surgical experience. Adolescents expressed fear of the unknown, anxiety, difficulty in pain control, and feelings of autonomy loss. Issues related to withdrawal from school and friends is also a focus of adolescent concern during the perioperative period. Despite showing satisfaction with the way they were cared for, they complained about the lack of pre- and post-operative preparation.

Conclusion: There are aspects that should be considered when caring for adolescents in perioperative period. As far as possible, programmes to prevent adolescents' anxiety in perioperative period should be designed in a holistic perspective, with aim at the psychological, physical, sociocultural, and organisational aspects.

KEYWORDS

adolescents, anxiety, experience, perioperative period, qualitative research

INTRODUCTION

Adolescence is a dynamic period of transition from childhood to adulthood, with profound changes occurring simultaneously at several levels (i.e., biological, cognitive, emotional, psychological and socioeconomical), which affect the way adolescents feel, think, make decisions, and interact with the world [1, 2]. This is a complex period during which adolescents desire and procure autonomy and independence from their parents [3, 4]. However, when needing medical care, the adolescent must face dependence on their families and health staff, not only in medical interventions, but also in daily life activities, such as hygiene care and mobilisation [3]. Despite the emphasis on their independence, some adolescents express a willingness to have their parents with them during the perioperative period [5, 6].

During the perioperative period, the paediatric surgical nurse provides care for patients requiring surgical interventions in a variety of settings. They use evidence-based practice guidelines to focus on the protection, promotion, and optimization of health and capacities in the paediatric population presenting with an array of perioperative conditions [7].

The perioperative period encompasses three distinct phases: preoperative, intraoperative, and postoperative [8–10]. The preoperative period begins when the patient is informed about the need for surgery and agrees to undergo the procedure. This period includes preparation for surgery both before and after hospital admission, and ends when the patient is transferred to the operating room [11]. The intraoperative period begins immediately after the previous one and ends with the transfer of the patient, at the end of the surgery, to the post-anaesthetic care unit [11]. The closing period is post-operative, where the patient remains under vigilance with evaluation of vital functions, state of consciousness, pain and possible complications resulting from the anaesthetic and surgical procedures [8].

The surgical procedure could be performed as outpatient or inpatient approach. The difference between both is how long a patient must remain in the hospital where the procedure was performed. Inpatient surgery requires overnight hospitalization, for one or more days, under nursing or medical supervision. Adolescents who undergo the procedure in outpatient care do not spend the night in the hospital and are discharged after recovering from anaesthesia. However, “the word ‘outpatient’ does not mean minor procedure but rather a complex process that requires detailed organization and optimal clinical management of the whole perioperative period.” [12, p. 57].

The surgical procedure influences, at least temporarily, adolescents' psychological status, given they are not

frequently accustomed to having or needing health care services [5]. During the preoperative period, over 80% of adolescents undergoing outpatient surgery reported considerable anxiety symptoms before the procedure [13]. Even in stressful experiences, and possibly due to social expectations, adolescents are less likely to spontaneously report and to express anxiety by observable behaviour [14, 15]. In a previous study conducted post-operatively with adolescents submitted to a major surgery, it was found that the anxiety symptoms may be present at home, and include nightmares, eating disorders, separation anxiety and feelings of helplessness [16].

In addition to anxiety arising from the perioperative experience, there is the challenge of pain management [17]. In a qualitative study, where adolescents were interviewed, the main findings were that they felt unprepared for both the surgical procedure and to control the intensity of postoperative pain at home [18, 19]. The severity of reported pain suggested that most of the adolescents were not receiving adequate pain treatment at home [18–20,]. Also, adolescents and their parents manifested limited knowledge and experience in pain management, and once at home, after surgery, they largely focused on pharmacological intervention (the primary method explained to them before discharge) [18, 19]. The absence of previous preparation or the misunderstanding of the given information also contributed for the feelings of being unprepared at the discharge [18, 19]. The management of adolescents' perioperative care usually follows a biomedical model and focuses on short-term outcomes [20]. However, and given the complexity of variables related to the performance of a surgical procedure in adolescence, holistic and biopsychosocial approaches would be more appropriate and profitable [20]. The intrapersonal (i.e. anxiety), interpersonal (i.e. relationship with health care team and with family) and extrapersonal factors (i.e. academic and sport activities) could also influence the way the adolescent lives their experience during perioperative period [21]. Additionally, previous studies show that adolescents wish to be informed in order to understand their health situation and be involved, consulted, and heard in relation to their health care needs [6, 19, 22]. Identification of which information adolescents desire is vital for the design of a perioperative preparation programme [22, 23]. It has been shown that adolescents identify their needs and contribute to the development of preoperative preparation programmes. Despite this, their involvement in the developmental processes is still rare [22]. The desire is that the adolescents' individuality and decisions should be respected [3, 6].

Thus, and prior to designing a program to manage adolescent anxiety in the perioperative period, the authors

listened to the adolescents about their perioperative experience.

The aim of this study is to explore the adolescents' perioperative experiences in relation to inpatient and outpatient elective surgery.

METHODS

Design

This study used an exploratory qualitative [24] with thematic analysis approach [25, 26] and the manuscript followed the consolidated criteria for reporting qualitative research (COREQ) guideline [27].

Participant selection

A purposive sample of 40 adolescents from two paediatric surgery settings from a paediatric department of a university hospital were recruited between January to July 2020, with an interruption between March and May caused by the cancellation of the scheduled surgeries due to the COVID-19 pandemic.

Adolescents who were scheduled to undergo outpatient or inpatient surgical procedures under anaesthesia were eligible to be enrolled in this qualitative study. The inclusion criteria consisted of the following: (1) adolescents aged 14–18 years old, (2) have a scheduled non-oncologic surgery (3) accompaniment by an adult, ideally a parent or legal guardian to obtain the informed consent, and (4) signed informed consent to participate in the study. Out of 119 adolescents in total, 98 met the inclusion criteria, and 40 agreed and participated voluntarily in two different interview occasions. The first personal contact between the first author and each adolescent and accompanying parent was established at the time of their admission for the scheduled surgery. At the first contact, the researcher introduced herself to the adolescent and parents, presented the objectives of the study and obtained informed consent. The adolescent was informed that they could withdraw from participation at any time if they did not feel comfortable. After signing the informed consent, the adolescent's participation was only considered valid for those who agreed to be interviewed at both moments. One week elapsed between the first and the second interview. This period was used for the adolescents to reflect, whether or not they wanted to continue participating in the study.

There were no dropouts from the first to the second interview.

Setting

The paediatric department of the university hospital where the study was carried out has an intensive care unit (ICU), a paediatric orthopaedic ward and a surgical paediatric ward with a total of 40 beds. There are two distinct theatre room services: inpatient and outpatient. The inpatient service has five theatre rooms and three anaesthetic induction rooms. The post-anaesthetic care unit is placed near the theatre rooms and has capacity for eight children/adolescents. The outpatient service has two operating theatres, two induction rooms and one post-anaesthetic recovery unit with 12 beds exclusively for paediatric patients.

Data collection

The interviews were conducted using a semi-structured interview guide and data was recorded using the mobile phone, and note taking. The first author, who has experience in qualitative research, was the interviewer. She is a paediatric nurse specialist with fifteen years of perioperative experience, 10 of them working with adolescents. She has good communication skills and knowledge on the topic under discussion. The participants did not have any relationship with the interviewer prior to the study, and only met her on the day of the admission for surgical procedure.

The first moment of data collection was done after recruitment, when the adolescent was waiting to be admitted for the surgical procedure. The interview took place in a comfortable and natural lit room, near the waiting room. Beyond researcher, adolescent and a parent or legal guardian, there was no one else present at the time of the first interview. At the request of the adolescent, the parent or legal guardian would be present at the time of the interview albeit without active participation. The second moment occurred seven days after discharge, when the adolescent was at home, and was conducted through a telephone call between the adolescent and the researcher.

The semi-structured interview guide used was performed based on the results of a previous literature review [6]. Additionally, these questions were discussed with two paediatric nurse experts about their suitability for the present study. The first moment of the semi-structured interview was guided with the following questions: Which preparation did you have for the perioperative care? Which concerns do you have about the perioperative period? What do you think could have helped you for the perioperative period?

The first moment of the data collection occurred after participant recruitment, when the first author observed and listened to the adolescent, recorded and took field notes and quotations about what they said about their preoperative experience prior to that point in time. These notes were important to adapt the interview questions to the adolescent for the second moment of data collection. The second moment of semi-structured interview was guided with the following questions: How did you feel this week after your surgery? What was the most challenging thing for you? What do you think could have helped you in the perioperative period?

When appropriate, these were adapted or added according to each adolescent and their answers.

The duration of the first contact ranged from 23 to 30 min and the second contact 8–20 min. Whenever the interviewer noticed that the adolescent needed additional intervention or further evaluation by another health care professional this was directed for them.

After the 40 participants were interviewed, the information was repeated and pooled in the identified theme and the subthemes. The authors not only wanted to obtain saturation, but also listen to the experiences shared by the adolescents of the different surgical areas and those submitted to different surgical procedures (inpatient and outpatient).

Data analysis

The first author transcribed verbatim the interviews and the second author confirmed for correctness. The third and fourth authors checked the transcripts for accuracy. There was researchers' triangulation during the entire research process. After, the data were first analysed by the first and second authors and afterwards checked by the third and fourth study authors. Specific software to support data analysis was not utilized in this study. The interviews were coded using inductive methodology of semantic thematic analysis, and no pre-identified theoretical framework or any a priori code support was used to generate initial codes. Rather, the authors sought to summarize explicit themes from the interviews, consistent with the aim. The coding comprised six phases – familiarisation, coding, "searching" for themes, reviewing themes, defining and naming themes, and writing the report [26]. First and second authors independently read the transcripts multiple times before and after identifying the themes and subthemes (familiarisation), coding them for their basic units of meaningful and applied initial codes, based on semantic similarity. The initial coding was reviewed and refined by the third author (coding). All the coders conferred several times to consider the generated codes and determined discrepancies through agreement building. Data was read

several times, and codes proved to be beneficial (reviewing themes). The authors, in this manner, were able to achieve a holistic perspective and to make connections between the adolescents' thoughts, ideas and the data collected (defining and naming themes). All the manuscript authors examined the final analysis, including the choice of quotes, and recommended additional refinements to guide the findings' clarification. Finally, the authors were able to write the conclusions (writing report) [25, 26].

The quotes presented were therefore identified according to the participant number, gender (M – male or F – female), age and the surgical procedure. For example, "F14, 16Y, Knee arthroscopy" describing the quotation from a 16-year-old girl who was submitted to a knee arthroscopy.

The authors have Portuguese and English language skills, and the translation process was done by them. The versions of the results were matched and discrepancies in meaning were refined. A final language check was made by a native English speaker.

Ethical considerations

The Hospital Ethics Committee approved the research project with the reference N. 088/CES; N. CHUC-001–19.

All adolescents and their parents received written and verbal information about the research. All the parents/legal guardians signed written and informed consent. Respecting the laws of the country for the adolescents' participation in research, the adolescents aged 14–15 years signed informed assent and the adolescents aged 16–18 years signed informed consent before took part in the study. The names of the adolescents were not recorded. All the information was anonymised using codes. After finishing the transcription and data analysis, the recorded material and the papers were destroyed.

Scientific criteria

The trustworthiness of the findings in a qualitative study is ensured by credibility, dependability, confirmability and transferability [28, 29].

The interview questions were based on the results of a previous literature review [6] and discussed with two perioperative paediatric nurse experts as to their suitability.

To ensure credibility, the codification process was done by first and second authors and checked by a third reviewer. Additionally, two adolescents initially read the transcripts, and in a second moment, they validated the findings independently.

To ensure de confirmability, the triangulation within researchers was used to avoid bias due to a researcher's

personal influence and to maximize the quality of the information obtained [29, 30]. Also, the team was comprised of individuals with expertise in paediatric perioperative nursing, psychiatry, paediatric nursing and management. This triangulation maximized the comprehensibility of the interviews.

Finally, to ensure de transferability of the collected data, a detailed description of the development of the study was provided to give the possibility to transfer the findings to other contexts.

RESULTS

Participants

Of the 40 adolescents who participated in the study, 24 were females and 16 were males. The mean age of the participants was 15.73 (SD 1.18) years old. The mean age of female participants 15.67 (SD 1.24) years was slightly higher than the males with 15.81 (SD 1.11) years. Adolescents were submitted to several different surgical procedures. Of them, 13 were submitted to outpatient surgery and 27 to inpatient surgeries. Of the latter, 13 comprised ear nose and throat (ENT)/plastic surgical procedure, six of knee arthroscopy, seven scoliosis interventions and one *pectus escavatum* correction. Adolescents who underwent inpatient surgery stayed at the hospital on average five days, with a minimum of two days and a maximum of 10 days. Of these, 27 were high school students and 13 preparatory students at the time of the interview. Thirty-six of the adolescents were accompanied by their mothers and four by their fathers.

Major theme, themes, and sub-themes

From the adolescent interviews, one major theme entitled “adolescent in perioperative period” was identified. It encompasses the adolescents’ experiences throughout the perioperative period. This major theme includes five themes: (1) emotional and psychological aspects; (2) physical aspects; (3) social aspects; (4) organizational aspects; and (5) previous surgical experience. The findings for each theme and sub-themes are presented in Figure 1 and detailed in the following sections.

Emotional and psychological aspects

The perioperative period can reveal a wide range of emotions and psychological changes in an adolescent

as a reaction to the unknown. They express fear associated with the risk of injury from the surgical procedure, which in some cases leads to postponing the surgery.

I was terrified of the surgical procedure (...) I still feel that fear.

(F4, 17Y, Scoliosis)

Associated with the manifestation of fear, adolescents present symptoms of anxiety. In some cases, these are demonstrated in a mild form, while in other cases it takes on characteristics of moderate to severe anxiety.

When I was informed of the date of the procedure, I started to feel bad.

(M13, 14Y, Varicocele)

A week before the procedure I went to the emergency department in a state of panic because I was undergoing a surgical procedure. This time I am more anxious than the other time. After a week, I am still very anxious, and I feel a lot of pain.

(F22, 17Y, tympanoplasty)

There were also cases of adolescents who reported waking up with nightmares and finding it difficult to go back to sleep.

Ever since I came home, I have had nightmares. After that, I wake up very scared. These last few days I have slept little.

(M35, 17Y, Scoliosis)

Physical aspects

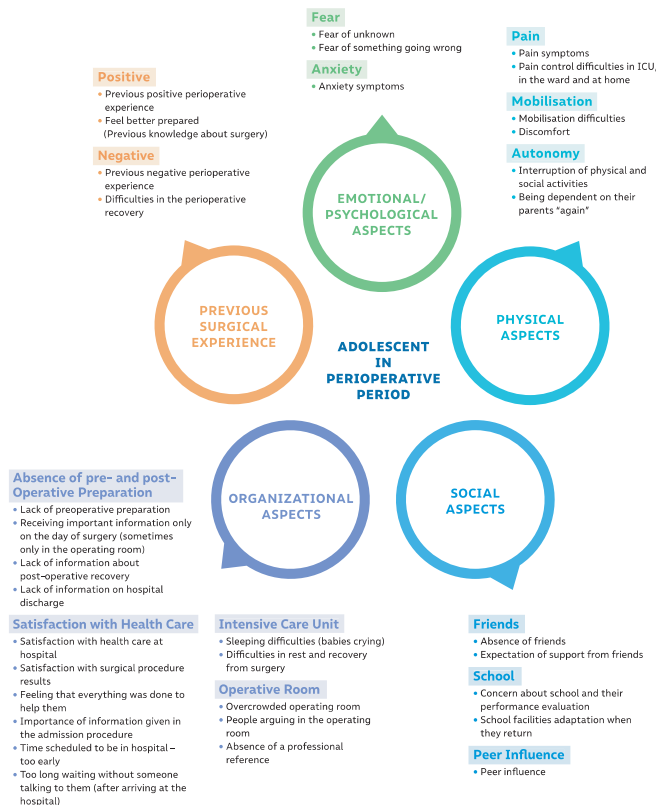
Pain and autonomy were the most evident issues related to the physical aspects of these interventions.

Adolescents who have undergone a scoliosis procedure emphasized the pain and mobilisation difficulties they felt when they were in the intensive care unit. In adolescents from outpatient surgery, once at home, pain was related to the absence of taking medication due to not knowing how to take the painkiller.

It was very difficult being in the ICU. I could not sleep, and I was in pain. There were babies crying all night.

(M28, 16Y, scoliosis)

FIGURE 1 Adolescents' experiences in the perioperative period



Since I came home, I have been in pain, but I have not taken any medication. I did not know how to do it.

(M5, 15Y, cyst excision of mouth)

At the same time, the adolescents feel that they are experiencing a regression in their autonomy, as they return to depending on his parents for basic daily activities. It makes them "feel strange" and with difficulty in explaining how they really feel.

At the hospital I felt good. Then I came home, and I felt very strange. Not able to do things and needing my parents for everything (...) I do not like depending on them again. Even when I go to the toilet, they go with me, and I have no privacy. I am very sad, very nervous

and at night I cry a lot until I fall asleep. (...) I think I can do it, but she [mother] will not let me because she is afraid something will happen to me.

(F39, 16Y, Knee Arthroscopy)

Social aspects

In adolescence, friends, school, and the influence of peers takes on an importance that is also present when the need for a surgical procedure arises. Adolescents show expectations of their friends' behaviour and enjoy receiving them both at the hospital and at home. It is also their school friends who help them with school activities. School is an important matter of concern for adolescents. On the one hand, they may have physical

difficulties to get to the classroom. On the other hand, that due to these procedures adolescents may encounter difficulties in assisting their academic duties in a period of time where these are fundamental in their access to higher education. Their performance and preparation for these exams may be hindered by the need to undergo surgery.

I am also very worried about the tests because this year they are very important for the final average for the university entrance.

(F24, 14Y, Scoliosis)

Adolescents highly value the opinion of their peers who have undergone the same surgical procedure they will undergo.

I met a girl who had surgery for the same problem, and she told me what the recovery would be like. That was important. I was a bit more reassured before undergoing surgery.

(F16, 14Y, Scoliosis)

Organizational aspects

The lack of information and absence of perioperative preparation were often mentioned by adolescents as significant. In this sense, they expressed some dissatisfaction with being confronted with this information on the day of the surgery and in some cases, it happens when they were confronted with the information when they were already in the operating room.

I thought I would be called for a consultation where I would be given information on what to do and bring in for the procedure.

(F6, 17Y, herniorrhaphy)

On the day of the surgical procedure we did not have time to prepare ourselves mentally. It is important to know previously what is going to happen, so we do not get nervous and scared. (...) It is very important to have a consultation before the procedure where they explain all of this to us.

(M10; 17Y; Knee Arthroscopy)

One adolescent was submitted to a video assisted procedure and a week later he was horrified that no one had explained him the specificities of the procedure. This is another example of missing pre- and post-operative

preparation and that could increase the perioperative anxiety and subsequent surgery recovery.

I went in for surgery on one side and I got the dressing on the other side. I am very worried because I do not know how they did it and they may have made a mistake. I still have not been able to talk to someone to explain it to me and I am very worried.

(M13, 14Y, Varicocele)

Nobody gives us information. There is a lot of uneasiness. We had absolutely no explanation. There should be a call from someone who is going to be in surgery to inform us about the procedure. A web page explaining the effect of the procedure to be aware of what we are going to do.

(F32, 17Y, Excision of the supernumerary breast)

Adolescents also find the hospital admission schedule unsuitable. Some live far from the hospital, which requires them to wake up very early. Then, once at the hospital, they sometimes wait hours until someone speaks to them and admits them to the service where they will be waiting to go to the operating room.

We were asked to be at the hospital at 7:30 am. We woke up very early because we came from far away. When we got here, we had 1 hour and 30 minutes waiting until the first person spoke to us. There was very little information. We arrived here and we had no idea what we were going to do or where we were.

(M37, 15Y, Tonsillectomy)

The most frequent complaint of the adolescents in the ICU was they could not sleep because they heard babies crying.

I could not sleep. When I was closing my eyes, babies started to cry. I was sleepy, but I could not fall asleep. I just wanted to get out of there.

(F4, 17, Scoliosis)

Into the operating room, the adolescents mentioned that there were many people. Some of these people were arguing, which they did not like. They also felt scared because they did not know anyone there.

I did not like seeing the machines in the operating room. There were a lot of people in the room, and I did not like to be listening to them arguing.

(M15, 14Y, scalp sinus exeresis)

Although the adolescents reported some dissatisfaction with the lack of pre- and post-operative preparation, they were globally satisfied with the care they received at the hospital and with the way they were cared for.

At the hospital, the nurses were great, they could not do any more than they did, and they helped me a lot.

(M35, 17Y, scoliosis)

Previous surgical experience

The fact that adolescents have had the experience of a previous surgery also influences not only how they present themselves for the new surgical procedure, but also the postoperative recovery process. In short, previous positive experiences influence recovery favourably, while negative experiences hinder the recovery process.

I felt calmer as I had previous experience.

(F1, 14Y, tympanoplasty)

It is different from the other time. This time I feel much more pain than the other time and I have been taking much more medication.

(F26, 17Y, tympanoplasty)

DISCUSSION

This qualitative study describes the adolescents' perioperative experiences. One major theme, five themes and 14 sub-themes were identified. Although in this study we interviewed adolescents from both outpatient and inpatient surgery, the results are consistent with other studies which evaluated adolescents' perioperative experiences in inpatient or outpatient approach separately [3, 16].

Emotional and psychological aspects

In this study emotional and psychological aspects mentioned are related to fear and anxiety. As in previous studies, the adolescents are afraid that something will

go wrong during, or as result of, the surgical procedure [3, 16]. A teenager postponed surgery for fear of not walking again. They reported feeling fear prior to surgery and remains beyond discharge. A linear association to fear is anxiety issues. There are a wide range of anxiety symptoms, such as starting to "feel bad" and needing to go to the emergency room before the day of the surgical procedure, sleeping troubles, nightmares, and panic attacks. Although the manifestations were similar the ones found in other studies, the adolescents who participated in our study did not have any nursing preparation prior to surgery [16]. The adolescents with higher baseline levels of anxiety and depression have an increased tendency to show somatisation behaviour such as the expression of emotional difficulties as physical problems [13].

Physical aspects

This includes pain, mobilisation, and autonomy. On one hand, adolescents submitted to major surgery reported difficulty in controlling pain due to the complexity of factors that interfere [16]. Scoliosis surgery is an invasive surgical procedure, which usually results in high levels of postoperative pain [31]. This surgery is a stressful and painful experience, and some adolescents might experience pain during months, or years [32]. On the other hand, adolescents who underwent outpatient procedures report feeling pain because the analgesia they use is insufficient and they are unaware of other options or strategies to control it. Our findings were also supported by those found in other studies suggesting that adolescents were unprepared for discharge and demonstrate a lack of comprehension of the use of psychological and physical pain management techniques [33].

Dependence on parents affects some adolescents. Loss of autonomy is referred by adolescents as something negative. Although they feel able to do some activities, their parents prevent them from doing so during recovery. In other studies, adolescents spoke about the difficulty of performing daily living activities, such as eating, drinking, and changing clothing [19]. During the perioperative period nurses should include the adolescent in all discussions of the procedure and rehabilitation process [34]. Adolescents reported the desire to maintain their autonomy, to be listened to, and to have the opportunity to participate in decisions about pre- and post-operative care [5, 6, 16, 35]. In this sense, adolescents could benefit with educational interventions, and from nurses formally involving them in the preparation for discharge and recovery process [34].

Social aspects

Some adolescents worry about the impact that the surgical procedure will have on their school results. This is in the line with another study where the negative effect on school performance was reported by adolescents because they were unable to attend school due to the pain and recovery time [19]. Associated with the absence from school activities is also the loss of contact with friends. Adolescents also have difficulty in resuming social activities with friends and the associated emotional stress, referring this was one of the worst parts of the recovery process [19, 22]. However, they do use social networks to maintain contact with friends and colleagues. Friends also play an important role because they are the ones who help with school activities [16, 21, 22, 35].

One adolescent, after talking with other adolescents who had undergone surgery for the same problem, identified this as being positive. Indeed, adolescents who talk with other peers undergoing the same surgical problem, state that it helps them to cope. This may allow adolescents to get peer support and help them manage their recovery challenges [34].

Organizational aspects

The absence of pre- and post-operative preparation was identified as a negative issue. A general lack of information and understanding about procedures were mentioned in other studies as the main reason for apprehension in the adolescents [22]. They were upset with the confrontation with important aspects related to the surgical procedure on the same day of the surgery. Additionally, one participant said that when professionals spoke to them only on the day of surgery, they end up not effectively listening and processing the information because they are too anxious to pay attention. In fact, the perioperative experience could be distressing and overwhelming even for those adolescents who have been provided with information about the surgical procedure beforehand [36]. Usually, the adolescent anticipates the surgical experience according to their maturity in combination with prior information and their involvement in the treatment process [6, 37].

In Dagg [19] study, the adolescents stated that the discharge teaching largely focused on pharmacologic pain management and were focused on their parents instead of including both their parents and them. In this manner, the information should be tailored to the needs of the adolescent and fit their developmental characteristics, to preserve them in a low state of anxiety during the perioperative period [21, 38].

Adolescents also mentioned some difficulties they felt during their stay in the operating room and later in the ICU. In the operating room they become scared on seeing so many people and not recognising any of them. This is similar to another study, where adolescents questioned what everyone was doing in the operating room and experienced a crowded room as stressful [22]. In the ICU, the difficulties were related to the fact that they could not sleep because they heard babies crying. Additionally, adolescents reported difficulty in dealing with pain because they had no previous preparation for that. The difficulties in dealing with an unfamiliar environment, as well as an overcrowded operating room and later with the noise in the ICU were also reported in other studies [3, 22].

In this study, globally the adolescents reported being satisfied with the care they received at the hospital, as well as with the outcome of the surgical procedure. Some adolescents emphasised the importance of the information given to them upon their admission to the hospital. They also mentioned that they felt the “professionals did everything they could to help them”. Our results are in the line with those found in another study, where adolescents described nurses as coaches, highlighting the kindness and comfort provided by them [16].

Previous surgical experience

While some adolescents report having previous positive surgical procedure experience, others report having had a previous negative experience. The former stated that the second time they felt better prepared, and the process was easier. The latter mention that this negative experience made the whole perioperative process, including recovery, more difficult. This is in the line with a previous study where the previous experiences modulate their fears [22]. Nevertheless, in another study no difference was found between the adolescents who had previous surgical experience versus those who had none [13]. Furthermore, the risk factors identified were related to personal traits which typically do not change in response to single events [13].

Limitations of the study

Although the authors included adolescents from outpatient surgery and adolescents from major surgery, no distinction or comparison is made throughout the paper between the testimonies of both.

The presence of parents at the first time of the interview may have influenced the sharing of the experience by the adolescents.

Telephone interviews were chosen to be useful given the impositions of the COVID-19 pandemic. However,

telephone interviews do not allow a significant exploration of non-verbal communication when listening to the adolescents' perioperative experiences.

CONCLUSION

The findings of this study revealed the experience of the adolescents in perioperative period in a multifactorial way, regardless of the surgical procedure approach: inpatient or outpatient. Part of the reported experiences are related to the lack of preoperative preparation. If, on the one hand, they are satisfied with the way they were cared for at the hospital and with the outcome of the surgical procedure, on the other hand, they complain about the lack of preparation and, consequently, of organisation.

Nurses play a fundamental role in preparing adolescents for perioperative care. After these adolescent testimonials, they could benefit from nurses formally involving them in the perioperative preparation process. Nurses can use adolescent-targeted interventions included in a perioperative program focused on perioperative anxiety prevention and the associated negative effects. A holistic assessment, which comprises the need for psychological/emotional, physical, sociocultural, and environmental well-being could be the preferable choice for perioperative care of adolescents.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge Anabela Marques for the image edition. This study will contribute toward a PhD in Nursing Sciences for the first author, MPS.

ETHICAL APPROVAL

The research has received Hospital Ethics Committee approval with the reference N. 088/CES; N. CHUC-001-19.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Study design: all authors. Analysis, collection of data, and drafting of manuscript: MPS and APS. Interpretation of data: MPS, APS and MRS. Revision and approval of the final version of the manuscript to be published: all authors. Adolescents' perioperative experiences in relation to inpatient and outpatient elective surgery – a qualitative study.

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How to cite this article: Pestana-Santos M, Pestana-Santos A, Santos MR, Lomba L. Adolescents' perioperative experiences in relation to inpatient and outpatient elective surgery – a qualitative study. *Scand J Caring Sci*. 2021;00:1–11. <https://doi.org/10.1111/scs.13046>

Artigo 3

The non-pharmacological interventions used in perioperative period to prevent anxiety in adolescents: a scoping review protocol

Pestana-Santos M, Santos MR, Cardoso D, Lomba L.
JBI Database System Rev Implement Rep. 2019;17(9):1883-93.

Disciplina: Nursing (Q2).
SJ_R[®] (2020): 0,41.

Divulgação Científica

Pestana-Santos M, Santos MR, Lomba L. A scoping review protocol to map the non-pharmacological interventions used in perioperative period to prevent anxiety in adolescents. Apresentado no 9th EORNA Congress – On the move. 2019. The Hague, Netherlands. Poster.

SYSTEMATIC REVIEW PROTOCOL

Non-pharmacological interventions used during the perioperative period to prevent anxiety in adolescents: a scoping review protocol

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ABSTRACT

Objective: The objective of this review is to map the range of non-pharmacological interventions used during the perioperative period to prevent anxiety in adolescents.

Introduction: Evidence shows that 80% of adolescents report having experienced significant anxiety in the perioperative period. Non-pharmacological interventions implemented in the perioperative period are recommended as a resource to help to control anticipatory, separation and perioperative anxiety and fear related to surgical procedures in adolescents.

Inclusion criteria: This review will consider studies that focus on adolescents aged 10 to 19 who have undergone a surgical procedure, regardless of the type of surgery, and participated in non-pharmacological interventions aimed to prevent anxiety in the perioperative period. The intervention may be provided by any healthcare professional. Studies related to non-pharmacological interventions associated with hospitalization in a non-surgical context will be excluded.

Methods: The methodology will follow the JBI recommendations for scoping reviews. Any published and unpublished sources of information will be considered. Studies published in English, Spanish and Portuguese will be included, with no geographical or cultural limitations. Duplicates will be removed and two independent reviewers will screen the abstracts and assess the full text of selected studies, based on the inclusion criteria. The results of study selection will be presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram for scoping reviews. Data synthesis will be presented in a narrative summary to provide a description of the existing evidence.

Keywords Adolescent; anxiety; complementary therapy; perioperative care

JBI Database System Rev Implement Rep 2019; 17(9):1883–1893.

Introduction

Although adolescence is generally the healthiest period in life,¹ 7 million adolescents in the United States of America (USA)^{2,3} and 65,000 adolescents in Canada⁴ undergo a surgical procedure every year. In Portugal, approximately 17,000 surgical procedures are performed in adolescents every year.⁵ In the USA, the most common surgeries or

conditions requiring surgery in adolescents are sinus pilonidal disease,⁶ bariatric surgery,⁷ plastic surgery,² scoliosis,⁸ *pectus excavatum*,⁹ and ear nose and throat surgery. In the current literature, the reported incidence of sinus pilonidal disease in teenagers is between 1.2 and 2 per 10,000 individuals.⁶ The prevalence of scoliosis in adolescents is between 0.5% and 5.2%, with a female-to-male ratio of 3:1.⁸ The incidence of *pectus excavatum* is between 1 and 8 per 1000 individuals, and males are more often affected than females, with a gender distribution of 2:1 to 9:1.⁹ Nevertheless, there are no country-specific data about the prevalence or incidence of these problems. Although the surgical procedures

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The authors declare no conflict of interest.

DOI: 10.111124/JBISRIIR-2017-003925

SYSTEMATIC REVIEW PROTOCOL

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differ, there are similarities in adolescents' experiences owing to their developmental characteristics.¹⁰

The World Health Organization defines adolescence as the period between 10 and 19 years of age.^{1,11} It is recognized as a transitional stage of physiological and psychological development from puberty to the adulthood.¹² According to developmental characteristics, adolescence can be divided into three stages, namely: early adolescence (10–14 years), medium adolescence (15–16 years) and late adolescence (17–19 years).^{13,14} The physical and emotional development of adolescents is a unique state of growth that has many implications for their healthcare. Adolescents may have a physical appearance that more closely resembles an adult while their emotional maturity is still developing.¹⁵ It is important to keep this in mind when caring for adolescents throughout the perioperative period.¹⁵ Adolescents can experience fear related to surgical procedures including fear of bodily injury, pain, loss of identity and loss of self-control. Adolescents can also be concerned about body image and may worry about the esthetic implications of surgery.¹⁶ After the hospital visit, some adolescents also report nightmares and sleeping difficulties, waking up with an intense sense of fear and anxiety for a long time after the recovery period.¹⁷ The fear of an unfamiliar environment and loss of control are feelings many adolescents experience.

Adolescents are at a unique developmental stage during which they are acquiring mental consciousness and the ability to process information. Therefore, these developmental stages need to be considered when an adolescent begins the perioperative experience.¹⁸

Adolescents with somatization tendencies and fearful temperaments are prone to high levels of perioperative anxiety.¹⁹ According to a pilot study by Fortier *et al.*,¹⁹ adolescents also have a higher tendency toward physical manifestations of anxiety.

With no need for prescriptions, non-pharmacological interventions are recommended as a resource for controlling anxiety and fear related to surgery.²⁰ Non-pharmacological interventions implemented during the perioperative period create a peaceful and pleasant state that helps to reduce anticipatory, separation¹⁰ and perioperative anxiety.²¹ This state also increases patients' coherence with pharmacological premedication.²¹

The perioperative period corresponds to three different phases of a surgical procedure, namely

preoperative, intraoperative and postoperative.²² The preoperative phase starts with scheduling the surgery and finishes when the adolescent arrives in the anesthesia induction room. It is during this phase that all the preoperative adolescent physical and psychological evaluation occurs and all preventive care measures should take place.^{23,24}

During this period, the multidisciplinary team must acquaint themselves with the adolescent, his or her concerns and previous healthcare experiences in order to provide adequate perioperative care²³ and minimize complications that may occur, including anxiety symptoms or the increase of associated clinical manifestations, such as pain or maladaptive behaviors.²⁵

The intraoperative phase involves the surgery itself. When the surgery is completed, the adolescent is awakened from the anesthesia and is transferred to the post-anesthesia care unit.

The postoperative phase begins with the admission of the adolescent into the post-anesthesia care unit and ends when the patient is discharged from the surgical procedure.²⁵

In the United Kingdom, when a surgical patient is an adolescent, he or she could be included in adult or child groups.²⁶ This depends on the service or hospital where the care is being delivered.²⁶ Even in the same country, the attendance age for pediatric medical care may differ between hospitals. According to studies performed in adolescent groups, the upper range of ages varies significantly from 16 to 21 years.^{2,19,21,27-32}

As a result, the perioperative preparation for adolescents undergoing surgical procedures can be challenging for nurses and other healthcare providers due to the heterogeneity of this group, for example, in age and physical, cognitive and psychological maturation.³³ Although significant planning is involved in surgery and may seem straightforward to the healthcare providers, it represents one of the most stressful medical procedures that an adolescent can experience.³ This stress generally manifests as anxiety, fear or anger,²¹ with undesirable consequences for health and well-being.³⁴

Anxiety is defined as an unpleasant emotion occurring when a person is in a tense and apprehensive state arising from the anticipation of both internal and external danger.³⁵ In the perioperative period, anxiety is defined as a progressive state characterized by tension, irritability and increased

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activity of the autonomic nervous system.²¹ In Fortier *et al.*'s pilot study¹⁹ developed in the USA, it was demonstrated that 80% of adolescents who underwent outpatient surgery reported significant anxiety in the perioperative period.¹⁹ However, the signs and symptoms described by some adolescents cannot be limited to the perioperative period, as they may also be present for weeks or months before the surgery,³⁶ reaching high levels at the time of anesthesia induction¹⁹ and prolonged for months after the surgery.^{17,19,37}

Another important issue is postoperative pain. Previous studies³⁸⁻⁴⁰ have demonstrated that anxiety and pain in the perioperative period are correlated. Other studies have shown that the level of adolescent anxiety varies based on factors such as age, maturity, temperament, previous surgical experiences,¹⁹ history of pain⁴¹ and parental anxiety levels.^{3,28,30}

Provided with this knowledge, healthcare professionals must be aware that adolescents require specific non-pharmacological interventions appropriate to the stage of their development (early, middle or late adolescence)⁴² in order to prevent anxiety and related consequences in the perioperative stage.

The types of non-pharmacological interventions are psychological, environmental, social and communication. Psychological interventions are defined as cognitive or behavioral interventions, such as distraction, cognitive tasks, hypnosis, Reiki, massage or virtual reality. Examples of environmental interventions are the use of an induction room, or the adolescent retaining his or her own clothing, especially underwear. Social interventions relate to parental presence or the presence of a support person and healthcare professionals in the induction room. The interventions related to communication with healthcare members include tone of voice and/or neutral or positive language.

The available information on adolescent anxiety during the perioperative period (specifically, non-pharmacological interventions, strategies, contexts and groups of adolescents) is mostly combined with data on children,⁴³ which hampers the formulation of precise questions and consequently the process of a systematic review. According to JBI, "scoping reviews undertaken with the objective of providing a 'map' of the available evidence can be undertaken as a preliminary exercise prior to the conduct of a systematic review".⁴⁴

To date, there are no reviews that identify and assess which non-pharmacological interventions are used to prevent anxiety in the adolescent population during the perioperative period. In addition, there is scant information pertaining to which particular non-pharmacological interventions or combinations of interventions are used on adolescents, in what contexts these interventions are implemented, and where perioperative care is delivered, including but not limited, to operating room and/or surgical wards. Moreover, it is necessary to know how surgery-related anxiety or fear affects different adolescent groups and which of these groups, in terms of health status or surgical procedure, most benefit from non-pharmacological interventions to prevent anxiety during the perioperative period.

Information is also missing relating to the examination of outcomes and evaluations of those interventions. We are confident that the proposed scoping review will help map available evidence on the non-pharmacological interventions used during the perioperative period to prevent anxiety among adolescents. This will inform the conduct of further research, including primary studies, and help review work that may involve the conduct of a systematic review to determine the effectiveness of non-pharmacological interventions to prevent adolescents' anxiety during the perioperative period.

An initial search of the *JBI Database of Systematic Reviews and Implementation Reports*, *Cochrane Database of Systematic Reviews*, *MEDLINE*, *CINAHL*, *PubMed* and *Epistemonikos* revealed that currently there is no scoping review (published or in progress) on this topic.

Review questions

- i) What non-pharmacological interventions are used during the perioperative period to prevent anxiety in adolescents?
- ii) What are the characteristics (duration, dose and frequency) of these interventions?
- iii) What are the contexts in which non-pharmacological interventions are delivered?
- iv) Which adolescent population has been included in non-pharmacological interventions during a perioperative period with the aim of preventing anxiety?
- v) What related effects of the anxiety concept (i.e. pain, discomfort and maladaptive behaviors)

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- have been reported by adolescents during the perioperative period?
- vi) Which healthcare professionals use non-pharmacological interventions to prevent anxiety in adolescents during the perioperative period?

Inclusion criteria

Participants

This scoping review will consider studies that focus on adolescents aged 10 to 19 years who have undergone a surgical procedure, regardless of the type of surgery, and participated in non-pharmacological interventions during the perioperative period to prevent anxiety, provided by any healthcare professional.

Concepts

The concept being considered in this review is non-pharmacological interventions provided to prevent anxiety during the perioperative period. These non-pharmacological interventions may include psychological therapy, psychological intervention, alternative therapy, cognitive behavioral intervention, complementary therapy or variations of specific non-pharmacological interventions, such as guided imagery, distraction, music, virtual reality, hypnosis, Reiki, massage or communication. Other interventions might be included if the outcome is related to the prevention of anxiety namely pain, discomfort or maladaptive behaviors.

All studies that refer to the prevention of perioperative anxiety in adolescents will also be considered, regardless of whether non-pharmacological interventions are used alone or combined with pharmacological interventions.

The non-pharmacological interventions may be delivered on an individual basis, face-to-face or via technological devices. Interventions delivered in a group session with adolescents or with adolescent and parents together will be also eligible for inclusion.

Any of these non-pharmacological interventions can be led by any member of the healthcare team such as registered nurses, anesthesiologists, physiotherapists, psychologists and child specialists or other healthcare professionals.

Only evidence relating non-pharmacological interventions for the prevention of anxiety or relative outcomes during the perioperative period will be included.

Studies related to non-pharmacological interventions provided to prevent anxiety associated to the hospitalization in a non-surgical context will be excluded.

Context

This scoping review will consider all non-pharmacological interventions implemented and evaluated with the aim of preventing anxiety in adolescents during the perioperative period. The context includes hospital departments where perioperative care is delivered, including, but not limited to, the operating room and/or surgical wards. Studies performed in any country will be included.

Types of sources

The purpose of this scoping review is to map any non-pharmacological intervention used in adolescents in the perioperative period existing in the literature. For this purpose, the authors will consider any source of information, including experimental and quasi-experimental study designs, including randomized controlled trials, non-randomized controlled trials, before and after studies, and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs, including case series, individual case reports and descriptive cross-sectional studies, for inclusion.

Qualitative studies that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description and action research will also be considered. In addition systematic reviews that meet the inclusion criteria will also be considered. Text and opinion papers will also be considered for inclusion.

Methods

Search strategy

The search strategy aims to find published and unpublished studies. A three-step search strategy will be used in this review.^{44,45} Initial limited searches of MEDLINE and CINAHL were undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to

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develop a full search strategy for the PubMed database. This full strategy is listed in detail in Appendix I. The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference list of each selected study will be screened for additional studies.

Studies published in English, Spanish and Portuguese will be considered for inclusion in this review. The authors will ensure rigor in the translation process and their reporting. Where there is any doubt relating to translation, advice will be sought from a native person.

There is no time, geographical or cultural limitation for the studies included. This should add an understanding of how non-pharmacological interventions used during the perioperative period to prevent anxiety in adolescents has been researched and understood over time.

Information sources

The databases to be searched will include CINAHL Plus with Full Text, PubMed, Cochrane Central Register of Controlled Trials, LILACS, Scopus, Library, Information Science & Technology Abstracts, PsycINFO, JBI Connect+, and the Cochrane Database of Systematic Reviews.

The search for unpublished studies will include TDX – Tesis Doctorals en Xarxa (Spain), RCAAP – Repositório Científico de Acesso Aberto de Portugal, OpenGrey, and MedNar.

Study selection

Following the search, all identified citations will be collated and uploaded into the citation management software: EndNote (Clarivate Analytics, PA, USA) and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment according to the inclusion criteria for the review. Potentially relevant studies will be retrieved in full. Two independent reviewers will assess the full text of selected articles and documents in detail against the inclusion and exclusion criteria. Reasons for exclusion of full-text studies that do not meet the inclusion criteria will be recorded and reported in the final scoping review. The results of the study selection process will also be reported in full in the final scoping review and presented in a PRISMA flow diagram.^{45,46} Any disagreements that arise between the reviewers at each stage of the study selection

process will be resolved through discussion or with a third reviewer.

Data extraction

Quantitative and qualitative data will be extracted from articles included in the review by two independent reviewers using a data extraction tool developed by the reviewers as indicated by methodology for scoping reviews proposed by JBI.⁴⁵

The data extracted will include specific details about the population, concept, context, study methods and key findings relevant to the review objective. A draft charting table is provided in Appendix II. The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included study. Modifications will be detailed in the full scoping review report. Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required.

Data presentation

The results will be presented in a tabular form according to the study design, for example randomized controlled trial, cohort study, phenomenology or other. A draft results table has been developed to address each question, as presented in Appendix III. A diagrammatic map of the evidence will also be produced to emphasize the level and quantity of evidence for each non-pharmacological intervention linked with the outcome. A narrative summary will synthesize the findings to provide a description of the existing evidence related to the review objective and questions.

Acknowledgments

The authors would like to thank the Health Sciences Research Unit: Nursing (UICISA: E), hosted by the Nursing School of Coimbra (ESENfC), for their support.

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Appendix I: Search strategy for PubMed

Search conducted on 27 June 2018

Query	Records retrieved
Search (((((((adolescen*[Title/Abstract] OR teen*[Title/Abstract] OR youth*[Title/Abstract] OR paediatric*[Title/Abstract] OR pediatric*[Title/Abstract] OR child*[Title/Abstract]))) OR ((“Adolescent”[Mesh] OR “Child”[Mesh]))) AND (((nonpharmacologic*[Title/Abstract] OR Non-pharmacologic*[Title/Abstract] OR “Non pharmacologic”[Title/Abstract] OR “Non pharmacological”[Title/Abstract] OR Cognitive-behaviour [Title/Abstract] OR “Cognitive behaviour”[Title/Abstract] OR “cognitive behavior” [Title/Abstract] OR cognitive-behavior[Title/Abstract] OR “psychological therapy”[Title/Abstract] OR “psychological intervention”[Title/Abstract] OR “Alternative therapy”[Title/Abstract] OR “Alternative therapies” [Title/Abstract] OR “complementary therapy”[Title/Abstract] OR “complementary therapies”[Title/Abstract] OR “Environmental intervention” [Title/Abstract] OR “Environmental interventions”[Title/Abstract] OR Communication* [Title/Abstract] OR “guided imagery”[Title/Abstract] OR distraction[Title/Abstract] OR music[Title/Abstract] OR “virtual reality”[Title/Abstract] OR hypnosis[Title/Abstract] OR reiki[Title/Abstract]))) OR (((“Complementary Therapies”[Mesh] OR “Socioenvironmental Therapy”[Mesh:NoExp] OR “Massage”[Mesh:NoExp] OR “Communication ”[Mesh: NoExp]))) AND (((perioperative[Title/Abstract] OR postoperative[Title/Abstract] OR perioperative[Title/Abstract] OR operati*[Title/Abstract] OR surgery[Title/Abstract]))) OR ((((((“Perioperative Period”[Mesh] OR “Perioperative Care”[Mesh] OR “Operating Rooms”[Mesh] OR “Hospitals, Pediatric”[Mesh] OR “Hospital Departments”[Mesh]))) AND ((anxiety) OR “Anxiety”[Mesh:NoExp]))	426

Appendix II: Draft charting table

Study details and characteristics extraction	
Reviewer	
Date	
Author(s)	
Year	
Article title/document	
Journal/source	
Aim	
Study population and sample size	
Condition requiring surgery	
Adolescent group (early, middle or late)	
Other participant characteristics	
Concept(s) of significance to the review question	
Authors' professions	
Frequency, dose and duration of the non-pharmacological intervention	
Type of non-pharmacological intervention	
Measured outcomes and details (pain, discomfort, anxiety)	
Context	
Country	
Setting	
Source	
Publication type	
Methodology/methods	
Gaps in the research	
Comments	

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Appendix III: Tabular summary for results presentation

Studies included:

Author	Country	Study design e.g. RCT, cohort	Year of publication	Number of studies per design

RCT: randomized control trial.

Characteristics of included studies (review questions 1 and 2)

Author	Type of non-pharmacological intervention	Characteristics of intervention		
		Frequency of intervention	Duration of intervention	Dose of intervention

Contexts of interventions (review question 3)

Author	Non-pharmacological intervention	Context				
		Preoperative	Intraoperative	Postoperative	Hospital department	Other

Population and age groups (review question 4)

Author	Non-pharmacological intervention	Population		
		Adolescents aged 10-13 years	Adolescents aged 14-16 years	Adolescents aged 17-18 years

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Non-pharmacological interventions and related concepts (review question 5)

Author	Type of non-pharmacological intervention	Concept				
		Anxiety	Pain	Maladaptive behaviors	Discomfort	Other

Healthcare professionals who led the interventions (review question 6)

Author	Non-pharmacological intervention	Health care professionals				
		Registered nurses	Anesthesiologist	Physiotherapist	Psychologists	Other

Artigo 4

The non-pharmacological interventions used in perioperative period to prevent anxiety in adolescents: a scoping review

Pestana-Santos M, Pires R, Goncalves A, Parola V, Santos MR, Lomba L.
JBI Evid Synth. 2021;19(9): 2155-87.

Disciplina: Enfermagem.
Indexação: CINAHL, Embase, EMCare, HINARI, MEDLINE, PsycINFO, Scopus, Zetoc.
SJR® (2020): Pendente.
JCR® (2020): Pendente.

Divulgação Científica

Pestana-Santos M, Santos, MR, Pires R. The non-pharmacological interventions used in perioperative period to prevent anxiety in adolescents: an ongoing scoping review. Apresentado no VI Congresso de Investigação em Enfermagem Iberoamericano e de Países de Língua Oficial Portuguesa e II Simpósio Internacional de Cuidados de Saúde Baseados na Evidência. 2021. Coimbra, Portugal. Comunicação Oral.

Pestana-Santos M, Santos, MR, Pires R. The non-pharmacological interventions used in perioperative period to prevent anxiety in adolescents: an ongoing scoping review. VI Congresso de Investigação em Enfermagem Iberoamericano e de Países de Língua Oficial Portuguesa e II Simpósio Internacional de Cuidados de Saúde Baseados na Evidência. 2021. Coimbra, Portugal. Resumo.

Pestana-Santos M. Intervenções não farmacológicas utilizadas no período perioperatório para gerir ansiedade em adolescentes: Uma revisão scoping. 2021. Simpósio Cuidados de Saúde Baseados na Evidência: melhores decisões, melhores resultados. Cuidados de saúde: Academia e Clínica. Parceria Clínica JBI – UICISA: E/ESEnfC & CHUC. Coimbra, Portugal. Comunicação a convite.

SYSTEMATIC REVIEW

Nonpharmacological interventions used in the perioperative period to prevent anxiety in adolescents: a scoping review

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ABSTRACT

Objective: The objective of this scoping review was to examine and map the range of nonpharmacological interventions used in the perioperative period to prevent anxiety in adolescents.

Introduction: Undergoing surgery involves experiencing fears and uncertainties that lead to an increase in anxiety levels. The interventions used to prevent anxiety in the perioperative period in adolescents must be appropriate to their developmental stage.

Inclusion criteria: Studies involving adolescents (10 to 19 years of age) undergoing any type of surgical procedure and specifying any nonpharmacological interventions administered to prevent anxiety, implemented in the perioperative period, were included in this review.

Methods: A comprehensive search strategy using multiple databases was employed to find relevant studies. The databases search included MEDLINE via PubMed; CINAHL Plus with Full Text via EBSCO; Cochrane Central Register of Controlled Trials; LILACS; Scopus; Library, Information Science and Technology Abstracts; PsycINFO; JBI Connect+; and Cochrane Database of Systematic Reviews. Sources of unpublished studies and gray literature were TDX – Tesis Doctorals en Xarxa (Spain); RCAAP – Repositório Científico de Acesso Aberto de Portugal; OpenGrey – System for Information on Grey Literature in Europe; and MedNar. Studies published in English, Spanish, or Portuguese were included. There was no date restriction, or geographical or cultural limitation applied to the search. The relevant studies and their reported outcomes were organized and analyzed.

Results: The database search yielded 1438 articles, and three additional records were added after hand searching. Title, abstract, and full-text review identified 11 papers that met the inclusion criteria. The final data set represented 947 participants. The data were analyzed according to the type of nonpharmacological intervention, population, concept (outcome measured and tool used), context (physical location; preoperative vs. postoperative), frequency and duration of the intervention, and which professional team member implemented the intervention. Eight nonpharmacological interventions were identified, applied either in the preoperative or postoperative context. The nurses were the main professionals administering the nonpharmacological interventions to the adolescents.

Conclusions: A variety of nonpharmacological interventions were used in the perioperative period to prevent anxiety in adolescents. The most common interventions were music/musicotherapy and hypnosis/guided imagery. However, other interventions such as therapeutic play, preoperative preparation program, mothers' presence during the anesthesia induction, distraction, relaxation training, massage therapy, and reading were also identified. These interventions were used alone or in a combination of two interventions, either preoperatively or postoperatively. The adolescents in the early stage (10 to 14 years) were the most studied group and the adolescents in the late stage (17 to 19 years) were the least studied. Future research should focus on the implementation of nonpharmacological

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The authors declare no conflict of interest.

DOI: 10.11124/JBIES-20-00312

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interventions in the perioperative period involving adolescents, particularly late adolescents. A systematic review on the effect of nonpharmacological interventions for anxiety management in adolescents in the perioperative period should be conducted.

Scoping review registration: Open Science Framework: <https://osf.io/jhwca/>

Keywords: adolescent; anxiety; complementary therapy; perioperative care

JBI Evid Synth 2021; 19(9):2155–2187.

Introduction

It is estimated that more than 5 million adolescents in the United States^{1,2} and 65,000 in Canada³ undergo a surgical procedure every year. In 2018, there were 17,482 surgeries performed in pediatric patients (up to 15 years of age) in Portugal.⁴ These data did not differentiate between children and adolescents, neither did they include individuals 16 to 19 years of age. Data from the rest of Europe is sparse. A 2013 questionnaire answered by 251 of 431 pediatric surgery centers from 25 European countries reported a mean of 177,000 children younger than 14 years treated at the centers. However, there was a wide range among countries (92,000 to 475,000).⁵ There are no available data about the prevalence or incidence per annum of specific surgical procedures performed in the adolescent population by country or worldwide.

The World Health Organization defines adolescence as the period between 10 and 19 years of age.⁶ It is recognized as a transitional stage of physiological and psychological development from puberty to adulthood.⁷ According to the developmental characteristics, adolescence can be divided into three stages, namely early adolescence (10 to 14 years), mid adolescence (15 to 16 years), and late adolescence (17 to 19 years).⁸ During adolescence, abstract thinking begins. Adolescents can understand how the body functions, the nature of the problem, and the reason for the surgery.⁹ They want to be involved in decisions about their health as much as possible.^{9,10} Empirical¹⁰ and interventional^{11–15} studies of adolescents in the perioperative period include participants from a wide range of ages and developmental characteristics.^{10–15}

Surgery makes individuals feel anxious, regardless of the type of procedure. The anxiety may result from fear of the unknown, fear of inability to wake up or death after anesthesia, loss of control, pain, being isolated, the obligation to leave loved ones, and being isolated from social life.^{16,17} Although there are

differences among surgical procedures, there are similarities in adolescents' experiences and manifestations of anxiety owing to their developmental characteristics.¹⁸ Some adolescents experience nightmares, sleeping difficulties, and waking with an intense sense of fear and anxiety after the procedure that last for a long time after the recovery period.¹⁹

The perioperative period corresponds to three different phases of a surgical procedure: preoperative, intraoperative, and postoperative.²⁰ The preoperative phase starts with the scheduling of the surgery and finishes when the patient arrives in the anesthesia induction room. It is during this phase that all the preoperative physical and psychological evaluation occurs, and all preventive care interventions should take place.^{21,22} During this period, the multidisciplinary team must get to know the adolescent, including his or her concerns, fears, and previous health care experiences to minimize anxiety symptoms or associated clinical manifestations, such as pain or maladaptive behaviors.²³

The intraoperative phase involves the surgery itself. When the surgery ends, the patient is awakened from the anesthesia and is transferred to the post-anesthesia care unit. The postoperative phase begins with admission into the post-anesthetic recovery unit and ends when the patient is discharged from the surgical procedure.²³

The preoperative preparation of adolescents for surgical procedures provides a challenge to nurses and other health care providers due to the heterogeneity of this group. Physical, cognitive, and psychological maturation differs greatly among the three stages of adolescence.²⁴ Although surgery is planned and may be perceived as "easy" by the health care providers, it represents one of the most stressful medical procedures that an adolescent can experience.² This stress is generally reflected as anxiety, fear, or anger¹⁵ with undesirable consequences for their health and well-being.²⁵

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Anxiety can be defined as an unpleasant emotion when a person is in a tense and apprehensive state, arising from the anticipation of both internal and external danger.²⁶ In the perioperative period, anxiety increases with tension, irritability, and heightened activity of the autonomic nervous system.¹⁵ In a pilot study developed in the United States, 80% of adolescents who underwent outpatient surgery reported significant anxiety in the preoperative period.²⁷ The signs and symptoms described by some adolescents in the perioperative period were present for weeks or months before the surgery,²⁸ peaking at the time of anesthesia induction,²⁷ and persisted for months after the surgery.^{19,27,29}

Another important issue is postoperative pain. According to previous studies,³⁰⁻³² there is a positive association between anxiety and pain in the perioperative period, and the level of anxiety varies according to age, maturity, temperament, previous surgical experiences,²⁷ history of pain,³³ and parental anxiety levels.^{2,11,12}

It is therefore imperative that health care professionals who work with adolescents in the perioperative period are aware of and use nonpharmacological interventions – appropriate to the adolescent developmental stage (early, middle, or late)²⁹ – in order to reduce anxiety and related consequences. Nonpharmacological interventions were found to create a peaceful and pleasant state that helps to reduce anticipatory anxiety, separation anxiety,¹⁸ and preoperative anxiety.¹⁵

Nonpharmacological interventions are characterized as psychological, environmental, social, communicational, or other therapies. Psychological interventions help adolescents alter unstable behavior and provide insight into the origins and development of emotional difficulties, leading to an increased capacity to take rational control over their feelings and behavior.³⁴ These interventions include a variety of psychological and educational components such as relaxation training, cognitive and behavioral coping strategies, education/information sessions, distraction, or hypnosis.³⁵

Examples of environmental interventions may include use of an induction room before surgery, or allowing the patient to keep their own clothes on, especially underwear. Social interventions are related to parental presence or a supportive person and health care professionals in the induction room. Finally, interventions related to communication with

health care members include the tone of voice and neutral or positive language.

The authors are unaware of any reviews that present and appraise the nonpharmacological interventions used in adolescents to prevent anxiety in the perioperative period. Most of the existing information is mixed with data on younger children.^{36,37} To fill this gap, the purpose of the scoping review was to establish whether there is sufficient literature concerning the adolescent population in the perioperative period to develop a systematic review about the effectiveness of nonpharmacological interventions for anxiety in adolescents in the perioperative period. This scoping review will also serve to identify which nonpharmacological interventions are used that can be later included in a program to evaluate their efficacy in the prevention of anxiety in adolescents in the perioperative period.

In an initial search of the *JBI Database of Systematic Reviews and Implementation Reports*, *Cochrane Database of Systematic Reviews*, *MEDLINE* (via PubMed), *CINAHL* (via EBSCO), and *Epistemonikos*, it was revealed that currently there is no scoping review (published or in progress) on this topic. The objective of this scoping review was to examine and to map the range of nonpharmacological interventions used in the perioperative period to prevent anxiety in adolescents.

Review questions

The main review question incorporated the elements of the patient, concept, and context to guide the development of specific inclusion criteria, facilitate the literature search, and provide a robust structure for the development of the scoping review.^{38,39}

The main question of this review is:

- i) Which nonpharmacological interventions are used in the perioperative period to prevent anxiety in adolescents?

The following sub-questions were also added to unveil particular attributes about the nonpharmacological interventions:

- ii) Which adolescent population (10 to 14 years, 15 to 16 years, 17 to 19 years) has been the object of the nonpharmacological interventions used to prevent anxiety in the perioperative period?
- iii) Which anxiety-related effects (pain, discomfort, maladaptive behaviors) have been reported by adolescents in the perioperative period?

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- iv) What are the contexts (preoperative, intraoperative, postoperative) in which nonpharmacological interventions are delivered to prevent anxiety in adolescents?
- v) What are the characteristics (duration, dose, frequency) of these interventions?
- vi) Who are the professionals (nurse, anesthesiologist, psychologist) who deliver nonpharmacological interventions to prevent anxiety in adolescents in the perioperative period?

Inclusion criteria

Participants

This scoping review considered studies that include adolescents aged 10 to 19 years who underwent a surgical procedure, regardless of the type of surgery, and to whom nonpharmacological interventions were administered in the perioperative period. The interventions could be delivered by any health care professional.

Concept

Studies that included the following interventions were considered: cognitive behavioral intervention, complementary therapy, or variations of specific nonpharmacological interventions such as guided imagery, distraction, music, virtual reality, hypnosis, Reiki, massage, or communication. All studies that aimed to prevent perioperative anxiety in adolescents were also considered, regardless of whether nonpharmacological interventions were used alone or in combination with pharmacological interventions.

Interventions delivery on an individual basis, face-to-face, or using technological devices were included in this review as well as group sessions with adolescents only or together with their parents.

The main focus of the review was the interventions, delivered by any member of the health care team, namely registered nurses, psychologists, and child specialists, among others. Studies related to interventions delivered in a non-surgical context were excluded.

Context

The context of this review included hospital departments where perioperative care was delivered. This included, but was not limited to, the operating room, post-care anesthesia unit, or surgical ward.

Types of sources

This scoping review considered for inclusion quantitative, qualitative, and mixed methods study designs. Systematic reviews and text and opinion papers were considered.

Methods

This review was conducted in accordance with the JBI methodology for scoping reviews,^{39,40} and prepared using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).⁴¹ The review follows an a priori protocol.⁴²

Search strategy

The search strategy aimed to locate both published and unpublished primary studies, reviews, and text and opinion papers. An initial limited search of MEDLINE (via PubMed) and CINAHL (via EBSCO) was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy. The search strategy, including all identified keywords and index terms, was adapted for each included information source and a second search was undertaken on September 1, 2019. Finally, the reference lists of the full-text articles included in the review were screened for additional papers.

The databases searched included MEDLINE (via PubMed); CINAHL Plus with Full Text (via EBSCO); Cochrane Central Register of Controlled Trials (via EBSCO); LILACS; Scopus; Library, Information Science and Technology Abstracts; PsycINFO (via EBSCO); JBI Connect+; and Cochrane Database of Systematic Reviews (via EBSCO). Sources of unpublished studies and gray literature searched included TDX – Tesis Doctorals en Xarxa (Spain); RCAAP – Repositório Científico de Acesso Aberto de Portugal; OpenGrey; and MedNar.

Papers published in English, Spanish, or Portuguese were considered. No date restrictions, or geographical or cultural limitations were applied. The full search strategy and results are provided in Appendix I.

Study selection

Following the search, all identified records were collated and uploaded into EndNote v.X8 (Clarivate

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Analytics, PA, USA) and duplicates removed. Titles and abstracts were screened by two independent reviewers (MPS and RP) for assessment against the inclusion criteria for the review. Possible relevant studies were retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI; JBI, Adelaide, Australia). The full-text papers that did not meet the inclusion criteria were excluded, and reasons for their exclusion are provided in Appendix II. Any disagreements that arose between the reviewers were resolved through discussion or with a third reviewer.

Data extraction

Seven charting tables were developed as part of the protocol: one for each review question and another one to extract the characteristics of the included studies. Data from the selected papers were extracted by two independent reviewers (MPS and RP) using the data extraction tool developed by the reviewers in the protocol.⁴² After the data extraction, the authors conferred to check the data extracted and avoid any disagreements or transcription errors.

Data analysis and presentation

The results are summarized and presented in a tabular form aligned with the objective of this scoping review. A narrative summary accompanies the tabulated results and describes how these relate to the review's objective and questions.

Results

Study inclusion

The database searches identified 1438 records, and an additional three records were found through other sources. After the removal of 276 duplicates, 1165 titles and abstracts were screened against the inclusion criteria and 1111 studies were excluded. The remaining 54 studies were retrieved in full and screened. Subsequently, 43 were excluded as they did not meet the inclusion criteria. Of the excluded studies, 38 had ineligible population, four studies had an ineligible concept, and one had an ineligible context (Appendix II). A total of 11 studies were included in the final scoping review. Search results and study selection are presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Figure 1).⁴³

Characteristics of included studies

All 11 studies included in the review are primary research studies. Six were randomized controlled trials (RCTs),⁴⁴⁻⁴⁹ three used an experimental design,^{15,50,51} one was a mixed methods study,⁵² and the other was a quasi-RCT.⁵³ Ten studies used a quantitative design and one study⁵² used a mixed methods design. Of the 11 studies, five were published after 2016,^{15,46-48,51} and four before 2014.^{45,49,52,53} Two studies were published before 2000.^{44,50} Four studies were developed in the USA^{44,46,48,50} and two in Turkey.^{15,51} The other studies were developed in Hong Kong,⁴⁹ Sweden,⁵² Egypt,⁵³ France,⁴⁷ and Canada.⁴⁵ All of the studies were published in English. The full characteristics of included studies are presented in Appendix III.

Review findings

Nonpharmacological interventions

The 11 studies revealed eight nonpharmacological interventions implemented in the perioperative period to prevent anxiety in adolescents. The interventions were music/music therapy,^{44,46,51,52} hypnosis/guided imagery,^{45,47,50} therapeutic play,⁴⁹ preoperative preparation program,⁵³ mothers' presence during the induction,⁵³ distraction,¹⁵ relaxation training,⁴⁶ and massage therapy and reading.⁴⁸ Eight studies^{15,44,45,47,49-52} developed and evaluated a single nonpharmacological intervention. The others three studies^{46,48,53} implemented and evaluated a combination of two nonpharmacological interventions.

Population

The population samples varied in size between 20 participants⁴⁴ and 203 participants.⁴⁹ The total number from all the included studies was 947 participants. Eight of the 11 studies included adolescents from the early to late stage of adolescence (ie, 10 to 19 years of age).^{15,44-48,50,51} Nine studies^{15,44-48,50-52} included adolescents from the early to middle stage of adolescence (ie, 10 to 16 years of age). All 11 studies included participants in the early stage of adolescence (10 to 14 years). Only three studies⁴⁵⁻⁴⁷ were developed exclusively with an adolescent population. Of the 11 studies, five included more females than males.^{45-47,50,53} In three studies, the samples were balanced, with similar ratio of male to female participants.^{15,48,52} Two studies had more male than female participants,^{49,51} and one study did

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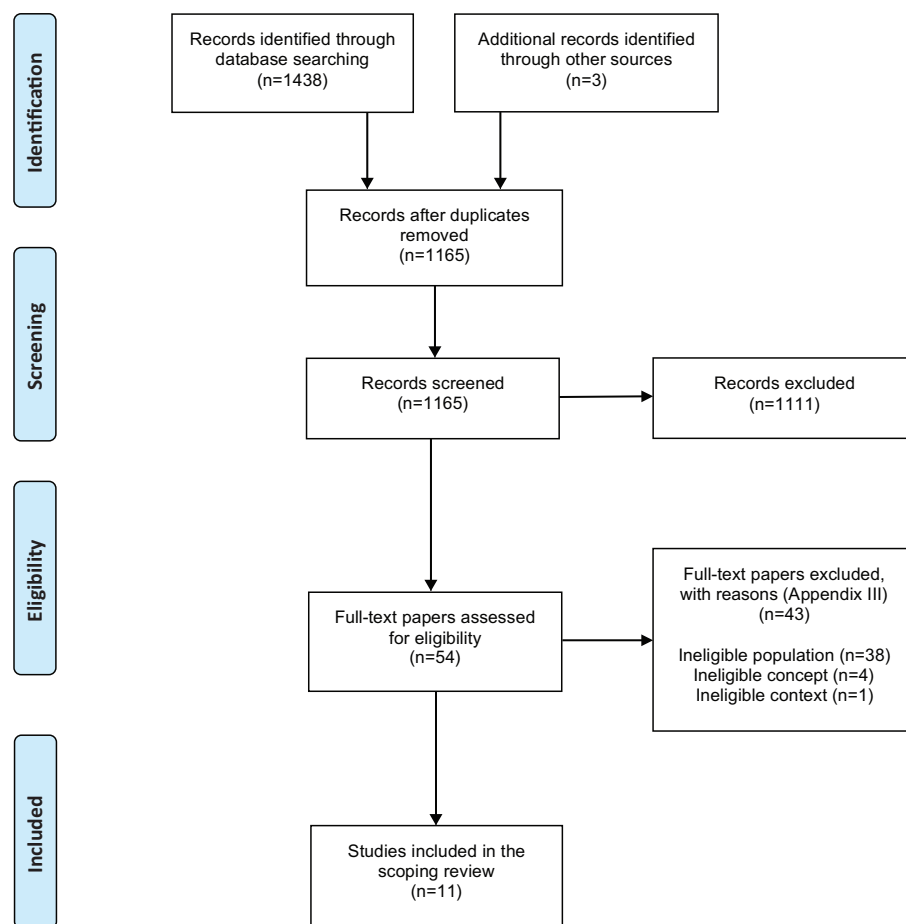


Figure 1: Search results and study selection and inclusion process⁴³

not report the sex of participants.⁴⁴ The differences between sexes in the outcomes were not evaluated. In this review, the authors mapped the interventions and characteristics of the samples. The differences between males and females in the outcomes will be analyzed in a future systematic review study.

All studies were developed with adolescents who had scheduled surgery: four studies of elective

surgery,^{15,48,50,53} three for elective day surgery,^{49,51,52} three for major surgery/spinal fusion surgery,⁴⁵⁻⁴⁷ and one study was developed with adolescent burn patients for reconstructive surgery.⁴⁴

Table 1 presents the population characteristics. The reviewers changed the table proposed in the protocol⁴² and added the types of surgery and the population per study.

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Table 1: Participant ages and types of surgery in included studies

Study	Population (age range) No. of males (M)/females (F) per group Type of surgery	Population age		
		10-14 years	15-16 years	17-19 years
Aytekin <i>et al.</i> , ¹⁵ 2016	N = 83 (9-18 years) Experimental group: n = 40, 21M/19F; Control group: n = 43, 23M/20F Elective surgery (abdominal, urinary, perianal, gastrointestinal)	X	X	X
Charette <i>et al.</i> , ⁴⁵ 2014	N = 40 (10-20 years) Experimental group: n = 20, 2M/18F; Control group: n = 20, 5M/15F Spinal fusion surgery	X	X	X
Duparc-Alegria <i>et al.</i> , ⁴⁷ 2018	N = 118 (10-18 years) Experimental group: n = 59, 19M/40F; Control group: n = 59, 15M/45F (1 dropout; not stated whether the participant was male or female) Major orthopedic surgery	X	X	X
Karakul <i>et al.</i> , ⁵¹ 2018	N = 130 (9-17 years) Experimental group: n = 65, 40M/25F; Control group: n = 65, 40M/25F Day surgery	X	X	X
Lambert <i>et al.</i> , ⁵⁰ 1996	N = 52 (7-19 years) 20M/32F Elective surgery	X	X	X
Li <i>et al.</i> , ⁴⁹ 2008	N = 203 (7-12 years) Experimental group: n = 97, 67M/30F; Control group: n = 106, 73M/33F Elective day surgery	X		
Nelson <i>et al.</i> , ⁴⁶ 2016	N = 41 (10-19 years) Experimental group: n = 19, 1M/18F; Control group: n = 22, 3M/19F Spinal fusion surgery	X	X	X
Nilsson <i>et al.</i> , ⁵² 2009	N = 80 (7-16 years) Experimental group: n = 40, 20M/20F; Control group: n = 40, 20M/20F Day surgery	X	X	
Robb <i>et al.</i> , ⁴⁴ 1995	N = 20 (8-20 years) Experimental group: n = not reported; Control group: n = not reported Reconstructive surgery (patients with burn injury)	X	X	X
Sabaq <i>et al.</i> , ⁵³ 2012	N = 120 (9-12 years) Experimental group: n = 60, 26M/34F; Control group: n = 60, 25M/35F Elective surgery (appendectomy and herniorrhaphy)	X		
Staveski <i>et al.</i> , ⁴⁸ 2018	N = 60 (6-18 years) Experimental group: n = 36, 14M/22F; Control group: n = 24, 15M/9F Elective surgery (congenital heart surgery)	X	X	X

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Concept

All the reviewed studies evaluated anxiety levels before and after delivery of the nonpharmacological intervention. Several instruments to measure anxiety were used. The State-Trait Anxiety Inventory for Children was the instrument used most often.^{15,44,48,50,51,53} Other instruments to measure anxiety levels included the short-form State-Trait Anxiety Inventory,⁵² the State-Trait Anxiety Inventory form Y,⁴⁵ the Visual Analogue Scale for Anxiety,⁴⁷ a zero to 10 numeric rating instrument,⁴⁶ and the Chinese version of the State Anxiety Scale for Children.⁴⁹ In all the studies, the authors implemented the interventions assuming that all adolescents undergoing surgery were at risk of anxiety (selective prevention).

Pain levels were also evaluated in six studies.^{45-48,50,52} Beyond anxiety and pain, other outcomes measured were distress,⁵² coping strategies,⁴⁵ separation scoring,¹⁵ morphine consumption/opioid exposure,^{47,48} and vital signs.⁵¹ The nonpharmacological interventions used to prevent anxiety (and related concepts) are presented in Table 2.

Context

Of the 11 studies, five implemented nonpharmacological interventions in the preoperative period only.^{15,47,49,50,53} In four studies, nonpharmacological interventions were applied both in the pre- and postoperative period.^{44-46,51} In the other two studies,^{48,52} the interventions were implemented in the postoperative period. No interventions were applied in the intraoperative period in the included studies.

The physical location where each intervention took place was related to the nature of the intervention. The most common place was the hospital (one week before surgery,^{49,50} the day before surgery,⁴⁵ or just before going to the operative room¹⁵), cardiology intensive care unit/cardiology ward,⁴⁸ recovery room/post-anesthesia care unit,^{51,52} and induction or operative room.⁴⁷ The music-assisted relaxation and training,^{44,46} therapeutic play intervention,⁴⁹ and preoperative preparation program⁵³ took place in more than one place.

Table 3 presents the contexts where the nonpharmacological interventions were implemented.

Duration and frequency of nonpharmacological interventions

The duration of the nonpharmacological interventions depended on their specifications and where

they were implemented. The interventions delivered in the induction room were usually shorter than the ones delivered on the day before the surgery. These generally concerned a preoperative educational program implementation. The frequency of the interventions ranged from one session^{15,44,46,47,49-53} to three sessions per week.^{45,48} The duration ranged from five to 10 minutes⁴⁷ to two hours.⁵³ The frequency and duration of the interventions are presented in Table 4.

Professionals

Nurses were the main professional group who led the nonpharmacological interventions for adolescents in the perioperative period. Nurses generally implemented the intervention alone^{15,47,49,52,53} or collaborated with other professionals, including child life specialists,⁵⁰ physiotherapists, psychologists,⁴⁵ or music therapists.⁴⁶ In one study, the intervention was implemented by the massage therapists,⁴⁸ and two studies^{44,51} did not report which professionals implemented the nonpharmacological interventions.

Discussion

To the authors' knowledge, this is the first scoping review developed to examine and map the range of nonpharmacological interventions used in the perioperative period to prevent anxiety in adolescents. Eight nonpharmacological interventions were identified. Music/music therapy and hypnosis/guided imagery were the most common interventions used. Adolescents in the early stage of adolescence were the most-studied group. All the studies were developed with adolescents who had scheduled surgeries. The prevention of pain was the concept most often associated with anxiety prevention. The preferable context to implement and evaluate the interventions was preoperatively and took place either one week before, one day before, or on the day of the surgery. Some of the interventions continued in the postoperative period. The frequency of the interventions ranged from one to three sessions, and the duration ranged from five to 10 minutes, to two hours. Nurses were the main professional group leading the nonpharmacological interventions.

This review found that there are some studies on nonpharmacological interventions for anxiety in the perioperative period conducted only in an adolescent population or presenting specific results for this

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Table 2: Nonpharmacological interventions, with corresponding concepts, administered to adolescents in the perioperative period

Study	Type of intervention	Concept				
		Anxiety	Pain	Distress	Coping strategies	Other
Aytekin <i>et al.</i> , ¹⁵ 2016	Distraction	X				Separation scoring
Charette <i>et al.</i> , ⁴⁵ 2014	DVD with information and guided imagery/relaxation exercises	X	X		X	
Duparc-Alegria <i>et al.</i> , ⁴⁷ 2018	Hypnosis	X	X			Morphine consumption during the first 24 hours after surgery
Karakul <i>et al.</i> , ⁵¹ 2018	Classical music from headphones	X				Vital signs
Lambert <i>et al.</i> , ⁵⁰ 1996	Hypnosis/guided imagery	X	X			
Li <i>et al.</i> , ⁴⁹ 2008	Therapeutic play intervention	X				
Nelson <i>et al.</i> , ⁴⁶ 2016	Relaxation training and postoperative music therapy	X	X			
Nilsson <i>et al.</i> , ⁵² 2009	Music player	X	X	X		
Robb <i>et al.</i> , ⁴⁴ 1995	Music-assisted relaxation	X				
Sabaq <i>et al.</i> , ⁵³ 2012	Preoperative preparation program and mothers' presence during the induction	X				
Staveski <i>et al.</i> , ⁴⁸ 2018	Massage therapy and reading	X	X			Exposure to opioids and benzodiazepines

population. Although systematic reviews and text and opinion papers were eligible for inclusion in this scoping review, none were included. The systematic reviews that were potentially eligible included adolescents in their populations, but none of the reviews presented specific results for this age group. The 11 included studies had an experimental design, and more than half were published in 2014 or after. This reveals that the attention given to perioperative anxiety prevention in the pediatric subgroup over the previous decade is growing.

Despite the specific psychological characteristics of this phase of human development, adolescents are not exclusively studied in the perioperative period. Adolescents are often included with younger children in studies concerning preoperative anxiety, yet their behavior can confound the research findings.³⁷ The use of the same hetero-filling instrument to assess children's and adolescents' anxiety is not the most appropriate choice.^{54,55} Anxiety may manifest as behavioral signs such as activity, vocalizations, emotional expressivity, and state of arousal, or

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Table 3: Context of nonpharmacological interventions for preventing anxiety in adolescents in the perioperative period

Study	Nonpharmacological intervention	Context		
		Preoperative	Postoperative	Setting
Aytekın <i>et al.</i> , ¹⁵ 2016	Distraction	x		Pediatric surgery department before going into the operative room
Charette <i>et al.</i> , ⁴⁵ 2014	DVD with information and guided imagery/relaxation exercises	x	x	In hospital. The patients took the DVD home and practiced the relaxation after discharge at their home.
Duparc-Alegria <i>et al.</i> , ⁴⁷ 2018	Hypnosis	x		At the operative room
Karakul <i>et al.</i> , ⁵¹ 2018	Classical music on the headphones	x	x	Post-anesthesia care unit
Lambert <i>et al.</i> , ⁵⁰ 1996	Hypnosis/guided imagery	x		During the preadmission visit one week before elective surgery
Li <i>et al.</i> , ⁴⁹ 2008	Therapeutic play intervention (visit and doll demonstration)	X One week before surgery		Visit: along reception area, induction room, and recovery room. Doll demonstration: induction room.
Nelson <i>et al.</i> , ⁴⁶ 2016	Relaxation training and postoperative music therapy	x	x	Before surgery: in the preoperative visit After surgery: hospital room
Nilsson <i>et al.</i> , ⁵² 2009	Music player		x	Post-anesthesia care unit
Robb <i>et al.</i> , ⁴⁴ 1995	Music-assisted relaxation	x	x	Patient room; transport to the surgical suite; induction; recovery room
Sabaq <i>et al.</i> , ⁵³ 2012	Preoperative preparation program and mothers' presence during the induction	x		Pediatric surgery department and included a preoperative tour visit to the operation room
Staveski <i>et al.</i> , ⁴⁸ 2018	Massage therapy and reading		x	Cardiac intensive care unit Cardiology ward

the desired involvement of parents; these all differ between children and adolescents. Preschool and school-aged children show anxiety through crying, keeping professionals away from them, presenting a sad or terrified face, moving the surgical mask away from the face, or not cooperating with their care.⁵⁶ Adolescents may experience and exhibit anxiety

differently than younger children and may not display observable signs.²⁷ During the perioperative period, adolescents are likely to show anxiety through more discreet signs, such as sweating hands, cold feet and hands, muscular tension, increased heart rate, trembling in the lower and upper limbs, remaining silent, and looking away.²⁷

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Table 4: Frequency and duration of nonpharmacological interventions for anxiety in adolescents in the perioperative period

Study	Non-pharmacological intervention	Frequency of intervention	Duration of intervention
Aytekin <i>et al.</i> , ¹⁵ 2016	Distraction	One session	20 minutes
Charette <i>et al.</i> , ⁴⁵ 2014	DVD with information and guided imagery/relaxation exercises	One session on the day before surgery, another at discharge, and three times per week at home	30 minutes
Duparc-Alegria <i>et al.</i> , ⁴⁷ 2018	Hypnosis	One session	5-10 minutes
Karakul <i>et al.</i> , ⁵¹ 2018	Classical music on the headphones	One session	About 20 minutes
Lambert <i>et al.</i> , ⁵⁰ 1996	Hypnosis/guided imagery	One session One week before surgery	No longer than 30 minutes
Li <i>et al.</i> , ⁴⁹ 2008	Therapeutic play intervention	One session One week before the surgery	1 hour
Nelson <i>et al.</i> , ⁴⁶ 2016	Relaxation training and post-operative music therapy	One session	20-30 minutes
Nilsson <i>et al.</i> , ⁵² 2009	Music player	One session Starting at admission in post-operative care unit	45 minutes
Robb <i>et al.</i> , ⁴⁴ 1995	Music-assisted relaxation	Three music sessions: in the evening prior to surgery, in patient's room, and in the recovery room	30-50 minutes
Sabaq <i>et al.</i> , ⁵³ 2012	Preoperative preparation program and mothers' presence during the induction	One session On the day before surgery	2 hours
Staveski <i>et al.</i> , ⁴⁸ 2018	Massage therapy and reading	Two to three sessions per week starting within 24 hours after surgery and continued throughout the hospital stay	Massage: 15-30 minutes Reading: 20 minutes

Research demonstrates that anxiety in children and adolescents increases with age.³¹ Of the 11 included studies, six analyzed the relationship between anxiety and pain intensity, and a positive association was found in the perioperative period, which is in line with other studies.³⁰⁻³² Other concepts such as analgesia consumption, coping strategies, and distress were also evaluated. Although no methodological assessment or formal data analysis was done, as these are not required in a scoping

review, some of the studies measured outcomes and the interventions seemed to be of benefit.

Nonpharmacological interventions

The use of nonpharmacological interventions for treating anxiety in the perioperative period has increased over the past several years because of fewer negative side effects compared with pharmacological sedatives.³⁶ Interventions involving children and adolescents have evolved from the use of distraction

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techniques⁵⁷ and information leaflets²⁵ to iPad technology,⁵⁸ video games,^{59,60} and virtual reality.^{61,62} In this scoping review, it was found that music/music therapy and hypnosis/guided imagery were the interventions most often used with adolescents in the perioperative period. All the interventions implemented and evaluated in the studies included in this scoping review showed positive results in the reduction of anxiety levels. However, in one study,⁴⁷ anxiety levels and pain scores decreased in both experimental and control groups. The authors attributed these results to the fact that professionals have changed the way they communicate with adolescents during anesthetic induction.⁴⁷ Communication is a powerful tool in patient care. Good communication provides proper interaction with the patient as well as with the perioperative team, resulting in improved professional standards and patient outcomes.⁶³

Population

The adolescent populations in the studies were heterogeneous in total number of participants and sex of participants. The included studies were conducted with adolescents who had specific medical conditions, and when a sex disparity was found in the study samples, it was due to the sex-specific nature of that specific surgical problem (eg, scoliosis is more common in girls than in boys).⁶⁴ Only three of the 11 studies were implemented and evaluated exclusively in adolescents. During adolescence, abstract thinking begins, which enables adolescents to understand how the body functions, the nature of the problem they are facing, and the reason for surgery.⁹ As a result, adolescents often express a desire to be involved in their surgical care.⁶⁵ With this in mind, it is important that researchers develop studies with adolescent populations only, or its subgroups, to achieve specific results about the effectiveness of nonpharmacological interventions in the prevention of perioperative anxiety for these patients.

Concept

The concept of perioperative anxiety is often associated with other concepts such as pain^{66,67} or distress.⁶⁸ Studies conducted with children, that also included adolescents, evaluated perioperative pain and found an association between pain and the levels of anxiety presented. Anxiety is a significant problem in adolescents in the perioperative period, and if not properly assessed, prevented, or

alleviated, anxiety can intensify the pain described by adolescents.⁶⁷

Context

This review found that nonpharmacological interventions to prevent perioperative anxiety were implemented in the preoperative period. However, some of the interventions (music, hypnosis/guided imagery) were intended to continue to the postoperative period. The implementation of the interventions at the time of anesthetic induction may only have minimal effect. The adolescent is likely to already feel anxious because this is the most critical moment before the surgery.^{1,27}

The literature states that adolescents should be involved in decision-making about their surgery from the beginning.⁹ However, authors describe that it is often difficult to get in touch with teenagers a week before the surgery to start implementing a preventive anxiety intervention.¹

Duration and frequency of nonpharmacological interventions

The nonpharmacological interventions performed in groups of adolescents are generally longer than the ones developed on an individual basis.¹⁴ The time chosen to deliver the intervention depends on the adolescent's age and the intervention characteristics.⁶⁹ For example, a preoperative educational program may be implemented one week before surgery or on the day before surgery. Guided imagery, on the other hand, can be initiated on the day before the surgery and continued until just prior to the induction of anesthesia, or it could be implemented only in the induction of anesthesia, which shows that even identical interventions may have different frequencies and duration.

Professionals involved in the interventions

Although the interventions could be implemented and evaluated by any professional from the interdisciplinary team, nurses were the most prominent group in the included studies.^{15,47,49,52,53} It is possible that nurses have a special interest in developing nonpharmacological interventions to prevent anxiety in the perioperative period.⁷⁰⁻⁷² This may be because nonpharmacological interventions do not require a prescription. Nurses identify anxiety as a nursing diagnosis and recognize it as a condition that can affect adolescents' perioperative recovery.

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Another reason for nurses' involvement in many of these nonpharmacological interventions may be because they are the professional group who are with the adolescent before, during, and after surgery.

Limitations of the review

This scoping review only included studies published in English, Portuguese, or Spanish. Articles published in other languages could bring other contributions to this review.

Because the objective of this scoping review was to examine and map nonpharmacological interventions implemented and evaluated in the perioperative period to prevent anxiety in adolescents, no assessment of methodological quality was conducted and, therefore, recommendations for practice cannot be made or graded.

Conclusions

This scoping review identified eight nonpharmacological interventions used in the perioperative period to prevent anxiety in adolescents. Interventions were mainly led by nurses. The music/music therapy and hypnosis/guided imagery were the most common nonpharmacological interventions used in this population. The adolescents in the medium (15 to 16 years) and late (17 to 19 years) stage of adolescence were the least studied. The literature revealed a relationship between the use of nonpharmacological interventions to prevent anxiety and pain in the perioperative period.

Considering that developmental characteristics and behavior of children and adolescents are different, studies with nonpharmacological interventions should be conducted separately for each group and studies delivered to different subgroups of the pediatric population (eg, pre-school/school-aged children mixed with adolescents) should be discouraged.

Recommendations for research

The authors of this review recommend that in future studies, the results of the different pediatric age groups are presented according to their developmental stage. This would assist with understanding which nonpharmacological interventions present the best results for a specific pediatric group, such as adolescents. Studies to assess the effect of nonpharmacological interventions on anxiety that include children from zero, three, or five years of

age to 18 years of age should be discouraged. Children and adolescents express themselves differently and experience the perioperative period differently. Thus, they must be evaluated based on their developmental characteristics. Moreover, when the sample of participants includes children of various stages of development, the results obtained may not coincide with what is actually expressed by each group when evaluated separately.

The results of this scoping review suggest that a systematic review should be conducted to evaluate the effectiveness of nonpharmacological interventions for anxiety management in adolescents in the perioperative period.⁷³

Acknowledgments

Daniela Cardoso from Health Sciences Research Unit: Nursing (UICISA: E), hosted by the Nursing School of Coimbra (ESENFC), for assisted in development of the manuscript.

This review will contribute toward a PhD in Nursing Sciences for author MPS.

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Appendix I: Search strategy

MEDLINE via PubMed

Search conducted on September 1, 2019

Search	Query	Records retrieved
#14	Limiters: English; Portuguese; Spanish	452
#13	Search (((((((adolescen*[Title/Abstract] OR teen*[Title/Abstract] OR youth*[Title/Abstract] OR paediatric*[Title/Abstract] OR pediatric*[Title/Abstract] OR child*[Title/Abstract]))) OR (((Adolescent[Mesh] OR Child[Mesh]))) AND (((nonpharmacologic*[Title/Abstract] OR Non-pharmacologic*[Title/Abstract] OR "Non pharmacologic"[Title/Abstract] OR "Non pharmacological"[Title/Abstract] OR Cognitive-behaviour[Title/Abstract] OR "Cognitive behaviour"[Title/Abstract] OR "cognitive behavior"[Title/Abstract] OR cognitive-behavior[Title/Abstract] OR "psychological therapy"[Title/Abstract] OR "psychological intervention"[Title/Abstract] OR "Alternative therapy"[Title/Abstract] OR "Alternative therapies"[Title/Abstract] OR "complementary therapy"[Title/Abstract] OR "complementary therapies"[Title/Abstract] OR "Environmental intervention"[Title/Abstract] OR "Environmental interventions"[Title/Abstract] OR Communication[Title/Abstract] OR "guided imagery"[Title/Abstract] OR distraction[Title/Abstract] OR music[Title/Abstract] OR "virtual reality"[Title/Abstract] OR hypnosis[Title/Abstract] OR reiki[Title/Abstract]))) OR (((("Complementary Therapies"[Mesh] OR "Socioenvironmental Therapy"[Mesh:NoExp]) OR "Massage"[Mesh:NoExp]) OR "Communication"[Mesh:NoExp]))) AND (((perioperative[Title/Abstract] OR postoperative[Title/Abstract] OR preoperative[Title/Abstract] OR operati*[Title/Abstract] OR surgery[Title/Abstract]))) OR (((("Perioperative Period"[Mesh] OR "Preoperative Care"[Mesh] OR "Operating Rooms"[Mesh] OR "Hospitals, Pediatric"[Mesh] OR "Hospital Departments"[Mesh]))) AND ((anxiety OR "Anxiety"[Mesh:NoExp]))	
#12	Search (anxiety OR "Anxiety"[Mesh:NoExp])	
#11	Search (((perioperative[Title/Abstract] OR postoperative[Title/Abstract] OR preoperative[Title/Abstract] OR operati*[Title/Abstract] OR surgery[Title/Abstract]))) OR (((("Perioperative Period"[Mesh] OR "Preoperative Care"[Mesh] OR "Operating Rooms"[Mesh] OR "Hospitals, Pediatric"[Mesh] OR "Hospital Departments"[Mesh]))	
#10	Search (((nonpharmacologic*[Title/Abstract] OR Non-pharmacologic*[Title/Abstract] OR "Non pharmacologic"[Title/Abstract] OR "Non pharmacological"[Title/Abstract] OR Cognitive-behaviour[Title/Abstract] OR "Cognitive behaviour"[Title/Abstract] OR "cognitive behavior"[Title/Abstract] OR cognitive-behavior[Title/Abstract] OR "psychological therapy"[Title/Abstract] OR "psychological intervention"[Title/Abstract] OR "Alternative therapy"[Title/Abstract] OR "Alternative therapies"[Title/Abstract] OR "complementary therapy"[Title/Abstract] OR "complementary therapies"[Title/Abstract] OR "Environmental intervention"[Title/Abstract] OR "Environmental interventions"[Title/Abstract] OR Communication[Title/Abstract] OR "guided imagery"[Title/Abstract] OR distraction[Title/Abstract] OR music[Title/Abstract] OR "virtual reality"[Title/Abstract] OR hypnosis[Title/Abstract] OR reiki[Title/Abstract]))) OR (((("Complementary Therapies"[Mesh] OR "Socioenvironmental Therapy"[Mesh:NoExp]) OR "Massage"[Mesh:NoExp]) OR "Communication"[Mesh:NoExp]))	
#9	Search (((adolescen*[Title/Abstract] OR teen*[Title/Abstract] OR youth*[Title/Abstract] OR paediatric*[Title/Abstract] OR pediatric*[Title/Abstract] OR child*[Title/Abstract]))) OR (((Adolescent[Mesh] OR Child[Mesh]))	

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(Continued)		
Search	Query	Records retrieved
#8	Search "Anxiety"[Mesh:NoExp]	
#7	Search (((("Perioperative Period"[Mesh]) OR "Preoperative Care"[Mesh]) OR "Operating Rooms"[Mesh]) OR "Hospitals, Pediatric"[Mesh]) OR "Hospital Departments"[Mesh]	
#6	Search (((("Complementary Therapies"[Mesh]) OR "Socioenvironmental Therapy"[Mesh:NoExp]) OR "Massage"[Mesh:NoExp]) OR "Communication"[Mesh:NoExp]	
#5	Search ("Adolescent"[Mesh]) OR "Child"[Mesh]	
#4	Search anxiety	
#3	Search (perioperative[Title/Abstract] OR postoperative[Title/Abstract] OR preoperative[Title/Abstract] OR operati[Title/Abstract] OR surgery[Title/Abstract])	
#2	Search (nonpharmacologic*[Title/Abstract] OR Non-pharmacologic*[Title/Abstract] OR "Non pharmacologic"[Title/Abstract] OR "Non pharmacological"[Title/Abstract] OR Cognitive-behaviour[Title/Abstract] OR "Cognitive behaviour"[Title/Abstract] OR "cognitive behavior"[Title/Abstract] OR cognitive-behavior[Title/Abstract] OR "psychological therapy"[Title/Abstract] OR "psychological intervention"[Title/Abstract] OR "Alternative therapy"[Title/Abstract] OR "Alternative therapies"[Title/Abstract] OR "complementary therapy"[Title/Abstract] OR "complementary therapies"[Title/Abstract] OR "Environmental intervention"[Title/Abstract] OR "Environmental interventions"[Title/Abstract] OR Communication*[Title/Abstract] OR "guided imagery"[Title/Abstract] OR distraction[Title/Abstract] OR music[Title/Abstract] OR "virtual reality"[Title/Abstract] OR hypnosis[Title/Abstract] OR reiki[Title/Abstract])	
#1	Search (adolescen*[Title/Abstract] OR teen*[Title/Abstract] OR youth*[Title/Abstract] OR paediatric*[Title/Abstract] OR pediatric*[Title/Abstract] OR child*[Title/Abstract])	

CINAHL Plus with Full Text via EBSCO

Search conducted on September 1, 2019

Search ID	Query	Records retrieved
	Limiters: English; Portuguese; Spanish EXCLUDE MEDLINE	
S13	S9 AND S10 AND S11 AND S12	74
S12	S4 OR S7	
S11	S3 OR S8	
S10	S2 OR S6	
S9	S1 OR S5	
S8	MH Preoperative Period OR Operating Rooms OR Hospitals, Pediatric	
S7	MH Anxiety	
S6	MH Alternative Therapies OR Socioenvironmental Therapy OR Massage OR Communication	
S5	MH Adolescence OR Child	
S4	TI (anxiety OR AB anxiety)	

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(Continued)		
Search ID	Query	Records retrieved
S3	TI (perioperative OR Postoperative OR Preoperative OR operati* OR surgery) OR AB (perioperative OR Postoperative OR Preoperative OR operati* OR surgery)	
S2	TI (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Nonpharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive-behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR Distraction OR music OR "virtual reality" OR hypnosis OR reiki) OR AB (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki)	
S1	TI (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*)	

Cochrane Central Register of Controlled Trials via EBSCO

Search conducted on September 1, 2019

Search ID	Query	Records retrieved
S5	S1 AND S2 AND S3 AND S4	75
S4	TI anxiety OR AB anxiety	
S3	TI (perioperative OR postoperative OR preoperative OR operati* OR surgery) OR AB (perioperative OR postoperative OR preoperative OR Operati* OR surgery)	
S2	TI (nonpharmacologic* OR Non-pharmacologic* OR "Non-pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive-behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR Distraction OR music OR "virtual reality" OR hypnosis OR reiki) OR AB (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki)	
S1	TI (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*)	

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LILACS

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
	Limiters: la: ("pt" OR "es" OR "en")	
	tw:((tw:((adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*))) AND (tw:((nonpharmacologic* OR non-pharmacologic* OR "non pharmacologic" OR "non pharmacological" OR cognitive-behaviour OR "cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "alternative therapy" OR "alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "environmental intervention" OR "environmental interventions" OR communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki))) AND (tw:((perioperative OR postoperative OR preoperative OR operati* OR surgery))) AND (tw:((anxiety))))	96

Library, Information Science and Technology Abstracts

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
S5	S1 AND S2 AND S3 AND S4	1
S4	TI anxiety OR AB anxiety	
S3	TI (perioperative OR postoperative OR preoperative OR operati* OR surgery) OR AB (perioperative OR postoperative OR preoperative OR Operati* OR surgery)	
S2	TI (nonpharmacologic* OR Non-pharmacologic* OR "Non-pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR Distraction OR music OR "virtual reality" OR hypnosis OR reiki OR AB (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki)	
S1	TI (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*)	

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M. Pestana-Santos et al.

Scopus

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
#6	Limiters: (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "Portuguese") OR LIMIT-TO (LANGUAGE, "Spanish"))	
#5	#1 AND #2 AND #3 AND #4	422
#4	(TITLE-ABS-KEY (nonpharmacological) OR TITLE-ABS-KEY ("Non-pharmacological") OR TITLE-ABS-KEY ("Non pharmacological") OR TITLE-ABS-KEY ("Cognitive-behaviour") OR TITLE-ABS-KEY ("Cognitive behavior") OR TITLE-ABS-KEY ("cognitive-behavior") OR TITLE-ABS-KEY ("cognitive behavior") OR TITLE-ABS-KEY ("psychological therapy") OR TITLE-ABS-KEY ("psychological intervention") OR TITLE-ABS-KEY ("Alternative therapy") OR TITLE-ABS-KEY ("Alternative therapies") OR TITLE-ABS-KEY ("complementary therapy") OR TITLE-ABS-KEY ("complementary therapies") OR TITLE-ABS-KEY ("Environmental intervention") OR TITLE-ABS-KEY ("Environmental interventions") OR TITLE-ABS-KEY (communication) OR TITLE-ABS-KEY ("guided imagery") OR TITLE-ABS-KEY (distraction) OR TITLE-ABS-KEY (music) OR TITLE-ABS-KEY ("virtual reality") OR TITLE-ABS-KEY (hypnosis) OR TITLE-ABS-KEY (reiki))	
#3	TITLE-ABS-KEY (anxiety)	
#2	(TITLE-ABS-KEY (perioperative) OR TITLE-ABS-KEY (postoperative) OR TITLE-ABS-KEY (preoperative) OR TITLE-ABS-KEY (surgery))	
#1	(TITLE-ABS-KEY (adolescent) OR TITLE-ABS-KEY (teenanger) OR TITLE-ABS-KEY (paediatric) OR TITLE-ABS-KEY (pediatric) OR TITLE-ABS-KEY (child))	

PsycINFO via EBSCO

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
S6	Language: - Portuguese, Spanish, English	56
S5	S1 AND S2 AND S3 AND S4	
S4	TI anxiety OR AB anxiety	
S3	TI (perioperative OR postoperative OR preoperative OR operati* OR surgery) OR AB (perioperative OR postoperative OR preoperative OR operati* OR surgery)	

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M. Pestana-Santos et al.

(Continued)		
Search ID	Search terms	Records retrieved
S2	TI (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki) OR AB (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki)	
S1	TI (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*)	

JB1 Connect+

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
#1	Adolescente AND anxiety AND perioperative	1

TDX – Tesis Doctorales en Xarxa (Spain)

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
#1	adolescent AND anxiety AND perioperative AND nonpharmacological	3

RCAAP – Repositório Científico de Acesso Aberto de Portugal

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
#2	(Issue) Adolescent AND anxiety	28
#1	(Ti) Adolescent AND anxiety	

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OpenGrey

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
#1	(adolescen* OR teen* OR youth* OR paediatric* OR pediatric* OR child*) AND (nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR Cognitive-behaviour OR "Cognitive behaviour" OR "cognitive behavior" OR cognitive-behavior OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "Environmental intervention" OR "Environmental interventions" OR Communication* OR "guided imagery" OR distraction OR music OR "virtual reality" OR hypnosis OR reiki) AND (perioperative OR postoperative OR preoperative OR operati* OR surgery) AND (anxiety)	3

MedNar

Search conducted on September 1, 2019

Search ID	Search terms	Records retrieved
#1	adolescent AND anxiety AND perioperative AND nonpharmacological	226

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Appendix II: Studies ineligible following full-text review

1. Akca SO, Gozen D, Akpinar YY. The effects of pre-op training on the anxiety levels of children in Corum/Turkey. *Rev Assoc Med Bras* (1992). 2015;61(2):121-5.
Reason for exclusion: Ineligible participants.
2. Al-Yateem N, Brenner M, Shorab AA, Docherty C. Play distraction versus pharmacological treatment to reduce anxiety levels in children undergoing day surgery: a randomized controlled non-inferiority trial. *Child Care Health Dev*. 2016;42(4):572-81.
Reason for exclusion: Ineligible participants.
3. Amedro P, Gavotto A, Gelibert D, Fraysse V, De La Villeon G, Vandenberghe D, et al. Feasibility of clinical hypnosis for transesophageal echocardiography in children and adolescents. *Eur J Cardiovasc Nurs*. 2019;18(2):163-70.
Reason for exclusion: Ineligible context.
4. Arnon Z, Hanan H, Mogilner J. The effect of a hypnotic-based animated video on stress and pain reduction in pediatric surgery. *Int J Clin Exp Hypn*. 2018;66(2):123-33.
Reason for exclusion: Ineligible participants.
5. Bartik K, Toruner EK. Effectiveness of a preoperative preparation program on children's emotional states and parental anxiety. *J Perianesth Nurs*. 2018;33(6):972-80.
Reason for exclusion: Ineligible participants.
6. Borimnejad L, Arbabi N, Seydfatemi N, Inanloo M, Haghani H. The effects of acupressure on preoperative anxiety reduction in school aged children. *Healthmed*. 2012;6(7):2359-61.
Reason for exclusion: Ineligible participants.
7. Borji M, Pouy S, Yaghobi Y, Nabi BN. Effectiveness of acupressure on anxiety of children undergoing anesthesia. *Int J Adolesc Med Health*. 2019.
Reason for exclusion: Ineligible participants.
8. Bringuier S, Dadure C, Raux O, Dubois A, Picot MC, Capdevila X. The perioperative validity of the visual analog anxiety scale in children: a discriminant and useful instrument in routine clinical practice to optimize postoperative pain management. *Anesth Analg*. 2009;109(3):737-44.
Reason for exclusion: Ineligible concept.
9. Broering CV, Souza CDd, Kaszubowski E, Crepaldi MA. [Effects of psychological preparations for surgery on stress and anxiety in boys and girls]. *Acta Colomb Psicol*. 2018;21(1):217-48.
Reason for exclusion: Ineligible participants. Portuguese.
10. Buehler PK, Spielmann N, Buehrer S, Schmidt AR, Weiss M, Schmitz A. Intraoperative music application in children and adolescents – a pilot study. *Acta Anaesthesiologica Scandinavica*. 2017;61(8):895-903.
Reason for exclusion: Ineligible participants.
11. Carlsson RNE, Henningson RN. Visiting the Operating theatre before surgery did not reduce the anxiety in children and their attendant parent. *J Pediatr Nurs*. 2018;38:e24-e9.
Reason for exclusion: Ineligible participants.
12. Chieng YJ, Chan WC, Klainin-Yobas P, He HG. Perioperative anxiety and postoperative pain in children and adolescents undergoing elective surgical procedures: a quantitative systematic review. *J Adv Nurs*. 2014;70(2):243-55.
Reason for exclusion: Ineligible concept.

SYSTEMATIC REVIEW

M. Pestana-Santos et al.

13. Chow CH, Van Lieshout RJ, Schmidt LA, Dobson KG, Buckley N. Systematic Review: Audiovisual interventions for reducing preoperative anxiety in children undergoing elective surgery. *J Pediatr Psychol*. 2016;41(2):182-203.

Reason for exclusion: Ineligible participants.

14. Cuzzocrea F, Gugliandolo MC, Larcán R, Romeo C, Turiaco N, Dominici T. A psychological preoperative program: effects on anxiety and cooperative behaviors. *Paediatr Anaesth*. 2013;23(2):139-43.

Reason for exclusion: Ineligible participants.

15. Dehghan F, Jalali R, Bashiri H. The effect of virtual reality technology on preoperative anxiety in children: a Solomon four-group randomized clinical trial. *Perioper Med (Lond)*. 2019;8:5.

Reason for exclusion: Ineligible participants.

16. Dehghan Z, Reyhani T, Mohammadpour V, Aemmi SZ, Shojaeian R, Nekah SMA. The effectiveness of dramatic puppet and therapeutic play in anxiety reduction in children undergoing surgery: a randomized clinical trial. *Iranian red crescent medical journal*. 2017;19(3).

Reason for exclusion: Ineligible participants.

17. Eijlers R, Dierckx B, Staals LM, Berghmans JM, van der Schroeff MP, Strabbing EM, *et al*. Virtual reality exposure before elective day care surgery to reduce anxiety and pain in children: a randomised controlled trial. *Eur J Anaesthesiol*. 2019;36(10):728-37.

Reason for exclusion: Ineligible participants.

18. Fernandes SC, Arriaga P. The effects of clown intervention on worries and emotional responses in children undergoing surgery. *J Health Psychol*. 2010;15(3):405-15.

Reason for exclusion: Ineligible participants.

19. Franzoi MA, Goulart CB, Lara EO, Martins G. Music listening for anxiety relief in children in the preoperative period: a randomized clinical trial. *Rev Lat Am Enfermagem*. 2016;24:e2841.

Reason for exclusion: Ineligible participants.

20. Gursky B, Kestler LP, Lewis M. Psychosocial intervention on procedure-related distress in children being treated for laceration repair. *J Dev Behav Pediatr*. 2010;31(3):217-22.

Reason for exclusion: Ineligible participants.

21. He HG, Zhu L, Chan SW, Klainin-Yobas P, Wang W. The effectiveness of therapeutic play intervention in reducing perioperative anxiety, negative behaviors, and postoperative pain in children undergoing elective surgery: a systematic review. *Pain Manag Nurs*. 2015;16(3):425-39.

Reason for exclusion: Ineligible participants.

22. Huth MM, Broome ME, Good M. Imagery reduces children's post-operative pain. *Pain*. 2004;110(1-2):439-48.

Reason for exclusion: Ineligible participants.

23. Kain ZN, Fortier MA, Chorney JM, Mayes L. Web-based tailored intervention for preparation of parents and children for outpatient surgery (WebTIPS): Development. *Anes Analg*. 2015;120(4):905-14.

Reason for exclusion: Ineligible participants.

24. Kain ZN, Wang SM, Mayes LC, Krivutza DM, Teague BA. Sensory stimuli and anxiety in children undergoing surgery: a randomized, controlled trial. *Anesth Analg*. 2001;92(4):897-903.

Reason for exclusion: Ineligible participants.

25. Kocherov S, Hen Y, Jaworowski S, Ostrovsky I, Eidelman AI, Gozal Y, *et al*. Medical clowns reduce pre-operative anxiety, post-operative pain and medical costs in children undergoing outpatient penile surgery: a randomised controlled trial. *J Paediatr Child Health*. 2016;52(9):877-81.

Reason for exclusion: Ineligible participants.

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26. Li WH, Chan SS, Wong EM, Kwok MC, Lee IT. Effect of therapeutic play on pre- and post-operative anxiety and emotional responses in Hong Kong Chinese children: a randomised controlled trial. *Hong Kong Med J*. 2014;20 Suppl 7:36-9.

Reason for exclusion: Ineligible participants.

27. Li HC, Lopez V, Lee TL. Psychoeducational preparation of children for surgery: the importance of parental involvement. *Patient Educ Couns*. 2007;65(1):34-41.

Reason for exclusion: Ineligible participants.

28. Manyande A, Cyna AM, Yip P, Chooi C, Middleton P. Non-pharmacological interventions for assisting the induction of anaesthesia in children. *Cochrane Database Syst Rev*. 2015(7):Cd006447.

Reason for exclusion: Ineligible participants.

29. Messina M, Molinaro F, Meucci D, Angotti R, Giuntini L, Cerchia E, et al. Preoperative distraction in children: hand-held videogames vs clown therapy. *Pediatr Med Chir*. 2014;36(5-6):98.

Reason for exclusion: Ineligible participants.

30. Millett CR, Gooding LF. Comparing active and passive distraction-based music therapy interventions on preoperative anxiety in pediatric patients and their caregivers. *J Music Ther*. 2018;54(4):460-78.

Reason for exclusion: Ineligible participants.

31. Park JW, Nahm FS, Kim JH, Jeon YT, Ryu JH, Han SH. The effect of mirroring display of virtual reality tour of the operating theatre on preoperative anxiety: a randomized controlled trial. *IEEE J Biomed Health Inform*. 2019.

Reason for exclusion: Ineligible participants.

32. Patel A, Schieble T, Davidson M, Tran MC, Schoenberg C, Delphin E, et al. Distraction with a hand-held video game reduces pediatric preoperative anxiety. *Paediatr Anaesth*. 2006;16(10):1019-27.

Reason for exclusion: Ineligible participants.

33. Ryu JH, Park JW, Nahm FS, Jeon YT, Oh AY, Lee HJ, et al. The effect of gamification through a virtual reality on preoperative anxiety in pediatric patients undergoing general anesthesia: a prospective, randomized, and controlled trial. *J Clin Med*. 2018;7(9).

Reason for exclusion: Ineligible participants.

34. Ryu JH, Park SJ, Park JW, Kim JW, Yoo HJ, Kim TW, et al. Randomized clinical trial of immersive virtual reality tour of the operating theatre in children before anaesthesia. *Br J Surg*. 2017;104(12):1628-33.

Reason for exclusion: Ineligible participants.

35. Scheel T, Hoepfner D, Grotevendt A, Barthlen W. Clowns in paediatric surgery: less anxiety and more oxytocin? A pilot study. *Klin Padiatr*. 2017;229(5):274-80.

Reason for exclusion: Ineligible participants.

36. Sola C, Lefauconnier A, Bringuier S, Raux O, Capdevila X, Dadure C. Childhood preoperative anxiolysis: Is sedation and distraction better than either alone? A prospective randomized study. *Paediatr Anaesth*. 2017;27(8):827-34.

Reason for exclusion: Ineligible participants.

37. Stewart B, Cazzell MA, Percy T. Single-blinded randomized controlled study on use of interactive distraction versus oral midazolam to reduce pediatric preoperative anxiety, emergence delirium, and postanesthesia length of stay. *J Perianesth Nurs*. 2019;34(3):567-75.

Reason for exclusion: Ineligible participants.

38. Strom S. Preoperative evaluation, premedication, and induction of anesthesia in infants and children. *Curr Opin Anaesthesiol*. 2012;25(3):321-5.

Reason for exclusion: Ineligible concept.

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39. Vagnoli L, Bettini A, Amore E, De Masi S, Messeri A. Relaxation-guided imagery reduces perioperative anxiety and pain in children: a randomized study. *Eur J Pediatr*. 2019;178(6):913-21.

Reason for exclusion: Ineligible participants.

40. Vagnoli L, Caprilli S, Robiglio A, Messeri A. Clown doctors as a treatment for preoperative anxiety in children: a randomized, prospective study. *Pediatrics*. 2005;116(4):e563-7.

Reason for exclusion: Ineligible participants.

41. Weber FS. [The influence of playful activity on a child's anxiety during the preoperative period in the outpatient surgical center]. *J pediatr (Rio J)*. 2010;86(3):209-14. Portuguese.

Reason for exclusion: Ineligible participants.

42. Yip P, Middleton P, Cyna AM, Carlyle AV. Non-pharmacological interventions for assisting the induction of anaesthesia in children. *Cochrane Database Syst Rev*. 2009(3):CD006447.

Reason for exclusion: Ineligible participants.

43. Zhang Y, Yang Y, Lau WY, Garg S, Lao J. Effectiveness of pre-operative clown intervention on psychological distress: a systematic review and meta-analysis. *J Paediatr Child Health*. 2017;53(3):237-45.

Reason for exclusion: Ineligible participants.

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Appendix III: Characteristics of included studies

Author(s), year of publication, country	Study aim	Setting	Study design	Population (age range) M/F per group Surgical condition	Intervention characteristics, including frequency and duration	Outcomes
Robb et al., ⁴⁴ 1995, USA	To determine if there was a significant decrease in physiological indicators of stress following MAR interventions. To determine whether there was a significant decrease in STAIC anxiety scores (state portion) following MAR interventions. To compile and analyze comments of patients and staff in response to MAR interventions.	Patient room; transport to the surgical suite; induction; recovery room	RCT	N = 20 (8-20 years) Operative procedures on the reconstructive unit	MAR Three music sessions: in the evening prior to surgery, at patient's room, and in the recovery room; 30-50 minutes	Anxiety (STAIC)
Lambert et al., ⁵⁰ 1996, USA	To examine the effects of hypnosis with guided imagery on the postoperative course for children.	During the pre-admission visit one week before surgery	Experimental design with two groups and pre-post test	N = 52 (7-19 years) 20M/32F Scheduled for elective surgery	Hypnosis/guided imagery One session: one week before the surgery for no longer than 30 minutes	Anxiety (STAIC) Pain (NPS)

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(Continued)						
Author(s), year of publication, country	Study aim	Setting	Study design	Population (age range) M/F per group Surgical condition	Intervention characteristics, including frequency and duration	Outcomes
Li et al., ⁴⁹ 2008, Hong Kong	To determine the effectiveness and assess the appropriateness of using therapeutic play in preparing Hong Kong Chinese children for surgery.	Inside the theater (starting in the reception area, then to the induction room, operating room, and finally to the recovery room)	RCT, two-group, between-subjects design	N = 203 (7-12 years) Experimental group: 67M/30F Control group: 73M/33F Admitted for elective day surgery	Therapeutic play intervention One session: one week before the surgery; one hour	Anxiety (CSAS-C)
Nilsson et al., ⁵² 2009, Sweden	To test whether listening to music postoperatively reduces morphine consumption and influences pain, distress, and anxiety after day surgery. To describe the experience of listening to music postoperatively in school-aged children who had undergone day surgery.	PACU	Randomized study with an experimental and control group	N = 80 (7-16 years) Experimental group: 20M/20F; Control group: 20M/20F Elective day surgery	Music player One session: starting at the admission in PACU; 45 minutes	Anxiety (STAI short form) Pain (CAS or FLACC) Distress (FAS)

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(Continued)							
Author(s), year of publication, country	Study aim	Setting	Study design	Population (age range) M/F per group Surgical condition	Intervention characteristics, including frequency and duration	Outcomes	
Sabaq et al., ⁵³ 2012, Egypt	To evaluate the effect of a preoperative preparation program and mothers' presence during induction on anxiety level and behavior change in young children undergoing elective surgery.	Pediatric surgery department	Quasi-experimental design	N = 120 (9-12 years) Experimental group: 26M/34F Control group: 25M/35F Elective surgery	Preoperative preparation program and mothers' presence during the induction One session: the day before surgery; 2 hours	Anxiety (STAI)	
Charette et al., ⁴⁵ 2014, Canada	To assess an intervention consisting of guided imagery and relaxation, combined with an educational component, in adolescents and young adults undergoing spinal fusion for scoliosis with respect to alleviating pain intensity, reducing anxiety, and enhancing coping.	Presented before surgery to be used at home after discharge	RCT (pilot study)	N = 40 (10-20 years) Experimental group: 2M/18F Control group: 5M/15F Spinal fusion surgery	DVD with information and guided imagery/relaxation exercises One session on the day before surgery, another at discharge, and three times per week at home; 30 minutes	Anxiety (STAI) Pain (BPI) Coping strategies (PPC)	

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(Continued)						
Author(s), year of publication, country	Study aim	Setting	Study design	Population (age range) M/F per group Surgical condition	Intervention characteristics, including frequency and duration	Outcomes
Aytekin et al., ¹⁵ 2016, Turkey	To investigate the effects of distraction on the preoperative anxiety levels of pediatric patients.	Before going into the operating room	Prospective, two-group experimental design	N = 83 (9-18 years) Experimental group: 21M/19F Control group: 23M/20F Elective surgery: abdominal, urinary, perianal, gastrointestinal	Distraction One session; 20 minutes	Anxiety (STAIC) Separation scoring (observational measurement)
Nelson et al., ⁴⁶ 2016, USA	To evaluate the effectiveness of a preoperative training program on adolescent idiopathic scoliosis patients' pain and anxiety perception after spinal fusion surgery.	Day prior to surgery	RCT	N = 41 (10-19 years) Experimental group: 1M/18F Control group: 3M/19F Spinal fusion surgery	Relaxation training and postoperative music therapy One session; 20-30 minutes	Anxiety (NRS) Pain (FLACC)

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(Continued)							
Author(s), year of publication, country	Study aim	Setting	Study design	Population (age range) M/F per group Surgical condition	Intervention characteristics, including frequency and duration	Outcomes	
Duparc-Alegria et al., ⁴⁷ 2018, France	To assess the effect of a short hypnosis session carried out just before induction of anesthesia prior to major pediatric surgery. Primary objective: to assess the impact of hypnosis on postoperative anxiety. Secondary objective: to assess the impact of hypnosis on pain and analgesic consumption.	Operating room prior to major surgery	RCT	N = 118 (10-18 years) Experimental group: 19M/40F Control group: 15M/45F (1 dropout and it was not stated if the participant was male or female) Major orthopedic surgery	Hypnosis One session; 5-10 minutes	Anxiety (VAS-A) Pain (FPS-Revised or NRS)	
Karakul et al., ⁵¹ 2018, Turkey	To evaluate the effect of listening to music on the anxiety state and vital signs of children and adolescents during the recovery period, after a day surgery.	PACU	Experimental design: pre-test/post-test control group design	N = 130 (9-17 years) Experimental group: 40M/25F Control group: 40M/25F Day surgery	Classical music on headphones One session; about 20 minutes	Anxiety (STAI-C) Vital signs	

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(Continued)						
Author(s), year of publication, country	Study aim	Setting	Study design	Population (age range) M/F per group Surgical condition	Intervention characteristics, including frequency and duration	Outcomes
Staveski et al., ⁴⁸ 2018, USA	To evaluate the safety and feasibility of implementing massage therapy in the immediate post-operative period. To examine the preliminary effects of massage therapy versus standard care plus three reading visits on postoperative pain and anxiety. To evaluate preliminary findings related to opioid and benzodiazepine exposure in patients receiving massage therapy and in reading controls.	Cardiac intensive care unit; cardiology ward	RCT	N = 60 (6-18 years) Experimental group: 14M/22F Control group: 15M/9F Congenital heart surgery	Massage therapy and reading Two to three sessions per week starting within 24 hours after surgery and continued throughout the hospital stay Massage: 15-30 minutes Reading: 20 minutes	Anxiety (STAIC) Pain (FLACC and NRS) Exposure to opioids and benzodiazepines (PRN)

BPI, Brief Pain Inventory; CAS, color analog scale; CSAS-C, Chinese version of the State Anxiety Scale for Children; FAS, facial affective scale; FLACC, face, legs, activity, cry, consolability; FPS-R, Faces Pain Scale – Revised; M/F, male/female; MAR, music-assisted relaxation; NPS, numeric pain scale; NRS, numeric rating scale; PACU, postoperative care unit; PPCI, Pediatric Pain Coping Inventory; PRN, pro re nata (as needed); RCT, randomized controlled trial; STAIC, State-Trait Anxiety Inventory; STAIC, State-Trait Anxiety Inventory for Children; VAS-A, Visual Analogue Scale for Anxiety.

Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: a systematic review protocol

Pestana-Santos M, Pereira MJ, Santos E, Lomba L, Santos MR.
JBI Evid Synth. 2021;19(10): 2863-69.

Disciplina: Enfermagem.

Indexação: CINAHL, Embase, EMCare, HINARI, MEDLINE, PsycINFO, Scopus, Zetoc.

SJR® (2020): Pendente.

JCR® (2020): Pendente.

SYSTEMATIC REVIEW PROTOCOL

Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: a systematic review protocol

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ABSTRACT

Objective: This review aims to evaluate the effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period.

Introduction: Adolescents undergoing surgery suffer considerable levels of anxiety and distress before surgery, which are maintained beyond the procedure. Although the benefit of non-pharmacological interventions in this area is significant, their efficacy is still under-studied.

Inclusion criteria: This review will consider studies that focus on adolescents aged 10 to 19 years, who have undergone a surgical procedure. All studies that focus on non-pharmacological interventions occurring in the perioperative period designed to reduce anxiety without restrictions on comparators, geography, or culture will be included.

Methods: An initial limited search of PubMed and CINAHL has been undertaken and will be followed by a second search for published and unpublished studies, without limitations of publication date, in major health care-related electronic databases. Studies in English, Spanish, and Portuguese will be included. After full-text studies are retrieved, methodological quality assessment and data extraction will be performed independently by two reviewers. A narrative synthesis will accompany the results and, if possible, a meta-analysis will be performed and a Grading of Recommendations, Assessment, Development and Evaluation (GRADE) Summary of Findings presented.

Systematic review registration number: PROSPERO CRD42020184386

Keywords: adolescent; anxiety; complementary therapy; non-pharmacological interventions; perioperative care
JBI Evid Synth 2021; 19(10):2863–2869.

Introduction

In the United States of America (USA) there are about seven million adolescents who undergo surgery each year¹ and up to 65% of them are estimated to experience considerable anxiety and distress before surgery.² Even if the surgical procedure is well-

known it can be a distressing and overwhelming experience for the adolescent.³

According to the World Health Organization, “adolescence” is the phase of life between childhood and adulthood, from ages 10 to 19.⁴ Adolescents experience rapid physical, cognitive, and psychosocial growth⁴; however, their physical growth precedes their cognitive maturation.⁵ According to their developmental characteristics, adolescence is divided into three stages, specifically: early adolescence (10 to 14 years), medium adolescence (15 to 16 years) and late adolescence (17 to 19 years).⁶

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The authors declare no conflict of interest.

DOI: 10.11124/JBIES-20-00359

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“Anxiety” is defined as a vague and uncomfortable feeling of discomfort or fear, accompanied by an autonomic response and a feeling of apprehension caused by the anticipation of danger.⁷ Factors that increase anxiety levels in the perioperative period are fear of the unknown, perception of physical injuries or pain, loss of control, uncertainty of what is expected, and separation from family routines. Anxiety levels may also be higher when there is no preoperative preparation.⁸ Consequently, the higher the levels of anxiety, the greater the negative emotions in adolescents, and the more difficulty they may have in cooperating with health care professionals.⁹ An adolescent’s anxiety levels in the perioperative period are measured using several instruments, such as State-Trait Anxiety Inventory (STAI-Y), State-Trait Anxiety Inventory for Children (STAIC), Visual Analogue Scale for Anxiety (VAS-A), modified Yale Preoperative Anxiety Scale (mYPAS), or a Zero to 10 numeric rating scale (NRS).

Non-pharmacological interventions, such as cognitive-behavioral techniques (eg, distraction, imagery, preparation information, positive reinforcement, relaxation, and breathing techniques), physical methods (eg, positioning and massage), and emotional support (eg, presence, touch, and comforting), can be used to reduce anxiety.¹⁰ Thus, the implementation of non-pharmacological interventions entails the application of any of these methods or techniques for anxiety prevention without involving drug administration,¹¹ and several of these options are already in use with adolescents in the perioperative period, such as distraction, guided imagery, hypnosis,¹² music therapy, music,^{13,14} or massage.¹⁵ The importance of these interventions is the change they initiate in the meaning attributed to the anxiety-causing agent. Through its application, cognitive restructuring is achieved and oriented to the cognitions, expectations, assessments, and constructions that complement the experience of anxiety.¹¹

Lastly, the perioperative period comprises three phases: preoperative, intraoperative, and postoperative. The preoperative phase starts when the patient is informed of the need for surgical intervention and includes all events up to the scheduled surgical procedure (preparation for the surgery). The intraoperative phase consists of the actual surgical procedure (management strategies). Finally, the postoperative phase starts in the post-anesthesia care unit and lasts until the patient returns to their usual roles and

responsibilities (post-surgical management and recovery at home).^{16,17}

In the last decade, a significant investment has been made in studying the neurocognitive development processes of adolescents to explain why they respond and behave differently from children and adults.¹⁸ Similarly, a decade ago, Fortier and colleagues outlined the need to develop primary studies in the perioperative context, involving only adolescents in their samples.² Since then, several studies have examined non-pharmacologic interventions in the perioperative period and included adolescents in the studied population.^{3,19-23} Manyande and colleagues focused on the effects of non-pharmacological interventions in assisting induction of anesthesia in children (from birth to 18 years) by reducing their anxiety and distress or increasing their cooperation.²³ Chieng and colleagues examined the relationship between perioperative anxiety and postoperative pain in children and adolescents undergoing elective surgical procedures.³ Woragidpoonpol and colleagues evaluated the best available evidence related to the use and effectiveness of non-pharmacological interventions as an adjuvant therapy to pharmacological interventions and the perceptions and/or pain behaviors in children from birth to 19 years who had undergone major surgery.¹⁰ None of these studies included the adolescent population only.

Additionally, a recent scoping review, also aimed at mapping the non-pharmacological interventions to prevent anxiety in adolescents in the perioperative period, identified that there is sufficient literature concerning non-pharmacologic interventions delivered to adolescents in the perioperative period to conduct a systematic review and analyze the effectiveness of these interventions within this specific population.²⁴

There is a need to summarize findings focusing on the effectiveness of non-pharmacological interventions in the prevention of anxiety in the perioperative period to provide the best evidence to health care professionals who work with adolescents in a perioperative context.

A preliminary search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and *JBI Evidence Synthesis* was conducted and no current or in-progress systematic reviews on the topic were identified.

The objective of this review is to evaluate the effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period.

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Review question

What is the effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period?

Inclusion criteria*Participants*

The review will consider studies that include adolescents aged 10 to 19 years old who have undergone a surgical procedure, regardless of the type of surgery (including ambulatory, minor, or major surgery). Studies involving adolescents previously diagnosed with a psychiatric illness will be excluded.

Interventions

This review will consider studies that evaluate non-pharmacological interventions. For this purpose, non-pharmacological interventions include, but are not limited to, any treatment that is not a registered drug, such as massage, hypnosis, guided imagery, music therapy, music, and virtual reality. Any other non-pharmacological interventions used in the perioperative context with adolescents to prevent anxiety may be added. There are no limitations to frequency, intensity, or who delivers the intervention.

Comparators

This review will consider studies that compare the non-pharmacological intervention or a combination of non-pharmacological interventions to other comparators. It can include another non-pharmacological intervention, usual care, or no treatment control.

Outcomes

This review will consider studies that include outcomes that measure anxiety levels on adolescents in the perioperative period. This outcome could be measured using STAI-Y, STAIC, VAS-A, mYPAS, NRS, or other instruments to evaluate anxiety level in adolescents.

Context

There are no context constraints in this review.

Types of studies

This review will consider both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, quasi-experimental, before and after studies,

prospective and retrospective cohort studies, case control studies, and analytical cross-sectional studies. Individual case reports, case series, and systematic reviews will be excluded.

Methods

This protocol followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA-P) guidelines.²⁵ The proposed systematic review will be conducted in accordance with JBI methodology for systematic reviews of effectiveness.²⁶ This protocol has been registered in PROSPERO (CRD42020184386).

Search strategy

The search strategy aims to locate both published and unpublished studies. A three-step search strategy will be utilized in this review. An initial limited search of PubMed was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for PubMed (see Appendix I). The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference list of all studies selected for critical appraisal will be screened for additional studies.

The databases to be searched will include MEDLINE via PubMed, CINAHL via EBSCO, PsycINFO via EBSCO, SciELO, and Cochrane Central Register of Controlled Trials via EBSCO. The search for unpublished studies and gray literature will include OpenGrey and RCAAP – Portugal Open Access Scientific Repository.

Studies published in English, Spanish, and Portuguese will be included. There will be no date, geographical, or cultural limitations for the inclusion of studies.

Study selection

Following the search, all identified citations will be collated and uploaded into EndNote v.X8 (Clarivate Analytics, PA, USA) and duplicates removed. Titles and abstracts will then be screened by two independent reviewers (MJP and MPS) for assessment against the inclusion criteria of the review. Potentially relevant studies will be retrieved in full and their citation details imported into the JBI System

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for the Unified Management, Assessment and Review of Information (JBI SUMARI; JBI, Adelaide, Australia).²⁷ The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers (MJP and MPS). Reasons for exclusion of full-text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion or with a third reviewer (ES). The results of the search will be reported in full in the final systematic review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.²⁸

Assessment of methodological quality

Eligible and selected studies will be critically appraised by two independent reviewers (MJP and MPS) at the study level for methodological quality in the review, using standardized JBI critical appraisal instruments for experimental and quasi-experimental studies.²⁶ Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion or with a third reviewer (ES). Following critical appraisal, studies will not be excluded based on their methodological quality; however, the results of the critical appraisal will be considered in the synthesis of the evidence and reported in narrative and tabular form.²⁶ All studies, regardless of the results of their methodological quality, will undergo data extraction and synthesis.

Data extraction

Data will be extracted from studies included in the review by two independent reviewers (MJP and MPS), using the standardized data extraction form developed by JBI. Once again, any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer (ES). Authors of papers will be contacted to request missing or additional data, where required.²⁶

The data extracted will include specific details about the setting, population (adolescent subgroups), study methods, interventions, and outcomes of significance to the review question. Details will be modified and revised for each study as necessary during the data extraction process.²⁶

Data synthesis

Studies will, where possible, be pooled in statistical meta-analysis using JBI SUMARI.²⁷ Effect sizes will be expressed as either odds ratios (for dichotomous data) and weighted (or standardized) final post-intervention mean differences (for continuous data), and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed statistically using the standard χ^2 and I^2 tests. Statistical analyses will be performed using random effects models only in the presence of moderate to high heterogeneity ($I^2 > 50\%$) and, in their absence, fixed effects models will be used instead.²⁹

Subgroup analyses will be conducted where there is sufficient data to investigate, based on the different study designs, settings/contexts, and age categories.²⁶ Sensitivity analyses will be conducted to test decisions made regarding the inclusion of any mega-trials. A funnel plot will be generated using JBI SUMARI²⁷ to assess publication bias if there are 10 or more studies included in a meta-analysis. Statistical tests for funnel plot asymmetry will be performed where appropriate. Where statistical pooling is not possible, the findings will be presented in narrative form, including tables and figures, to aid in data presentation where appropriate.

Assessing certainty in the findings

The Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach for grading the certainty of evidence will be followed and a Summary of Findings will be created using GRADEPro software (McMaster University, ON, Canada).³⁰ The Summary of Findings will present the following information where appropriate: the absolute risks for the treatment and control, estimates of relative risk, a ranking of the quality of the evidence-based information on the risk of bias, the directness, heterogeneity, precision, and risk of publication bias of the review results. All outcomes will be included in the Summary of Findings.

Acknowledgments

The Health Sciences Research Unit: Nursing (UICI-SA:E), hosted by the Nursing School of Coimbra (ESENfC), for their support.

This review will contribute towards a PhD in Nursing Sciences for author MPS.

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Appendix I: Search strategy

MEDLINE (PubMed)

Search conducted June 21, 2020

Search	Query	Records retrieved
#1	("Young Adult"[Mesh]) OR "Adolescent"[Mesh]	2,405,294
#2	(((((("Complementary Therapies"[Mesh]) OR "Imagery, Psychotherapy"[Mesh]) OR "Hypnosis"[Mesh:NoExp]) OR "Music Therapy"[Mesh]) OR "Virtual Reality Exposure Therapy"[Mesh]) OR "Massage"[Mesh:NoExp])	227,063
#3	((("Perioperative Care"[Mesh]) OR "Preoperative Care"[Mesh]) OR "Operating Rooms"[Mesh])	162,277
#4	"Anxiety"[Mesh:NoExp]	80,390
#5	(adolescen*[Title/Abstract] OR teen*[Title/Abstract] OR youth*[Title/Abstract] OR paediatric*[Title/Abstract] OR pediatric*[Title/Abstract] OR child*[Title/Abstract])	1,768,344
#6	(nonpharmacologic*[Title/Abstract] OR Non-pharmacologic*[Title/Abstract] OR "Non pharmacologic"[Title/Abstract] OR "Non pharmacological"[Title/Abstract] OR "psychological therapy"[Title/Abstract] OR "psychological intervention"[Title/Abstract] OR "Alternative therapy"[Title/Abstract] OR "Alternative therapies"[Title/Abstract] OR "complementary therapy"[Title/Abstract] OR "complementary therapies"[Title/Abstract] OR "guided imagery"[Title/Abstract] OR imagery[Title/Abstract] OR music[Title/Abstract] OR "music therapy"[Title/Abstract] OR "virtual reality"[Title/Abstract] OR hypnosis[Title/Abstract])	81,232
#7	(perioperative[Title/Abstract] OR postoperative[Title/Abstract] OR preoperative[Title/Abstract] OR operati*[Title/Abstract] OR surgery[Title/Abstract] OR "preoperative period"[Title/Abstract])	2,141,446
#8	(anxiety[Title/Abstract] OR "anxiety level"[Title/Abstract] OR "STAIC"[Title/Abstract] OR "STAI"[Title/Abstract] OR "VAS-A"[Title/Abstract] OR "STAI-Y"[Title/Abstract])	190,956
#9	#1 OR #5	3,543,818
#10	#2 OR #6	289,863
#11	#3 OR #7	2,194,676
#12	#4 OR #8	212,892
#13	#9 AND #10 AND #11 AND #12	299
Filters: English, Portuguese, Spanish. No date limits.		273

Artigo 6

Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: A systematic review and meta-analysis

Pestana-Santos M, Pereira MJ, Pestana-Santos A, Santos E, Gonçalves A, Cardoso D, Santos MR, Lomba L.
ACORN J Periop Nurs. 2021;34(3):e15-25.

Disciplina: Advanced and Specialized Nursing (Q2); Medical and Surgical Nursing (Q2).
SJR® (2020): 0,261.

Peer-reviewed article

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Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: A systematic review and meta-analysis

Abstract

Aims

To evaluate the effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period.

Design

Systematic review of effectiveness and meta-analysis.

Data sources

MEDLINE, CINAHL, PsycInfo, Cochrane Central Register of Controlled Trials, SciELO, sources of unpublished studies and grey literature, including Open Grey and RCAAP – Portugal, were systematically searched without time limits (up to December 2020).

Review methods

This review followed the Joanna Briggs Institute (JBI) methodology for systematic reviews of evidence effectiveness. The selection process, critical analysis and extraction of data were performed by two independent reviewers. Studies were critically appraised using JBI Critical Appraisal Checklist for Randomised Controlled Trials. Data was synthesised through meta-analysis (using a fixed-effect model in the RevMan 5.2.8) and narrative synthesis.

Results

This analysis included five studies with a total of 420 adolescents. The effectiveness of non-pharmacological interventions, including cognitive-behavioural techniques, hypnosis, guided imagery and relaxation, were examined in the perioperative context. A meta-analysis ($n=136$ adolescents) of three studies suggests no differences in adolescents' anxiety when non-pharmacological interventions are applied compared to standard care (SMD -0.14, 95% CI -0.48 to 0.20, $p=0.42$). Individually, all the studies showed that non-pharmacological interventions were beneficial on the reduction of the adolescents' anxiety, although no statistical significance was found.

Conclusion

Despite insufficient evidence on the effectiveness of non-pharmacological interventions, they should be considered as a resource in the management of adolescent anxiety in the perioperative period.

Key words: adolescent, anxiety, perioperative care, nursing, systematic review, non-pharmacological, guided imagery, education

Introduction

Anxiety is a common symptom in adolescents undergoing surgery¹. Up to 65 per cent of adolescents that undergo surgery experience considerable anxiety symptoms before the procedure¹. The highest scores are generally reported just before the start of anaesthesia, in the induction room, where about 80 per cent of individuals present very high levels of anxiety¹. It is estimated that about five million adolescents in the United States of America and 65 000 in Canada experience a surgical procedure each year^{2,3}. In Portugal, of the 970 200 surgeries performed in 2018, 17 482 were at paediatric age – up to 14 years old⁴. Although efforts were made to find data from a global number or even from other countries, it was not possible to find discriminated surgical statistics for the adolescent or paediatric groups.

The World Health Organization (WHO) defines adolescence as the phase between childhood and adulthood ranging from 10 to 19 years old⁵. Given the developmental characteristics, adolescence can be divided into three stages: early adolescence (10–14 years), medium adolescence (15–16 years) and late adolescence (17–19 years)⁶. This specific population experiences rapid physical, cognitive and psychosocial development⁵. However, physical growth precedes cognitive maturation⁷ and both emotional and judgmental maturation are important cofactors for perioperative care⁸.

Non-pharmacological interventions (NPIs) implemented in the preoperative period help to reduce anticipatory anxiety and preoperative anxiety by offering a peaceful and pleasant state⁹. The NPIs can also complement pharmacological interventions offering a feeling of well-being⁹.

The behaviour of the paediatric population in a perioperative situation has been widely studied, and many reviews have been conducted on the topic^{10–13}. Despite adolescents being included in these studies, the specific subject of NPIs – how these could be used and which effects to expect on adolescent's perioperative anxiety – was not reported. This is particularly relevant if we attend to developmental characteristics and want to know which NPI could be better suited for the adolescent population.

Background

Adolescents' anxiety in the perioperative period frequently results from fear of the unknown, fear of the inability to wake up, fear of death after anaesthesia, loss of control and pain^{14,15}. But anxiety can last past the surgical experience. Some adolescents revealed trouble sleeping, nightmares and waking up with an intense sense of fear and anxiety, that lasted longer than the recovery period¹⁶. Even for those individuals who have been provided with information about the surgical procedure, the perioperative experience may still be distressing and overwhelming¹⁰. In general, the child/adolescent anticipates the surgical experience according to their maturity, previous information and involvement in the treatment process¹⁷.

Anxiety can be defined as an emotional state that involves feelings of apprehension, tension, nervousness and worry accompanied by physiological or motor arousal¹⁸. It is a normal reaction to any threat, and it can be protective under some circumstances. Anxiety can also be associated with the anticipation of a future concern and is more correlated with muscle tension and avoidance behaviour^{19,20}. A fearful temperament, somatisation

tendencies, trait anxiety and depression are significant predictors for pre-operative anxiety in the adolescent¹. The triggering factors for anxiety in the perioperative period are related to how the patient fears the unknown; perceives physical injuries, pain and loss of control, and the uncertainty of what is expected in the immediate experience²¹. Perioperative anxiety can consequently require a longer time for induction of anesthesia and post-operative recovery, increase the risk of post-operative delirium and increase pain scores and the consumption of analgesia²².

In the last decade, a substantial investment has been made in studies focusing on the neurocognitive development processes of adolescents, to clarify why they react and behave differently from not only children but also from adults²³. A decade ago, Fortier and colleagues highlighted the need to develop primary studies in the perioperative context, involving adolescents only in their samples¹. Some studies conducted in the perioperative period demonstrated contradictory results for the relationship between anxiety and age, gender and previous medical experiences^{24–26}. Nevertheless, the higher the scores of anxiety, the greater are adolescents' negative emotions and difficulties with pain management and dealing with health care professionals²⁷.

The State-Trait Anxiety Inventory form Y (STAI-Y) is an instrument for assessing state of anxiety (20-items) and trait of anxiety (20-items), with each one scoring between 20 and 80¹⁸. The STAI for children (STAIC) has scores ranging from 20 to 60, with higher scores indicating greater anxiety¹⁸. Both instruments are considered 'gold standard' in the evaluation of adolescents' anxiety in the perioperative period¹⁸. The Visual Analogue Scale for Anxiety (VAS-A)

and the Numeric Rating Scale (NRS) are also often used and easy to apply. The scores range from 0 to 10 and higher scores indicate greater anxiety.

The interventions used to prevent anxiety in the preoperative period include both non-pharmacological and pharmacological strategies^{28,29}. The former allow changes to the meaning attributed to the anxiety-causing agent. That is, NPIs achieve cognitive restructuring which is oriented to the cognitions, expectations, assessments and constructions that complement the experience of anxiety³⁰. Furthermore, NPIs have no side effects, no need for a prescription, are recommended as a resource in the control of adolescent anxiety and fear related to surgical procedures, and the adolescent can use them as tools to manage other anxiety situations throughout life³⁰.

The NPIs are differentiated into five categories: psychological, physical, nutritional, digital and elemental health interventions³¹. Psychological interventions include relaxation therapies, health education programs, psychotherapies and body-mind programs^{31,32}. The use of these NPIs is safe and has no adverse reactions³².

A preliminary search throughout MEDLINE, PROSPERO, Joanna Briggs Institute (JBI) Database of Systematic Reviews and Implementation Reports and the Cochrane Database of Systematic Reviews was conducted and found some systematic reviews on this topic^{10-13,33-35}. In all the cited studies, the authors do not present results for the adolescent population. Additionally, a previous scoping review identified which NPIs are used with the adolescent population in the perioperative period but the effects, alone or grouped, have not yet been evaluated³⁶. Therefore, there is a need to systematise the findings, focusing

on the NPIs and the management of anxiety in adolescents in the perioperative period, and produce the best evidence for the health care professionals who work with this population in this context.

The review

Aim

This review aimed to evaluate the effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period.

The following review question was addressed in this study: What is the effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period?

Design

This systematic review was conducted according to the JBI methodology for systematic reviews of effectiveness³⁷ and this report was organised using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA 2020) statement. The review protocol was registered in PROSPERO (CRD42020184386) and previously published³⁸ to increase transparency and reduce the risk of bias.

Search methods

The search followed a three-step strategy to identify both published and unpublished studies that met the inclusion criteria (Table 1). Initially a limited search of MEDLINE (PubMed) and CINAHL (EBSCO) was undertaken and followed by an analysis of the relevant text words included in the title and abstract and the index terms of the selected articles. All the identified keywords and index terms were adapted for each database and a second search was undertaken in December 2020.

The searched databases included MEDLINE (PubMed), CINAHL (EBSCO), PsycInfo (EBSCO), Cochrane Central Register of Controlled Trials (EBSCO) and SciELO. Sources of unpublished studies and grey literature searched included Open Grey and RCAAP – Portugal Open Access Scientific Repository. The full search strategies are provided in Supplement 1. Finally, all references of the studies selected for critical appraisal were screened to find additional studies. Studies published in English, Spanish and Portuguese were considered for inclusion. No date or geographical limits were applied to this review.

Search outcomes

A total of 985 potentially relevant studies were identified from the database searches. All identified citations were collated and uploaded into the citation manager EndNote X8 (Clarivate Analytics, PA, USA) and duplicates were removed. After the full text of the selected studies was examined, the titles and abstracts of the remaining studies were screened to check whether they met the inclusion criteria. These steps were undertaken by two independent reviewers (MPS, MJP) and any disagreements between both were discussed jointly or with a third reviewer (APS).

Quality appraisal

Eligible studies were critically appraised by two independent reviewers using the JBI Critical Appraisal Checklist for Randomised Controlled Trials³⁹. All items have three potential responses 'yes', 'unclear' and 'no', with 'yes' scoring 1, and the others 0. The quality of the RCT studies were classified into good (score 11–13), moderate (score 7–10) and poor (score <6). Once again, any disagreements between reviewers were discussed jointly or with a third reviewer (APS). Considering

Table 1: Inclusion criteria based on population, intervention, control, outcomes and study (PICOS) format

Review question	Inclusion criteria
Population	Adolescents (10–19 years) in the perioperative context
Intervention	NPIs such as education, massage, hypnosis, guided imagery, music therapy, music or virtual reality. There were no limitations in frequency, intensity or who delivers the intervention.
Comparator	Usual/standard care
Outcome	Anxiety (STAI-Y or STAI-C or VAS-A or NRS)
Studies	Experimental and quasi-experimental study designs including randomised controlled trials (RCTs), non-randomised controlled trials, before and after studies, and interrupted time-series studies. Analytical observational studies including prospective and retrospective cohort studies, case control studies and analytical cross-sectional studies.

there were few studies concerning the use of NPIs to manage anxiety in adolescents in the perioperative period, researchers decided to include all the selected studies and discuss their methodological weaknesses³⁸.

Data abstraction

Data from the included studies was extracted by the same two independent reviewers (MPS, MJP) using the standardised JBI data extraction tool (JBI SUMARI)³⁷. Data extracted included: study design, participant's details, setting and location, intervention (frequency, duration, dose), comparator, outcome measures, measurements points and outcomes of significance to the review objective.

Synthesis

Studies were pooled with statistical meta-analysis using Review Manager 5.2.8. (Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2011). Effect sizes expressed as standardised final post-intervention mean differences (for continuous data) and their 95 per cent confidence intervals were calculated for analysis. Heterogeneity was assessed statistically using the standard χ^2 and I^2 tests. Statistical analyses were performed using fixed-effect models due to the absence of heterogeneity ($P=0\%$)³⁹. Subgroup analyses were not conducted due to insufficient data. As there were fewer than ten studies included in the meta-analysis, it was not possible to assess publication bias and generate the funnel plot. Where statistical pooling was not possible, the findings are presented and synthesised in narrative format, without meta-analysis.

Results

A total of 58 papers were retrieved for full-text review. Of these, 53 articles were excluded and reasons are noted in Supplement 2. Five studies were critically assessed and included in this review. The study identification is described in detail in Figure 1.

Methodological quality

Although different study designs were considered for inclusion, only RCTs met the criteria and all of them were of moderate quality^{40–44}.

In the standardised critical appraisal instrument for RCTs, seven out of 13 questions about the studies were rated as 'yes' (Table 2). None of the RCTs provided sufficient information about whether those delivering the treatment were blinded to treatment assignment. With the exception of one⁴², the studies used clear randomisation for assignment to the treatment or control group and allocation to treatment group was concealed. Another study⁴⁴ clearly describes that the participants were blind to the treatment assignment, and only two studies^{42,43} outline in a clear way that those delivering the treatment were blind to treatment assignment. At last, only one study⁴¹ presents a complete follow-up.

Characteristics of included studies

All the studies included in this review were published between 2003 and 2019 and are written in English. Specific information and characteristics of these studies are summarised in Table 3.

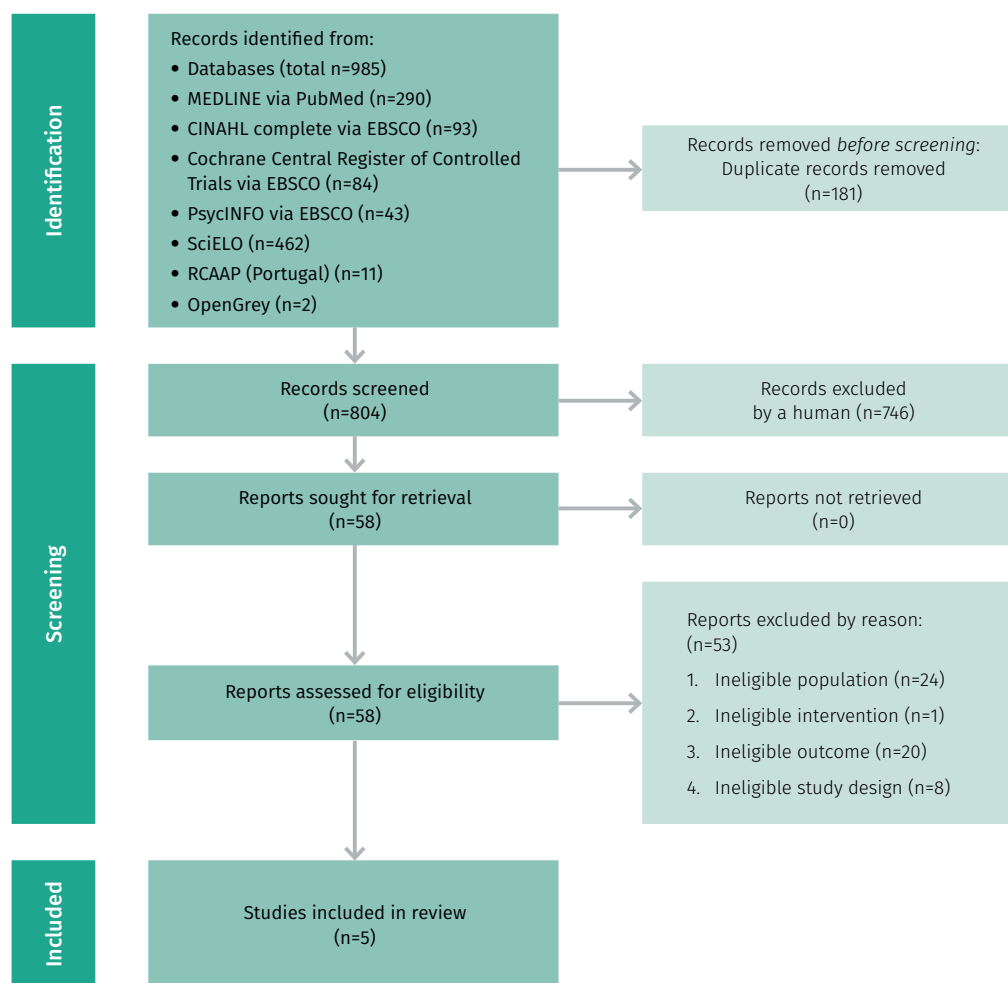


Figure 1: PRISMA 2020 flow diagram including searches of databases

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71.

Settings

Two studies were conducted in the United States of America (USA)^{40,42}, one in France⁴³, one in Canada⁴¹ and one in Poland⁴⁴. All the studies were developed in a hospital context though in different clinical settings: orthopaedics⁴⁰⁻⁴², thoracic paediatric surgery⁴⁴ and the operating room just before anaesthesia induction⁴³.

Sample size

The number of participants varied from 40⁴¹ to 118⁴³ per study. At pre-intervention the included studies had a total sample of 437 participants. However, at post-intervention the total sample had 420 participants. Of these, 279 were females and 141 were males.

Participants

The participants' ages ranged from 9 to 19 years old. Only one study⁴⁴ included participants aged nine years. Authors of this study were contacted to ascertain exactly how many nine-year-olds were included in the sample. As there were only two, after a thorough discussion, the

Table 2: Quality appraisal of eligible studies

	LaMontagne et al., 2003	Charette et al., 2014	Nelson et al., 2016	Duparc- Alegria et al., 2018	Tomaszek et al., 2019	%
1. Was true randomisation used for assignment of participants to treatment groups?	Y	Y	U	Y	Y	80
2. Was allocation to treatment groups concealed?	Y	Y	U	Y	Y	80
3. Were treatment groups similar at baseline?	Y	Y	Y	Y	Y	100
4. Were participants blind to treatment assignment?	U	N	N	N	Y	20
5. Were those delivering treatment blind to treatment assignment?	N	N	N	N	U	0
6. Were outcome assessors blind to treatment assignment?	N	N	Y	Y	U	40
7. Were treatment groups treated identically other than the intervention of interest?	Y	Y	Y	Y	Y	100
8. Was follow-up complete, and if not, were strategies to address incomplete follow-up utilised?	N	Y	N	N	N	20
9. Were participants analysed in the groups to which they were randomised?	Y	Y	Y	Y	Y	100
10. Were outcomes measured in the same way for treatment groups?	Y	Y	Y	Y	Y	100
11. Were outcomes measured in a reliable way?	Y	Y	Y	Y	Y	100
12. Was appropriate statistical analysis used?	Y	Y	Y	Y	Y	100
13. Was the trial design appropriate, and any deviations from the standard RCT design (individual randomisation, parallel groups) accounted for in the conduct and analysis of the trial?	Y	Y	Y	Y	Y	100
Score	9	10	8	10	10	

Y = Yes, N = No, U = Unclear

Table 3: Characteristics of included studies

Study details	Study design	Participants details (EG/CG)	Setting and location	Intervention (frequency, duration)	Comparator	Outcome measures	Measurements points	Outcomes (EG/CG)
LaMontagne et al., 2003 ⁴⁰ (USA)	RCT with four groups	n = 109 Information only n=27 Coping only n=27 Information plus coping n=30 Control group n=25. Ages: 11 to 18 years	During preoperative orthopaedic clinic visit	Cognitive-behavioural Intervention delivered by video (one session, 8–10 minutes)	Usual care	STAIC	Preoperative (day before surgery) Post-operative (day two after surgery)	Information only: 38,93 (7,10) Coping only: 37,07 (6,38) Control group: 39,88 (8,28)
Charette et al., 2014 ⁴¹ (Canada)	RCT (pilot study)	n = 40 (20/20) Ages: 11 to 20 years	At hospital on the day before surgery	A DVD providing information and demonstration of guided imagery, relaxation and education (one session, 30 minutes)	Usual care	STAI-Y	Preoperative (day before surgery) Post-operative (day of discharge) and follow-up (one month follow-up visit)	EG: 47,25 (3,37) CG: 47,85 (5,93)
Nelson et al., 2016 ⁴² (USA)	RCT	n = 41 (19/22) Ages: 10 to 19 years	During preoperative visit	Relaxation training program video (one session, 20–30 minutes)	Usual care	NRS	Preoperative and post-operative (day two after surgery)	EG: 3,5 (2,7) CG: 3,7 (2,9)
Duparc-Alegria et al., 2018 ⁴³ (France)	RCT	n = 118 (59/59) Ages: 10 to 18 years. [EG: 14,8 (13–15,9) CG: 14,6 (13,5–15,7)]	In the operating room just before anaesthesia	Short session of hypnosis (one session, 5–10 minutes)	Usual care	VAS-A	Preoperative (day before surgery) Post-operative (day one after surgery)	EG: 1 [min 0; max 8] CG: 0 [min 0; max 7]
Tomaszek et al., 2019 ⁴⁴ (Poland)	RCT	n = 112 (56/56) Ages: 9 to 18 years. [EG: 14,3 (2,2) CG: 14,2 (2,2)]	Day before surgery	Additional information support from a psychologist (one session, 45 minutes)	Usual care	STAIC and STAIY Expressed as sten scores from 1–10; sten score of 5 or 6 – moderate level of anxiety; 7 and more – high level of anxiety	Preoperative (day before surgery) and post-operative (48 hours after surgery)	EG: 5,5 (4–7) CG: 5,5 (5–7)

EG = Experimental group, CG = Control group, NRS = Numeric Rating Scale, RCT = Randomised Control Trial, STAIC = State–Trait Anxiety Inventory for Children, STAI-Y = State–Trait Anxiety Inventory form Y, USA = United States of America, VAS-A = Visual Analogue Scale – Anxiety

review authors decided to keep the study for inclusion in this review.

There were no substantial differences in age, sex, ethnic background or socioeconomic status among the study groups. Surgery for scoliosis^{40–43} and thoracic surgery⁴⁴ were the most common. Patients with mental disorders, cognitive deficits^{40,41,43,44}, chronic illness or problems with verbal communication were not eligible⁴⁴.

Characteristics of the intervention

All the interventions were delivered during the preoperative period and involved different methods such as, cognitive-behavioural techniques using information and coping strategies⁴⁰, hypnosis⁴³, guided imagery and education⁴¹, and training and relaxation⁴². One study used ‘additional information’ delivered by a psychologist⁴⁴. In addition to the main intervention, four studies included an education/information component^{40–42,44}. In one study, the intervention was delivered by the music therapists⁴², in two studies

the interventions were facilitated by nurses^{41,43}.

Outcome measures

Regarding the outcome and assessment tools, anxiety was measured using self-administered instruments^{40,41,44} or instruments filled out by the researcher^{42,43}. The most commonly used instrument was STAI-C^{40,44} or STAI^{41,44}. One study used the VAS-A⁴³ and another used the NRS⁴². With regard to timing of the assessment, the studies assessed anxiety before delivering the intervention in the preoperative period, and in the post-operative

period, either the day after surgery⁴³ or on day two^{40,42,44}. In one study the post-intervention evaluation was done on the day of discharge⁴¹. Only the study by Charette et al.⁴¹ assessed anxiety at three stages: pre-intervention, the day of discharge and in the follow-up consultation, one-month after surgery.

Effectiveness of non-pharmacological interventions

In the Charette et al. study, the follow-up comparison between the experimental group and the control group (44,75 ± 3,46 vs 47,68 ± 4,42) showed that the former tended to have lower anxiety levels (p=0.03), with moderate effect size. However, the evaluations made on the day of the surgery and the discharge day were not statistically significant⁴¹.

In the Nelson et al. study, the use of relaxation training had significant effects on anxiety reduction in both groups. Despite the treatment group presenting a slightly greater anxiety reduction there were no statistically significant differences between the two groups⁴².

In the Duparc-Alegria study, when using a short session of hypnosis there were no differences between groups but a significant decrease

in anxiety levels was shown in both groups (p<0.0001)⁴³.

In the Tomaszek et al. study that delivered additional information, the patients in the experimental group showed significantly lower levels of state anxiety at 48 hours after surgery than prior to the procedure (Z=3.357, p<0.001)⁴⁴. Conversely, when comparing anxiety levels in the preoperative and post-operative periods, they were significantly increased in the control group (Z=2.146, p=0.031)⁴⁴. Regardless of the group, participant's correlation established statistically significant associations between preoperative and post-operative state anxiety (R=0.6, t=8.26, p<0.001), preoperative state anxiety and trait anxiety (R=0.4, t=4.92, p<0.001), post-operative state anxiety and trait anxiety (R=0.5, t=6.96, p<0.001) and perioperative state anxiety and patient age (R=-0.4, p<0.001)⁴⁴.

LaMontagne et al. analysed cognitive-behavioural interventions for reducing adolescent's perioperative anxiety using information alone, coping strategies alone, and a combination of both information and coping strategies⁴⁰. The ANOVA analysis showed no difference between the groups (F [3,11] .92, p=0.44). When analysing results for the 'combined information and coping' group, the results were

shown to be more than twice the size of the other groups (63.50) and with a negative slope (-0.78) indicating that lower levels of post-operative anxiety were associated with higher levels of preoperative anxiety⁴⁰. In the same study, for the younger adolescents (<13.25 years), the interventions that included coping strategies were shown to be more effective in the reduction of anxiety in the post-operative period than the interventions that did not include coping strategies⁴⁰.

Meta-analysis

The meta-analysis was conducted including three studies⁴⁰⁻⁴² which corresponded to a sample of 136 adolescents in the perioperative period. As listed in Figure 2, the findings suggest no differences in anxiety when NPIs are applied compared to standard care (SMD -0.14, 95% CI -0.48 to 0.20, p=0.42).

Discussion

To our knowledge, this is the first systematic review presenting an overview of the effect of NPIs with exclusive focus on the adolescent population in the perioperative period. The identified studies used NPIs such as cognitive-behavioural techniques using 'information' and coping strategies, hypnosis,

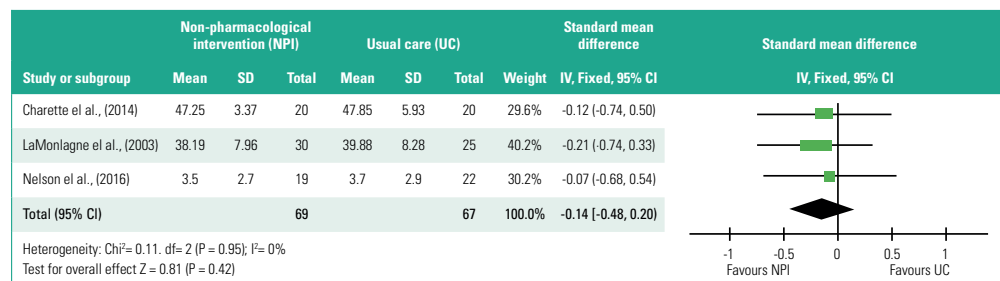


Figure 2: Forest plot of non-pharmacological interventions (NPIs) compared with the usual care (UC) for anxiety in adolescents in the perioperative period

guided imagery, relaxation training and information⁴⁰⁻⁴⁴. Although the NPIs could be implemented by any professional, nurses were the professionals who were most often involved in the conception, implementation and evaluation of these interventions³⁶. Additionally, the duration of interventions included in this review was diverse. The optimal frequency, 'dosage' and timing for the delivery of NPIs to manage adolescent anxiety in the perioperative period needs improvement as it is recommended in similar applications of NPIs^{32,36}. The majority of these NPIs do not require extra time or additional costs for their implementation; however, it is important to evaluate their feasibility in order to develop protocols and establish multidisciplinary routines in perioperative teams⁴⁵.

The low number of studies presenting specific results for the adolescent population and the variability of interventions made it impossible to analyse the effect of each intervention independently. However, the review authors overcame this limitation by grouping the interventions to perform the meta-analysis and analyse their overall effect.

Mixed findings about the value of 'additional' information suggest that the adolescent population should previously be carefully evaluated for developmental characteristics and the trait and state of their anxiety^{40,44}. LaMontagne et al. found that in adolescents with high trait anxiety, the intervention was revealed to be more effective when used with information. However, when anxiety was evaluated as low in the preoperative period, the use of a single intervention was more effective in reducing anxiety following surgery than a combination of interventions. A combined approach, that offers more information and advice than the adolescents can

assimilate, can make them more anxious⁴⁰. Conversely, Tomaszek et al. concluded that despite the delivery of additional information by a psychologist, adolescents with high levels of trait anxiety did not benefit from it. Only adolescents with lower levels of trait anxiety benefited from the information support prior to the surgical procedure⁴⁴. These results could be related to the 'dose' or amount of information delivered. Beyond the intervention, the information 'dose' should be tailored to the needs of the individual and fit their developmental characteristics, preserving a low state of anxiety during the perioperative period^{32,40}. Similarly, a qualitative study found that lack of information and understanding about the procedure were the main reasons for adolescents to become apprehensive⁴⁶. Moreover, an integrative review identified that adolescents want to be involved in their perioperative care, revealing the need for information prior to the surgical procedure which will subsequently have a positive effect on their pain management and post-operative recovery, both in the hospital and at home⁴⁷.

The study using guided imagery showed no short-term effect on the adolescents' anxiety level. But in the follow-up evaluation, one month after the surgery, the adolescents' anxiety levels tended to be lower. Guided imagery is effective in the preoperative period and is not known to be associated with adverse effects thus being a safe option to improve recovery^{32,49}. A meta-analysis of the effectiveness of guided imagery preoperatively has shown it to be effective in relieving preoperative state anxiety in children ($d = -3.71$) and preoperative trait anxiety in adults ($d = -0.64$)⁴⁷.

Despite no statistical significance, the use of relaxation and training showed a slight reduction in adolescent

anxiety levels⁴². The use of relaxation and guided imagery techniques with children was shown to be effective in anxiety reduction in the perioperative period⁴⁵. A systematic review with meta-analysis of the effects of relaxation therapy on adults with anxiety disorder showed this technique is effective⁴⁸.

With the hypnosis intervention, there were no differences and a significant decrease in anxiety levels was seen in both groups⁴³. A possible explanation for this result is the fact that the anaesthetic nurses were trained with hypnotic techniques for the purposes of the study and that impacted the way the trained person cared for both the intervention and control group. This training induces changes in language, such as the use of positive suggestions⁴³ and the use of these desirable and reassuring words can improve patient perception and subjective experience⁴⁹. Additionally, hypnosis in adolescents uses natural hypnotic abilities that teens bring to the clinical encounter. Adolescents are also highly responsive to hypnotic therapeutic suggestions when compared to adult patients⁵⁰.

The results of the current review show that the effect of using NPIs to reduce adolescent anxiety in the perioperative period is not statistically significant. The evidence gathered is not strong enough to make effective recommendations in favour of or against the use of NPIs with adolescents in the perioperative period. However, individually each study showed beneficial effects from the application of each intervention and highlighted some concerns to be accounted for when delivering NPIs to adolescents, such as age, maturity, previous trait and state of anxiety, and the characteristics of the intervention.

Strengths and limitations

This review filled an existing gap in the literature by assessing the effectiveness of NPIs in managing anxiety in adolescents during the perioperative period. However, this review has some limitations. Only five studies met the inclusion criteria, and these had small sample sizes of less than 60 participants in each study group. The type of surgical procedure and anxiety measurement instrument also differed among the studies. Although it was not possible to draw conclusions, it was highlighted that it is of utmost importance to consider their age, when evaluating the effect of the interventions on the adolescent population, and separate early adolescents from late adolescents.

Another limitation was the absence of the long-term effect (follow-up) evaluation in four of the five studies. Furthermore, there is language bias as only English, Spanish or Portuguese language studies were considered for inclusion.

Conclusion

This review examined the best available evidence on the effectiveness of NPIs in managing anxiety in adolescents during the perioperative period. Although anxiety represents a common problem in the perioperative period, limited studies were found regarding the effect of NPIs implemented and evaluated exclusively in the adolescent population. The topic of information/education was present in four studies revealing it as an important resource, especially when delivered alongside the NPIs at their implementation stage. Nevertheless, this review also showed that the trait and state of adolescent anxiety should be evaluated before intervention and information delivery. Although the studies do not report

a statistically significant difference in anxiety, a slight improvement in score was found after NPI delivery compared to before NPI delivery and this was considered clinically relevant.

The recommendations from this review can be used as a tool to guide the design of future studies, refining, exploring and utilising non-pharmacological interventions to their full potential, with the aim of successful management of anxiety in adolescents during the perioperative period.

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44. Tomaszek L, Cepuch G, Fenikowski D. Influence of preoperative information support on anxiety, pain and satisfaction with post-operative analgesia in children and adolescents after thoracic surgery: A randomised double blind study. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub* 2019;163(2):172–178.
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46. Löf G, Andersson P, Papadogiannakis N, Silén C. Children's own perspectives demonstrate the need to improve paediatric perioperative care. *Nursing open* 2019;6(4):1363–1371.
47. Álvarez-García C, Yaban Z. The effects of preoperative guided imagery interventions on preoperative anxiety and post-operative pain: A meta-analysis. *Complement Ther Clin Pract* 2020;38:101077.
48. Kim H-S, Kim EJ. Effects of relaxation therapy on anxiety disorders: A systematic review and meta-analysis. *Arch Psychiatr Nurs* 2018;32(2):278–284.
49. Fusco N, Bernard F, Roelants F, Watremez C, Musellec H, Laviolle B et al. Hypnosis and communication reduce pain and anxiety in peripheral intravenous cannulation: Effect of language and confusion on pain during peripheral intravenous catheterization (KTHYPE), a multicentre randomised trial. *Br J Anaesth* 2020;124(3):292–298.
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Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: A systematic review and meta-analysis

Supplemental material 1: Search strategies

MEDLINE (Pubmed)

Search conducted 26 December 2020

Search	Query	Records retrieved
#1	("Young Adult"[Mesh]) OR "Adolescent"[Mesh]	2 405 294
#2	(((((("Complementary Therapies"[Mesh]) OR "Imagery, Psychotherapy"[Mesh]) OR "Hypnosis"[Mesh:NoExp]) OR "Music Therapy"[Mesh]) OR "Virtual Reality Exposure Therapy"[Mesh]) OR "Massage"[Mesh:NoExp])	227 063
#3	((("Perioperative Care"[Mesh]) OR "Preoperative Care"[Mesh]) OR "Operating Rooms"[Mesh])	162 277
#4	"Anxiety"[Mesh:NoExp]	80 390
#5	(adolescen*[Title/Abstract] OR teen*[Title/Abstract] OR youth*[Title/Abstract] OR paediatric*[Title/Abstract] OR pediatric*[Title/Abstract] OR child*[Title/Abstract])	1 768 344
#6	(nonpharmacologic*[Title/Abstract] OR Non-pharmacologic*[Title/Abstract] OR "Non pharmacologic"[Title/Abstract] OR "Non pharmacological"[Title/Abstract] OR "psychological therapy"[Title/Abstract] OR "psychological intervention"[Title/Abstract] OR "Alternative therapy"[Title/Abstract] OR "Alternative therapies"[Title/Abstract] OR "complementary therapy"[Title/Abstract] OR "complementary therapies"[Title/Abstract] OR "guided imagery"[Title/Abstract] OR imagery[Title/Abstract] OR music[Title/Abstract] OR "music therapy"[Title/Abstract] OR "virtual reality"[Title/Abstract] OR hypnosis[Title/Abstract])	81 232
#7	(perioperative[Title/Abstract] OR postoperative[Title/Abstract] OR preoperative[Title/Abstract] OR operati*[Title/Abstract] OR surgery[Title/Abstract] OR "preoperative period"[Title/Abstract])	2 141 446
#8	(anxiety[Title/Abstract] OR "STAI"[Title/Abstract] OR "STAI"[Title/Abstract] OR "VAS-A"[Title/Abstract] OR "STAI-Y"[Title/Abstract])	190 956
#9	#1 OR #5	3 543 818
#10	#2 OR #6	289 863
#11	#3 OR #7	2 194 676
#12	#4 OR #8	212 892
#13	#9 AND #10 AND #11 AND #12	307
Limited to English, Portuguese, Spanish		290

PsycInfo (EBSCOhost)

Search conducted 26 December 2020

Search	Query	Records retrieved
S1	TI (adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*)	875 489
S2	TI (nonpharmacologic* OR Nonpharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis) OR AB (nonpharmacologic* OR Nonpharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis)	73 717
S3	TI (perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period") OR AB (perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period")	136 217
S4	TI (anxiety OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y") OR AB (anxiety OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y")	197 134
S5	MA adolescents OR teenagers OR teen OR youth	258 490
S6	MA complementary therapy	258 490
S7	MA perioperative OR peri-operative OR preoperative OR preoperative OR post-operative OR postoperative OR surgical	7 335
S8	MA anxiety	52 853
S9	S1 OR S5	1023 122
S10	S2 OR S6	74 902
S11	S3 OR S7	138 397
S12	S4 OR S8	210 553
S13	S9 AND S10 AND S11 AND S12	47
Limited to Spanish, English, Portuguese		43

CINHAL Complete (EBSCOhost)

Search conducted 26 December 2020

Search	Query	Records retrieved
S1	TI (adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*)	709 066
S2	TI (nonpharmacologic* OR Nonpharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis) OR AB (nonpharmacologic* OR Nonpharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis)	38 503
S3	TI (perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period") OR AB (perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period")	431 958
S4	TI (anxiety OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y") OR AB (anxiety OR "anxiety level" OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y")	99 342
S5	MH adolescence	566 153
S6	MH hypnosis OR massage OR virtual reality	24 093
S7	MH preoperative period	6 123
S8	MH anxiety	46 839
S9	S1 OR S5	1 031 305
S10	S2 OR S6	58 091
S11	S3 OR S7	433 119
S12	S4 OR S8	114 647
S13	S9 AND S10 AND S11 AND S12	97
Limited to Spanish, English, Portuguese		93

Cochrane Central Register of Controlled Trials (EBSCOhost)

Search conducted 26 December 2020

Search	Query	Records retrieved
S1	TI (adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*) OR AB (adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*)	161986
S2	TI (nonpharmacologic* OR Nonpharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis) OR AB (nonpharmacologic* OR Nonpharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis)	18505
S3	TI (perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period") OR AB (perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period")	230423
S4	TI (anxiety OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y") OR AB (anxiety OR "anxiety level" OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y")	73218
S5	MH adolescent	102689
S6	MH hypnosis OR massage OR virtual reality	911
S7	MH preoperative period	263
S8	MH anxiety	867
S9	S1 OR S5	241939
S10	S2 OR S6	19111
S11	S3 OR S7	230447
S12	S4 OR S8	73512
S13	S9 AND S10 AND S11 AND S12	169
Limited to Spanish, English, Portuguese		84

SciELO

Search conducted 26 December 2020

Search	Query	Records retrieved
#1	(ti:(adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*)) OR (ab:(adolescen* OR teen OR youth* OR paediatric* OR pediatric* OR child*))	70 497
#2	(ti:(nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis)) OR (ab:(nonpharmacologic* OR Non-pharmacologic* OR "Non pharmacologic" OR "Non pharmacological" OR "psychological therapy" OR "psychological intervention" OR "Alternative therapy" OR "Alternative therapies" OR "complementary therapy" OR "complementary therapies" OR "guided imagery" OR imagery OR music OR "music therapy" OR "virtual reality" OR hypnosis))	149 694
#3	(ti:(perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period")) OR (ab:(perioperative OR postoperative OR preoperative OR operati* OR surgery OR "preoperative period"))	49 259
#4	(ti:(anxiety OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y")) OR (ab:(anxiety OR "anxiety level" OR "STAIC" OR "STAI" OR "VAS-A" OR "STAI-Y"))	5 241
#5	#1 AND #2 AND #3 AND #4	3 912
Limited to Spanish, English, Portuguese		462

Open Gray–System for Information on Gray Literature in Europe

Search conducted 26 December 2020

Search	Query	Records retrieved
#1	Adolescen* AND surgery AND anxiety	2

RCAAP – Repositório Científico de Acesso Aberto de Portugal (Portugal)

Search conducted 26 December 2020

Search	Query	Records retrieved
#1	Adolescen* AND surgery AND anxiety	11

Effectiveness of non-pharmacological interventions to manage anxiety in adolescents in the perioperative period: A systematic review and meta-analysis

Supplemental material 2: Studies ineligible following full-text review

Study	Reason for exclusion
1. Arnon Z, Hanan H, Mogilner J. The effect of a hypnotic-based animated video on stress and pain reduction in pediatric surgery. <i>Int J Clin Exp Hypn</i> 2018;66(2):123–133.	Ineligible population and outcomes of interest not clearly defined.
2. Augustin P, Hains AA. Effect of music on ambulatory surgery patients' preoperative anxiety. <i>AORN J</i> 1996;63(4):750, 3–8.	Ineligible population.
3. Aytekin A, Doru O, Kucukoglu S. The Effects of Distraction on Preoperative Anxiety Level in Children. <i>J Perianesth Nurs</i> 2016;31(1):56–62.	The authors sent several emails to the article author (AA) asking for how many nine-year-old children they include in the study sample and they never got any answer.
4. Coşkuntürk AE, Gözen D. The effect of interactive therapeutic play education program on anxiety levels of children undergoing cardiac surgery and their mothers. <i>J Perianesth Nurs</i> 2018;33(6):781–789.	Ineligible outcome.
5. Bailey PD, Jr., Bastien JL. Preinduction techniques for pediatric anesthesia. <i>Curr Opin Anaesthesiol</i> 2005;18(3):265–269.	Ineligible study design.
6. Borimnejad L, Arbabi N, Seydfatemi N, Inanloo M, Haghani H. The effects of acupressure on preoperative anxiety reduction in school aged children. <i>Healthmed</i> 2012;6(7):2359–2361.	Ineligible outcome.
7. Borji M, Pouy S, Yaghobi Y, Nabi BN. Effectiveness of acupressure on anxiety of children undergoing anesthesia. <i>Int J Adolesc Med Health</i> 2019.	Ineligible population.
8. Calipel S, Lucas-Polomeni MM, Wodey E, Ecoffey C. Premedication in children: Hypnosis versus midazolam. <i>Paediatr Anaesth</i> 2005;15(4):275–281.	Ineligible population.
9. Carlsson RNE, Henningsson RN. Visiting the operating theatre before surgery did not reduce the anxiety in children and their attendant parent. <i>J Pediatr Nurs</i> 2018;38:e24–e29.	Ineligible outcome.
10. Fernandes SC, Arriaga P. The effects of clown intervention on worries and emotional responses in children undergoing surgery. <i>J Health Psychol</i> 2010;15(3):405–415.	Ineligible population.
11. Dehghan F, Jalali R, Bashiri H. The effect of virtual reality technology on preoperative anxiety in children: A Solomon four-group randomized clinical trial. <i>Perioper Med (Lond)</i> 2019;8:5.	Ineligible population.
12. Eijlers R, Legerstee JS, Dierckx B, Staals LM, Berghmans J, van der Schroeff MP et al. development of a virtual reality exposure tool as psychological preparation for elective pediatric day care surgery: Methodological approach for a randomized controlled trial. <i>JMIR Res Protoc</i> 2017;6(9):e174.	Ineligible outcome.

Study	Reason for exclusion
13. Eijlers R, Dierckx B, Staals LM, Berghmans JM, van der Schroeffer MP, Strabbing EM et al. Virtual reality exposure before elective day care surgery to reduce anxiety and pain in children: A randomised controlled trial. <i>Eur J Anaesthesiol</i> 2019;36(10):728–737.	Ineligible population.
14. Fancourt D, Lee C, Baltzer Nielsen S, Capps S, Brooks P. Relax anaesthetics: The effect of a bespoke distraction app on anxiety levels in children undergoing induction of anaesthesia. <i>Anesth analg</i> 2016;123(3):298–299.	Ineligible outcome.
15. Franzoi MA, Goulart CB, Lara EO, Martins G. Music listening for anxiety relief in children in the preoperative period: A randomized clinical trial. <i>Rev Lat Am Enfermagem</i> 2016;24:e2841.	Ineligible population.
16. Huth MM, Broome ME, Good M. Imagery reduces children's post-operative pain. <i>Pain</i> 2004;110(1–2):439–448.	Ineligible outcome.
17. Kain ZN, Wang SM, Mayes LC, Krivutza DM, Teague BA. Sensory stimuli and anxiety in children undergoing surgery: A randomized, controlled trial. <i>Anesth Analg</i> 2001;92(4):897–903.	Ineligible population.
18. Kain ZN, Caldwell-Andrews AA, Krivutza DM, Weinberg ME, Gaal D, Wang SM et al. Interactive music therapy as a treatment for preoperative anxiety in children: A randomized controlled trial. <i>Anesth Analg</i> 2004;98(5):1260–1266, table of contents.	Ineligible population.
19. Karakul A, Bolişik ZB. The effect of music listened to during the recovery period after day surgery on the anxiety state and vital signs of children and adolescents. <i>J Ped Res</i> 2018;5(2):82–87.	The authors sent an email to the article author (AK) asking for how many nine-year-old children they include in the study sample. The author answered 28 children. After that, the authors asked if it would be possible to get the output results excluding the nine-year-old children. The article author (AK) answered yes, but never sent it or answered subsequent emails.
20. Kassai B, Rabilloud M, Dantony E, Grousseau S, Revol O, Malik S et al. Introduction of a paediatric anaesthesia comic information leaflet reduced preoperative anxiety in children. <i>BJA: Br J Anaesth</i> 2016;117(1):95–102.	Ineligible population. No specific results for adolescent population.
21. Ko JS, Whiting Z, Nguyen C, Liu RW, Gilmore A. A randomized prospective study of the use of ipads in reducing anxiety during cast room procedures. <i>Iowa Orthop J</i> 2016;36:128–132.	Ineligible outcome.
22. Kocherov S, Hen Y, Jaworowski S, Ostrovsky I, Eidelman AI, Gozal Y et al. Medical clowns reduce pre-operative anxiety, post-operative pain and medical costs in children undergoing outpatient penile surgery: A randomised controlled trial. <i>J Paediatr Child Health</i> 2016;52(9):877–881.	Ineligible outcome. An email was sent to the author (SK) and he answered that he doesn't have the database anymore.
23. Kumar A, Das S, Chauhan S, Kiran U, Satapathy S. Perioperative anxiety and stress in children undergoing congenital cardiac surgery and their parents: Effect of brief intervention-a randomized control trial. <i>J Cardiothorac Vasc Anesth</i> 2019;33(5):1244–1250.	Ineligible outcome.
24. Lambert SA. The effects of hypnosis/guided imagery on the postoperative course of children. <i>J Dev Behav Pediatr</i> 1996;17(5):307–310.	Ineligible outcome.

Study	Reason for exclusion
25. Li HC, Lopez V, Lee TL. Psychoeducational preparation of children for surgery: the importance of parental involvement. <i>Patient Educ Couns</i> 2007;65(1):34–41.	Ineligible outcome.
26. Li HC. Evaluating the effectiveness of preoperative interventions: the appropriateness of using the Children's Emotional Manifestation Scale. <i>J Clin Nurs</i> 2007;16(10):1919–1926.	Ineligible outcome.
27. Li HC, Lopez V. Effectiveness and appropriateness of therapeutic play intervention in preparing children for surgery: A randomized controlled trial study. <i>J Spec Pediatr Nurs</i> 2008;13(2):63–73.	Ineligible outcome.
28. Li WH, Chan SS, Wong EM, Kwok MC, Lee IT. Effect of therapeutic play on pre- and post-operative anxiety and emotional responses in Hong Kong Chinese children: A randomised controlled trial. <i>Hong Kong Med J</i> . 2014;20 Suppl 7:36–39.	Ineligible outcome.
29. Mainer JA. Nonpharmacological interventions for assisting the induction of anesthesia in children. <i>AORN J</i> 2010;92(2):209–210.	Ineligible study design.
30. Messina M, Molinaro F, Meucci D, Angotti R, Giuntini L, Cerchia E et al. Preoperative distraction in children: Hand-held videogames vs clown therapy. <i>Pediatr Med Chir</i> 2014;36(5–6):98.	Ineligible outcome.
31. Millett CR, Gooding LF. Comparing active and passive distraction-based music therapy interventions on preoperative anxiety in pediatric patients and their caregivers. <i>J Music Ther</i> 2018;54(4):460–478.	Ineligible population.
32. Moro ET, Módolo NS. [Children, parents and anxiety.]. <i>Rev Bras Anesthesiol</i> . 2004;54(5):728–738.	Ineligible study design.
33. Nilsson S, Kokinsky E, Nilsson U, Sidenvall B, Enskär K. School-aged children's experiences of postoperative music medicine on pain, distress, and anxiety. <i>Paediatr Anaesth</i> . 2009;19(12):1184–90.	No specific results for adolescent population.
34. O'Conner-Von, S. Preparation of adolescents for outpatient surgery: Using an internet program. <i>AORN J</i> 2008, 87(2), 374–398.	Ineligible study design.
35. Park JW, Nahm FS, Kim JH, Jeon YT, Ryu JH, Han SH. The effect of mirroring display of virtual reality tour of the operating theatre on preoperative anxiety: A randomized controlled trial. <i>IEEE J Biomed Health Inform</i> 2019;23(6):2655–2660.	Ineligible population.
36. Rhodes R, Nash C, Moisan A, Scott DC, Barkoh K, Warner WC et al. Does preoperative orientation and education alleviate anxiety in posterior spinal fusion patients? A prospective, randomized study. <i>J Pediatr Orthop</i> 2015;35(3):276–279.	Ineligible outcome.
37. Robinson PJ, Kobayashi K. Development and evaluation of a presurgical preparation program. <i>J Pediatr Psychol</i> 1991;16(2):193–212.	Ineligible outcome.
38. Rodriguez S, Caruso T, Tsui B. Bedside entertainment and relaxation theater: Size and novelty does matter when using video distraction for perioperative pediatric anxiety. <i>Paediatr Anaesth</i> 2017;27(6):668–669.	Ineligible study design.
39. Robb SL, Nichols RJ, Rutan RL, Bishop BL, Parker JC. The effects of music-assisted relaxation on preoperative anxiety. <i>J Music Ther</i> 1995;32(1):2–21.	Ineligible population. No specific results for adolescent population.

Study	Reason for exclusion
40. Ryu JH, Park JW, Nahm FS, Jeon YT, Oh AY, Lee HJ et al. The effect of gamification through a virtual reality on preoperative anxiety in pediatric patients undergoing general anesthesia: A prospective, randomized, and controlled trial. <i>J Clin Med</i> 2018;7(9).	Ineligible population.
41. Ryu JH, Park SJ, Park JW, Kim JW, Yoo HJ, Kim TW et al. Randomized clinical trial of immersive virtual reality tour of the operating theatre in children before anaesthesia. <i>Br J Surg</i> 2017;104(12):1628–1633.	Ineligible population.
42. Ryu JH, Oh AY, Yoo HJ, Kim JH, Park JW, Han SH. The effect of an immersive virtual reality tour of the operating theater on emergence delirium in children undergoing general anesthesia: A randomized controlled trial. <i>Paediatr Anaesth</i> 2019;29(1):98–105.	Ineligible population.
43. Sagredini R, Mascheroni C, Diotto V, Tranquillini E, Paracchini F, Mercuri P. Treatment of anxiety at induction of anaesthesia in children: a randomized controlled trial of non-pharmacological approach versus midazolam or placebo. <i>Paediatr anaesth</i> 2013;23(3):285.	Ineligible study design.
44. Scheel T, Hoepfner D, Grotevendt A, Barthlen W. clowns in paediatric surgery: Less anxiety and more oxytocin? A pilot study. <i>Klin Padiatr</i> 2017;229(5):274–280.	Ineligible outcome.
45. Sola C, Lefauconnier A, Bringuier S, Raux O, Capdevila X, Dadure C. Childhood preoperative anxiety: Is sedation and distraction better than either alone? A prospective randomized study. <i>Paediatr Anaesth</i> 2017;27(8):827–834.	Ineligible outcome.
46. Soliveres J, Sánchez A, Balaguer J, Estruch M, Sánchez J, Solaz C. Parental presence in the operating room: Effect on the quality of anesthetic induction and postoperative agitation in children. <i>Rev Esp Anesthesiol Reanim</i> 2011;58(8):472–476.	Ineligible population.
47. Staveski SL, Boulanger K, Erman L, Lin L, Almgren C, Journal C et al. The impact of massage and reading on children's pain and anxiety after cardiovascular surgery: A pilot study. <i>Pediatr Crit Care Med</i> 2018;19(8):725–732.	Ineligible population. No specific results for adolescent population.
48. Strom S. Preoperative evaluation, premedication, and induction of anesthesia in infants and children. <i>Curr Opin Anaesthesiol</i> 2012;25(3):321–325.	Ineligible study design.
49. Vagnoli L, Bettini A, Amore E, De Masi S, Messeri A. Relaxation-guided imagery reduces perioperative anxiety and pain in children: A randomized study. <i>Eur J Pediatr</i> 2019;178(6):913–921.	Ineligible population and outcomes of interest not clearly defined.
50. Verschueren S, van Aalst J, Bangels AM, Toelen J, Allegaert K, Buffel C et al. Development of CliniPup, a serious game aimed at reducing perioperative anxiety and pain in children: Mixed methods study. <i>JMIR Serious Games</i> 2019;7(2):e12429.	Ineligible population.
51. Wang ZX, Liu SL, Sun CH, Wang Q. Psychological intervention reduces postembolization pain during hepatic arterial chemoembolization therapy: A complementary approach to drug analgesia. <i>World J Gastroenterol</i> 2008;14(6):931–935.	Ineligible intervention.
52. Whipple J. Surgery Buddies: A music therapy program for pediatric surgical patients. <i>music therapy perspectives</i> . 2003;21(2):77–83.	Ineligible study design.
53. William Li HC, Lopez V, Lee TL. Effects of preoperative therapeutic play on outcomes of school-age children undergoing day surgery. <i>Res Nurs Health</i> 2007;30(3):320–332.	Ineligible outcome.

Artigo 7

Modelo de Neuman no cuidado de enfermagem perioperatório de adolescente com escoliose idiopática juvenil

Pestana-Santos M, Santos MR, Cabral IE, Sousa PC, Lomba L.
Rev Esc Enferm USP. 2021;55(0):e03711.

Disciplina: Nursing (Q3).
SJR® (2020): 0,28.

Divulgação Científica

Pestana-Santos M, Santos MR, Cabral I, Lomba L. Prevenção da ansiedade perioperatória em adolescente: aplicação do modelo de Betty Neuman. Apresentado no I international Congress Quality of life, citizenship and mental health and the V Congresso Health education. 2019. Viseu, Portugal. Comunicação Oral.

Cabral IE, **Pestana-Santos M**, Mattos CX, Depianti JR. Symposium: Teorias de Enfermagem em Pesquisas sobre Cuidados com Crianças e Adolescentes. Apresentado no STTI 5th Biennial European Conference: Nursing's innovation, influence and impact on global health: looking back and moving forward. 2020. Coimbra, Portugal. Comunicação Oral.

Cabral IE, **Pestana-Santos M**, Mattos CX, Depianti JR. Symposium: Teorias de Enfermagem em Pesquisas sobre Cuidados com Crianças e Adolescentes. STTI 5th Biennial European Conference: Nursing's innovation, influence and impact on global health: looking back and moving forward – Book of abstracts. 2020. Coimbra, Portugal. Resumo.



Modelo de Neuman no cuidado de enfermagem perioperatório de adolescente com escoliose idiopática juvenil

Neuman Systems Model in perioperative nursing care for adolescents with juvenile idiopathic scoliosis

Modelo de Neuman en la atención de enfermería perioperatoria para adolescentes con escoliosis idiopática juvenil

Como citar este artigo:

Pestana-Santos M, Santos MSR, Cabral IE, Sousa PC, Lomba MLF. Neuman Systems Model in perioperative nursing care for adolescents with juvenile idiopathic scoliosis. Rev Esc Enferm USP. 2021;55:e03711. doi: <https://doi.org/10.1590/S1980-220X2020001703711>

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ABSTRACT

Objective: To implement the nursing process, based on the Neuman Systems Model and the International Classification of Nursing Practice terminology, in the care of an adolescent who underwent corrective surgery for juvenile idiopathic scoliosis. **Method:** This is a qualitative study of the type of single case, with triangulation of data collection techniques (formal clinical interview, notes in a field diary and medical record information), developed with a 17-year-old adolescent and indication for corrective surgery. The empirical materials generated with the interviews carried out at admission and at discharge, observation and medical record information were treated with categorical content analysis. **Results:** The categories of personal condition, anxiety, self-concept, meaningful people, facilitating health resources, school, free time and leisure were recurrent. Diagnoses were defined with a focus on Anxiety, Knowledge on pain management (control) and Willingness (or readiness) to learn, associating them with the respective nursing interventions. **Conclusion:** The Model contributed to assess and recognize surgery stressors for the adolescent and to theoretically base the nursing process. The classification allowed systematizing nursing care records, elements of clinical practice, unifying vocabulary and codes.

DESCRIPTORS

Adolescent; Scoliosis; Anxiety; Perioperative Period; Classification; Standardized Nursing Terminology.

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Recebido: 21/01/2020
Aprovado: 23/09/2020

Modelo de Neuman no cuidado de enfermagem perioperatório de adolescente com escoliose idiopática juvenil

INTRODUÇÃO

Entre os problemas com indicação de correção cirúrgica na adolescência, a escoliose apresenta uma prevalência global que varia entre 0,5% e 5,2%, afetando três meninas a cada menino adolescente⁽¹⁾. A agressividade deste procedimento cirúrgico, os riscos de lesão neurológica ou dor⁽²⁾, a alteração da rotina de vida diária e a expectativa dos adolescentes com o resultado da cirurgia⁽³⁾ são fatores que contribuem para o aumento do nível de ansiedade⁽⁴⁾. Há riscos reais decorrentes de lesão neurológica e de que o resultado da cirurgia não corresponda à expectativa do adolescente. Essas intercorrências podem interferir com a continuidade do seu desenvolvimento pleno.

Uma avaliação pré-operatória, na perspectiva da enfermagem holística, além de abordar as variáveis risco e comprometimento do desenvolvimento, deverá fundamentar-se nos pressupostos de um modelo de sistema de enfermagem. O modelo deve contribuir para que o enfermeiro perioperatório planeje cuidados individualizados, evitando limitar-se a cuidados rotineiros e padronizados que despersonalizam o cuidado de enfermagem prestado à pessoa desse adolescente⁽⁵⁾.

A maioria dos modelos de enfermagem são estruturas generalizáveis que requerem adaptação para ser implementados com grupos humanos específicos em situações singulares, como é o caso de cuidados perioperatórios de adolescentes. Cabe ao enfermeiro atender às necessidades e à individualidade do adolescente neste contexto⁽⁶⁾. O Modelo de Sistemas de Betty Neuman (MSN) aborda dois componentes principais, o estresse e a reação da pessoa ao estresse. Ambas as condições podem afetar o adolescente submetido a cirurgia corretiva de escoliose idiopática juvenil.

Se por um lado, a utilização de um modelo de sistema de enfermagem justifica a natureza dos cuidados a implementar pelo enfermeiro⁽⁷⁾, por outro, para a estruturação e evolução do cuidado de enfermagem, o uso de sistemas de classificação de Enfermagem tem-se tornado uma ferramenta chave no processo de cuidar⁽⁸⁾. A evolução do cuidado de enfermagem e a uniformização dos procedimentos é tanto mais abrangente e global quanto mais permitirem as ferramentas utilizadas. Na ausência de teorias ou modelos que sustentam uma abordagem de cuidados de enfermagem à adolescente em situações perioperatórias, optou-se pelo modelo de Neuman para fundamentar teoricamente o processo de enfermagem no

cuidado ao adolescente hospitalizado com uma condição rara e limitadora das interações com os seus pares.

A Classificação Internacional para a Prática de Enfermagem (CIPE[®]) foi desenvolvida pelo Conselho Internacional de Enfermeiros (ICN) para permitir o uso de uma linguagem científica e unificada, comum à Enfermagem mundial. A CIPE baseia-se na utilização de uma terminologia padronizada, organizada por eixos, que nomeia, classifica, vincula e descreve elementos da prática de enfermagem (diagnósticos/resultados e intervenções de enfermagem)⁽⁹⁻¹⁰⁾. A utilização desta classificação conduz o raciocínio lógico, a tomada de decisão clínica, facilita a documentação sistemática da prática e a comunicação entre os profissionais de enfermagem e de outras áreas^(9,11).

Diante do exposto, questiona-se: Como implementar o processo de enfermagem no cuidado perioperatório de uma adolescente submetida a cirurgia de correção de escoliose, fundamentando-se no Modelo de Sistemas de Neuman e terminologia da CIPE[®]?

O objetivo deste estudo foi implementar o processo de enfermagem, fundamentado no Modelo de Sistemas de Neuman (MSN) e Classificação Internacional para a Prática de Enfermagem (CIPE[®]) no cuidado perioperatório de uma adolescente submetida a cirurgia corretiva de escoliose idiopática juvenil.

MÉTODO

MODELO DE SISTEMAS DE BETTY NEUMAN (MSN)

No MSN, o indivíduo é um sistema aberto e dinâmico, com ciclos de entrada, processo e saída, que se retroalimentam contínua e organizadamente⁽¹²⁾. Nos círculos concêntricos, as cinco variáveis, fisiológica, desenvolvimental, psicológica, sociocultural e espiritual, se organizam em linhas para constituir o sistema. As linhas de defesa flexíveis, normal, de resistência e estrutura básica fazem parte do sistema⁽¹³⁾ (Figura 1).

De acordo com a posição que os estressores ocupam, as linhas de defesa servem de proteção ou amortecimento⁽¹⁴⁻¹⁵⁾. As linhas de resistência encontram-se entre a linha normal de defesa e a estrutura básica. Cada uma é composta por recursos internos e externos que protegem a integridade do indivíduo⁽¹⁵⁾. Quando estas linhas são eficazes, restaura-se a estabilidade e revertem-se os sintomas resultantes da exposição aos estressores⁽¹⁵⁾.

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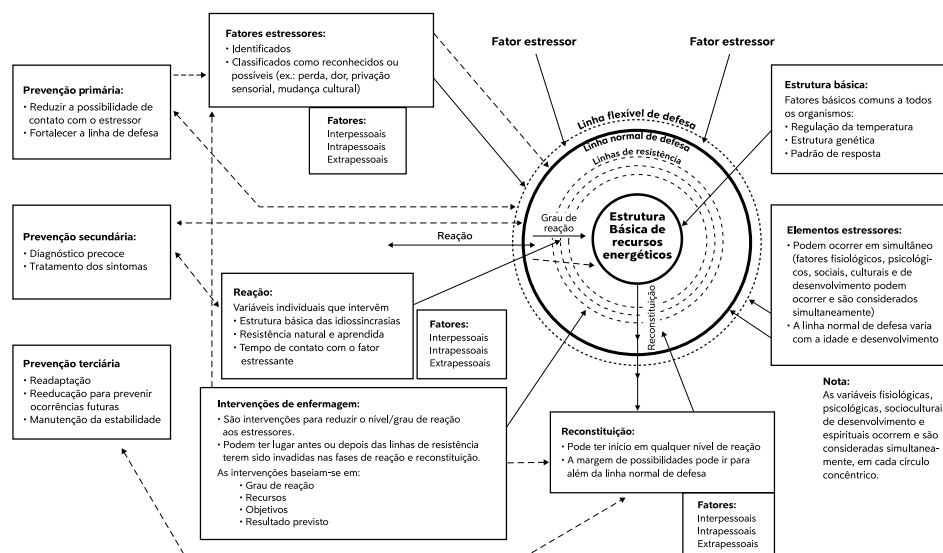


Figura 1 – Modelo de Sistemas de Neuman (diagrama original)⁽¹³⁾.

TIPO DE ESTUDO

Adotou-se o estudo de caso único triangulando-se as técnicas de coleta de dados (entrevista clínica formal, notas em diário de campo e informações de prontuário) no desenvolvimento de uma investigação qualitativa⁽¹⁶⁾ dos elementos estressores associados ao perioperatório de uma adolescente de 17 anos de idade, com escoliose idiopática juvenil, submetida a intervenção cirúrgica em um hospital pediátrico de uma cidade de Portugal. A escoliose é perturbadora da auto-imagem corporal, em um período de vida, a adolescência, já marcado por rápidas e sucessivas transformações no crescimento e desenvolvimento. Portanto, uma experiência única na vida de uma adolescente-menina.

CRITÉRIOS DE SELEÇÃO DO PARTICIPANTE DO CASO ÚNICO

Ser adolescente, vivendo naquele momento da coleta de dados, a primeira experiência cirúrgica para a resolução de um caso raro – a escoliose idiopática juvenil. O procedimento cirúrgico ser causa de severa limitação funcional, elevados níveis de ansiedade perioperatória e dor, que pudessem influenciar no desfecho de recuperação e sucesso pós-operatório.

COLETA DE DADOS

Triangulou-se dados da entrevista clínica formal, em dois momentos (no hospital, quando da admissão e, na casa da adolescente). Os dois momentos da entrevista ocorreram num ambiente calmo. Por opção da adolescente, conduziu-se a entrevista sem a presença de qualquer membro de sua família. À mãe que a acompanhava, tanto no hospital quanto em casa, ofereceu-se a possibilidade de assistir a

entrevista; entretanto em respeito a decisão da adolescente, ela aguardou em um ambiente contíguo. A primeira entrevista durou 24 minutos e a última, 29 minutos. Na primeira, coletaram-se dados para a avaliação integrada no processo de enfermagem perioperatório. A avaliação ocorreu em consonância com as cinco variáveis que compõem o Modelo (fisiológica, desenvolvimental, psicológica, sociocultural e espiritual). Entre as duas entrevistas, ocorreram três contatos formais (antes, no dia e depois da cirurgia). Buscou-se as dúvidas e receios (estressores) da adolescente e a necessidade de esclarecimentos adicionais sobre a cirurgia. Na última entrevista, abordou-se a percepção da adolescente sobre os cuidados perioperatórios e a influência no seu bem-estar e recuperação. Os encontros foram registrados em um diário de observação, as entrevistas gravadas em áudio e transcritas *verbatim* para compor o *corpus textual* de análise.

ANÁLISE E TRATAMENTO DOS DADOS

Segundo proposto pela análise de conteúdo categorial de Bardin⁽¹⁷⁾, codificaram-se os enunciados em unidades de registro. Em seguida, essas unidades foram indexadas por sentido comuns e singulares de núcleos de significados para formar as unidades de significados (US). Processou-se a redução das US e o agrupamento segundo as categorias e domínios propostos no Modelo de Sistemas de Neuman (ver o Quadro 1 na seção resultados do presente artigo), relacionando essas unidades de significado com os diagnósticos de enfermagem da terminologia CIPE^{®(10)} (versão 2019), os códigos dos termos da CIPE[®] usados nos focos, os enunciados dos diagnósticos, intervenções, atividades de diagnóstico e de avaliação e resultados.

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ASPECTOS ÉTICOS

A investigação foi aprovada pela Comissão de Ética para as Ciências da Saúde da instituição, com a referência CHUC-001-19. Em Portugal, só os adolescentes com idade até 16 anos necessitam de Consentimento Informado e Esclarecido do responsável legal. No entanto, para este estudo, a adolescente e a mãe assinaram termos, consentindo a sua participação voluntária e gravação das entrevistas. Tanto a adolescente como a sua mãe foram informadas que poderiam desistir de participar ao estudo a qualquer momento, sem que houvesse prejuízo para a continuidade dos seus cuidados e acompanhamento de saúde. Apesar de se tratar de um caso único, empreendeu-se todas as formas para se preservar a identidade, anonimizando-se informações, mantendo-se o sigilo e a confidencialidade dos dados.

RESULTADOS

O RELATO DO CASO

A adolescente, com 17 anos de idade, foi acompanhada e preparada em consulta com a equipe de saúde interdisciplinar, incluso a enfermeira de anestesia, em todo o período perioperatório, ao longo do mês que antecedeu a cirurgia até à visita pós-operatória. Foi admitida no hospital, em companhia de

sua mãe, dois dias antes da cirurgia. Ao longo de nove dias, ela deixou de frequentar a escola que estava matriculada, interrompeu suas atividades esportivas e reduziu o contato com os colegas de escola. Recebeu alta para o domicílio sete dias depois de o procedimento cirúrgico ter sido realizado.

AS LINHAS DE DEFESA E OS ESTRESSORES

Os estressores intrapessoais correspondem às forças que o indivíduo expressa na relação de cuidados. No caso singular dessa adolescente, submetida a cirurgia corretiva de escoliose idiopática, a ansiedade e a dor foram os estressores que mais se destacaram.

Entre os fatores interpessoais, ou seja, as forças que acontecem entre um ou mais indivíduos, considerou-se o relacionamento da adolescente com a equipe de saúde e com a sua mãe, e a sua expectativa de relacionamento com os amigos durante o período de recuperação. Os fatores extrapessoais são forças que ocorrem fora do sistema e que agem sobre o indivíduo. Nesse sentido, o absenteísmo escolar por três semanas, e a interrupção da prática de esporte e dança durante um longo período foram os fatores externos à adolescente mais influentes.

As unidades de significado foram agrupadas em subcategorias por estressores, categorias e domínios (fisiológico, psicológico, sociocultural) (Quadro 1).

Quadro 1 – Domínios, categorias, subcategorias e unidades de significado – Coimbra, Portugal, 2019.

Domínio	Categoria	Subcategoria	Unidades de significado (US)
Variável Fisiológica	Condição pessoal	Dor	<i>Toda gente diz que depois da cirurgia dói muito. O 2º e 3º dias foram mais complicados por causa da dor (pausa longa). Mais do que a dor nas costas era a dor de barriga.</i>
		Disponibilidade para aprender sobre [dor]	<i>Eu quero aprender a usar a máquina [PCA – Patient Controlled Analgesia] que me dá a medicação. Na véspera da cirurgia, falaram sobre a fisioterapia. Eu quis logo aprender, saber quais os movimentos respiratórios que teria de fazer (...) e os que não deveria fazer.</i>
		Desconforto	<i>[No pré-operatório] Quando estava sentada, como tinha uma rotação grande, nunca conseguia estar bem. Não me sentia confortável. [no hospital] Não tinha posição para estar, foi muito difícil.</i>
Variável Psicológica	Ansiedade	Sono comprometido	<i>Houve noites em que tive dificuldade para dormir. Sei que existiam riscos (pausa) [de lesão neurológica]</i>
		Medo	<i>Eu fiquei mais nervosa no dia da cirurgia. Lembro-me de começar a chorar (pausa) e de sentir frio quando saí da enfermaria para ir para o bloco [cirúrgico].</i>
	Autoconceito	Auto-estima	<i>Eu não me sentia confortável com o meu corpo (...) as pessoas reparavam e comentavam (...) Os outros olham e percebem (...) uma deformidade. Por vezes, falam sem maldade, mas sinto-me mal com isso. Algumas roupas já não me sentia muito confortável a usar porque notava-se mais".</i>
		Auto-imagem	<i>Estou muito feliz, por exemplo, comprei biquínis e estive a experimentar (pausa) gostei de me ver com todos (pausa) Estou mesmo feliz (sorrir).</i>
Variável Sociocultural	Pessoas significativas	Mãe	<i>Sei que antes da cirurgia a minha mãe estava mais preocupada que eu. Estava com a minha mãe. Sabia que estava bem. A minha mãe ajudou-me em tudo, ainda no hospital e agora em casa.</i>
		Amigos	<i>As minhas amigas visitaram-me no hospital. Um dia foram visitar-me antes de saírem para a noite (...). Foram mostrar-me como estavam giras e isso foi importante para mim. Houve pessoas [amigos] que não foram visitar-me ao hospital e eu fiquei chateada, triste mesmo. [Chora ao recordar] As minhas amigas ajudam-me imenso, porque elas levam a mochila e estão sempre com cuidado. [amigos/os] perguntam se eu estou bem. Eu ainda estou chateada com os amigos que não me foram visitar (pausa) porque eles, antes da operação, estavam sempre a dizer que iam lá e não foram. [Fica com os olhos lacrimejantes]</i>
	Recursos da saúde facilitadores	Visita pré-operatória	<i>Conhecer a equipe toda fez com que ficasse menos preocupada ou reticente com a cirurgia. Foi importante poder conhecer toda a gente antes da cirurgia.</i>
		Hospital	<i>Na véspera, visitei a Unidade de Cuidados Intensivos e fui ao Bloco Operatório, com as enfermeiras que me iam receber. Foi muito importante conhecer o hospital antes da cirurgia.</i>
	Escola		<i>Estou no 12º ano e não poderei ir à escola durante três semanas. Tenho receio de não conseguir assistir às aulas por ter de ficar muito tempo seguido sentada [as aulas decorrem em blocos de 90 minutos cada].</i>
	Tempo livre. Lazer		<i>Depois da cirurgia não poderei praticar esporte, nem dança durante pelo menos seis meses. Como não voltarei a praticar ginástica rítmica, depois da recuperação vou iniciar dança de salão de competição.</i>

Legenda: (...) - Excertos da transcrição original irrelevantes para a análise.

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A 'dor', a 'ansiedade' e o 'risco de lesão neurológica' foram os estressores mais recorrentes. No pré-operatório, a expectativa da adolescente em relação ao resultado da cirurgia também pode funcionar como estressor, uma vez que a realidade pode diferir do esperado.

O enfermeiro, no planejamento dos cuidados de enfermagem e de acordo com o MSN identifica a natureza dos

estressores, os seus efeitos reais e potenciais para, em parceria com a adolescente e família, estabelecer um plano de cuidados adaptado às necessidades. Nesse sentido, elaborou-se o plano de cuidados de enfermagem utilizando a terminologia CIPE® com a apresentação da respectiva codificação para os focos, diagnósticos, intervenções, atividades de diagnóstico e de avaliação e para os resultados de enfermagem (Quadro 2).

Quadro 2 – Diagnósticos de enfermagem fundamentados na terminologia CIPE⁽¹⁰⁾ – Coimbra, Portugal, 2019.

Foco	Atividade de diagnóstico	Dados relevantes para diagnóstico	Diagnóstico de enfermagem	Objetivo	Crítérios de resultado	Intervenções de enfermagem	Resultados de enfermagem
Ansiedade (10002429)	Obter dados sobre ansiedade (10041745)	- Dificuldade para dormir no período anterior a cirurgia. - À observação parece preocupada com a cirurgia, tremor periférico, inquietação. - Chorou no dia da cirurgia.	Ansiedade (10000477)	Reduzir a ansiedade da adolescente, no perioperatório.	Que a adolescente desenvolva estratégias adequadas para controle da ansiedade.	- Estabelecer confiança (10024396) Promover apoio psicológico, positiva (10032505) - Auxiliar (10002850) no auto-controle (10046837) da ansiedade (10000477) - Guiar (10008592) na técnica de relaxamento (10016700) - Implementar cuidados de conforto (10039705) - Promover apoio familiar (10036078)	Ansiedade, reduzida (10027858)
Conhecimento sobre controle de dor (10034259)	Avaliar conhecimento sobre gestão da dor (10039041)	Desconhece as estratégias farmacológicas e não farmacológicas para alívio da dor no pós-operatório.	Conhecimento sobre controle de dor (10033750) prejudicado (10012938)	Melhorar o conhecimento da adolescente sobre gestão da dor.	Que a adolescente melhore o conhecimento sobre estratégias farmacológicas e não farmacológicas para gestão da dor no pós-operatório.	- Orientar sobre controle da dor (10019489) - Orientar sobre dor (10039115) [estratégias não farmacológicas] - Orientar sobre medicação (10019470) - Orientar sobre uso de analgesia controlada pelo paciente (10039073) [Como utilizar PCA] - Colaborar no plano de controle da dor (10039831) [estratégias farmacológicas e estratégias não-farmacológicas]	Conhecimento sobre controle da dor (10033750) eficaz (10014956)
Disposição para aprender (10016422) sobre dor (10023130)	Obter dados sobre disposição para aprender (10002781)	Questiona sobre como será o controle da dor no pós-operatório. Demonstra interesse em aprender sobre o controle da dor.	Disposição para aprender (10016422) [sobre dor] eficaz (10014956)				

A Figura 2, fundamentada no MSN e adaptada ao caso em estudo, representa os elementos estressores, os fatores estressores, os três níveis de prevenção, as intervenções de enfermagem utilizando a terminologia CIPE®, assim como as

ações para a reconstituição. A adolescente está representada ao centro protegida pelas linhas de resistência, linha normal de defesa e linha flexível de defesa.

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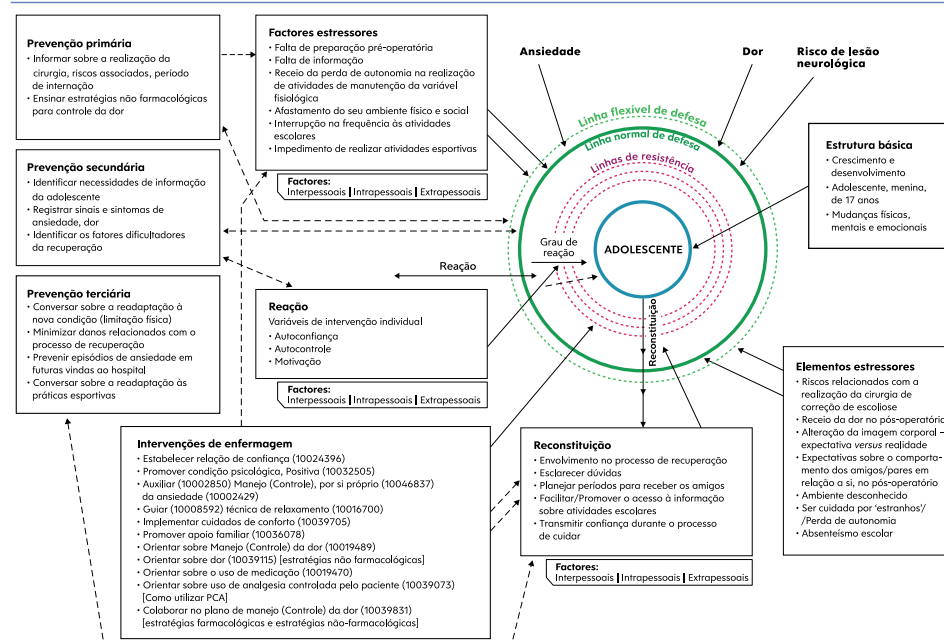


Figura 2 – Modelo de Sistemas de Neuman adaptado pelas autoras ao caso em estudo.

DISCUSSÃO

Na cirurgia para correção de escoliose, o adolescente tem a sua linha flexível de defesa mais próxima da linha normal, dado o contato com múltiplos estressores inerentes à realização deste procedimento. A linha normal de defesa caracteriza-se pelo bem-estar habitual, ou seja, pela estabilidade que resulta da adaptação ao longo do tempo a diversos estressores com os quais a adolescente lida. A linha normal de defesa é dinâmica, proporcionando a estabilidade do sistema e a integridade da estrutura básica, quando exposto a estressores com os quais o indivíduo já teve contato⁽¹⁵⁾.

As intervenções de enfermagem definidas para cada um dos diagnósticos têm a finalidade de fortalecer as linhas de defesa, reduzir o impacto de um estressor e promover o melhor nível possível de bem-estar da adolescente após a reconstituição ou a recuperação. As intervenções primárias reúnem um conjunto de ações que promovem o bem-estar favorecendo a redução dos fatores de risco, evitando a sua ocorrência e contato com as linhas de defesa. Como intervenções primárias no perioperatório definiram-se o providenciar informação relacionada com a realização da cirurgia, sobre os riscos associados e período de internamento e ensinar sobre estratégias não farmacológicas para o controle da dor.

Estas ações fortalecem a linha flexível de defesa e simultaneamente a protegem⁽¹⁵⁾. Já a prevenção secundária consiste no conjunto de intervenções realizadas após contato e reação da adolescente ao estressor. Como intervenções secundárias

no perioperatório definiram-se para 'detetar', necessidades de informação da adolescente, os sinais e sintomas de ansiedade, presença de dor e os fatores dificultadores da recuperação. As intervenções secundárias visaram diminuir os sintomas, reduzir a reatividade aos estressores, recorrer às linhas de resistência e fortalecê-las. Para que se atinja os resultados de enfermagem, precisa-se mobilizar recursos internos e externos para conservar energia e atingir o nível de estabilidade possível⁽¹⁴⁾.

Como intervenções terciárias no perioperatório identificaram-se a readaptação à nova condição, devido à limitação física causada pela cirurgia, minimizar danos relacionados com o processo de recuperação, prevenir episódios de ansiedade em futuras vindas ao hospital e trabalhar com o adolescente a readaptação das práticas desportivas. A prevenção terciária tem início após a reconstituição, com o desenvolvimento de intervenções que visem a readaptação, a educação para a prevenção de novas ocorrências e a manutenção da estabilidade e do bem-estar do adolescente, conservando energia e promovendo as suas forças, regressando à prevenção primária⁽¹⁵⁾. A avaliação dos objetivos definidos e o sucesso das intervenções determinam os resultados de enfermagem⁽¹³⁾.

O uso da terminologia CIPE^{®(10)} na elaboração do processo de enfermagem uniformiza a linguagem com a finalidade de identificar, explicar e avaliar os elementos de um caso da prática clínica, propiciando o aprimoramento das ações, por meio de uma atuação mais reflexiva, efetiva e eficaz⁽⁸⁾. A utilização desta linguagem universal,

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reconhecida pelo Conselho Internacional de Enfermeiros, facilita o processo comunicativo e relacional entre o enfermeiro e demais membros da equipe multiprofissional de saúde e atribui maior reconhecimento e visibilidade à profissão⁽⁸⁾, que assume particular importância no contexto clínico pediátrico.

O MSN no desenvolvimento do processo de enfermagem ajudou a desenvolver uma adequada avaliação e sistematização dos cuidados a implementar, tendo em conta as cinco variáveis que constituem a estrutura básica da adolescente. Na abordagem assistencial perioperatória identificaram-se os fatores e elementos estressores com potencial para influenciar negativamente a recuperação da adolescente. Destacaram-se os stressores que comprometeriam o resultado do procedimento ou interfeririam com o curso esperado do desenvolvimento da adolescente.

As complicações relacionadas com a ansiedade, dor e o risco de lesão neurológica foram as mais recorrentes, sendo também referidas em outros estudos com adolescentes em situação perioperatória^(4,18,19). Como fatores estressores, identificou-se a preparação pré-operatória, a informação disponibilizada, o receio da perda de autonomia, o afastamento do seu ambiente, a interrupção na frequência às atividades letivas, assim como o impedimento de realizar as atividades desportivas. Estes fatores são coincidentes com os relatados por outros adolescentes quando da descrição da experiência cirúrgica, para correção de escoliose⁽¹⁸⁾.

Como elementos estressores identificaram-se os riscos relacionados com a realização da cirurgia de correção de escoliose, o receio da dor no pós operatório, a alteração da imagem corporal (expectativa *versus* realidade), a expectativa sobre o comportamento dos amigos/pares em relação a si, no pós operatório, o ambiente desconhecido, ser cuidada por estranhos, a perda de autonomia e o absentismo escolar. Quanto mais complexo é o problema cirúrgico e consequente recuperação, mais evidentes são os elementos e fatores causadores de estresse⁽⁴⁾. Dessa forma, quando um adolescente é confrontado com a informação sobre os riscos e perspectiva de dor pós-operatória pode ficar preocupado e manifestar ansiedade, com sofrimento significativo⁽¹⁸⁾.

Os focos 'ansiedade' e 'conhecimento sobre a dor' coincidem com os de outros estudos que também reportam uma correlação entre ansiedade pré-operatória, dor, distúrbios do sono e comportamentos mal-adaptativos em adolescentes^(20,21). Nesse sentido, o contato prévio com a informação relacionada com a cirurgia carece da implementação adequada de intervenções de prevenção de ansiedade e dor, para que a adolescente possa estar melhor preparada.

Para o International Council of Nurses (ICN)⁽¹⁰⁾ a ansiedade caracteriza-se como uma emoção negativa, com sentimentos de ameaça, perigo ou angústia. O conhecimento corresponde a conteúdo específico de pensamento, fundamentado em sabedoria conseguida, ou na informação ou habilidades aprendidas, conhecimento e reconhecimento da informação⁽¹⁰⁾. Define disposição (ou prontidão) para aprender como o estar pronto ou disponível para agir ou avançar⁽¹⁰⁾. Já disponibilidade para aprender é descrita "como o momento em que o aprendiz demonstra interesse em aprender a

informação necessária para manter uma ótima saúde ou para se tornar mais habilidoso em alguma tarefa"⁽²²⁾. A prontidão acontece quando o aprendiz está receptivo, disposto e capaz de participar no processo educativo para o evento⁽²²⁾.

Segundo o proposto por Neuman, a implementação de intervenções de caráter primário, secundário e terciário visa proteger a estrutura básica do adolescente, pelo reforço das linhas de defesa e linhas de resistência⁽¹⁵⁾. Intervenções como ensinar sobre gestão da dor, gerir ansiedade ou estabelecer confiança contribuem para amenizar o impacto do ambiente perioperatório no indivíduo, melhorar a experiência assim como a percepção do bem-estar em todo o período perioperatório⁽²³⁾.

O referencial teórico, filosófico e conceitual do modelo permitiu ampliar a visão da enfermagem direcionada para o holismo e o bem-estar⁽¹³⁾. Os enfermeiros têm um papel importante nos cuidados perioperatórios de adolescentes, ao interpretar, avaliar e promover alívio da dor e ansiedade. Estes cuidados incluem a preparação para a cirurgia, informando a adolescente e família sobre o que esperar, proporcionando um ambiente mais calmo e seguro e respondendo às necessidades apresentadas por eles⁽¹⁸⁾.

LIMITAÇÃO DO ESTUDO

A triangulação de técnicas tem o potencial metodológico para a minimização de vieses com pesquisa de caso único (escoliose idiopática juvenil). O caso de uma única adolescente pode ser um limitante à generalização dos achados para outros adolescentes. Sugere-se a realização de mais estudos em contextos perioperatório, tipo séries de casos ou em estudo caso com mais adolescentes, utilizando o Modelo de Neuman e a terminologia CIPE⁽⁷⁾.

Outro limite do estudo foi a inclusão da família no contexto de cuidados hebiátricos, pois exigiria modelagens de diagnósticos de enfermagem que não fazem parte da metodologia de estudo de caso único centrado na adolescente.

IMPLICAÇÕES PARA A PRÁTICA

Os achados deste estudo podem ser aplicados a situações similares que sejam experienciadas por meninas-adolescentes, uma vez que se compreendeu o significado da ansiedade e conhecimento sobre controle da dor como aspectos mais recorrentes na experiência perioperatória. A implementação do modelo pode permitir a sistematização e excelência dos cuidados de enfermagem a adolescentes em perioperatório.

Em estudos futuros relacionados aos cuidados perioperatórios nas condições cirúrgicas de resolução complexa, pode-se explorar variáveis do modelo de Neuman, destacando o papel parental como parte do equilíbrio do sistema familiar.

CONCLUSÃO

A identificação de fatores intra, inter, extrapessoais e elementos estressores orientaram o planejamento dos cuidados, segundo os três níveis de prevenção integrados, que o modelo propõe. Dessa forma, o desenvolvimento do processo de cuidados a uma adolescente com escoliose obteve respostas exitosas ao atingir os resultados de enfermagem.

Modelo de Neuman no cuidado de enfermagem perioperatório de adolescente com escoliose idiopática juvenil

O modelo é aplicável e adequado ao contexto de cuidados perioperatórios a adolescentes, pois os principais focos de atenção do enfermeiro conduzem a prescrição de

intervenções que respondem aos problemas prioritários dos adolescentes em situação perioperatória para correção cirúrgica de escoliose.

RESUMO

Objetivo: Implementar o processo de enfermagem, fundamentado no Modelo de Sistemas de Neuman e terminologia da Classificação Internacional da Prática de Enfermagem, no cuidado de uma adolescente submetida a cirurgia corretiva de escoliose idiopática juvenil. **Método:** Estudo qualitativo do tipo de caso único, com triangulação de técnicas de coleta de dados (entrevista clínica formal, notas em diário de campo e informações de prontuário), desenvolvido com uma adolescente de 17 anos de idade e indicação de cirurgia corretiva. Os materiais empíricos gerados com as entrevistas realizadas na admissão e na alta, a observação e informações de prontuário foram tratados com a análise de conteúdo categorial. **Resultados:** Foram recorrentes as categorias condição pessoal, ansiedade, autoconceito, pessoas significativas, recursos de saúde facilitadores, escola, tempos livres e lazer. Definiram-se diagnósticos com foco nos problemas Ansiedade, Conhecimento sobre manejo (controle) de dor e Disposição (ou prontidão) para aprender, associando-os às respectivas intervenções de enfermagem. **Conclusão:** O Modelo contribuiu para avaliar e reconhecer fatores estressores do evento cirúrgico na adolescente e fundamentar teoricamente o processo de enfermagem. A classificação permitiu a sistematização de registros dos cuidados de enfermagem, dos elementos da prática clínica, unificação de vocabulário e de códigos.

DESCRIPTORES

Adolescente; Escoliose; Ansiedade; Período Perioperatório; Classificação; Terminologia Padronizada em Enfermagem.

RESUMEN

Objetivo: Implementar el proceso de enfermería, basado en el Modelo de Sistemas Neuman y la terminología de la Clasificación Internacional de la Práctica de Enfermería, en el cuidado de una adolescente que fue sometida a cirugía correctiva por escoliosis idiopática juvenil. **Método:** Estudio cualitativo del tipo de caso único, con triangulación de técnicas de recolección de datos (entrevista clínica formal, anotaciones en diario de campo e información de historia clínica), desarrollado con una adolescente de 17 años e indicación de cirugía correctiva. Los materiales empíricos generados con las entrevistas realizadas al ingreso y al alta, la observación y la información de la historia clínica fueron tratados con el análisis de contenido categorial. **Resultados:** Las categorías de condición personal, ansiedad, autoconcepto, personas significativas, recursos facilitadores de salud, escuela, tiempo libre y ocio fueron recurrentes. Los diagnósticos se definieron con un enfoque en los problemas Ansiedad, Conocimiento sobre el Manejo del Dolor (control) y Voluntad (o disposición) para Aprender, asociándolos con las respectivas intervenciones de enfermería. **Conclusión:** El Modelo contribuyó a evaluar y reconocer los factores estresantes del evento quirúrgico en la adolescente y a fundamentar teóricamente el proceso de enfermería. La clasificación permitió la sistematización de registros de atención de enfermería, elementos de la práctica clínica, unificación de vocabulario y códigos.

DESCRIPTORES

Adolescente; Escoliosis; Ansiedad; Período Perioperatorio; Clasificación; Terminología Normalizada de Enfermería.

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Artigo 8

Nurses' views to design a program to prevent adolescents' anxiety in the perioperative period. A qualitative study.

Pestana-Santos M, Pestana-Santos A, Cabral IE, Santos MR, Lomba L.
J PeriAnesth Nurs. 2021. (Accepted).

Disciplina: Medical and Surgical Nursing (Q2).
SJ_R[®] (2020): 0,3.

Divulgação Científica

Pestana-Santos M, Santos MR, Lomba L. Nurses Inputs to Develop a Program to Prevent Anxiety in Adolescents in the Perioperative Period Adapted to the Portuguese Health Care Context. 30th Annual APSNA Scientific Conference; American Pediatric Surgical Nurses Association. 2021. USA. Comunicação Oral.

Title: Nurses' views to design a program to prevent adolescents' anxiety in the perioperative period. A qualitative study

ABSTRACT

PURPOSE: To describe the nurses' views for consideration when designing a program to prevent adolescents' anxiety in the perioperative period.

DESIGN: A qualitative descriptive case study using focus group and thematic analysis was conducted.

METHODS: Three face-to-face focus group interviews were conducted in October and November 2019 in the pediatric department of a university hospital. A purposive criterion method was applied to achieve a sample of 19 pediatric nurse specialists. Data were organized and systematized in the professional software for qualitative and mixed methods data analysis software (MAXQDA®) and treated through the thematic analysis method. The COREQ checklist was used to report data collection, analysis, and results.

FINDINGS: Four major themes and 14 subthemes regarding the perioperative period were generated. The first, adolescent evaluation, included the knowledge evaluation about procedures, signs and symptoms, and desire to be engaged in care. The second, caring adolescents and parents, means that nurses must be ready to care for both, use the opportunities to implement the nursing interventions, and manage physical teen space to accommodate adolescents in the ward. The third, nurses' challenges in the perioperative period, comprise the lack of time and trained nurses to work with adolescents, and the absence of prior adolescents' preparation and post-operative feedback. The fourth, nursing consultation, consists in promoting interdisciplinarity, developing the nursing interventions, and the main contents to be included in the program's design.

CONCLUSIONS: Given the challenges experienced by nurses when caring for adolescents in the perioperative period, they suggest a systematized assessment of the adolescent at an early stage of the perioperative caring process. Added to this is the nurse's readiness for the adolescent and parents, as well as the existence of trained nurses to evaluate adolescents and to implement non-pharmacological interventions in the perioperative period. A nursing consultation emerges as the most suitable solution to include in a program to prepare adolescents for the surgical procedure and help them to manage anxiety. This kind of intervention should begin in the preoperative period, preferably after the decision on the need for the procedure.

KEYWORDS: adolescent; anxiety; perioperative period; nursing evaluation.

INTRODUCTION

Worldwide, millions of adolescents undergo surgery each year^{1,2} and an overwhelming majority of them will experience significant anxiety in the perioperative period.^{3,4} One study conducted exclusively with adolescents undergoing outpatient surgery concluded that 80% of them reported significant anxiety in the preoperative period.⁴

In recent decades, the length of stay in a hospital for a surgery has been drastically shortened under the joint influence of medical innovations and financial pressures.⁵ Additionally, the preparation programs focused on pain and anxiety management skills acquisition and modeling, which are considered essential for effective preparation, are no longer offered to the majority of children, adolescents, and their families in surgery settings due the lack of time and economic constraints.^{3,5,6}

Perioperative programs designed to meet the needs of children and families do not always consider the specific needs presented by adolescents.⁷ This includes allowing them to be involved in their own perioperative preparation, and to have the opportunity to expose their doubts.⁷ Furthermore, the expectations and responses to adolescents and parents vary greatly in different environments around the world. Even in similar socio-cultural contexts there are differences between hospitals.⁸

Surgical inpatients, outpatients, and their families need perioperative education to know how to prepare themselves for the surgical procedure and to realize what they can expect during the perioperative period.^{3,9}

When nurses care for adolescents and their families, they need to be effective in preoperative preparation to prevent negative impacts of the procedure on their emotional state.¹⁰

Anxiety is characterized most commonly as a diffuse, unpleasant, vague sense of apprehension or anticipation of a future danger or misfortune, often accompanied by feelings of worry, distress, or autonomic symptoms such as headache, perspiration, palpitations, tightness in chest, mild stomach discomfort, and restlessness, indicated by an inability to sit or stand still for long, among others. The focus on anticipated danger may come from internal or external sources.¹¹ Despite the potential cognitive and physiological impact, there remains a lack of evaluation of anxiety, which may place adolescents at risk of being under-treated for preoperative anxiety.⁴ Anxiety should be assessed according to established standards, and stress-reduction techniques should be implemented to help adolescents cope with preoperative stress and anxiety.⁶ Some adolescents may appear mature and to be coping well, so it is imperative to take into account their ongoing development (especially cognitive and emotional) and to treat them with appropriate autonomy, including seeking their consent or assent before procedures.¹²

Nurses should plan perioperative care thoughtfully, directly addressing preoperative, intraoperative, and postoperative risks to allow a smooth transfer of care as the patient progresses through the perioperative experience.¹³ In some health care systems, patients undergoing scheduled surgery are generally admitted in the morning just before their surgical procedure.⁵ This admission routine limits the amount of time nurses have to implement a preoperative education plan. On one hand, nurses in the preoperative and intraoperative settings are systematically pushed to move patients through quickly, which limits the attention that can be dedicated to a preoperative preparation program.¹⁴ On the other hand, perioperative programs and interventions are necessary to prepare adolescents for the procedure.⁹ Well-designed perioperative programs help patients to access reliable information and knowledge about the procedure and thus to be prepared to undergo surgery with less fear and anxiety.¹⁵ It also improves postoperative patient outcomes and contributes to high patient and family satisfaction scores.^{9,16}

Considering that the design of a perioperative program must be culturally competent and adapted to the context and to the nurses' views, we sought to question pediatric nurse specialists about their experience of caring for adolescents. The future development of programs and interventions needs to be tailored to the individual characteristics of the target population.³ Although there is increasing interest in computer-based interactive health care education to assist patients, a review study identified that patients also need personalized care. It was also recognized that there was a need for a health provider who could clarify their doubts, as the eHealth or mHealth interventions may not serve everyone in the same way.¹⁷

Moreover, according to the complex interventions framework it is recommended to assess the context and the current practice before implementing a new intervention.^{18,19} Preferably, the new program will focus on users' needs and local professionals' viewpoints and practices as well as socio-cultural context. On one hand, it is important to replicate proven and successful interventions previously tested in other contexts. On the other hand, before drawing up a program, it is important to listening to the professionals from the context where we intend to implement the intervention, to prevent anxiety in adolescents during the perioperative period. This study is guided by the research question: What are the nurses' viewpoints to have in consideration when designing a program to prevent adolescents' anxiety in the perioperative period?

The **objective** of this study is: To describe the nurses' views for consideration when designing a program to prevent adolescents' anxiety in the perioperative period.

METHODS

Study Design

This study used a generic qualitative design²⁰ to explore the nurses' views about adolescent care in the perioperative period because the anxiety phenomenon has been understudied in this pediatric group. It used focus groups²¹ and the thematic analysis approach.^{22,23} The manuscript was written following the COREQ - Consolidated criteria for reporting qualitative research reporting guidelines.²⁴

Participant selection

A purposive sample of pediatric nurse specialists from one university hospital was selected. The first author personally approached the head nurses of the three settings, inviting the pediatric nurse specialists to participate in the focus groups. The criteria included pediatric nurse specialist certification, to work full time in a pediatric surgical setting, and to have three or more years of experience working with adolescents in perioperative care. A total of 23 pediatric nurse specialists from the three different settings were invited. Of them, 19 accepted to join one focus group. The remaining four did not participate because they were on holidays. Participation in the focus group discussion was voluntary, and none were paid for the enrollment. Every pediatric nurse specialist participated in only one focus group.

Setting

This study was conducted in a pediatric department of a university hospital that has an intensive care unit with 12 beds and an orthopedic and a surgical ward with 40 beds. The pediatric department has two distinct theatre services: inpatient and outpatient. The inpatient service has five theatres, three anesthetic induction rooms, and one post-anesthetic care unit with capacity for eight children simultaneously. The outpatient service has two theatres, two induction rooms and one post-anesthetic recovery unit with 12 beds. All the settings attend only children and adolescents.

Data collection was carried out in a hospital meeting room between the morning and the afternoon. In two focus groups six nurses participated and seven in the other one. All focus groups were attended only by participants and the first two authors. The study was conducted between October and November 2019.

Data Collection

Data were collected through three single focus groups using semi-structured interview techniques. The first and second authors briefed participants about the process and discussed how to run the focus group sessions. The second author (APS) was the interviewer. She is a psychiatrist and psychotherapist with a master's degree in communication in health care. She is trained to do group discussions as part of her academic and professional curriculum. The participants did not have any relationship

with the interviewer (APS) prior to the study and only met her on the day of the focus group. She stimulated the conversation asking prompting questions to obtain maximum variety in responses and inputs. The first author (MPS) was supporting the interviewer and taking notes about participants' emotions, nonverbal expressions, and how they explained themselves.

The interviewer used a semi-structured interview to conduct the debate and preserve a consistent flow of discussion while allowing the flexibility to discuss the themes raised by nurses.²³ The interview questions were based on the results of a literature review⁷ and their feasibility was previously discussed with two pediatric nurse experts (MRS, LL). These questions were: How do you describe the perioperative preparation care provided to adolescents who come to your service for elective surgical procedure? Other questions were prepared and shared according to nurses' answers and explanations, namely: What are nursing difficulties when caring for adolescents during the perioperative period? Which type of intervention do you think should be developed and implemented by nurses? How should the intervention be developed/implemented? How could adolescents be better prepared in order to prevent anxiety in the perioperative period? During the interviews, participants were encouraged to discuss what they thought that should be included in a program to prevent perioperative anxiety in adolescents.

The methods of data collection during the focus groups were audiotape recording and note taking. At the end of the focus groups, the interviewer check was done to ensure the content's accuracy by comparing the quotes and information to the participants' given answers.

At the end of the focus groups, participants were encouraged to ask questions or share more information about the topic. There were no interruptions from outside the groups during the interview. The focus groups lasted from 56 to 82 minutes.

The thematic analysis was conducted after the transcription of each focus group interview. The content was organized by themes and subthemes. Two more subthemes emerged from the second focus group and the other information was repeated and pooled in the identified themes and subthemes previously defined after the first focus group analysis. The information obtained in the third focus group did not add any new information. The authors consider that saturation was obtained and did not request nurses to attend a followup focus group. In a homogenous study population also using a semi-structured discussion guide, two to three focus groups are sufficient to capture 80% of themes, including the most prevalent themes.^{21,25}

After the interview transcription, the authors returned it for three participants to individually comment or make corrections.

Data Analysis

The focus group discussions were first transcribed verbatim by the first author (MPS), who had previous experience in the development of qualitative studies, confirmed for correctness by the second author (APS), and checked by the study supervisors (MRS, LL). Researchers' triangulation was applied during the entire process. After the first session, the transcript was analyzed before moving on to the next focus group session. All transcripts were subsequently checked again for accuracy.

A descriptive thematic analysis of the data was conducted following the six phases: familiarization, coding, "searching" for themes, reviewing themes, defining and naming themes, and writing the report.²⁶ The qualitative data were organized and processed using MAXQDA® (professional software for qualitative and mixed methods data analysis) software to manage the data.²⁷ First and second authors (MPS, APS) independently read the transcripts several times before and after identifying the themes (familiarization) and coded them for their basic units of meaning in relation to the research question (coding). They met several times to deliberate on the generated codes and to determine discrepancies through consensus building. The data were read several times, and codes proved to be beneficial (reviewing themes). It allowed all the authors to appreciate the full picture and to make connections among the participants' thoughts, ideas, and the data collected (defining and naming themes). Also, reading data prior to starting the analysis allowed researchers to identify and to have more time to evaluate the data, and to prevent hasty conclusions (writing report).^{22,26}

The quotes presented were therefore identified according to the participant and to the focus group using a combination of three letters and two numbers, namely "FG1-N3" to indicate a quote from a participant of the first focus group. There was no distinction between participants' gender as there was only one male in the sample. For this analysis, three participants – one from each focus group – provided feedback on the findings.

All of the manuscript authors scrutinized the final analysis, including the choice of quotes, and suggested further refinements to guide the findings' interpretation.

The authors have Portuguese and English language skills, and the translation was made by them. Both translated versions of the results were compared and some disparities in meaning were clarified. The researchers made efforts to overcome potential limitations with translation in general and the meanings of the words, respecting the cultural differences. Finally, the researchers' critical review of the translations back and forth made the result solid. Nevertheless, all the quotes were checked by an English native person.

Ethical considerations

The study was approved by the Hospital Ethics Committee with the reference N. 088/CES; N. CHUC-001-19 and followed Helsinki's Declaration Principles. All participants received written and verbal information about the research and signed the informed consent. The electronic data was stored securely in a folder with password protection. The fieldwork notes were stored in a locked filing cabinet. After finishing the transcription and data analysis, the audio material and papers were destroyed.

Study rigor

The trustworthiness of a qualitative study is ensured by four criteria: credibility, dependability, confirmability, and transferability.²⁸

The context where the study was conducted was presented to ensure credibility and dependability.²⁹ The authors raised some questions based on the results of a previous literature review⁷ and discussed the suitability of the questions with two perioperative pediatric nurse experts.

Confirmability was ensured by performing the analysis using researcher triangulation to minimize bias.²⁹

Transferability is guaranteed by describing how the research was conducted, providing the possibility of transferring the findings to other contexts.²⁹ The facilitation of reproduction and evaluation of analyses by other researchers is ensured by the specification of data collection and analysis strategies. It is also enabled by the detailed explanation of the research context and the process used in guiding the data collection and analysis.³⁰ This information is presented in detail in the method section.

RESULTS

Characteristics of participants

Nineteen pediatric nurse specialists participated in the study, thirteen from the pre-postoperative setting and six from the theatre. The age of the participants varied between 30 to 65 years old, with a mean of 46.37 (SD 11.34) years old. Eighteen participants were female, and one was male. The length of professional experience varied between 10 and 44 years, with a mean of 23.42 (SD 10.83) years. In its turn, their experience as pediatric nurse specialist varied between 1 and 33 years, with a mean of 13.52 (SD 10.35) years of experience.

Themes and subthemes

From the focus group interviews, 4 themes and 14 subthemes were identified, as listed in Figure 1. A total of 47 codes were generated from the thematic analysis.

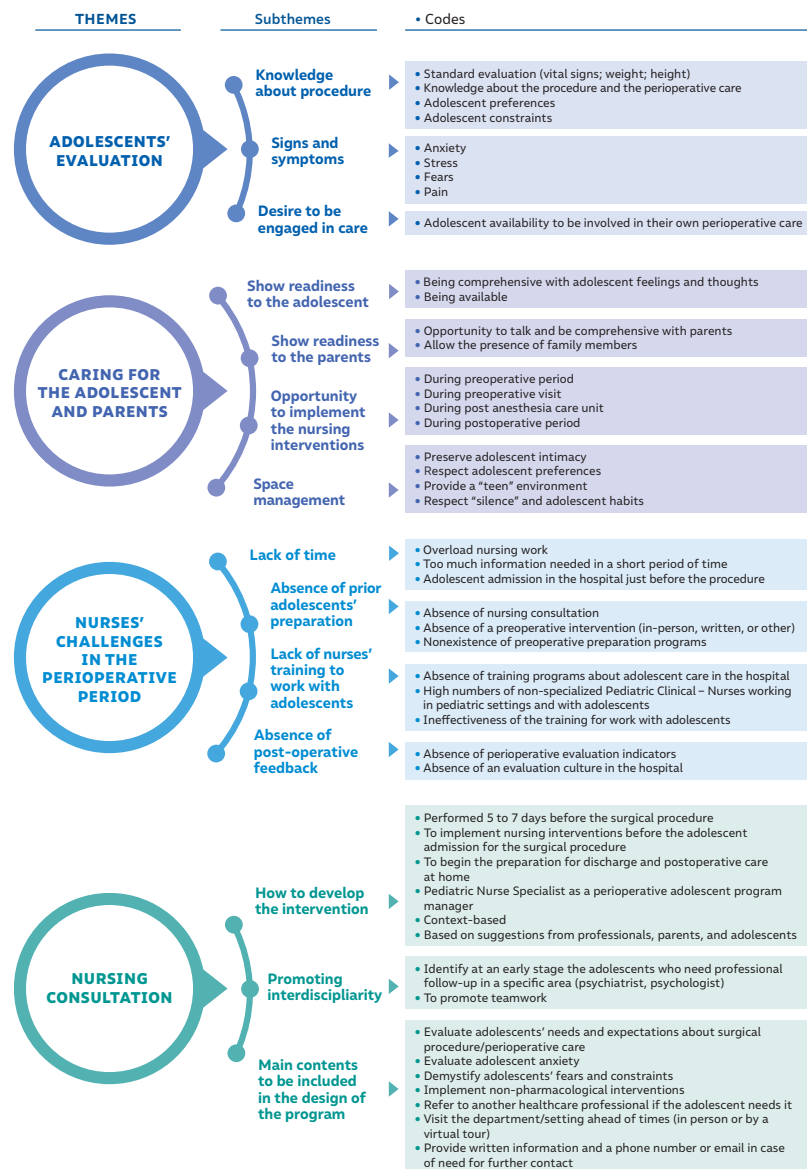


Figure 1: Nurses' views to design a program to prevent adolescents' anxiety in the perioperative period

1. Adolescents' evaluation

Generally, the first nursing contact with the adolescent undergoing a surgery procedure occurs on the morning of the day of the procedure, sometimes only one hour before the adolescent enters the operating room. This theme included three subthemes as presented below.

Knowledge about the procedure

Beyond the confirmation of fasting and preoperative hygiene care, the nurse evaluates the adolescent's knowledge about the procedure, gender preferences and possible recovery issues. Sometimes when adolescents arrive at the hospital, they have doubts and questions about the procedure. Nurses focus their attention on topics such as,

If he has any question for me about the perioperative care, the hospital, the procedure; To know if he knows what will be done or not; To find out what he knows, and also what the adolescent wants to know; To answer adolescents' questions; To learn whether or not he will be alone [in the hospital]. (FG3-N19; N18; FG2-N9)

Signs and symptoms

Nurses identify signs and symptoms, such as a face of fear about the unknown, shaky hands, silence, and/or anxiety. This will alert nurses to intervene and minimize the procedure's negative impact. The main feelings and emotions expressed by adolescents and perceived by nurses are fear, concern, and sadness. The main symptoms are anxiety, stress, and pain.

They present fear of the unknown; A look of fear, of panic, of questioning, of doubt; A nervous posture of the hands. They seem very calm and quiet, but we [nurses] feel the silence as a predictor of fear. (FG1-N1; N3; N5, N6)

They are afraid 'if they are going to wake up' during or from the surgery. (FG1-N1; FG2-N10)

Anxiety is the most common symptom for all of them, even in scheduled surgery. The more anxious they are, the more they cry at induction of anesthesia, the more agitated they wake up in the post-operative period. (FG1-N2, N3; FG2-N12; FG3-N19)

Desire to be engaged in care

According to nurses, some adolescents expressed the wish to be engaged in their perioperative care. They want to be informed about the procedure, the recovery process, and all of their perioperative care. Also, they want to be able to choose to be alone or with a relative or friend during the perioperative period, as a way to protect their parents/relatives/caregivers from their suffering.

We have adolescents who are 14 years old, and we notice the information is important and necessary for them. (FG3-N16)
Some teenagers want to be in the hospital with their girlfriend or boyfriend. They do not want their parents to be worried because they are also afraid. (FG1-N6)

2. Caring for the adolescent and parents

The highlighted nursing interventions focused on the readiness of the nurse to care for the adolescent and their parents, the opportunity to implement the nursing interventions, and management of physical space in the ward.

Show readiness to the adolescent

The interventions related to the adolescents' and parents' care include showing a willingness to listen, to clarify their doubts, to respect intimacy, and to allow free expression of the adolescents' and parents' feelings. When nurses care for adolescents, they show readiness to listen to them and help them to feel safe. In all the focus groups, nurses noted:

When adolescents ask questions we always try, as much as possible, to give them space to clarify; Clarify and demystify some of these ideas that may be bothering them; Realize what the adolescent was really feeling; Show availability and time for them; Realize what the adolescent was really feeling. (FG2-N7, N11; FG1-N4; FG3-N12)

Show readiness to the parents

As the adolescent is usually accompanied by parents, who show concern for them, nurses also dedicate time to care for them. Parents want to be involved in adolescent care, and usually they also "need" care. Nurses mention the need to dedicate time to parents, to reassure them during the adolescent perioperative care process in the hospital.

We are also careful when we have the opportunity to talk and understand how parents feel; Clarify and demystify some ideas that may be bothering them; We know parents also have their doubts, and they want to ask their questions; Show availability and time [...] to be available and present, always from the beginning to the end. The presence of family members is something essential for both adolescents and parents. (FG1-N4, N6; FG2-N7; FG3- N12, N14, N15)

Opportunity to implement the nursing interventions

The nursing interventions are implemented from the moment the adolescent is admitted to the hospital for surgery until their discharge. However, the preoperative period is suggested by nurses as the most suitable time to implement informative and preventive

nursing interventions to manage anxiety symptoms related to the procedure. However, every moment is important to clarify and reassure the adolescent.

"During the pre and postoperative period; Also in the post anesthesia care unit"
(FG1-N3; FG3-N18)

In the preoperative visit. (FG1-N5; FG3-N18; N19)

Space management

In the hospital where the study was developed, patients are cared for from birth up to 18 years old. Among other challenges, space management in the ward becomes a way to promote comfort and well-being between children and adolescents. Nurses show concern regarding management of the physical space where they will accommodate the adolescent. Sometimes their choice is a single room. Other times, they choose a double room where the adolescent can share their experiences with another teenager. Once in the theatre, nurses are concerned with reducing the number of people in the anesthesia induction room while the adolescent is awake.

In a quiet atmosphere, with fewer people than we have afterwards induction room. The number of people in the induction room can be an even greater trigger for stress and anxiety. Nurses promote an environment of silence by asking people not to be talking in this space. Everything regarding adolescent exposure is minimized to the maximum while he is awake. (FG1-N2, N6)

The choice of the room is important because physical space is not always the most appropriate to preserve adolescent intimacy. Even when there are two teenagers, we try to put 'boy with boy', 'girl with the girl' because of the privacy issue. (FG2-N8, N10, N11, N12; FG3-N13, N14)

3. Nurses' challenges in the perioperative period

The theme *nurses' challenges in the perioperative period* was grouped into four subthemes: lack of time, absence of prior adolescent preparation, lack of nurses' training to work with the adolescent, and lack of post-operative feedback.

Lack of time

All nurses mentioned the lack of time to implement all the interventions as an obstacle to do suitable work with adolescents. As the first contact of the nurses with the adolescent usually occurs on the day of the surgical procedure, it makes the whole care process more difficult and complex. The adolescent arrives at the hospital and after a while enters the operating theatre without any previous educational or behavioral preparation. Nurses complain that they do not have time and opportunity to clarify and to inform the adolescents about perioperative care. The absence of preparation makes nurses feel incapable of working with the adolescent properly.

We do not have enough time to meet the adolescent properly. It is not in five minutes that we can do it. We do not have the opportunity, for many reasons, to make the preoperative visit. (FG1-N1; FG2-N8; FG3-N15)

Many of them are admitted on the day of the surgery. Outpatient surgery is even more critical. Some of them do not have any previous information or preparation. (FG2-N9, N10, N12)

You do not have time to work properly, not even during hospitalization. (FG2-N12)

Absence of prior adolescent preparation

Nurses also say that "spending time" with the adolescent is crucial to establish a relationship of trust and thus to be able to help them in the perioperative recovery process.

The lack of previous preparation concerns nurses because it will interfere with the development and implementation of all perioperative nursing interventions. When adolescents do not have any previous preparation, it increases the difficulty of evaluation at the time of admission. It also undermines the evaluation of the expectations adolescents may have regarding the outcome of their surgical procedure.

If he was already afraid before the procedure and there was a lack of prior preparation for what would happen, the symptoms are even more exacerbated when he arrives from the operating theatre. (FG2-N11)

These adolescents do not have any prior contact with nurses when they arrive for the surgical procedure. They only have a previous contact with the physician. The practical questions, nobody explained to them. The adolescent only focuses on the 'perfect result' of the surgical procedure, without paying attention to the whole process and underlying challenges. In scoliosis, for example, he only retains 'I will grow up'. Then, he was panicking when they realized the required post-op care. (FG3-N15, N17, N19)

According to nurses, this process interferes with nursing interventions since they may not have enough information to accurately judge the adolescents' and family's complaints. For example, sometimes

The adolescents do not want to undergo the surgical procedure, but parents say: 'since you came, you have to undergo' and just before the surgery we have two contradictions. This could be avoided if we have had a previous evaluation and adolescent and family preparation. (FG2-N11)

Lack of nurses' training to work with the adolescent

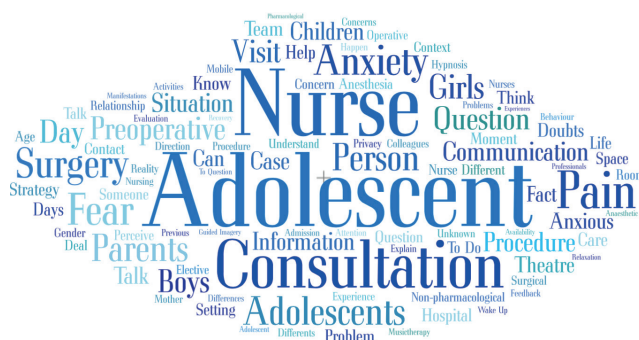
Another difficulty that was pointed out was the lack of nurses with specific knowledge and training to take care of adolescents. Nurses recognize that knowledge of adolescent developmental stages improves the effectiveness of nursing care. In the context where the study was carried out, not all nurses are pediatric nurse specialists, and some difficulties may arise when communicating with adolescents while respecting their

*Not every nurse has specific qualifications to work with adolescents. It is not easy to work with them. Not everyone is comfortable with that (...) because he is an adolescent, and some nurses prefer caring for infants or babies. (FG2-N11)
The more knowledge we have about adolescent developmental characteristics (...), the more information, strategies, and techniques we have. It gives us a choice and a more effective performance even in a short time. (FG1-N6)*

Another subtheme was the absence of post-operative feedback about perioperative care. Nurses said they would like to know how adolescents describe their perioperative experience.

We do not have their feedback (...) We do not have time to ask: 'what did you feel?' 'What was the most challenging thing for you?' 'What can we improve next time?' (FG2-N11)

There isn't any feedback from the adolescent. Which was his biggest fear? What did he feel by going (in or out) to the room theatre, or at the ward? Which was the highest pain level he had? Did he feel that he needed more time? Because for them sometimes a minute seems an hour or two. (FG2- N10)



4. Nursing consultation

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period. During the analysis process a word cloud (Figure 2) was generated, illustrating the 100 most common words voiced by nurses at the focus group interviews (grouped by synonyms, ignoring prepositions, and conjunctions).

All the participants cited "nursing consultation" as the most suitable strategy to implement in the preoperative period. The findings were organized into three subthemes: how to develop the intervention, promoting interdisciplinarity, and the main contents to be included in the design of the program.

A preoperative nursing consultation. (FG1, FG2, FG3)

There should be a preoperative nursing consultation, just as there is anesthesia or a surgery consultation. To try to explain as much as possible the doubts they have.

To understand their fears. (FG1-N1, N5)

How to develop the intervention

Nurses highlighted proposals based on their experience with adolescents in the perioperative period about how to develop the intervention. They pointed out positive aspects and suggested a context-based intervention, including other professionals, parents, and adolescents' views and opinions. The nurse should evaluate the adolescent's needs and manifested signs and symptoms to adapt the intervention, as well as show availability. Nurses also suggested giving an available email or telephone contact in the nursing consultation.

The nursing consultation should happen one week before surgery. Additionally, a telephone or an email or other kind of contact could be made available. So, they [adolescents and parents] can use it to clarify any doubt that may arise before the day of the procedure. This consultation would be ensured by a nurse with knowledge and experience of preoperative preparation and recovery during hospitalization. Also, the nurse would schedule a phone contact or send a message the day before the surgical procedure. (FG3-N15, N17)

Promoting interdisciplinarity

Nurses underline the importance of joint and interdisciplinary work in the care of adolescents in the perioperative period. They recognise the complementary performance of each professional for the overall success of the care provided to the adolescent and the family. Therefore, they suggest working with the adolescent in a teamwork process based on a multidisciplinary approach. It is more beneficial to the adolescent when different professionals share the clinical information and discuss further steps to take to improve the outcomes associated with the adolescent's care.

A multidisciplinary team. We all have different skills. Although the nurse is a professional who stays longer with adolescents, it could be necessary to ask for help to a psychologist or psychiatrist if they need it. (FG2-N11; FG3-N16)

I think it is essential that adolescents have all different professionals caring for them in an interdisciplinary manner. (FG2-N9)

We have our information at the adolescent admission, the anesthesiologist made the pre-anesthetic evaluation and, sometimes, the colleague [anesthetic nurse] of the operating theatre performs the pre-operative visit. Often, we share the information, and the strategies could be adopted by the team to better care for the adolescent. (FG3-N13)

Main contents to be included in the design of the program

Nurses gave some recommendations about the content to be included in the design of a program to prevent adolescents' anxiety in the perioperative period. We organized the suggestions to be followed during the perioperative period (pre-, intra- or post-operative) and how they should be developed. Nurses suggested that they evaluate all adolescents' anxiety, assess their needs, clarify doubts about the use and management of the analgesics, and answer adolescents' questions about surgery and perioperative procedures.

In this consultation, the nurse would understand which adolescents have higher anxiety levels and then work with them focused on the relief of symptoms. (FG1-N5)

Demystify a bit of the surgical procedure; How it will be in the post-operative recovery; Clarify doubts about pain; How many days will they stay in bed or in the hospital? (FG1-N2; FG2-N9)

If possible, the adolescent could come and visit the unit/ward. (FG1-N6; FG2-N11; FG3-N19, N13; N15)

In addition to the above content, nurses suggested using a range of non-pharmacological interventions to help the adolescent manage or cope with anxiety. The non-pharmacological interventions could be provided to adolescents when they are waiting for a surgical procedure, on their way to the operating theatre, or during the induction of anesthesia and post-operative recovery.

Music therapy as a way to control anxiety; Adapt the communication and the tone of the voice; Encourage adolescents to express their emotions; Guided imagery; Distraction; Acupressure, relaxation, and massage. (FG1-N3F; FG2-N7, N10, N12; FG3-N13, N16, N17)

They added that negotiation for the use of these strategies should be included in the educational interventions at the nursing consultation. After evaluating the adolescent, the nurse should negotiate and select the most suitable non-pharmacological strategy to use in the perioperative period.

DISCUSSION

This qualitative study identifies the gaps and provides information on how a program focusing on nurses' viewpoints and practices to prevent anxiety in adolescents in the perioperative period (pre-, intra- and post-operative) could be developed. Based on their practice, nurses made suggestions that could be considered for inclusion in the design of a program to prevent adolescents' anxiety in the perioperative period. Nurses' practices were grouped into four themes: adolescents' evaluation, caring for the adolescent and parents, nurses' challenges in the perioperative period, and nursing consultation. This study is in line with the recommended practices in the developmental phase of a complex intervention, to assess the context and current practices before the implementation phase of the intervention.¹⁸

The first theme **adolescents' evaluation** included nurses' descriptions of adolescents' knowledge about their perioperative care, their signs and symptoms, their gender preferences, and adolescents' desire to be involved in care. This theme was discussed in depth by all participants. They explained the way adolescents present themselves on the day of the surgical procedure, focusing on feelings, emotions, and gaps in knowledge about perioperative care. The lack of perioperative preparation leads to the exacerbation of symptoms, such as anxiety and fear of the unknown. The literature highlights the importance of bridging the adolescents' information gap and educational needs and the relevance of nursing interventions for adolescents' well-being during the perioperative period.³¹ Although adolescents rarely ask questions and usually give short answers and tend to avoid eye contact,⁴ nurses who participated in our study mentioned that there are adolescents who express the desire to be involved in their own care. This is in line with reports in a previous literature review on this topic.⁷

Since adolescents' first assessment occurs just after the hospital admission to perform the surgical procedure, nurses say that the lack of previous preparation makes their work more difficult. A previous study referred to the use of perioperative programs to reduce anxiety in children and adolescents and improve collaboration.³² In our study, nurses were convinced that it is better to work with adolescents who have had some earlier preparation than when they did not have any previous information about perioperative care.

The second theme **caring for the adolescent and parents** addressed nurses' readiness to deliver adolescents' and parents' care, as well as time management for implementing the nursing intervention, including management of the physical space.

In the hospital where the study was conducted there is no structured program or protocol for nurses to evaluate anxiety and decide which interventions are most suitable to deliver

to the adolescents. Nurses limited to attempt implementing what they considered to be the appropriate for adolescents, mostly giving support. However, nurses regret not having a protocol that makes interventions more standardised, not having time to evaluate and implement interventions to reduce anxiety and, finally, not having feedback about their actions. They also highlighted the importance of adolescents' privacy and confidentiality during their hospital stay. This matches the recommendations from another study; namely, providing a calm environment and adequate time to address patients' concerns as the key to a successful outcome.¹³ Nurses provide care to promote a positive and successful perioperative experience for adolescents by informing them and their parents about what to expect, providing a peaceful and secure environment, and being aware of their needs.^{2,6}

The need to reduce the number of people in the operating theatre was also pointed out. This suggestion was also mentioned by teenagers in another study, where they stated that a crowded room was stressful and questioned why there were so many people in the room and what everyone was doing.³³

The third theme **nurses' challenges in the perioperative period** was the most discussed in the three focus groups, by all participants. Lack of time, lack of prior preparation of the adolescent, and lack of nurses' training to work with adolescents were the major challenges. The absence of post-operative feedback from the adolescents and parents was also voiced by nurses, who would like to have their interventions evaluated by adolescents and parents. They would take it as a way to improve their clinical practices.

The very short length of stay at the hospital, combined with the nursing shortage and the absence of any previous preparation of the adolescents made everything even more challenging to nurses.⁵ Improving care is a continuous process requiring adjustments and flexibility, and recognizing that adolescents need to process any received information to fully understand and be prepared for their surgical procedure.³³ Even though 70% of children/adolescent's hospitals provided surgical preparation for their pediatric population undergoing inpatient surgery, just 20% of their preparation programs occurred before the day of the surgical procedure.³

In our study, nurses pointed out that one difficulty is the lack of knowledge and the inability of some nurses to work with adolescents. This difficulty is also mentioned in another study that emphasizes the need for trained and competent professionals to prepare adolescents. The professionals should have knowledge about adolescent cognitive and emotional development, to understand their potential reactions during the perioperative period.³³ Preparation is imperative for both the adolescent and their parents, because it gives them time to ask questions and understand processes.²

Although the suggestions in other studies present digital solutions,³⁴ nurses who participated in this study focused much more on the need for face-to-face contact with the adolescent before the surgical procedure. Only one nurse, among all those who participated in the three focus groups, mentioned a digital solution, such as a mobile application, as a complement to the strategy suggested by all participants, without exception – the nursing consultation.

In the fourth theme **nursing consultation** nurses shared some recommendations to be taken into account when designing a program to prevent adolescent anxiety in the perioperative period. Pediatric nurse specialists contributed their expertise about which type of intervention works best, and how it should be developed depending on their context. Ideally, they proposed that the "nursing consultation" should occur one week before the procedure. This is in line with recommendations in another study, which found that, for the older children, the optimal time to attend a preoperative program is five to seven days before surgery.³⁵ Nurses consider it imperative to have contact with adolescents and parents where they can talk about the surgical procedure and all of the perioperative process, evaluate anxiety, learn about their fears, and tailor their explanation about the procedures to the adolescents' needs. Fortier advises that is not simply a matter of whether the procedure is one that the adolescent has undergone previously, but also how anxious they were during their previous perioperative experience and how many of these individual experiences they had.⁴

After the face-to-face nursing consultation or teleconsultation, support materials can be provided, along with the use of the alternative channels of communication, such as telephone or e-mail contacts. Having this facility could help the adolescent to control any perioperative anxiety.² To lessen anxiety, it is important to implement early interventions, such as preoperative telephone calls, which allow the nurse to assess the adolescent's anxiety and stress about the surgical procedure and discuss pain and relief measures.² It could also be beneficial to receive individualized preparation from a pediatric nurse specialist³⁶ who could implement the most suitable interventions to the adolescents during the perioperative period.³⁷

Additionally, pediatric nurse specialists working in a perioperative context have critical thinking skills that are a valuable asset in identifying uniquely adolescent needs and implementing the interventions most likely to lead to desirable outcomes. Afterward, this information can be incorporated into an individualized program that helps to ensure safe, efficient, and satisfactory nursing care to the adolescents and parents.

LIMITATIONS

This study was based only on pediatric nurse specialists' views. Further, there is a need to obtain research data from the adolescents' viewpoints, as well as their parents and other health professionals.

Another limitation is the fact that we did not limit the context of the intervention, whether it was inpatient or outpatient surgery or a specific surgical procedure. Nevertheless, the research process and the context have been thoroughly described to enable transfer to other contexts.

CONCLUSIONS

The study concludes that nurses' views on their practices should be considered when designing a program to prevent adolescents' anxiety in the perioperative period. The identification of current practices and the description of the context precedes the implementation phase of a new intervention. The difficulties arise when caring for adolescents when there is no contact between nurses and the adolescent prior to the day of surgery. They consider that the existence of a preoperative consultation – in person or tele – where the adolescent could be evaluated, and perioperative issues could be clarified is the appropriate solution to the identified problems. Nurses also suggested a set of topics to include when designing and developing the intervention and were excited to be ready to start with it from now on. Additionally, nurses recommended being trained to care for adolescents according to their developmental characteristics before the implementation of the intervention, to know how to assess and manage the particular kind of anxiety experienced by adolescents. All these topics should be implemented and evaluated in future research studies.

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Artigo 9

Programa de intervenção de enfermagem para prevenção da ansiedade perioperatória em adolescentes: 3P2A

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Divulgação Científica

Pestana-Santos M. Gestão da ansiedade em crianças e adolescentes no período perioperatório. V Congresso Internacional de Enfermagem Médico Cirúrgica. 2021. Figueira da Foz, Portugal. Comunicação a convite.

Programa de intervenção de enfermagem para prevenção da ansiedade perioperatória em adolescentes: 3P2A

Resumo

Introdução: Os adolescentes em situação perioperatória manifestam vontade em obter informação acerca da cirurgia e de serem envolvidos nas decisões sobre o seu processo de cuidados de saúde. Com base em experiências partilhadas pelos adolescentes identificaram-se áreas de intervenção dos enfermeiros para prevenir a ansiedade e os efeitos negativos a ela associados.

Metodologia: A conceção do programa seguiu as etapas da fase de desenvolvimento, versão otimizada, do modelo de intervenções complexas do Medical Research Council. A versão final do programa foi validada por cinco peritos e especialistas em enfermagem de saúde infantil e pediátrica portugueses. O relatório foi elaborado seguindo os critérios para a fase de desenvolvimento de intervenções complexas em saúde (CReDECI).

Resultados: Programa 3P2A, constituído por três fases diferentes, cada uma correspondendo a um dos períodos pré, intra e pós-operatório. No período pré-operatório o programa contempla a realização da consulta pré-operatória de enfermagem para identificação de fatores stressores, realização de intervenções não farmacológicas e disponibilização de informação oral e escrita. No período intraoperatório são implementadas intervenções não farmacológicas na sala de indução anestésica, imediatamente antes do adolescente adormecer. O período pós-operatório compreende a realização de visita pós-operatória de enfermagem que serve para despistar complicações pós-operatórias e promover o bem-estar do adolescente.

Conclusões: O programa está estruturado com intervenções específicas a implementar em cada um dos períodos do perioperatório. É um programa flexível quanto às possibilidades de implementação. Pode ser implementado na íntegra ou parcialmente, selecionando-se uma das fases, atendendo às prioridades, recursos e dimensão do problema de ansiedade identificado nos adolescentes em situação perioperatória.

Introdução

Cerca de 80% dos adolescentes apresentam sintomas de ansiedade antes da realização de um procedimento cirúrgico.¹

As expectativas sociais são uma das condicionantes à manifestação de ansiedade pelos adolescentes, podendo levar a uma menor propensão para a demonstração ou relato

da ansiedade.^{1,2} Apesar da utilização de instrumentos para avaliação da ansiedade em contexto perioperatório pediátrico ser cada vez mais comum,¹ quando aplicados aos adolescentes, os resultados podem não traduzir a sua ansiedade real, devido às suas características de desenvolvimento e aos diferentes componentes da ansiedade: cognitivo, vegetativo e motor.^{3,4}

A relação entre os sintomas de ansiedade observáveis e os índices fisiológicos como, por exemplo, a frequência cardíaca, pode ser menos evidente nos adolescentes, podendo adolescentes que não manifestam sinais ou sintomas de ansiedade ter alteração dos parâmetros vitais, como aumento da frequência cardíaca que, *per se* e em contexto ansiogénico, é um indicador de ansiedade.¹ Um comportamento manifestamente ansioso é geralmente usado como um indicador para a necessidade de administração de medicação ansiolítica, como é o caso da medicação pré-anestésica utilizada em contexto perioperatório. Apesar da potencial ativação fisiológica e cognitiva, a ausência de sintomas observáveis de ansiedade poderá colocar os adolescentes em risco de não receberem tratamento para a ansiedade no período perioperatório.¹ Neste período, a ansiedade não prevenida ou não tratada, está relacionada com o aumento da perceção de dor pós-operatória e consequente necessidade de maior consumo de medicação analgésica, o que pode afetar a recuperação pós-operatória.⁵⁻⁸ Em concomitância, o risco de ocorrência de problemas pulmonares, trombose e distúrbios intestinais também aumenta.⁹ A ansiedade está também relacionada com o aumento do risco de infeção, por interferir com a resposta imunitária, diminuindo-a.⁹

O objetivo deste estudo é desenvolver um programa perioperatório para prevenção da ansiedade em adolescentes (3P2A) seguindo a primeira fase do modelo de intervenções complexas do Medical Research Council.

Metodologia

A conceção do programa seguiu as etapas da fase de desenvolvimento otimizada do modelo de intervenções complexas do Medical Research Council:^{10,11}

Identificação da evidência de base (Identifying the evidence base)

Para a identificação do problema de ansiedade e a determinação das necessidades dos adolescentes no período perioperatório foi realizada uma revisão integrativa de literatura. Esta teve o propósito de identificar as necessidades e manifestações dos adolescentes no período perioperatório.¹² Foi desenvolvido um estudo qualitativo, com realização de entrevistas individuais aos adolescentes submetidos a cirurgia eletiva,

para conhecer as suas experiências perioperatórias.¹³ As entrevistas decorreram em dois momentos, pré-operatório e sete dias após a cirurgia.

Identificação/Desenvolvimento de teoria (*Identifying/Developing theory*)

Nesta etapa, foi realizado um estudo de revisão *scoping* para mapear as estratégias não farmacológicas utilizadas em adolescentes para prevenir a ansiedade no período perioperatório,^{14,15} um estudo de revisão sistemática da literatura para avaliar a efetividade das intervenções não farmacológicas na ansiedade dos adolescentes no período perioperatório^{16,17} e um estudo de caso utilizando o metaparadigma de Neuman - modelo de sistemas de Betty Neuman¹⁸ - para a sistematização dos cuidados de enfermagem ao adolescente.

Modelagem do processo e resultados (*Modelling process and outcomes*)

Foi desenvolvido um estudo qualitativo com a realização de entrevistas de grupo (Grupos Focais) a enfermeiros especialistas em Enfermagem de Saúde Infantil e Pediátrica, com experiência em cuidados perioperatórios a adolescentes, com o objetivo de identificar os desafios sentidos aquando da prestação de cuidados a adolescentes no período perioperatório. Com a realização deste estudo foram ainda identificadas intervenções a incluir num programa de prevenção de ansiedade para adolescentes, a implementar no período perioperatório.¹⁹

Validação dos componentes do programa (*Face validity*)

Depois de elaborado, o programa foi enviado para análise crítica a três enfermeiros especialistas em enfermagem pediátrica com experiência, de mais de 15 anos, no cuidado a adolescentes em situação perioperatória e a dois peritos em enfermagem de saúde infantil e pediátrica, com trabalho de investigação desenvolvido com adolescentes. Depois de analisado, o programa foi discutido, individualmente, com cada um dos enfermeiros e peritos. As sugestões foram consideradas na revisão do programa. A versão final do programa foi devolvida aos três enfermeiros especialistas e aos dois peritos para a sua validação final.

A elaboração deste relatório, seguiu os critérios para a fase de desenvolvimento de intervenções complexas em saúde (CReDECI).²⁰

Resultados

O 3P2A foi estruturado por fases de acordo com cada período perioperatório e respetivo contexto que o adolescente contacta durante o processo de cuidados apresentado esquematicamente (Figura 1).

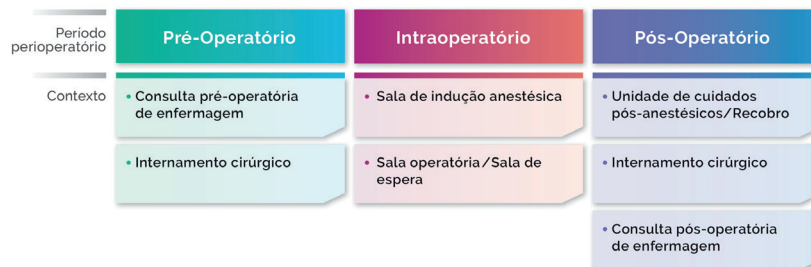


Figura 1. Fases do 3P2A.

O programa 3P2A foi elaborado por forma a responder às questões: Quem implementa a intervenção? Como? Quando? Onde? O que fazer? Para quê? Relativamente ao alvo dos cuidados (A quem?) é o adolescente.

Para cada período foram propostas intervenções e apresentadas um conjunto de ações a desenvolver visando o bem-estar do adolescente em situação perioperatória. As intervenções incluídas em cada um dos períodos, podem ser de carácter preventivo primário, secundário ou terciário, atendendo à reação que o adolescente apresenta perante os fatores stressores/desestabilizadores do seu equilíbrio, tal como referido no Modelo de Sistemas de Neuman.

As intervenções para o período pré-operatório estão organizadas para serem implementadas em dois momentos distintos, na consulta de enfermagem pré-operatória e em contexto de internamento, como discriminado na Figura 2.

Período Pré-Operatório		
onde	o que fazer	para quê
Consulta de Enfermagem 5 a 7 dias antes do procedimento cirúrgico/dia da cirurgia.	- Avaliar hábitos, necessidades e expectativas do adolescente acerca da realização da cirurgia e cuidados perioperatórios (que informação dispõe e qual a sua disponibilidade para ser envolvido nos cuidados). - Avaliar dados antropométricos e sinais vitais. - Avaliar ansiedade dos adolescentes com recurso a escala/instrumento protocolado na instituição/serviço. - Avaliar a história prévia de dor. - Avaliar fatores de stresse, preferências, constrangimentos e emoções. - Avaliar conhecimento do adolescente sobre o procedimento cirúrgico e processo de recuperação. - Identificar, precocemente, a existência de recursos na rede familiar e/ou na comunidade que possam apoiar o adolescente durante a recuperação pós-operatória em casa (se necessário). - Identificar, numa fase inicial, se o adolescente necessita da avaliação e intervenção de outro profissional (por exemplo, psicólogo, pedopsiquiatra). - Esclarecer as questões colocadas pelo adolescente, como: <i>Como é que será o pós-operatório? Vou sentir dor? Como é que vai correr a cirurgia? Quantos dias vou precisar ficar de cama? Quem é que me vai ajudar com os cuidados de higiene enquanto eu vou estar no hospital (uma enfermeira; os meus pais)? Quem é que pode acompanhar-me durante o internamento?</i> (Para antecipar questões/soluções éticas ou legais). - Desmistificar os medos e constrangimentos do adolescente. - Apresentar e explicar como utilizar as escalas para avaliação da dor e selecionar qual a que melhor se adapta ao adolescente. - Sugerir e iniciar a implementação de estratégias não farmacológicas para prevenir a ansiedade (imaginação guiada/técnicas de hipnose; música). - Providenciar uma visita ao serviço onde o adolescente ficará internado (presencial ou virtual). - Providenciar informação escrita sobre o procedimento e contactos que possam ser utilizados pelo adolescente (email ou telefone). - Solicitar o consentimento ao adolescente. - Enviar mensagem ou telefonema na véspera da cirurgia.	- Recolher informação relevante sobre o adolescente e suas preferências. - Identificar as necessidades do adolescente. - Promover um estado psicológico positivo. - Informar o adolescente sobre o processo de cuidados perioperatórios – de acordo com a sua vontade. - Prevenir o surgimento de sinais e sintomas de stresse e ansiedade. - Iniciar a preparação para a alta (cuidados pós-operatórios).
Internamento Cirúrgico [Antes da cirurgia]	- Avaliar ansiedade dos adolescentes com recurso a escala/instrumento protocolado na instituição/serviço. - Implementar as intervenções não farmacológicas selecionadas para ajudar no controlo da ansiedade. - Preservar a intimidade do adolescente. - Promover um ambiente adaptado ao adolescente. - Respeitar os "silêncios", hábitos e preferências do adolescente. - Gerir a oportunidade para intervir/implementar cuidados de enfermagem. - Demonstrar disponibilidade para o adolescente e para os pais. - Dar a oportunidade para os pais falarem. - Permitir a presença dos membros da família, quando adequado e respeitando as preferências do adolescente. - Validar os sentimentos manifestados pelo adolescente.	- Promover o bem-estar. - Minimizar os sintomas relacionados com o stresse e ansiedade.

Figura 2. Intervenções para o período pré-operatório

Foram elaboradas um conjunto de intervenções com objetivo de minimizar os efeitos negativos e reduzir os níveis de ansiedade experimentados pelos adolescentes [e pais] no período intra-operatório, com particular incidência para o momento da indução anestésica (Figura 3).

Período Intraoperatório		
onde	o que fazer	para quê
Sala de Indução Anestésica	- Preservar a intimidade do adolescente. - Promover um ambiente calmo e confortável. - Validar emoções e sentimentos do adolescente. - Respeitar os "silêncios" e as preferências do adolescente. - Dar continuidade às intervenções não farmacológicas selecionadas no período pré-operatório. - Permitir que o adolescente seja acompanhado, sempre que o deseje e seja adequado (se a condição clínica permitir; disponibilidade da pessoa para acompanhar), por um familiar ou pessoa significativa.	- Promover o bem-estar. - Gerir a ansiedade do adolescente.
Sala Operatória/ Sala de Espera	Manter os pais informados.	- Tranquilizar os pais. - Gerir a ansiedade dos pais.

Figura 3. Intervenções para o período intra-operatório

Para o período pós-operatório as intervenções foram organizadas para serem implementadas em três contextos: unidade de cuidados pós-anestésicos, internamento cirúrgico (pós-operatório) e consulta de enfermagem pós-operatória (Figura 4).

Período Pós-operatório		
onde	o que fazer	para quê
Unidade de Cuidados Pós-Anestésicos/ Recobro	- Avaliar dor e ansiedade dos adolescentes com recurso a escala/ instrumento protocolado na instituição/serviço. - Gerir tratamento da dor e ansiedade. - Permitir que o adolescente seja acompanhado por um familiar ou pessoa significativa, caso o deseje.	- Promover o bem-estar. - Controlar a dor e ansiedade.
Internamento Cirúrgico [Depois do procedimento cirúrgico]	- Avaliar dor e ansiedade dos adolescentes com recurso a escala/ instrumento protocolado na instituição/serviço. - Gerir a dor e ansiedade. - Disponibilizar a informação verbal. - Reforçar a informação que foi iniciada na consulta pré-operatória. - Disponibilizar informação escrita sobre controlo da dor no domicílio.	- Promover o bem-estar. - Promover uma recuperação ótima. - Preparar para a alta. - Promover o controlo da dor no domicílio.
Consulta de Enfermagem/ Teleconsulta 1. No dia seguinte à alta. 2. Ponderar nova avaliação: 7 dias após a alta; 1 mês após o procedimento cirúrgico.	- Avaliar dor e ansiedade dos adolescentes com recurso a escala/ instrumento protocolado na instituição/serviço. - Esclarecer dúvidas que possam ter surgido após a alta. - Despistar complicações pós-operatórias. - Dar oportunidade para o adolescente falar sobre a adaptação à nova condição (se aplicável). - Reencaminhar para consulta da área de especialidade, caso necessário. - Avaliar a satisfação do adolescente e pais com os cuidados perioperatórios.	- Identificar precocemente a ocorrência de possíveis complicações. - Prevenir complicações pós-operatórias. - Evitar idas desnecessárias ao serviço de urgência.

Figura 4. Intervenções para o período pós-operatório.

Discussão

O 3P2A foi desenvolvido com base nos resultados dos estudos realizados nas etapas da fase de desenvolvimento do modelo de intervenções complexas do Medical Research Council.^{10,11} O modelo conceptual selecionado para sistematizar os cuidados de enfermagem foi o Modelo de Sistemas de Betty Neuman.^{21,22} De acordo com este modelo, há a crença de que a cura do cliente pode ser reforçada através de intervenções de enfermagem específicas centradas no alívio ou redução de fatores causadores de stresse.²¹ Na perspetiva de Neuman, o objetivo da enfermagem é reduzir o contacto do cliente com os fatores causadores de stresse (ou potenciais causadores de stresse) através da utilização de intervenções de prevenção primária, secundária ou terciária que procuram reter, atingir, ou manter um nível ótimo de bem-estar para o cliente.²²

No 3P2A as intervenções podem assumir o carácter primário, secundário e/ou terciário, de acordo com a natureza e intensidade dos *stressores* com os quais o adolescente contacte ou possa contactar.

Período pré-operatório

Foi considerado como o momento de maior investimento na preparação do adolescente que vai ser submetido a cirurgia e inclui uma consulta de enfermagem pré-operatória. Nos estudos previamente desenvolvidos, foi concluído que tanto os enfermeiros como os adolescentes referiam a necessidade da existência de um contacto prévio ao dia da admissão para a cirurgia. Paralelamente, nas revisões de literatura realizadas, verificou-se que as intervenções não farmacológicas são implementadas, maioritariamente, no período pré-operatório.^{12,15,16} O contacto prévio ao dia da cirurgia tem como objetivo preparar o adolescente [e família] para o processo de cuidados perioperatórios. Esta fase é entendida, por todos os participantes (enfermeiros e adolescentes), como a ideal para iniciar os cuidados pós-operatórios, considerando que no dia da cirurgia, o tempo que os enfermeiros dispõem é escasso e os adolescentes apresentam níveis de ansiedade elevados, o que dificulta a apreensão do que está a ser solicitado e o que esta a ser explicitado.^{13,19}

Neste período, os enfermeiros devem realizar intervenções e ações para minimizar a ansiedade aquando da admissão do adolescente para a cirurgia, no serviço cirúrgico/internamento, enquanto este aguarda até ser transferido para o bloco operatório

Período intraoperatório

Neste período, os cuidados recomendados centram-se, sobretudo, em ações e intervenções a realizar pelo enfermeiro de anestesia, uma vez que este é o profissional

de enfermagem que habitualmente admite o adolescente no bloco operatório. Pelas características de desenvolvimento da população intervencionada em bloco operatório pediátrico (crianças e adolescentes) e nos contextos/países onde há ausência de uma especialidade ou competência certificada na área da enfermagem de anestesiologia pediátrica (como é o exemplo de Portugal), o enfermeiro especialista em enfermagem de saúde infantil e pediátrica é o profissional de enfermagem que detém as competências para a gestão diferenciada da dor e do bem-estar da criança/adolescente, otimizando as respostas necessárias neste ambiente.²³ Entre outras, é da sua competência, gerir a ansiedade do adolescente neste ambiente, monitorizar e vigiar as funções vitais, acompanhar e proceder à sua transferência após realização do procedimento cirúrgico para a unidade de cuidados pós anestésicos/recobro. O enfermeiro deve atuar com base na evidência, para proteger, promover e otimizar a saúde e as capacidades dos adolescentes que necessitam de cuidados anestésicos e cirúrgicos, desde o nascimento até ao fim da adolescência.²⁴

Período pós-operatório

A estrutura do programa para o período pós-operatório está dividida atendendo aos locais/contextos onde o adolescente recebe cuidados perioperatórios: Unidade de cuidados pós-anestésicos, internamento cirúrgico e consulta de enfermagem pós-operatória. De referir que este último poderá acontecer, num ou mais contextos e realizado na modalidade presencial ou não presencial (teleconsulta).²⁵ Atendendo à avaliação feita ao adolescente no primeiro contacto após a alta, o enfermeiro especialista em saúde infantil e pediátrica avalia a necessidade de intervir e, caso necessário, planear algum contacto subsequente e agir em conformidade. Isto vai ao encontro das competências do enfermeiro especialista em saúde infantil e pediátrica que providencia cuidados à criança/adolescente promotores da majoração dos ganhos em saúde, recorrendo a uma variedade de terapias de enfermagem comuns e complementares, amplamente suportadas na evidência.²³

Limitações

O programa foi desenhado com base nos resultados de diversos estudos, nos quais participaram adolescentes e enfermeiros de um único centro pediátrico. Adicionalmente, algumas das intervenções sugeridas são resultantes de estudos de síntese de literatura.^{12,15,17} Apesar dos componentes do programa terem sido discutidos, individualmente, com três enfermeiros especialistas e duas peritas em saúde infantil e pediátrica e posteriormente validado, a avaliação do grau de concordância, entre peritos, para cada um dos componentes do programa não foi efetuada.

Conclusões

O desenho do programa integra elementos resultantes de estudos desenvolvidos nas etapas da fase de desenvolvimento do modelo de intervenções complexas do MRC. Pelas características, contexto e dinâmica dos cuidados no período perioperatório, o programa foi estruturado, com intervenções específicas, para serem implementadas nas três fases, pré, intra e pós-operatório. A forma como o programa está apresentado, discrimina as intervenções para cada fase do período perioperatório e pode ser implementado na íntegra ou nas fases que o enfermeiro de acordo com o seu juízo considere pertinentes, atendendo às características do cliente, do contexto e dimensão do problema de ansiedade identificado no adolescente.

O investimento na fase de desenvolvimento de uma intervenção pode ser demorado. No entanto, é uma oportunidade para elaborar e aprimorar um programa (intervenção multicomponente/complexa), como é o caso da prevenção de ansiedade em adolescentes no período perioperatório, antes da sua implementação em larga escala. Para aumentar a probabilidade de sucesso na implementação do programa, para além da revisão teórica para identificação e síntese da evidência, foi importante ouvir os adolescentes e envolver os profissionais no seu desenvolvimento e validação. No entanto, reconhece-se que é necessário a realização de um estudo de viabilidade para avaliar o programa 3P2A na prática clínica, antes da sua implementação.

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Conclusões e Perspetivas Futuras

Nesta secção, apresentam-se as principais conclusões que emergiram do desenvolvimento desta investigação, bem como a sua relevância e implicações para a prática clínica (figura 4). Este estudo, propôs-se desenvolver um programa para prevenção da ansiedade em adolescentes no período perioperatório (3P2A), seguindo a primeira fase do modelo de intervenções complexas do MRC.

Na primeira etapa da fase de desenvolvimento do MRC, correspondente à identificação da evidência de base, desenvolveram-se dois estudos (artigos 1 e 2).

No estudo de revisão integrativa (artigo 1), sintetizou-se a investigação existente sobre as manifestações de ansiedade e necessidades expressas pelos adolescentes no período perioperatório. Verificou-se que os estudos identificados, e incluídos, foram desenvolvidos com adolescentes submetidos a procedimentos cirúrgicos muito instrumentados (ex. escoliose). Esta foi uma das razões que contribuiu para o desenvolvimento do estudo que objetivou analisar como os adolescentes, submetidos a cirurgia muito instrumentada, descreviam a experiência decorrente do período perioperatório (artigo 2). Nos estudos analisados, a ansiedade foi expressa por motivos díspares, concluindo-se que os adolescentes tanto se revelam ansiosos com a cirurgia que consideram a solução para o seu problema, como, apresentam ansiedade pela incerteza sobre o resultado desta. Já as emoções, como o medo manifestado, relacionam-se com os procedimentos anestésicos, assim como com os riscos de lesão neurológica decorrentes da cirurgia, e com a dor no período pós-operatório. Alguns adolescentes referiram estar preocupados com a possibilidade de dependência de analgésicos no pós-operatório. Este aspeto não foi referido no estudo qualitativo que se realizou com adolescentes (artigo 2), no qual alguns preferiam tomar analgésico apenas quando a “dor fosse insuportável”, pois consideravam que como tinham sido operados, era normal sentirem dor. No estudo de revisão apurou-se, ainda, que alguns adolescentes consideravam não estar preparados para a alteração física resultante da cirurgia.

As necessidades identificadas, no estudo de revisão, prenderam-se com a informação acerca da cirurgia e com a vontade de serem abordados e envolvidos nas decisões sobre os seus cuidados perioperatórios. Os adolescentes expressaram ainda a necessidade de receber informação relacionada com o controlo da dor, com a recuperação pós-operatória, tanto no hospital como no domicílio e com o impacto que o evento crítico iria ter nas atividades escolares. Apesar dos adolescentes privilegiarem a sua autonomia, manifestam a necessidade de ter os pais junto a si durante o período de internamento. Estes foram, também, aspetos mencionados pelos adolescentes que participaram no estudo relativo às experiências decorrentes do período perioperatório (artigo2). Este estudo visou a identificação do problema, através da descrição experiências vividas. Para tal entrevistaram-se 40 adolescentes, que partilharam as suas experiências relacionadas com o período perioperatório. Da análise dos resultados obtidos emergiu um tema major, o adolescente em situação perioperatória, e cinco temas: aspetos psicológicos e emocionais, aspetos físicos, aspetos sociais, aspetos organizacionais e experiências cirúrgicas anteriores.

Nos aspetos psicológicos, e mormente na reação ao desconhecido, os adolescentes manifestaram medo e ansiedade. As emoções e reações psicológicas manifestadas pelos adolescentes e relacionadas com a experiência perioperatória foram semelhantes, independentemente das especificidades relativas à realização do procedimento (em regime de ambulatório ou com necessidade de internamento).

Dos aspetos físicos, a dor e a dificuldade no seu controlo, tanto no hospital como em casa, a dificuldade na mobilização, o desconforto e a perda de autonomia foram os mais referidos. De referir que a perda da autonomia nem sempre era determinada pela condição perioperatória do adolescente, mas pela preocupação e necessidade de proteção por parte dos pais. Esta foi uma situação muito marcante para alguns adolescentes e contribuiu para que se sentissem tristes, chorando, inclusivamente, quando estavam sós. Do que foi possível perceber, esta limitação da autonomia dos adolescentes pelos pais, deveu-se, pelo menos em parte, à falta de informação e/ou de esclarecimento sobre os cuidados pós-operatórios a ter. Assim, não estando na posse da informação necessária, os pais agiam por excesso, substituindo o adolescente em todas as suas atividades/tarefas. Por sua vez, os adolescentes sentiam-se diminuídos e infantilizados naquelas que eram as suas capacidades, revelando tristeza e sofrimento durante o período pós-operatório, no domicílio.

Nos aspetos sociais, sobressaíram as preocupações com a escola e com a preparação para os exames de acesso ao ensino superior. A possibilidade de continuar os estudos e de poder contactar com os amigos, fosse no hospital ou em casa, foi referida como algo positivo durante o processo de recuperação pós-operatória. Os adolescentes submetidos a cirurgia que envolveu a alteração da imagem corporal (por exemplo, otoplastia ou correção de escoliose), referiram ainda estar expectantes com o comportamento e reação dos amigos relativamente a si e à sua condição pós realização da intervenção cirúrgica. Verbalizaram sentir receio da reação e da

possível não aprovação da sua nova imagem, o que denota a importância atribuída à opinião dos pares e à necessidade de aceitação por eles. Ainda relacionado com a influência dos pares, pontuaram de forma positiva a oportunidade de conversarem com outros adolescentes submetidos a um procedimento cirúrgico semelhante ao planeado para si. Adicionalmente, a partilha de experiências com outro adolescente contribuiu para uma maior tranquilidade e confiança.

No que diz respeito aos aspetos organizacionais, os adolescentes referiram a falta de informação e de preparação relacionada com os cuidados perioperatórios. Demonstraram desagrado por serem confrontados com informação importante e a necessidade de tomar decisões, apenas no dia da cirurgia. Também referiram que esperavam ter sido contactados para uma consulta prévia ao dia da cirurgia e que o facto de não terem tido tempo para se preparar para o que iria acontecer os incomodou. A convocatória para se apresentarem muito cedo no hospital e o tempo que tiveram de aguardar até que alguém falasse com eles foram motivos de insatisfação para os adolescentes. Da memória que têm da passagem pelo bloco operatório, relembram que os assustou o facto de não conhecerem nenhuma, das muitas, pessoas que lá estavam e de ouvirem os profissionais a discutir ou a falar num tom muito alto. Os blocos operatórios, pelas suas características e especificidades relacionadas com a condição do doente a intervir, são ambientes onde se concentra um número considerável de profissionais de várias áreas. Por este motivo, pode acontecer a necessidade de discutir alguma estratégia antes do início da cirurgia. No entanto, os profissionais devem procurar um espaço diferente daquele onde o adolescente está a ser anestesiado para aferir e discutir estratégias. No momento da indução anestésica deve prevalecer o silêncio e a tranquilização do adolescente, respeitando também o propósito com que foi administrado a medicação pré-anestésica.

Os adolescentes que necessitaram de cuidados intensivos no período pós-operatório (ex. correção de escoliose) referiram que esse período tinha sido muito difícil, devido ao choro dos bebés que partilhavam o mesmo espaço, que não os deixava descansar e que só queriam sair “dali para fora”. Tal como na sala de indução anestésica, também no período pós-operatório imediato, os adolescentes requerem um ambiente tranquilo, onde possam descansar e iniciar o seu processo de recuperação sem acréscimo de fatores stressores, como os referidos pelos participantes do estudo. Como aspetos positivos, os adolescentes reportaram a forma como foram cuidados pelos enfermeiros durante a sua estadia no hospital, sentindo que estes tudo fizeram para os ajudar.

Relativamente à experiência cirúrgica anterior, enquanto para uns adolescentes esta foi apontada como positiva, para outros teve um efeito paradoxal. Os primeiros realçaram que o facto de a experiência anterior ter sido positiva os ajudou a sentirem-se mais confiantes e preparados para a experiência perioperatória atual. Já os que avaliavam a experiência anterior como negativa relataram que isso influenciou no processo de recuperação atual, e que se sentiam mais ‘ansiosos e nervosos’ comparativamente com a experiência anterior. Estes últimos referiram ainda que na experiência atual,

o processo de recuperação tinha sido mais difícil e a dor parecia ser mais intensa e mais difícil de tolerar. Desta forma, a experiência anterior, associada à ausência de preparação pré-operatória, pode ter condicionado a forma como o adolescente vivenciou a experiência atual, intensificando-a de forma positiva ou negativa.

Os resultados deste estudo revelaram que os adolescentes experienciam o período perioperatório de uma forma dispar, independentemente do tipo de cirurgia a que são submetidos. Consideram-no complexo devido à quantidade de variáveis, intervenientes e multiplicidade de procedimentos que engloba. Os aspetos referidos pelos adolescentes levam a inferir que uma melhor preparação pré-operatória, com disponibilização de informação e com oportunidade de esclarecimento de dúvidas, poderia contribuir para influenciar positivamente os resultados (ex. ansiedade, dor, satisfação).

Tanto no estudo de revisão como no estudo qualitativo, verificou-se que parte das experiências relatadas estão relacionadas com a ausência de preparação e envolvimento do adolescente no processo terapêutico. Nestes estudos, identificaram-se as áreas de intervenção, referentes ao adolescente e ao contexto, que são passíveis de intervenção dos enfermeiros, no sentido de prevenir a ansiedade e os efeitos negativos a ela associados, durante o período perioperatório.

Na etapa correspondente à “identificação/desenvolvimento de teoria” realizaram-se três estudos (artigos 3 a 7), dois de síntese de evidência e um estudo caso. Iniciou-se com o mapeamento das INF utilizadas em adolescentes para prevenir a ansiedade no período perioperatório, quais as suas características, qual a população adolescente beneficiária das intervenções mapeadas, que outras manifestações - para além da ansiedade foram alvo de avaliação, e quem foram os profissionais que implementaram as INF. Foram identificadas oito INF, apurando-se que a música/musicoterapia e a hipnose/imaginação guiada foram as mais comumente utilizadas. O relaxamento, a distração, os programas de preparação, a presença dos pais durante a indução anestésica, a massagem e a leitura também são outras intervenções utilizadas, de forma isolada ou em combinação com outra INF. As características das INF, a frequência e a duração diferiram entre si. A duração variou entre 5-10 minutos e duas horas, atendendo às características da própria INF ou fase do perioperatório em que foi implementada. Por exemplo, intervenções implementadas no período pré-operatório tinham uma duração superior comparativamente àquelas implementadas imediatamente antes da indução anestésica. A frequência de administração também diferia entre intervenções, variando entre uma a três vezes por semana. Isto relacionou-se com a INF em si e com o contexto, pré-operatório ou pós-operatório, bem como com o local onde foram implementadas (na consulta de preparação pré-operatória, na indução anestésica, no recobro ou no quarto do serviço de internamento).

Os adolescentes da fase inicial do desenvolvimento (10-14 anos) foram os mais frequentemente incluídos nos estudos analisados. Em oposição, os adolescentes da fase tardia (17-19 anos) os menos representados. Como referido na introdução desta tese, a adolescência é uma fase do desenvolvimento de complexa definição, havendo um seg-

mento desta fase de desenvolvimento (adolescência inicial) que se sobrepõe a outra fase distinta da adolescência. Estes quatro anos de vida (dos 10 aos 14 anos) tanto surgem definidos como fazendo parte da 'adolescência', da 'infância' ou de 'crianças em idade escolar', podendo esta ser uma das razões que explica esta sobreposição. Outra explicação poder-se-á dever à idade limite de atendimento da população pediátrica nos cuidados de saúde vigente em cada país e/ou hospital, em que os adolescentes das fases intermédia e tardia (15-19 anos) são integrados em serviços maioritariamente destinados a adultos, ficando assim excluídos de estudos realizados em idade pediátrica. Consequentemente, e dada a sua dispersão, mesmo que adolescentes com idade inferior a 15 anos sejam incluídos nos estudos desenvolvidos em contexto perioperatório, não são apresentados resultados específicos para a sua faixa etária.

Ainda no estudo *scoping review* (artigos 3 e 4), verificou-se que a dor, o *distresse* e o consumo de analgésicos também foram alvo de avaliação em concomitância com a ansiedade no período perioperatório. De referir que os dois resultados avaliados mais frequentemente relacionados entre si foram a ansiedade e a dor.

Os enfermeiros representam o grupo profissional mais envolvido na implementação das intervenções não-farmacológicas a adolescentes no período perioperatório. Como estes profissionais acompanham os adolescentes neste período, e atendendo à avaliação e ao juízo que fazem sobre o estado emocional que eles apresentam, podem recorrer a intervenções que estão ao seu alcance, e que não requerem prescrição, para gerir e minimizar os efeitos negativos da ansiedade. No entanto, se algumas intervenções podem ser implementadas de forma autónoma (como por exemplo a distração, a leitura e a música), outras requerem competências específicas (hipnose, imaginação guiada, relaxamento e massagem) e/ou a colaboração de outros profissionais (musicoterapia).

Uma vez mapeada a informação correspondente às INF utilizadas para prevenir a ansiedade em adolescentes no período perioperatório, e atendendo à limitação de não se poderem emitir recomendações para a prática a partir dos resultados acima apresentados, houve a necessidade de realizar um outro estudo de revisão sistemática de eficácia (artigos 5 e 6). Este teve como propósito avaliar a efetividade das intervenções não-farmacológicas na gestão da ansiedade em adolescentes no período perioperatório. Individualmente, os estudos analisados e incluídos na SR mostraram que INF foram benéficas na redução da ansiedade dos adolescentes no período perioperatório. Contudo, na meta-análise realizada com apenas três estudos, (artigo 6) não se verificou uma diferença estatisticamente significativa a favor da implementação das INF quando comparada com os cuidados habituais. De referir que dada a impossibilidade de verificar a efetividade das INF individualmente, pela inexistência de estudos, na meta-análise estas foram analisadas em conjunto. Apesar de ligeira a diferença verificada a favor da utilização das INF na gestão da ansiedade em adolescentes esta foi considerada clinicamente relevante. Assim, INF como a hipnose, a imaginação guiada e técnicas de relaxamento, podem ser utilizadas com o propósito de gerir a ansiedade em adolescentes no período perioperatório. Neste estudo, algo surpreendente foi o

facto de não se encontrar, em quatro dos cinco estudos analisados, resultados de *follow-up*, a curto ou médio prazo, como por exemplo 24 horas, uma semana ou até um mês após a alta. Da análise narrativa, o tópico “informação/educação” também foi identificado em quatro dos cinco estudos incluídos na SR, para além dos dois estudos desenvolvidos e anteriormente apresentados (artigos 1 e 2). Dada a importância atribuída à componente de informação/educação, esta surge como intervenção a incluir num programa com o propósito de prevenir a ansiedade em adolescentes no período perioperatório. Embora não tenha sido incluído nesta investigação (tese), num outro estudo de revisão sistemática com meta-análise desenvolvido em co-autoria (*Effectiveness of family-centred educational interventions in the anxiety, pain and behaviours of children/adolescents and their parents' anxiety in the perioperative period: a systematic review and meta-analysis*), verificou-se que as intervenções educativas são efetivas na redução da ansiedade no período pré-operatório, na indução anestésica e no período pós-operatório, em crianças e adolescentes. Todavia, os estudos incluídos nesta revisão não distinguiram os resultados para as crianças e para os adolescentes, continuando a descoberto a necessidade de avaliar também o efeito da componente educativa na ansiedade dos adolescentes no período perioperatório.

Após identificar um modelo/teoria que fosse aplicável à pessoa, ao contexto e que possibilitasse a sistematização dos cuidados perioperatórios, desenvolveu-se um estudo de caso (artigo 7) no qual se implementa o processo de cuidados de enfermagem a uma adolescente no período perioperatório, seguindo o Modelo de Sistemas de Neuman. De acordo com este modelo, o indivíduo é um sistema aberto e dinâmico, com ciclos de entrada, de processo e de saída que se alimentam de forma organizada e contínua. Neste estudo, a avaliação, numa perspetiva da enfermagem holística, permitiu que se planeassem cuidados individualizados, evitando a limitação aos cuidados padronizados e rotineiros que despersonificam o adolescente. As intervenções de enfermagem implementadas serviram para atenuar os efeitos negativos provocados pelos fatores de stress (ansiedade, dor e risco de lesão neurológica), e tiveram em consideração as características individuais do adolescente (variáveis biológicas, psicológicas, socioculturais, espirituais e de desenvolvimento). Assim, a implementação de intervenções de enfermagem preventivas de carácter primário, secundário e/ou terciário tiveram a finalidade de fortalecer as linhas de defesa, reduzir o impacto dos stressores e promover o bem-estar do adolescente. Concluiu-se que a aplicação do modelo em contexto de cuidados perioperatórios a adolescentes é viável e adequada, permitindo identificar os principais focos de atenção do enfermeiro e prescrever intervenções que respondem aos problemas prioritários dos adolescentes em situação perioperatória.

Na etapa correspondente à “modelagem do processo e resultados”, desenvolveu-se outro estudo qualitativo (artigo 8), com recurso a entrevistas de grupo (Grupos Focais) a enfermeiros especialistas em Enfermagem de Saúde Infantil e Pediátrica. Neste estudo, a falta de formação especializada, assim como a inexperiência de al-

guns enfermeiros para cuidar de adolescentes em situação perioperatória emergiram como fatores dificultadores da prestação de cuidados. A ausência de um contacto, entre o enfermeiro e o adolescente prévio ao dia da cirurgia, foi outro fator referido como fator dificultador da prestação de cuidados. O encurtamento do tempo entre a admissão no hospital e a realização da cirurgia, sem a disponibilização de qualquer informação adicional ou a inclusão de um momento para o ensino e treino de habilidades sobre alguns exercícios a realizar no pós-operatório (ex. para gestão da dor) complexificam o trabalho a desenvolver pelos enfermeiros, pois implica dispor de menos tempo para realizar as mesmas intervenções. Adicionalmente, o volume de informação a reter pelos adolescentes é elevado, atendendo ao curto espaço de tempo que dispõem para integrar os ensinamentos, treinar as habilidades e esclarecer as dúvidas que possam surgir e o momento não é considerado o ideal para a transmissão desta informação. Perante esta realidade, os enfermeiros consideram que a existência de uma consulta pré-operatória, presencial ou à distância, por telefone, onde o adolescente possa ser avaliado, onde sejam identificados os medos e as preferências, esclarecidas as questões e realizados ensinamentos relacionados com os cuidados perioperatórios facilitaria, não só o processo de prestação de cuidados no hospital, como também a preparação para a alta. De realçar que a necessidade de obtenção de informação prévia ao dia de admissão para a cirurgia, também foi referida pelos adolescentes no estudo *Adolescents' perioperative experiences about impatient and outpatient elective surgery – a qualitative study* (artigo 2). Em todos os grupos focais, foi sugerida a implementação de uma consulta perioperatória de enfermagem como solução mais propícia para dar resposta às dificuldades com que os enfermeiros deste contexto se confrontam diariamente. Também sugeriram as intervenções que consideram pertinentes incluir na conceção e desenvolvimento do programa de intervenção para adolescentes. Estas foram organizadas pelos diferentes períodos pré, intra e pós-operatório.

A necessidade de formação sobre desenvolvimento do adolescente e otimização dos cuidados ao adolescente, em contexto perioperatório foi outra preocupação que emergiu do discurso dos enfermeiros especialistas. Nestas formações devem ser abordados temas como as características do desenvolvimento na adolescência e diferenças entre as várias etapas da adolescência (inicial, intermédia e tardia); avaliação do adolescente e identificação de emoções e comportamentos; estratégias de comunicação e formas de intervenção adequadas ao adolescente e à situação que está a vivenciar, com vista à promoção do seu conforto e bem-estar. Os enfermeiros mostraram-se entusiasmados por serem ouvidos e por poderem descrever as dificuldades com que se deparam quando cuidam de adolescentes.

Na etapa correspondente à 'avaliação dos componentes da intervenção', o programa desenhado foi alvo de análise crítica individual por dois peritos e três enfermeiros especialistas em enfermagem de saúde infantil e pediátrica e com experiência no

cuidado a adolescentes em situação perioperatória. Todas as sugestões foram analisadas e consideradas na versão final do programa.

O desenho do programa contemplou todo o período perioperatório e as intervenções foram elaboradas atendendo aos resultados de todos os estudos e especificadas por cada período: pré, intra e pós-operatório. O envolvimento dos peritos e dos enfermeiros especialistas visou a validação do programa.

No decurso desta investigação foram surgindo várias dificuldades, entre elas a não existência de tempo exclusivo para dedicar ao desenvolvimento dos estudos; o surgimento da pandemia de COVID-19 que levou ao cancelamento da atividade cirúrgica eletiva, obrigando à interrupção da colheita de dados por um período de três meses; a dificuldade na publicação dos estudos sob a forma de artigo em revistas com indexação, e os longos períodos de espera entre a submissão e a obtenção do parecer de revisores e editores, em alguns casos indo para além de um ano.

Tratando-se do desenvolvimento de um programa de intervenção, e dada a alteração de dinâmicas hospitalares impostas pela pandemia, optou-se por adiar a sua implementação e a consequente apresentação dos primeiros resultados da sua eficácia. No entanto, o desenvolvimento do extenso trabalho de revisão teórica permitiu identificar aspetos a considerar não só no desenho do programa apresentado (artigo 9), mas também, sobre outros tópicos relacionados com os cuidados perioperatórios a adolescentes, como a formação dos profissionais de saúde. Estes podem ainda servir como ponto de partida, não só para a replicação do programa de intervenção disponibilizado, como também para que intervenções isoladas possam ser implementadas com o propósito de gerir a ansiedade em adolescentes no período perioperatório (ex: implementação de estratégias não farmacológicas).

No futuro pretende-se implementar o 3P2A; avaliar a eficácia deste programa de intervenção complexa na ansiedade, dor, satisfação dos adolescentes durante o período perioperatório; e avaliar o custo-efetividade do 3P2A.

Pelo exposto, acredita-se que os estudos incluídos nesta tese produziram evidência para apoiar a otimização dos cuidados de enfermagem aos adolescentes em contexto perioperatório. Adicionalmente, salientam a importância da existência de enfermeiros especialistas em saúde infantil e pediátrica, sensíveis às características de desenvolvimento e comportamento dos adolescentes, nos contextos de prestação de cuidados, como é o caso do contexto perioperatório.

A opção pela publicação de todos os trabalhos em revista científica com relevância internacional, permitiu a discussão dos estudos de forma ‘cega’ com revisores e editores, tendo conjunto de críticas, sugestões e contributos dos vários intervenientes, contribuído para tornar o processo de investigação mais transparente e robusto.

O que se sabe sobre este tópico

- Anualmente, milhares de adolescentes são submetidos a um procedimento cirúrgico.
- Cerca de 80% dos adolescentes apresentam níveis moderados de ansiedade antes da realização do procedimento cirúrgico.

O que é que este estudo acrescenta

- Conhecimento de que a experiência perioperatória dos adolescentes é multifatorial: **1)** aspetos psicológicos e emocionais, **2)** aspetos físicos, **3)** aspetos sociais, **4)** aspetos organizacionais, **5)** experiências cirúrgicas anteriores; os adolescentes manifestam necessidade de informação e de serem envolvidos no seu processo de cuidados perioperatórios.
- Mapeamento das INF utilizadas no período perioperatório para prevenir a ansiedade nos adolescentes.
- Identificação das lacunas existentes na literatura sobre a utilização de INF em adolescentes no período perioperatório.
- Avaliação da efetividade das INF utilizadas para gerir a ansiedade em adolescentes, no período perioperatório.
- Identificação do Modelo de Sistemas de *Neuman* como adequado para sistematizar os cuidados de enfermagem aos adolescentes em situação perioperatória.
- Descrição das perspetivas e sugestões dos enfermeiros sobre um programa para prevenção da ansiedade nos adolescentes no período perioperatório.
- Disponibilização do desenho de um programa para prevenção de ansiedade em adolescentes no período perioperatório (3P2A).

Implicações para a prática e para a investigação

- Avaliação da eficácia das INF (hipnose/imaginação guiada, música e técnicas de relaxamento) na ansiedade dos adolescentes no período perioperatório.
- Avaliação da eficácia da disponibilização de informação, sob diferentes formas, na ansiedade dos adolescentes no período perioperatório.
- Avaliação do custo/efetividade do programa na prevenção da ansiedade em adolescentes no período perioperatório.

Figura 4. Considerações gerais sobre o estudo

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Anexos

ANEXO I

Guião de Entrevista – Adolescentes

Guião de Entrevista – Adolescentes		
Início Apresentação Pessoal: Nome, Profissão, Doutoranda em Ciências de Enfermagem Apresentação do estudo: Objetivos do estudo e da entrevista; Importância da entrevista para o estudo Consentimento informado: Apresentação do documento e obtenção do consentimento escrito do pai ou da mãe e do/a adolescente (se idade inferior a 16 anos, assentimento após informação).		
Identificação do adolescente Entrevista nº ____ Código: ____ Data: ____/____/____ Hora de início: ____:____ Hora de término: ____:____ Local: _____ Identificação do informante: Idade: ____ Género: ____ Tipo de Família: _____ nº de irmãos: _____ Escolaridade: ____ Anos de escola: ____ Regime Normal/ Adaptado: _____ Nº cirurgias anteriores: ____ Quando foi operado/Há quanto tempo: _____ Tipo de cirurgia: _____ Dias de internamento: _____ nº de internamentos anteriores		
Objetivos	Questões	Observações
Fase narrativa		
Obter informação relativa às ocorrências vividas no período perioperatório relacionada com a experiência cirúrgica.	Tendo realizado uma cirurgia, é importante para mim que me fale sobre como foi a sua experiência, desde quando soube que ia ser operado/a, passando pela cirurgia, e depois de ser operado? Pode levar o tempo que quiser, tudo o que se recordar, relacionado o antes e depois da cirurgia, é importante para mim.	
Fase exploratória		
Explorar alguns conceitos que tenham ficado pouco explícitos.	1º Momento No Pré-Operatório: Como é que soube que ia ser operado/a? Quais é que foram as suas principais preocupações após ter conhecimento que ia ser operado/a? Como foram os seus dias antes da cirurgia? Considera que a informação que lhe deram, antes da cirurgia, respondeu às suas dúvidas? O que é que fazia e que deixou de fazer após saber que ia ser operado/a? De que forma considera que podia ter sido ajudado/a na sua preparação para esta experiência até agora? 2º Momento Pós-Operatório: Como se sentia no dia da cirurgia? Quais são as recordações que tem presentes, desse dia? O que é que considera que poderia ter ajudado? Como foi a sua experiência enquanto esteve no hospital e depois em casa? O que é que mais o marcou? Como se sentiu durante esta semana, após a sua intervenção cirúrgica? O que é que foi mais desafiante para si?	

	O que considera que poderia ter ajudado durante todo este período (desde que soube que necessitava ser intervencionado e até agora)? - Falou sobre (...) Pode falar-me um pouco mais sobre esse aspeto? Também mencionou (...) Pode contar-me esse aspeto em mais pormenor? Que impacto é que esta experiência teve na sua vida?	
Fase de balanço		
Compreender os significados atribuídos pelos adolescentes às ocorrências, no período perioperatório.	De todas as experiências que falou, enuncie alguns aspetos que tenham sido especialmente relevantes para si... - De que modo é que esses aspetos (...) foram importantes para si?	
Compreender como é que o adolescente geriu o período perioperatório.	- Como é que os explica? - Quem falou consigo sobre todo o processo pelo qual passou (antes, durante e após a cirurgia)? - Sobre que aspetos conversaram?	
Compreender o que é que os adolescentes mais valorizam no período perioperatório.	- Este aspeto (...) parece ter tido relevância para si.... Fale-me em que medida foi importante? - Considera que deveriam ter tido outro tipo de preparação, antecipando todo este processo?	
Compreender os "porquês" das opções dos adolescentes.	De que forma considera que estas experiências podem influenciar a sua vida daqui para a frente? O que gostava que tivesse sido diferente? Qual é a sua principal memória de todo este processo?	

ANEXO II

Guião de entrevista de grupo (grupos focais)

Guião de entrevista de grupo (grupos focais)
Grupo focal nº _____ Data: ____/____/____ Hora de início: ____:____ Hora de término: ____:____ Local: _____
Início Apresentação da entrevistadora e observadora: Nome e Profissão Apresentação do estudo: Objetivos do estudo Consentimento informado: Apresentação do documento e obtenção do consentimento
Questões introdutórias
Informar que as questões se reportam aos adolescentes submetidos a cirurgia programada 1. Quais as principais preocupações do enfermeiro aquando da avaliação na admissão do adolescente? 2. Na vossa opinião há diferenças entre o comportamento dos rapazes e das raparigas? 3. Se sim, quais? 4. Como é que caracterizam o comportamento dos adolescentes que recorrem ao serviço? 5. Quais os principais problemas [não cirúrgicos] apresentados por esses adolescentes? 6. Como descrevem a forma como são cuidados os adolescentes que recorrem ao serviço? - (oportunidade dos cuidados para responder aos problemas não cirúrgicos apresentados) 7. Na vossa opinião, o que é que mais contribui para comportamento (...) e comportamento (...)? 8. Perceber se identificam o problema de ansiedade ou não? Se sim, quais são as intervenções individuais que sugerem?
Questões chave
Caso identifiquem o problema de ansiedade 9. Como é que os adolescentes podem ser preparados, de forma a prevenir-se a ansiedade no perioperatório? 10. Que tipo de intervenção, não farmacológica, consideram que deveria ser desenvolvida?

11. Como é que esta intervenção pode ser desenvolvida/implementada? 12. Por quem deve ser implementada (profissional)? 13. Em que fase do processo perioperatório devem ser implementadas [a(s) intervenção/ões]?
Questões finais - Fornecer contacto e solicitar que enviem sugestões que considerem pertinentes/relevantes.

Condições do grupo focal nº ____	
Local	
Dia e hora	
Condições do local (ruído, espaço público)	
Estado dos entrevistados (pressa ou não)	
Primeiro contacto com os entrevistados	
Empatia criada com o entrevistador	
Observação geral da entrevista	
Outras notas	

Caracterização Sociodemográfica**Género:** ☐ F ☐ M**Idade:**

☐ 25-29 anos ☐ 30-34 anos ☐ 35-39 anos ☐ 40-44 anos ☐ 45-49 anos
☐ 50-54 anos ☐ 55 -59 anos ☐ >60 anos

Estado Civil:

☐ Solteiro ☐ Casado/ União de facto ☐ Divorciado/Separado ☐ Viúvo

Habilitações académicas:

☐ Bacharelato ☐ Licenciatura ☐ Mestrado ☐ Doutoramento

Ano de obtenção do Título de especialista: 19__ // 20__**Serviço onde trabalha:**

☐ Bloco Operatório ☐ Cirurgia Pediátrica ☐ Ortopedia Infantil

Tempo de experiência profissional como enfermeiro/a: ____Anos ____Meses;

Tempo de experiência como enfermeiro/a: em Pediatria: ____ Anos ____
Meses;

Tempo de experiência como enfermeiro/a Especialista: ____ Anos ____
Meses;

Tempo de experiência de trabalho com adolescentes: ____ Anos ____ Meses;

Em que contextos/serviços: _____

ANEXO III

Parecer da Comissão de Ética para a Saúde



A CA
 16/4/2019

Autuado
 18/4/2019
 1325

Exmo Senhor
 Prof. Doutor Fernando Regateiro
 Presidente do Conselho de
 Administração
 Centro Hospitalar e Universitário de
 Coimbra, EPE

SUA REFERÊNCIA	SUA COMUNICAÇÃO DE	NOSSA REFERÊNCIA	DATA
		CHUC-001-19	10-04-2019

ASSUNTO: Aprovação do Projecto de Investigação CHUC-001-19

A pedido de **Márcia Noélia Pestana dos Santos, Enfermeira Especialista em Enfermagem de Saúde Infantil e Pediatria**, recebeu esta Unidade um pedido de autorização de um Projecto de Investigação sobre **"ANSIEDADE DOS ADOLESCENTES NO PERIOPERATÓRIO: UM PROGRAMA DE INTERVENÇÃO EM ENFERMAGEM"**, ao qual não se aplicam as normas previstas na Lei n.º 21/2014 de 16 de Abril e colheu parecer **favorável** da Comissão de Ética deste Hospital.

Informa-se V. Ex.^a, que este projecto não acarreta qualquer encargo financeiro adicional para o CHUC.

Solicita-se assim a autorização do Conselho de Administração para este Projecto.

Com os mais respeitosos cumprimentos,

P/A Coordenadora da Unidade de Inovação e Desenvolvimento

S. Saraiva
 (Prof. Doutor José Saraiva da Cunha)

CHUC - EPE
 CONSELHO DE ADMINISTRAÇÃO
 Reg. H. 2510 2a
 Origem
 Data 16/4/2019

ANEXO IV

Termo de consentimento informado



INSTITUTO DE CIÊNCIAS BIOMÉDICAS ABEL SALAZAR
UNIVERSIDADE DO PORTO



Doutoramento em Ciências de Enfermagem
Ansiedade dos Adolescentes no período perioperatório: Desenho de um programa de intervenção em Enfermagem

TERMO DE CONSENTIMENTO INFORMADO (Adolescentes)

Título do Estudo: Ansiedade dos Adolescentes no período perioperatório: Desenho de um programa de intervenção em Enfermagem

Identificação do Investigador: O meu nome é Márcia Noélia Pestana dos Santos, sou enfermeira no serviço de Bloco Operatório do Pólo Hospital Pediátrico do Centro Hospitalar e Universitário de Coimbra e doutoranda em Ciências de Enfermagem na Universidade do Porto – Instituto de Ciências Biomédicas de Abel Salazar.

Orientadores: Professora Doutora Lurdes Lomba e Professora Doutora Margarida Reis Santos

Objectivo: Está a ser solicitada a tua participação neste estudo porque tem uma cirurgia agendada. O objetivo deste estudo é desenhar um programa de enfermagem para prevenção da ansiedade, no perioperatório, em adolescentes com idade entre 14 e 18 anos.

Procedimento: Será pedida a tua colaboração para o preenchimento de questionários e participação numa entrevista. Durante estes procedimentos solicitarei algumas informações sobre ti e depois farei algumas perguntas sobre como foi a tua experiência durante o período antes e depois da cirurgia. A entrevista será gravada em áudio e posteriormente transcrita para papel e analisada pela investigadora e orientadores do estudo. Será preservado o seu anonimato, assim como será assegurada a confidencialidade das tuas respostas.

Riscos: A tua participação é voluntária e a tua recusa não implicará quaisquer prejuízos ou interferência nos teus cuidados atuais ou futuros.

Alternativas: A desistência do compromisso de participação é livre em qualquer momento. És livre para esconder qualquer informação que não queiras partilhar.

Confidencialidade: As informações que fornecer à investigadora serão utilizadas apenas para fins científicos.

Disponibilidade para esclarecimento de dúvidas: A qualquer momento, podes solicitar à investigadora informação adicional sobre a participação no estudo. Caso necessites e pretendas contactar a investigadora, podes utilizar o telefone 913796682 ou o e-mail marcianpsantos@gmail.com.

Custos: A aceitação e participação no estudo não implicará quaisquer custos para ti/teus pais. Na posse da informação e nas condições acima expressas, declaro que aceito participar na pesquisa.

Eu _____ Data ____/____/____

Assinatura _____

Assinatura da investigadora

(Márcia Pestana-Santos)



Doutoramento em Ciências de Enfermagem
Ansiedade dos Adolescentes no período perioperatório: Desenho de um programa de intervenção em Enfermagem

TERMO DE CONSENTIMENTO INFORMADO (Pais)

Título do Estudo: Ansiedade dos Adolescentes no período perioperatório: Desenho de um programa de intervenção em Enfermagem

Identificação do Investigador: O meu nome é Márcia Noélia Pestana dos Santos, sou enfermeira no serviço de Bloco Operatório do Pólo Hospital Pediátrico do Centro Hospitalar e Universitário de Coimbra e doutoranda em Ciências de Enfermagem na Universidade do Porto – Instituto de Ciências Biomédicas de Abel Salazar.

Orientadores: Professora Doutora Lurdes Lomba Professora Doutora Margarida Reis Santos.

Objectivo: Está a ser solicitada a participação do/a seu/sua filho/a no estudo porque ele/a será submetido/a a uma cirurgia. O objetivo deste estudo é desenhar um programa de enfermagem para prevenção de ansiedade, no perioperatório, em adolescentes com idade entre 14 e 18 anos.

Procedimento: Será pedida a colaboração do/a seu/sua filho/a, assim como a sua, para o preenchimento de questionários e participação através de entrevista. Durante estes procedimentos solicitarei algumas informações sobre o seu filho/a e depois farei algumas perguntas sobre como foi a sua experiência no acompanhamento ao/a seu/sua filho/a, durante o período antes e depois da cirurgia. A entrevista será gravada em áudio e posteriormente transcrita para papel e analisada pela investigadora e orientadores do estudo. Será preservado o seu anonimato, assim como será assegurada a confidencialidade tanto nas suas respostas e dados como nas do/a seu/sua filho/a.

Riscos: A participação é voluntária e a sua recusa ou do/a seu/sua filho/a não implicará quaisquer prejuízos ou interferência nos vossos cuidados atuais ou futuros.

Alternativas: A desistência do compromisso de participação é livre em qualquer momento. É livre para esconder qualquer informação que não queira partilhar.

Confidencialidade: As informações que fornecer à investigadora serão utilizadas apenas para fins científicos.

Disponibilidade para esclarecimento de dúvidas: A qualquer momento, pode solicitar à investigadora informação adicional sobre a participação no estudo. Caso necessite e pretenda contactar a investigadora, pode utilizar o telefone 913796682 ou o e-mail marcianpsantos@gmail.com.

Custos: A aceitação e participação no estudo não implicará qualquer custo para si.

Na posse da informação e nas condições acima expressas, declaro que aceito participar na pesquisa e autorizo o/a meu/minha filho/a a ser entrevistado.

Eu _____ Data ____/____/____

Assinatura _____

Assinatura da investigadora

(Márcia Pestana-Santos)



Doutoramento em Ciências de Enfermagem
Ansiedade dos Adolescentes no período perioperatório: Desenho de um programa de intervenção em Enfermagem

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Riscos: A participação é voluntária e a sua recusa ou do/a seu/sua filho/a não implicará quaisquer prejuízos ou interferência nos vossos cuidados atuais ou futuros.

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Custos: A aceitação e participação no estudo não implicará qualquer custo para si.

Na posse da informação e nas condições acima expressas, declaro que aceito participar na pesquisa e autorizo o/a meu/minha filho/a a ser entrevistado.

Eu _____ Data ____/____/____

Assinatura _____

Assinatura da investigadora

(Márcia Pestana-Santos)

