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Determinantes sociais na escolha do local do parto e na duração do aleitamento materno na Geração XXI

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Orientação: Doutora Susana Silva

Co-orientação: Doutora Elisabete Pinto

Márcia Manuela Magalhães Salgado Pereira

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RESUMO

Introdução: Escolher adequadamente o local do parto e amamentar as crianças nos 6 primeiros meses de vida têm-se transformado em medidas da maternidade, ou seja, em assuntos sujeitos ao escrutínio e intervenção públicas com o objectivo de enunciar os comportamentos e as decisões de saúde que supostamente classificam a boa maternidade. No entanto, as campanhas de saúde pública exclusivamente focalizadas na tentativa de influenciar as escolhas individuais afiguram-se como insuficientes no combate às iniquidades sociais em saúde, sobretudo porque tendem a não avaliar e/ou intervir sobre a posição social dos cidadãos, a qual pode condicionar as suas possibilidades de escolha. De facto, a evidência científica continua a revelar diversas desigualdades no acesso aos serviços e na qualidade dos cuidados de saúde prestados às puérperas, de acordo com a classe social, o rendimento, a escolaridade e a idade das mesmas.

Objectivos: Este estudo tinha dois objectivos principais: (1) identificar as características socio-demográficas e obstétricas que determinam o recurso a maternidades fora da área geográfica de influência hospitalar, definida pela residência da mãe; (2) identificar as características socio-demográficas que determinam a duração de qualquer tipo de aleitamento materno e de aleitamento materno predominante.

Participantes e Métodos: A análise baseia-se na Geração XXI, a primeira coorte de recém-nascidos portuguesa, de base populacional, reunida maioritariamente nas primeiras 24 a 72 horas após o parto. A Geração XXI foi constituída nos cinco hospitais públicos do Grande Porto onde ocorriam partos, entre Abril de 2005 e Agosto de 2006. O primeiro manuscrito baseou-se em 5563 mulheres com informação disponível para todas as variáveis consideradas, resultantes do questionário aplicado às mães no momento do nascimento. No segundo manuscrito a análise baseou-se na sub-amostra de crianças avaliadas aos 2 anos de idade (n=794). A coincidência entre o local de residência da mãe e a área geográfica de influência da maternidade foi

avaliada. Definiu-se aleitamento materno como o alimento das crianças com leite materno em exclusivo ou combinado com outros tipos de leite ou outros alimentos; e aleitamento materno predominante como alimentação exclusiva do bebé com leite materno, podendo ser dadas outras bebidas não nutritivas como águas ou chás, mas nunca outro tipo de leites ou outros alimentos. Para comparação de proporções foi utilizado o teste de qui-quadrado ou teste exacto de Fisher. A comparação de médias foi feita através do teste de Kruskal-Wallis. Quantificou-se a associação entre variáveis através de regressão logística multivariada. A regressão de Cox foi utilizada para quantificar o efeito das características maternas no risco de deixar de amamentar. Foram construídas curvas de Kaplan-Meier para ilustrar a probabilidade de manutenção do aleitamento materno. Todos os procedimentos estatísticos foram realizados através do programa SPSS, versão 17.0.

Resultados: Globalmente 39% dos partos ocorreram fora da área geográfica de influência hospitalar. Após ajuste para os principais confundidores, a vigilância da gravidez no sector privado (OR=2,68; IC95% 2,33-3,09), ter mais de 12 anos de escolaridade (OR=1,85; IC95% 1,59-2,16) e ser trabalhadora independente (OR=1,58; IC95% 1,08-2,32) associaram-se positivamente à ocorrência de partos em hospitais fora da área de referência hospitalar. A maioria das mulheres (94%) amamentaram e 88% fizeram-no predominantemente. A mediana da duração de qualquer aleitamento materno foi de 6 meses e de 3 meses para o aleitamento materno predominante. As proporções elevadas de iniciação do aleitamento materno (94%) desceram para 57%, 38% e 15% a partir dos 4, 6 e 12 meses, respectivamente. A partir do quinto mês 13% das mulheres praticavam o aleitamento materno predominante. Mães jovens (<25 anos) e menos escolarizadas (<6 anos de escolaridade) têm menor probabilidade de amamentar predominantemente ($p=0,010$ e $p=0,050$, respectivamente). O abandono do aleitamento predominante verificou-se de forma marcada aos 4 meses, coincidindo com o fim da licença de maternidade.

Conclusões: A hierarquização do espaço social português repercute-se na reprodução de iniquidades sociais no acesso a maternidades públicas e na prevalência e duração do aleitamento materno. É necessário promover a equidade no acesso a maternidades públicas e o aleitamento materno, especialmente nas mulheres mais novas e menos escolarizadas.

ABSTRACT

Background: The informed choice of the place of birth and to breastfeed children up to at least six months have been reconfigured as a measure of maternity, that is, an issue under public evaluation and guidance aiming to announce the appropriate decision-making of good mothers. However, public health campaigns exclusively directed towards individual choice seem to be insufficient to reduce social inequalities on health, mainly because they do not evaluate and/or intervene on citizens' social status that determine their options. Evidence still shows several social inequalities on accessing to health services and quality of care, according to social class, income, education and age.

Objectives: The aims of this study were: (1) to assess the role of demographic, social and obstetrical characteristics in determining the option for a place of birth outside the hospital catchment area defined by maternal residence; (2) to assess the role of maternal socio-demographic factors on duration of any and predominant breastfeeding.

Participants and Methods: This study is based on Geração XXI, the first prospective Portuguese population-based birth cohort. Within Geração XXI, women were interviewed 24 to 72 hours after delivery at five public maternities in Porto, between April 2005 and August 2006. The first manuscript is based on 5563 women with information for all variables. The second manuscript is based on a sub-sample of children follow-up at 2 years of age (n=794). Data on maternal socio-demographic characteristics were collected at delivery and information about duration and type of breastfeeding were collected at 2 years of age. The agreement between mother residence and referenced hospital was evaluate. Any breastfeeding refers to feeding infants with breast milk irrespective of the supplements and food given to the baby. Predominant breastfeeding refers to feeding infants only with breast milk, allowing the supply of water or water-based drinks. Proportions were compared using qui-square test and Fisher's Exact test, as appropriate. The differences in average were compared by the Kruskal-Wallis test. The association between variables was quantified by multivariate logistic regression. Cox regression analysis was used to estimate the

covariates that affect the hazard for the stop of breastfeeding. Kaplan-Meier curves were constructed to illustrate the prevalence of any breastfeeding and predominant breastfeeding. All statistical analysis were performed using SPSS software, version 17.0.

Results: Overall, 39% of deliveries occurred outside hospital catchment area. Increased occurrence of these deliveries was found in exclusive utilization of private prenatal care (OR=2.68; 95%CI 2.33-3.09), higher maternal education (OR=1.85; 95%CI 1.59-2.16) and maternal self-employment (OR=1.58; 95%CI 1.08-2.32). The majority of women (94%) breastfed and 88% did it predominantly. Median of any breastfeeding duration was 6 months and of predominant breastfeeding duration was 3 months. Higher proportions of breastfeeding initiation (94%) decreased for 57%, 38% and 15% at 4, 6 and 12 months, respectively. About 13% of women practiced predominant breastfeeding after 5 months. Younger (<25 years) and less educated (< 6 years of schooling) mothers were less likely to predominant breastfeed their infants (p=0.010 and p=0.050, respectively). The more accentuated abandon of predominant breastfeeding occurred at 4 months, the time of maternity leave.

Conclusion: The hierarchical structure of the Oporto social space contributed to the reproduction of social inequities on access to public maternities and on the prevalence and duration of breastfeeding. Priority-setting mechanisms need to be developed in order to promote equity on access to public maternities and to increase the prevalence and duration of breastfeeding focusing on younger and less educated women.

INTRODUÇÃO

As actuais sociedades ocidentais tendem a caracterizar-se por um contexto sociocultural regido por normas reguladoras dos comportamentos reprodutivos femininos que promovem a disseminação de uma maternidade intensiva, a qual assenta em dois pilares fundamentais: a centralidade da criança e a validação do exercício da maternidade através das orientações de especialistas¹.

Neste contexto, escolher adequadamente o local do parto e aleitar predominantemente as crianças nos 6 primeiros meses de vida, mais do que decisões e escolhas meramente individuais, têm-se transformado em medidas da maternidade², ou seja, em assuntos sujeitos ao escrutínio e intervenção públicas com o objectivo de enunciar os comportamentos e as decisões de saúde que classificam a boa maternidade.

A promoção da saúde materno-infantil tem justificado a emergência e consolidação de diversos movimentos locais, nacionais e internacionais que contemplam a escolha do local do parto como um direito consagrado das mulheres e procuram melhorar os níveis de qualidade no atendimento das puérperas em serviços de saúde, sobretudo no âmbito da assistência hospitalar, de forma a garantir o bem-estar das mulheres e das crianças e, ao mesmo tempo, diminuir o custo assistencial por meio de medidas aparentemente simples³⁻⁵, como o envolvimento pessoal e o compromisso ético, contempladas no Modelo de Relacionamento Humano⁶.

No entanto, as desigualdades sociais no acesso e utilização dos cuidados de saúde aumentaram nos últimos 20 anos em Portugal⁷. Apesar da crescente consciencialização e investigação científica sobre os impactos que as iniquidades, distinções e diferenças sociais têm na saúde, estas persistem e afiguram-se como sistemas estruturados e estruturantes da organização social⁸. A evidência científica continua a revelar diversas desigualdades no acesso aos serviços e na qualidade dos cuidados de saúde prestados às puérperas, de acordo com a classe social, o rendimento, a escolaridade e a idade das mesmas⁹⁻¹¹.

Todos os pais podem e devem participar na elaboração de um plano pessoal que determine o local do nascimento durante a gravidez e a sua decisão deve ser respeitada¹². Em Portugal estas orientações da Organização Mundial de Saúde (OMS) coexistem com um sistema de referenciação hospitalar materno-infantil, que se baseia sobretudo em critérios clínicos e territoriais, definidos com base na localização do centro de saúde¹³.

Porém, as escolhas dos pais não dependem apenas de critérios geográficos, mas também de outros factores, como as experiências anteriores, valores e atitudes, nível de (des)confiança nos profissionais de saúde, percepção do controlo sobre a própria vida, redes familiares e crenças culturais¹⁴. A escolha do local de nascimento pode por isso não alinhar com os critérios oficialmente estabelecidos, pretendendo-se neste estudo avaliar a forma como o exercício desta opção (re)produz iniquidades no acesso a cuidados de saúde.

A OMS perspectiva o aleitamento materno como uma estratégia extremamente eficiente na redução da mortalidade infantil e na diminuição do risco de desenvolver inúmeras doenças na infância e vida adulta. Os benefícios do aleitamento materno para a saúde do bebé e da mãe estão bem documentados, nacional e internacionalmente, num contexto em que a escolha pelo aleitamento materno se tem transformado num dever moral¹⁵. No entanto, para além das conhecidas contra-indicações médicas do aleitamento materno (por exemplo, bebés alérgicos à galactose, mulheres com tuberculose activa não tratada e mulheres com o vírus VIH-SIDA), existem obstáculos reportados pelas mulheres que dificultam uma amamentação bem sucedida, como o regresso ao trabalho, uma má experiência anterior ou a auto-percepção de que o seu leite é insuficiente para alimentar o bebé.

Apesar do aumento gradual da prevalência do aleitamento materno em Portugal desde os anos 70 do século XX, actualmente a duração observada do aleitamento materno, em particular no que respeita ao aleitamento materno predominante até aos 6 meses de idade, está aquém das recomendações contempladas pela OMS¹⁶.

Estudos sobre os factores que determinam o abandono precoce do aleitamento materno sugerem que as mulheres mais velhas, com maiores níveis de escolaridade e casadas estão mais susceptíveis a amamentar os seus filhos até os seis meses¹⁷⁻²², o que evidencia a importância de identificar os determinantes sociais nas práticas do

aleitamento materno, objecto de estudo no segundo manuscrito apresentado neste trabalho.

Argumentamos que as campanhas de saúde pública exclusivamente focalizadas na tentativa de influenciar as escolhas individuais afiguram-se como insuficientes no combate às iniquidades sociais em saúde, porque tendem a não avaliar e/ou intervir sobre a posição social dos cidadãos envolvidos²³, cuja identificação constitui o principal objectivo deste estudo para os casos da escolha do local do parto e da duração do aleitamento materno.

OBJECTIVOS

Este estudo tem os seguintes objectivos:

(1) Identificar as características socio-demográficas e obstétricas que determinam o recurso a maternidades fora da área geográfica de influência hospitalar, definida pela residência da mãe.

(2) Identificar as características socio-demográficas que determinam a duração de qualquer tipo de aleitamento materno e de aleitamento materno predominante.

PARTICIPANTES E MÉTODOS

A coorte de nascimento Geração XXI

A Geração XXI é a primeira coorte de recém-nascidos portuguesa, de base populacional, reunida maioritariamente nas primeiras 24 a 72 horas após o parto. Contudo, para uma sub-amostra destes recém-nascidos, as mães foram convidadas a participar no primeiro trimestre e seguidas ao longo de toda a gravidez. Ao longo dos primeiros anos realizaram-se seguimentos parciais da coorte, estando neste momento a decorrer a reavaliação total da coorte, aos 4 anos de idade.

O objectivo geral desta coorte é analisar o crescimento e o desenvolvimento pré-natais, identificando factores modificáveis que possam influenciar a saúde durante a infância, adolescência e idade adulta, e assim permitir a obtenção de ganhos em saúde.

O projecto Geração XXI foi aprovado pela Comissão de Ética do Hospital de S. João, da Universidade do Porto.

Desenho do estudo e participantes

A Geração XXI foi constituída nos cinco hospitais públicos do Grande Porto onde ocorriam partos, entre Abril de 2005 e Agosto de 2006, nomeadamente: Hospital de S. João, Hospital Geral de Santo António, Maternidade Júlio Dinis, Centro Hospitalar de Vila Nova de Gaia e Hospital Pedro Hispano. Segundo informação do Instituto

Nacional de Estatística (INE), nestes hospitais ocorreram 91,6% dos partos realizados no Porto, em 2004²⁴.

Durante o período do estudo foram destacados para os diferentes hospitais entrevistadores devidamente treinados que diariamente asseguraram o recrutamento da coorte. Por impossibilidade de convidar todas as mulheres que tinham o parto nestes hospitais e pensando na facilidade de seguimento das crianças no futuro, o convite só foi efectuado a mulheres cuja área de residência pertencia a um de 6 concelhos geograficamente próximos destes hospitais, a saber: Porto, Gondomar, Maia, Matosinhos, Vila Nova de Gaia e Valongo. Além deste critério de elegibilidade, apenas foram convidadas mulheres cujo parto ocorreu após as 24 semanas de gestação.

Durante os 17 meses de recrutamento da coorte, aceitaram participar 8486 mulheres, perfazendo um total de 8654 recém-nascidos. A proporção de participação foi de 70%. A avaliação inicial envolveu a recolha de informação do bebé, da mãe e do pai. Relativamente ao bebé e à mãe a informação foi recolhida por questionário aplicado à mãe e recolha de informação dos respectivos processos clínicos. Foi também efectuada avaliação antropométrica de ambos e recolha de sangue materno e do cordão umbilical. Ao pai do recém-nascido foi-lhe solicitado o preenchimento de um questionário e que permitisse a sua avaliação antropométrica e uma recolha de sangue. A colaboração dos progenitores no projecto formalizou-se pela assinatura de consentimento informado.

Uma sub-amostra de 321 destas mulheres foram, também, acompanhadas durante toda a gravidez, tendo sido possível uma avaliação prospectiva e mais exaustiva dos comportamentos e cuidados de saúde das mulheres ao longo da gravidez. Foi critério de inclusão neste sub-grupo uma idade gestacional inferior a 13 semanas, de forma a possibilitar a realização da primeira ecografia obstétrica após a integração no Geração XXI.

No estudo que deu origem ao primeiro manuscrito, intitulado *Choice and equity in place of birth management system*, interessou-nos quantificar o efeito da idade gestacional na primeira consulta pré-natal na escolha do local do parto, pelo que as mulheres que constituíram esta sub-amostra foram excluídas. Foram ainda excluídas as 907 mulheres cujo parto ocorreu no Hospital Geral de Santo António, uma vez que a localização dos Centros de Saúde referenciados para este Hospital, segundo a rede

de Referenciação Hospitalar materno-infantil à altura do recrutamento da Geração XXI, não correspondia a qualquer um dos concelhos que permitiram a integração das mães no projecto. Restavam 7258 mulheres, das quais apenas para 5563 havia informação disponível para todas as variáveis incluídas. Comparando as mulheres incluídas neste estudo com as mulheres para as quais não estava disponível pelo menos uma variável considerada (n=2602) verificou-se que as mulheres excluídas eram ligeiramente mais novas [média (dp): 28,3(6,3) vs. 29,3(5,2) anos, $p<0,001$], tinham menos escolaridade [9,9(4,3) vs. 10,8(4,2) anos de escolaridade, $p<0,001$], utilizaram mais frequentemente apenas cuidados pré-natais públicos (66,3 vs. 60,1%, $p<0,001$), realizaram mais frequentemente a primeira consulta pré-natal após as 12 semanas de gestação (14,6 vs. 9,8%, $p<0,001$) e planearam menos frequentemente as suas gravidezes (58,8 vs. 70,7%, $p<0,001$).

Na análise que culminou com a escrita do segundo manuscrito, intitulado *Socio-demographic determinants of breastfeeding in Northern Portugal*, foi considerada a sub-amostra de 826 crianças avaliadas aos 2 anos de idade. Foram excluídos os gémeos (n=31) e uma criança por não haver informações sobre o aleitamento materno. A análise baseou-se nas restantes 794 crianças.

Recolha de dados

Os dados utilizados nesta dissertação resultam do questionário aplicado às mães no momento do nascimento (manuscrito I) e do questionário aplicado ou preenchido pelos pais ou outros cuidadores das crianças aos 2 anos de idade (manuscrito II).

O questionário aplicado às mães no nascimento permitiu a obtenção de dados socio-demográficos e informações sobre estilos de vida, história reprodutiva e cuidados pré-natais. As características socio-demográficas incluídas neste estudo foram a idade (categorizada em ≤ 19 , 20-24, 25-29, 30-34, ≥ 35 anos), escolaridade (categorizada em ≤ 6 , 7-9, 10-12, e >12 anos), estado civil (casada ou a viver em união de facto vs. outro estado), condição perante o trabalho (exerce profissão, desempregada, doméstica, e estudante), rendimento familiar mensal (categorizado em ≤ 1000 , 1000-2000 e >2000 euros) e morada actual da mulher.

A matriz de construção do indicador individual de classe utilizada neste estudo baseia-se na proposta desenvolvida por Almeida, Costa e Machado para classificar os lugares de classe na sociedade portuguesa²⁵. Esta proposta, designada por tipologia ACM (Almeida, Costa e Machado), conta já com um relevante enquadramento teórico e metodológico/operatório que tem vindo a ser testado e validado, quer no âmbito do European Social Survey, quer por outros autores portugueses ao longo das duas últimas décadas em trabalhos de investigação empírica também relacionados com a saúde^{8,26}. Com base nos procedimentos propostos por este modelo foram realizadas as seguintes tarefas: primeiro, codificação da profissão dos indivíduos através da sua inserção nos grupos profissionais do CNP/94 (Catálogo Nacional das Profissões, Versão de 1994²⁷); segundo, cruzamento destes dados com a situação na profissão (patrões, trabalhadores por conta própria/trabalhadores familiares, trabalhadores por conta de outrem/outros), obtendo desta forma a localização individual de classe das mães em cinco categorias (versão compactada da tipologia ACM), a saber: empresários, dirigentes e profissionais liberais; profissionais técnicos e de enquadramento; trabalhadores independentes; empregados executantes; e operários industriais.

Com base na morada das mães e na área de referência hospitalar (definida pela localização dos Centros de Saúde da Rede Nacional de Referência Hospitalar materno-infantil) a conformidade entre o hospital de referência e o hospital onde se realizou o parto foi verificada.

Relativamente à história reprodutiva e cuidados pré-natais foi considerado se a gravidez tinha sido espontânea ou resultado de técnicas de procriação medicamente assistida, se a gravidez tinha sido planeada, se a primeira consulta tinha ocorrido até às 12 semanas de gestação e o local de prestação de cuidados pré-natais (sector público, sector privado ou ambos).

A estes dados socio-demográficos foram acrescentados, no segundo artigo, dados sobre as práticas do aleitamento materno recolhidos aos 2 anos de idade. O questionário utilizado para recolher esta informação foi preparado para ser auto-administrado, o que aconteceu em 57,3% dos casos (sendo aplicado por um entrevistador nos restantes casos). Este questionário foi enviado para casa dos pais, juntamente com um pedido de agendamento de um exame antropométrico. No caso dos pais que se esqueceram ou não quiseram preencher o questionário, foi-lhes proposto a respectiva administração por um entrevistador. Comparando as duas

modalidades de administração dos questionários, não existiram diferenças significativas na proporção de alguma vez ter amamentado (93,7% nos questionários auto-administrados vs. 94,9% nos administrados por entrevistador, $p=0,496$) ou na proporção de aleitamento materno predominante (87,9% nos auto-administrados vs. 89,8% nos administrados por entrevistador, $p=0,451$).

Os dois *outcomes* analisados foram (1) o “aleitamento materno”, definido como o alimento das crianças com leite materno em exclusivo ou combinado com outros tipos de leite ou outros alimentos, e (2) o “aleitamento materno predominante”, definido como alimentação exclusiva do bebé com leite materno, podendo ser dadas outras bebidas não nutritivas como águas ou chás, mas nunca outro tipo de leites ou outros alimentos. Apesar de os pais terem sido questionados sobre a prática do aleitamento materno em exclusivo, constatámos que, em Portugal e à semelhança de outros países, o termo exclusivo não é considerado literalmente, ou seja, sendo menosprezado o fornecimento de água ou chás às crianças²⁸. Por esta razão, optámos por avaliar o aleitamento materno predominante, correndo o risco de o subestimar caso as mães tenham considerado efectivamente o tempo de aleitamento exclusivo.

A duração do aleitamento materno foi registada em semanas. Relativamente à duração de qualquer aleitamento materno, 62 (7,8%) não responderam a esta questão; quanto à duração do aleitamento materno predominante não responderam 46 mães (6,2%) e 77 (10,3%) responderam mais de 6 meses. De acordo com as actuais recomendações da Organização Mundial de Saúde¹⁶, a partir dos 6 meses o aleitamento materno deve ser complementado pela introdução de outros alimentos, sendo por isso desadequado o conceito de “aleitamento materno predominante” a partir desta altura. Por este motivo, excluimos da análise os 77 casos que reportaram aleitamento materno predominante depois dos 6 meses de idade. Comparando as características das mães excluídas com aquelas que amamentaram predominantemente os seus bebés, não foram encontradas diferenças estatisticamente significativas na idade materna ($p=0,095$), escolaridade ($p=0,183$), rendimento mensal ($p=0,576$), indicador individual de classe ($p=0,432$) ou tipo de questionário administrado ($p=0,551$).

Análise estatística

Na análise conducente ao primeiro manuscrito, para comparação das características maternas entre os vários hospitais onde ocorreram os nascimentos foi utilizado o teste de qui-quadrado ou teste exacto de Fisher, como adequado. A associação entre as características demográficas, sociais e obstétricas maternas e a ocorrência do parto num hospital diferente do hospital de referência (atendendo à morada das mães) foi quantificada através de regressão logística multivariada.

No segundo manuscrito, a comparação da proporção de crianças amamentadas em diferentes períodos de tempo de acordo com as características socio-demográficas maternas foi feita através do teste de qui-quadrado e do teste exacto de Fisher, como adequado. A comparação de médias da duração de qualquer tipo de aleitamento materno e do aleitamento materno predominante em crianças cujo parto ocorreu em diferentes locais foi feita através do teste de Kruskal-Wallis. A regressão de Cox foi utilizada para quantificar o efeito das características maternas no risco de deixar de amamentar. Foram construídas curvas de Kaplan-Meier para ilustrar a probabilidade de manutenção de qualquer tipo de aleitamento até ao ano de idade e do aleitamento predominante até aos 6 meses.

Todos os procedimentos estatísticos foram realizados através do programa SPSS, versão 17.0

RESULTADOS E DISCUSSÃO

Os resultados e a discussão deste estudo apresentam-se no formato de dois artigos, os quais serão submetidos para publicação, nomeadamente:

1. Choice and equity in place of birth management system
2. Social determinants of breastfeeding in Northern Portugal

CHOICE AND EQUITY IN PLACE OF BIRTH MANAGEMENT SYSTEM

Abstract

This study aimed to assess the role of demographic, social and obstetrical characteristics in determining the option for a place of birth outside the hospital catchment area defined by maternal residence. It is based in 5563 mothers enrolled in the Portuguese birth cohort. Maternal data were collected by questionnaire. Agreement between mother's address and hospital catchment area was checked. Multivariate logistic regression analysis was applied to quantify the association between maternal characteristics and the place of birth. Overall, 39.2% of occurred outside hospital catchment area. Increased occurrence of these deliveries was found in exclusive utilization of private prenatal care (OR=2.68; 95%CI 2.33-3.09), higher maternal education (OR=1.85; 95%CI 1.59-2.16) and maternal self-employment (OR=1.58; 95%CI 1.08-2.32). Besides geographical and clinical criteria, the management of the place of birth is based on maternal characteristics and informal networks that could aggravate existing healthcare inequalities in access to public hospitals.

Introduction

In many contemporary western societies, as childbirth moved from a natural process to medically controlled procedure¹, mothering practices and arrangements become child-centred and validated by expert guidance². In this context, the location of delivery changed from home to hospital³. According to the European Perinatal Health Report⁴, home births were rare in most European countries in 2004, although demanded by some women; in Portugal, these accounted for 0.5% of all births in 2004, when 8.6% of births taking place in private maternity units.

Women and men should participate on the conception of a personal plan determining the place of birth during pregnancy, and their decision should be respected⁵. These practices are classified by WHO as being undoubtedly useful and thus should be encouraged. In Portugal these guidelines coexisted with an official hospital based perinatal care system that was mainly based on local technical skills and geographical criteria, according to primary health care centre location⁶. However, parents' choice for maternity unit should not be grounded only on geographical criteria, but also on elements such as previous experiences, health expectations, parents' values, attitudes of trust in professionals and their conscious 'risk assessment'⁷, perception of control of one's own life, and family and cultural beliefs⁸. Additionally, empirical evidence demonstrated inequalities in the access to healthcare on a number of grounds such as social class, income, education, age and ethnic group⁹⁻¹², revealing restrictions on pregnant women and men decision-making about their care, including the place of birth.

Research undertaken on the place of birth has been concerned with three major issues, namely the association between the size of maternity units and quality of care, the distribution of home versus hospital births (both in private and public maternities), and the impacts of the place of birth on the course of labour and delivery^{4,5}. However, to describe the socio-demographic and obstetrical determinants of deliveries taking place outside the hospital catchment area is also an important public health issue, because it might contribute to support the redesign of the national prenatal and childbirth reference system (that was under public discussion between July and September 2010 in Portugal), according to its adequacy to users' needs, in this case parents choice of place of birth in articulation with equity of the access.

This study aimed to assess the role of demographic, social and obstetrical characteristics in determining the option for a place of birth outside the hospital catchment area defined by maternal residence.

Material and methods

Study design and participants

Within the first prospective Portuguese population-based birth cohort assembled in Portugal (Geração XXI), 8486 women were interviewed 24 to 72 hours after delivery at five public maternities in Porto, Portugal, between April 2005 and August 2006. These large maternity units concentrated 91.6% of the deliveries taking place in Porto in 2004¹³. Participants' eligibility was restricted to the mothers living in six municipalities of the Oporto Metropolitan Area. Only mothers whose deliveries occurred after 24 gestational weeks were considered. The mothers' participation proportion rate was 70%.

A sub-sample of 321 women was enrolled in Geração XXI in their first trimester of pregnancy and followed-up since this time. We excluded these women, as one of the inclusion criteria was gestational age under 13 weeks and we wanted to analyse the effect of the gestational age at the first prenatal visit on the choice of the place of birth. Further, we excluded 907 women who gave birth at one of the involved hospitals, because primary health care center location pointed out in the hospital catchment area for this hospital did not include the eligible municipalities for the study. For 1695 participants at least one of the variables considered in this study was not available. Women excluded due to missing data were slightly younger [mean (SD): 28.3(6.3) vs. 29.3(5.2) years, $p < 0.001$], less educated [mean (SD): 9.9 (4.3) vs. 10.8(4.2) schooling years, $p < 0.001$], were more likely to use exclusively public prenatal care (66.3% vs. 60.1%, $p < 0.001$), were more prone to attend the first prenatal visit after 12 gestational weeks (14.6% vs. 9.8%, $p < 0.001$) and planned their pregnancies less frequently (58.8% vs. 70.7%, $p < 0.001$). This current analysis is based on 5563 participants.

All women formalized their collaboration through a written informed consent. All hospitals ethics committees approved the study.

Data collection

Data were collected by 10 trained interviewers in all hospitals, using a structured questionnaire. Information was obtained on demographic and social conditions, medical history, including a detailed section about gynaecologic and obstetrical history, and prenatal care. In this study, information was used on women's socio-demographics characteristics (age; schooling – categorized as ≤ 6 , 7–9, 10–12, and >12 years; marital status – married or living with a partner vs. other; professional status – employed, unemployed and student; household monthly income - categorized as ≤ 1000 , 1000-2000 and > 2000 euros; and address), pregnancy resulted of assisted reproductive techniques, pregnancy planning (planned vs. unplanned), timing of first antenatal visit (≤ 12 weeks vs. > 12 weeks), and place of prenatal care (public at the primary care centres or at hospitals, private, and both public and private).

Social class was classified according to the Portuguese ACM (Almeida, Costa and Machado) social class typology (socio-professionals indicators), which was applied to data from the European Social Survey¹⁴⁻¹⁶. This typology is based on two main socio-professional indicators, occupation and employment status at the individual level. Occupations were classified by major professional groups, according to the National Classification of Occupations (version 1994)¹⁷. Employment status was categorized as employer, self-employed/family workers, and employee. Five categories of social class (socio-professional indicators) were identified: entrepreneurs and executives; professionals and managers; self-employed; routine employees; and industrial workers.

Based on the women's address and hospital catchment area (as defined by primary health care center location in the national official hospital perinatal care system), the agreement between referenced hospital and the place of delivery was checked.

Statistical analyses

Proportions and means were compared by the qui-square test and the t-test, respectively. The association between women's demographic, social and obstetrical

characteristics, and the occurrence of deliveries outside the referenced hospital was quantified with odds ratio (OR), computed by multivariate logistic regression. All statistical procedures were performed with the SPSS software, version 17.0.

Results

There were significant differences in the women's socio-demographic and obstetrical characteristics among the four hospitals, as shown in Table 1. The exclusive utilization of public prenatal care varied between 46.8% and 68.5%, being higher in the first two hospitals. Unplanned pregnancies were also more frequent in the women delivered at the first two hospitals. However, the proportion of women started their prenatal care later than 12 weeks and who needed assisted reproductive techniques were not significantly different. When compared with women who childbirth occurred at the last two hospitals, women who gave birth in the first ones were younger (the proportion of mothers younger than 25 was higher than 20.5%, compared with 18.1% and 16.5% in the other two hospitals), with less education (the proportion of women with ≤ 9 years of formal schooling were higher than 52% compared with lower than 41% in the other two) and fewer household incomes (around 40% of women in these two hospitals had ≤ 1000 €/month, compared with 24.9% and 26.7% in the other two), more unemployed (around 20% compared with lower than 15% in the last two hospitals) and less professionals and managers (about 16% vs 27%).

Overall, 39.2% of deliveries occurred outside hospital catchment area dictated by the official perinatal care system. This proportion ranged between 14.1% and 57.2%.

Table 2 shows the demographic, social and obstetrical maternal characteristics of women delivered at unreferenced (n=2182) and at referenced (n=3381) hospitals. Exclusive utilization of private prenatal care (42.0% vs. 18.8%), university maternal education (36.8% vs. 18.2%), professionals, managers, entrepreneurs and executives (sum of these categories: 39.0% vs. 22.6%), employed mothers (87.7% vs. 79.5%), planned pregnancies (75.8% vs. 67.4%), higher monthly income in the household (>2000 euros: 21.2% vs. 12.0%) and older women (≥ 30 years: 54.9% vs. 45.9%) were significantly more frequent in women delivered at unreferenced hospitals.

The results from the crude and adjusted logistic regression analysis for mothers delivered at unreferenced hospitals are shown in Table 3. All maternal factors were adjusted for schooling, professional status, place of prenatal care, timing of first antenatal visit, and pregnancy planning. The exclusive utilization of private prenatal care (OR=2.68; 95%CI 2.33-3.09), higher maternal education (OR=1.85; 95%CI 1.59-2.16), maternal self-employment (OR=1.58; 95%CI 1.08-2.32) and being entrepreneur and executive (OR=1.34; 95%CI 1.02-1.76) remained positively associated with occurrence of deliveries in unreferenced public hospitals. Those were significantly less frequent in women attending the first antenatal visit after 12 gestational weeks (OR=0.80; 95%CI 0.65-0.99) and maternal unemployment (OR=0.82; 95%CI 0.70-0.97). The crude associations between maternal age, marital status, household monthly income, assisted reproductive techniques and deliveries taking place in unreferenced hospitals disappeared in the multivariate analysis.

Discussion

As evidenced in this population-based birth cohort study, the occurrence of deliveries outside the hospital catchment area was positively associated with using private prenatal care, higher maternal education, self-employment and being entrepreneur and executive. It was significantly less frequent when first antenatal visit occurred after 12 weeks, in maternal unemployment and unplanned pregnancies. By giving parents choice of place of birth within public hospitals, it contributes to improve quality and responsiveness to user's needs, but it could aggravate existing healthcare inequalities in access to public hospitals⁸. A simplistic, incautious and irresponsible use of one-side view of choice surrounding contemporary childbirth should be criticized and challenging, because this discourse may create expectations that are at odds with the reality of birthing encounter³.

Besides income, this study highlighted the importance of including schooling and work (in this case, through social class and professional status) as fundamental variables when explaining inequalities in health¹⁸. The hierarchical structure of the social space in Porto²⁰ had implications on differences in access to maternity services. This study

emphasized how contemporary consumerism in medical encounters had become significant in obstetrics and childbirth⁷, in the sense that women who had access to private prenatal care delivered more frequently at unreferenced public hospitals, a choice that can be enacted by obstetricians as agents providing services both in the public and private sectors. Official place of birth management system coexisted with private and self-interests whereby medical consumerist educated women chosen where, when and by whom they will delivery, an ethic of the birth plan that was not always a satisfactory representation of child's needs and women's participation in contemporary maternity care²¹.

Demographic and socioeconomic inequalities on access to health services were thus reinforced by the privatization of health care and the commodification of health⁸. In this context, it is important to explore the consequences for hospital efficiency arising as a result of the heterogeneous demographic, social and obstetrical characteristic of women giving birth, and the health consequences this may have for children³. Parents' choice should be articulated with equity of access and efficiency in current public health policy design, which reconfiguration is in course. Several questions arising from this study would benefit from further consideration. For example, to explain why women made their decisions, it should be asked them to elaborate on the reasoning behind their choice. Moreover, how do these findings from four Portuguese public hospitals compare with those in other Portuguese regions or countries?

Parents will probably choose to deliver at referenced public hospitals (according to the official hospital birth system) if they are satisfied with hospital care, that is, if they feel is feasible and safe to give birth in that place, where all attention and care are focused on parents needs, priorities and values, as close to home as possible²¹. In practical terms this claims several improvements on prenatal and obstetric care. For example, during pregnancy parents should be given information about routine procedures on labour and/or delivery and contacts with health professionals, because the presence of strangers, being left alone, inappropriate staff attitudes and unfamiliar practices caused stress and mistrust that can interfere with the course of birth⁵. The system of care for pregnant women can also be improved by developing "low-technology" birthing units in the vicinity of the main hospitals aimed to low-risk women with contingency plans for transfer to a properly-staffed/equipped delivery unit if problems arise. As shown by Nasah and Tyndall²² this alternative setting had several advantages - it took the pressure off the hospitals; it facilitated to deliver appropriate care and attention to

women in normal labour; it improved the care of high-risk women. In this context, a deeper engagement of obstetricians and politicians is essential.

One limitation of this study respects the assumption that all mothers used the primary health care centres near their addresses. The national system is based on primary health care centre location and we used women addresses. Nevertheless, even women were inscribed in another health care centre the maternity unit considered as the reference were the nearest of woman's address. The main weakness of this study is, probably, the lacking representation of women who delivered at home or private maternity units and women who resided outside the eligible municipalities. It would be important to analyze the similarities and differences between the demographic, social and obstetrical characteristics, views and values of those women who chosen a public referenced hospital, a public unreferenced hospital, a private hospital or home for birthplace, in order to assist policymakers in assessing the social, economic and ethical contexts of this aspect of women's reproductive health care.

As a conclusion, we can stated that parental choice of the place of birth in this region is regulated by geographical criteria, but also by maternal socio-demographic characteristics and probably by informal networks, namely when prenatal care occurred exclusively (or simultaneously) in the private services by obstetricians who switched between the public and the private sector.

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Table 1

Hospital of birth according to women's demographic, social and obstetrical characteristics in four public hospitals in Northern Portugal					
	TOTAL n=5563	Hospital 1 n=1492	Hospital 2 n=1430	Hospital 3 n=1039	Hospital 4 n=1602
	n (%)				
Age (years)					
≤ 19	158 (2.8)	46 (3.1)	42 (2.9)	29 (2.8)	41 (2.6)
20-24	920 (16.5)	262 (17.6)	277 (19.4)	159 (15.3)	222 (13.9)
25-29	1734 (31.2)	458 (30.7)	468 (32.7)	306 (29.5)	502 (31.3)
30-34	1875 (33.7)	462 (31.0)	423 (29.6)	385 (37.1)	605 (37.8)
≥ 35	876 (15.7)	264 (17.7)	220 (15.4)	160 (15.4)	232 (14.5)
Schooling (completed years)					
≤ 9	2611 (46.9)	819 (54.9)	744 (52.0)	425 (40.9)	623 (38.8)
10-12	1534 (27.6)	389 (26.1)	416 (29.1)	283 (27.2)	446 (27.8)
> 12	1418 (25.5)	284 (19.0)	270 (18.9)	331 (31.9)	533 (33.3)
Marital status					
Married/cohabiting	5293 (95.2)	1416 (94.9)	1343 (93.9)	984 (94.7)	1550 (96.8)
Professional status					
Employed	4600 (82.7)	1176 (78.8)	1145 (80.1)	879 (84.6)	1400 (87.4)
Unemployed	921 (16.6)	305 (20.4)	282 (19.7)	154 (14.8)	180 (11.2)
Student	42 (0.8)	11 (0.7)	3 (0.2)	6 (0.6)	22 (1.4)
Household monthly income (euros)					
≤ 1000	1873 (33.7)	614 (41.2)	572 (40.0)	259 (24.9)	428 (26.7)
1000-2000	2384 (42.9)	611 (41.0)	602 (42.1)	496 (47.7)	675 (42.1)
> 2000	870 (15.6)	184 (12.3)	159 (11.1)	250 (24.1)	277 (17.3)
Don't say/don't know	436 (7.8)	83 (5.6)	97 (6.8)	34 (3.3)	222 (13.9)
Social Class					
Industrial Workers	803 (14.4)	325 (21.8)	178 (12.4)	149 (14.3)	151 (9.4)
Routine Employees	3003 (54.0)	802 (53.8)	869 (60.8)	492 (47.4)	840 (52.4)
Self employed	142 (2.6)	34 (2.3)	36 (2.5)	32 (3.1)	40 (2.5)
Professionals and Managers	1177 (21.2)	228 (15.3)	229 (16.0)	289 (27.8)	431 (26.9)
Entrepreneurs and Executives	438 (7.9)	103 (6.9)	118 (8.3)	77 (7.4)	140 (8.7)
Place of prenatal care					
Public	3342 (60.1)	1020 (68.4)	980 (68.5)	592 (57.0)	750 (46.8)
Private	1554 (27.9)	295 (19.8)	260 (18.2)	331 (31.9)	668 (41.7)
Public and private	667 (12.0)	177 (11.9)	190 (13.3)	116 (11.2)	184 (11.5)
Timing of first antenatal visit					
≤ 12 weeks	5020 (90.2)	1315 (88.1)	1293 (90.4)	936 (90.1)	1476 (92.1)
Assisted reproductive techniques					
Yes	97 (1.7)	30 (2.0)	21 (1.5)	20 (1.9)	26 (1.6)
Pregnancy planning					
Unplanned	1631 (29.3)	472 (31.6)	481 (33.6)	305 (29.4)	373 (23.3)
Place of delivery					
Outside referenced hospital	2182 (39.2)	210 (14.1)	818 (57.2)	396 (38.1)	758 (47.3)

Table 2

Deliveries taking place at referenced and unreferenced public hospitals in Northern Portugal according to women's demographic, social and obstetrical characteristics

	TOTAL n=5563	Unreferenced hospital n=2182	Referenced hospital n=3381	p
	n (%)			
Age (years)				<0.001
≤ 19	158 (2.8)	35 (1.6)	123 (3.6)	
20-24	920 (16.5)	266 (12.2)	654 (19.3)	
25-29	1734 (31.2)	684 (31.3)	1050 (31.1)	
30-34	1875 (33.7)	826 (37.9)	1049 (31.0)	
≥ 35	876 (15.7)	371 (17.0)	505 (14.9)	
Schooling (completed years)				<0.001
≤ 9	2611 (46.9)	752 (34.5)	1859 (55.0)	
10-12	1534 (27.6)	627 (28.7)	907 (26.8)	
> 12	1418 (25.5)	803 (36.8)	615 (18.2)	
Marital status				<0.001
Married/cohabiting	5293 (95.2)	2102 (96.3)	3191 (94.4)	
Professional status				<0.001
Employed	4600 (82.7)	1913 (87.7)	2687 (79.5)	
Unemployed	921 (16.6)	252 (11.5)	669 (19.8)	
Student	42 (0.8)	17 (0.8)	25 (0.7)	
Household monthly income (euros)				<0.001
≤ 1000	1873 (33.7)	551 (25.3)	1322 (39.1)	
1000-2000	2384 (42.9)	1006 (46.1)	1378 (40.8)	
> 2000	870 (15.6)	463 (21.2)	407 (12.0)	
Don't say/don't know	436 (7.8)	162 (7.4)	274 (8.1)	
Social Class				<0.001
Industrial Workers	803 (14.4)	207 (9.5)	596 (17.6)	
Routine Employees	3003 (54.0)	1066 (48.9)	1937 (57.3)	
Self employed	142 (2.6)	58 (2.7)	84 (2.5)	
Professionals and Managers	1177 (21.2)	636 (29.1)	541 (16.0)	
Entrepreneurs and Executives	438 (7.9)	215 (9.9)	223 (6.6)	
Place of prenatal care				<0.001
Public	3342 (60.1)	939 (43.0)	2403 (71.1)	
Private	1554 (27.9)	917 (42.0)	637 (18.8)	
Public and private	667 (12.0)	326 (14.9)	341 (10.1)	
Timing of first antenatal visit				<0.001
> 12 weeks	543 (9.8)	141 (6.5)	402 (11.9)	
Assisted reproductive techniques				0.012
Yes	97 (1.7)	50 (2.3)	47 (1.4)	
Pregnancy planning				<0.001
Unplanned	1631 (29.3)	529 (24.2)	1102 (32.6)	

Table 3
Crude and adjusted odds ratios (OR) for the factors affecting deliveries taking place outside the hospital catchment area in Northern Portugal

	Crude OR (95% CI)	Adjusted* OR (95% CI)
Age (years)		
≤ 19	1	1
20-24	1.43 (0.96-2.14)	1.06 (0.71-1.60)
25-29	2.29 (1.55-3.37)	1.11 (0.74-1.66)
30-34	2.77 (1.88-4.07)	1.14 (0.76-1.71)
≥ 35	2.58 (1.73-3.85)	1.21 (0.80-1.84)
Schooling (completed years)		
≤ 9	1	1
10-12	1.71 (1.50-1.95)	1.33 (1.15-1.53)
> 12	3.23 (2.82-3.69)	1.85 (1.59-2.16)
Marital status		
Married/cohabiting	1	1
Not married	0.64 (0.49-0.84)	1.02 (0.77-1.36)
Professional status		
Employed	1	1
Unemployed	0.53 (0.45-0.62)	0.82 (0.70-0.97)
Student	0.96 (0.51-1.77)	0.65 (0.34-1.24)
Household monthly income (euros)		
≤ 1000	1	1
1000-2000	1.75 (1.54-1.99)	1.08 (0.94-1.25)
> 2000	2.73 (2.31-3.22)	1.06 (0.86-1.30)
Don't say/don't know	1.42 (1.14-1.76)	1.24 (0.98-1.55)
Social Class		
Industrial Workers	1	1
Routine Employees	1.59 (1.33-1.89)	1.22 (1.01-1.46)
Self employed	1.99 (1.37-2.88)	1.58 (1.08-2.32)
Professionals and Managers	3.39 (2.78-4.12)	1.17 (0.90-1.51)
Entrepreneurs and Executives	2.78 (2.17-3.55)	1.34 (1.02-1.76)
Place of prenatal care		
Public	1	1
Private	3.68 (3.25-4.18)	2.68 (2.33-3.09)
Public and private	2.45 (2.07-2.90)	1.96 (1.65-2.34)
Timing of first antenatal visit		
≤ 12 weeks	1	1
> 12 weeks	0.51 (0.42-0.63)	0.80 (0.65-0.99)
Assisted reproductive techniques		
No	1	1
Yes	1.66 (1.11-2.49)	1.25 (0.82-1.90)
Pregnancy planning		
Planned	1	1
Unplanned	0.66 (0.59-0.75)	0.89 (0.78-1.01)

* Schooling, professional status, place of prenatal care, timing of first antenatal visit, and pregnancy planning were adjusted for each other. Age, marital status, household monthly income, social class and assisted reproductive techniques were adjusted for schooling, professional status, place of prenatal care, timing of first antenatal visit, and pregnancy planning.

SOCIO-DEMOGRAPHIC DETERMINANTS OF BREASTFEEDING IN NORTHERN PORTUGAL

Abstract

Breastfeeding is a public health issue due to its cost-effective benefits for both child and maternal health. This study aimed to assess the role of maternal socio-demographic factors on duration of any and predominant breastfeeding. A sub-sample of 794 children enrolled in the first prospective Portuguese population-based birth cohort (Geração XXI) were studied. The majority of women (94.2%) breastfed and 88.3% did it predominantly. Median of any breastfeeding duration was 6 months (P25;P75: 2.6;9.0) and of predominant breastfeeding duration was 3 months (P25;P75: 1.0;4.0). About 15% of women breastfed their children more than 1 year and 10.4% practiced predominant breastfeeding. Breastfeeding prevalence was 85.1%, 56.6%, 38% and 15.4% at 1, 4, 6 and 12 months, respectively. The prevalence of predominant breastfeeding and the duration of any breastfeeding at 1 month significantly differed among public hospitals ($p=0.024$ and $p=0.033$, respectively). Duration of any breastfeeding up to 2 years was significantly associated with maternal age ($p<0.001$). Younger (<25 years) and less educated (< 6 years of schooling) mothers were less likely to predominant breastfeed their infants ($p=0.010$ and $p=0.050$, respectively). Priority-setting mechanisms need to be developed in order to increase the prevalence and duration of breastfeeding focusing on younger women.

Introduction

World Health Organization recommends exclusive breastfeeding during the first 6 months and breastfeeding maintenance up to 2 years in conjunction with other foods¹. It is widely recognized the benefits of breastfeeding for both child and maternal health². For example, breastfeeding protects infants from allergies, infections, diarrhea and obesity^{3,4}, reduces the risk of atopic diseases, and has nutritional benefits, with protein and minerals easily digestible for infants and supplies fatty acids which are important for child cognitive development⁵. In addition, breastfeeding improves psychomotor development visual acuity. There is also strong evidence that support a negative association between breastfeeding and the risk of childhood leukemia⁶, postneonatal death⁷, and adiposity in childhood⁸. In sum, breastfeeding is an exceptionally cost-effective strategy for improving child survival and reducing the burden of childhood disease¹. Concerning women's health, breastfeeding reduces the risk of postpartum hemorrhage, ovarian cancer⁹, breast cancer and osteoporosis later in life⁸.

However, breastfeeding is contraindicated in the following situations: infants with classic galactosemia, mothers who have active untreated tuberculosis disease, HIV mothers⁴. Furthermore, there are some psycho-social difficulties experienced by mothers during breastfeeding, such as the return to work, previous difficult experiences of breastfeeding and self-perception of insufficient milk. Some women decide to not breastfeed during pregnancy, because they considered to be easier or because they do not sympathize with the idea of breastfeeding their babies^{10,11}. The emphasis on maternal milk (over the relatedness and embodiment associated with breastfeeding) has been contributing to reinforce the metaphor of the production line in the field of breastfeeding, with consequences in women's narratives around breastfeeding experiences being dominated by the language of demand and supply and mistrust in the efficacy of their own maternal bodies¹².

Studies about determinants of breastfeeding suggested that older, more educated and married women were more likely to breastfeed up to 6 months^{9,13-15}. In Sweden, shorter breastfeeding duration was found among father's with lower socioeconomic status (men with low educational levels, receiving unemployment benefit, and low disposable household income)¹⁶.

Data on breastfeeding in Portugal showed high rates of breastfeeding initiation in the last decade - 98% in Vila Nova de Gaia¹⁷, between 91%¹⁸ and 98.5%¹⁹ in Lisbon and

97.5% in Viana do Castelo²⁰. The same studies show proportions of any breastfeeding rounding 55% at 3 months and 35% at 6 months. Lopes and Marques reported that in 2002 35.4% of infants were exclusively breastfed at 6 months, in Viana do Castelo^{20,21}. Studies conducted in Portugal about breastfeeding prevalence and duration showed that primipara women, adolescent mothers, no previous experience in breastfeeding, maternal lower education, and receiving bottle supplementation in the maternity were risk factors for precece abandon of breastfeeding¹⁷⁻²⁰. Healthy lifestyles were positively associated with higher prevalence and duration of breastfeeding^{18,19}.

In our study we aimed to assess the role of socio-demographic characteristics on the duration of predominant and ever breastfeeding in Northern Portugal.

Material and methods

Study design and participants

This study is based on the follow-up at 2 years of age, of a sub-sample of 826 children enrolled in the first prospective Portuguese population-based birth cohort (Geração XXI). We excluded 31 twins and 1 child without data regarding breastfeeding. The present analysis is based on 794 participants.

Geração XXI was approved by all hospitals ethics committees where cohort recruitment occurred. Mother's formalized their collaboration in the cohort through a written informed consent. Children's caregiver who answered the questionnaire at 2 years (in the most of cases the mother) also signed an informed consent.

Data collection

In this study, we used data on maternal socio-demographic characteristics collected at delivery and information about duration and type of breastfeeding collected at 2 years of age. Two outcomes were examined - any breastfeeding and predominant breastfeeding²². The term any breastfeeding refers to feeding infants with breast milk

irrespective of the supplements and food given to the baby. The term predominant breastfeeding refers to feeding infants only with breast milk, allowing the supply of water or water-based drinks.

Maternal data were collected by trained interviewers in all hospitals, using a structured questionnaire. In this study, information was used on the hospital where the birth occurred and women's socio-demographic characteristics (age – categorized as ≤19, 20-24, 25-29, 30-34, ≥35 years; schooling - categorized as ≤6, 7–9, 10–12, and >12 years; marital status - married or living with a partner vs. other; professional status - employed, unemployed, housewife, and student; and household monthly income - categorized as ≤ 1000, 1000-2000 >2000 euros). Social class was classified according to the Portuguese ACM (Almeida, Costa and Machado) social class typology (socio-professionals indicators), which was applied to data from the European Social Survey²³⁻²⁵. This typology is based on two main socio-professional indicators, occupation and employment status at the individual level. Occupations were classified by major professional groups, according to the National Classification of Occupations (version 1994)²⁶. Employment status was categorized as employer, self-employed/family workers, and employee. Five categories of social class (socio-professional indicators) were identified: entrepreneurs and executives; professionals and managers; self-employed; routine employees; and industrial workers.

Data on duration of breastfeeding were collected from structured questionnaire at 2 years of age and recorded in weeks. The questionnaire was self-administered in 57.3% of the cases and applied trained interviewers in the remaining situations. There were not significant differences in the any breastfeeding proportion according to the type of questionnaire administration (93.7% in self-administered vs. 94.9% in administered by interviewer, $p=0.496$) or in the proportion of predominant breastfeeding (87.9% in self-administered vs. 89.8% in administered by interviewer, $p=0.451$).

We excluded from the analysis of predominant breastfeeding duration the participants who reported more than 6 months of predominant breastfeeding ($n=77$), because the current guidelines stated that complementary feeding should start at least at 6 months. Comparing maternal characteristics of the excluded mothers with mothers who predominant breastfeed, there were not differences regarding maternal age ($p=0.095$), schooling ($p=0.183$), household monthly income ($p=0.576$), social class ($p=0.432$) or type of questionnaire administration ($p=0.551$).

Statistical analyses

Proportions of breastfeeding duration according to maternal socio-demographic characteristics were compared using chi-square test and Fisher's Exact test, as appropriate. The differences in average duration of breastfeeding according to the hospital where the birth occurred were compared by the Kruskal-Wallis test. Kaplan-Meier curves were constructed to illustrate the prevalence of any breastfeeding and predominant breastfeeding. Cox regression analysis was used to estimate the covariates that affect the hazard for the stop of breastfeeding.

All statistical analysis were performed using SPSS software, version 17.0.

Results

Mothers studied were predominantly young-adult women (78.3% were 20 to 34 years) and married or cohabiting (93.4%). About 43% of women had up to 9 years of education and 28.3% had more than 12 years. Most mothers (70.4%) were employed at delivery time, 19.6% were unemployed and 5.8% were housewife. Mothers' household monthly income was less than 1000 Euros in 34.9% of cases and higher than 2000 Euros for 13.6% of mothers.

The majority of women (94.2%) breastfeed and 88.3% did it predominantly (Table 1). Median of any breastfeeding duration was 6 months (P25;P75: 2.6;9.0) and for predominant breastfeeding duration was 3 months (P25;P75: 1.0;4.0). About 15% of women breastfed their children more than 1 year and 12.9% of women practiced predominant breastfeeding during 6 months. The prevalence of predominant breastfeeding differed according to the place of birth ($p=0.024$), as well as the prevalence of any breastfeeding for more than 1 month ($p=0.033$).

We observed higher proportions of any breastfeeding in mothers of 30 years or older, regardless the child age. Maternal higher education and being married or cohabited were determinants of any breastfeeding more than 1 month, but they were not

associated with breastfeeding prevalence after that time. A household monthly income higher than 2000 Euros was a determinant of breastfeeding after 4 months. Prevalence of any breastfeeding more than 1 month was higher in entrepreneurs and executives and in professionals and managers, but after 4 months, only the last ones exhibited a higher prevalence of breastfeeding (table 2).

Regarding predominant breastfeeding, we found a significant association with maternal age but only after 4 months (higher prevalence among mothers of 30-34 years). Predominant breastfeeding was more frequent after 1 month and even after 4 months among women with lower (up to 6 years) and higher (more than 12 years) education. Women classified as professionals and managers practiced predominant breastfeeding more frequently after 4 months (table 3).

Cox regression analysis reveals maternal age was the single socio-demographic characteristic associated with the hazard of to stop breastfeeding until 12 months, having mothers older than 34 years 48% less risk to stop (hazard ratio 0.52; 95%CI, 0.39-0.69) (Table 4). The older women were also less likely to abandon predominant breastfeeding until 6 months (table 4). The significant association with maternal education disappeared after adjustment for age (data not shown).

The Kaplan-Meier curves showed a large proportion of breastfeeding abandon around 6 months (figure 1), while the more accentuated abandon of predominant breastfeeding occurred at 4 months (figure 2).

Discussion

To evaluate the socio-demographic determinants of duration of any and predominant breastfeeding is useful to support the design and implementation of local actions and policies aimed promoting higher prevalences of breastfeeding at specific time points. Further, to analyze social variations in duration of breastfeeding favored the identification of inequalities in breastfeeding practices that should be a major concern in public health policies. The added value of this study related to the period under

analysis in any breastfeeding. This is the first study that evaluated the breastfeeding duration up to 2 years through a prospective cohort study in Portugal.

Our study demonstrated that breastfeeding prevalence and duration in Oporto is below the WHO recommendations¹. In our study the median of any breastfeeding duration was 6 months (P25;P75: 2.6;9.0) and of predominant breastfeeding duration was 3 months (P25;P75: 1.0;4.0). The prevalence of any and predominant breastfeeding (85.1%, 56.6% and 38% vs. 77.5%, 23.2% and 12.9% at 1, 4 and 6 months, respectively) are higher than the proportions observed by Cordeiro²¹ in a prospective study conducted in Oporto up to 6 months in 2006/2007 (84.7%, 34.4% and 21.9% for any breastfeeding compared with 54.2%, 25.7% and 15.6% for predominant breastfeeding at 1, 4 and 6 months, respectively). The prevalence of any breastfeeding up to 6 months observed in studies conducted in Lisbon (34.1%¹⁸ and 36%¹⁹) and in Viana do Castelo²⁰ (35.4%) were lower than the proportion of mothers breastfeed more than 6 months (38%) in the present study. It is likely that estimated predominant breastfeeding in our study is higher than in the other studies because data were collected at 2 years and memory bias might result in overestimation of overall breastfeeding duration, in particular of predominant breastfeeding. Furthermore, our data might be related with the trend for higher prevalence and duration of breastfeeding in Portugal²¹.

Generally, our findings are consistent with the evidence that infant feeding is associated with socio-demographic maternal characteristics²⁷, namely the maternal age both for any and predominant breastfeeding up to 12 and 6 months, respectively^{14,15,17-19,28}. The fact that younger women (< 25 years) breastfeed their children for shorter periods of time seem to be at least partly explained by their lack of knowledge about breastfeeding benefits and no previous experience of breastfeeding, besides being more frequently primipara women¹³. Probably younger women are also less educated and have more restrictions on familiar support.

Breastfeeding promotion claims for mother's engagement in the whole process of breastfeeding ideology, which is currently understated¹⁰. For example, The Breastfeeding Network recently criticized the slogan 'Breast is best'²⁹ for not promoting breastfeeding while disseminating the idea that breastfeeding is normal, disguising its unique and special character.

A large proportion of any breastfeeding abandon occurred at 6 months (figure 1), while the more accentuated abandon of predominant breastfeeding occurred at 4 months (figure 2) in Oporto. According to the Portuguese law, employed women are entitled to a maternity leave of 120 consecutive days, 90 of which following birth, while the remaining to be enjoyed wholly or partially, before or after childbirth³⁰. Thus, Portuguese maternal benefit for 4 months might be a major reason explaining the abandonment of predominant breastfeeding at that time, so before the 6 months proclaimed by the WHO recommendations. Therefore, the inequalities in breastfeeding practices should be included in the political realm, in order to develop actions towards promotion of predominant breastfeeding during the first 6 months of life, such as a different welfare support system to younger and working mothers.

In summary, it is important to normalize breastfeeding practices and to reinforce social and political conditions that might support a successful breastfeeding. Priority-setting mechanisms need to be developed in order to increase the prevalence and duration of breastfeeding focusing on younger women. Further research and action should be directed towards promoting breastfeeding among health professionals, who are active agents in strengthen women's confidence in their own maternal bodies, while respecting the variability of women's options.

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Table 1. Prevalence and duration of breastfeeding by place of birth in Geração XXI

	Total n=794	Hospital 1 n=157	Hospital 2 n=210	Hospital 3 n=165	Hospital 4 n=79	Hospital 5 n=183	p
Any breastfeeding [n (%)]	748 (94.2)	146 (93.0)	198 (94.3)	157 (95.2)	73 (92.4)	174 (95.1)	0.840
Predominant breastfeeding [n (%)]	552 (88.3)	109 (88.6)	141 (87.6)	117 (92.5)	50 (76.9)	135 (90.0)	0.024
Any breastfeeding duration [median (P25; P75)]	6.0 (2.6; 9.0)	5.0 (2.0; 9.0)	6.0 (3.0; 10.0)	6.0 (3.0; 9.0)	4.0 (1.0; 7.5)	5.0 (3.0; 9.0)	0.096
Predominant breastfeeding duration [median (P25; P75)]	3.0 (1.0; 4.0)	3.0 (1.0; 4.0)	3.0 (1.0; 4.0)	3.0 (1.0; 4.0)	2.0 (0.3; 4.0)	3.0 (1.4; 4.0)	0.168
Any breastfeeding duration							
>1 month [n (%)]	623 (85.1)	118 (83.7)	164 (85.0)	132 (86.8)	54 (74.0)	155 (89.6)	0.033
>4 months [n (%)]	414 (56.6)	73 (51.8)	114 (59.1)	96 (63.2)	34 (46.6)	97 (56.1)	0.113
>6 months [n (%)]	278 (38.0)	46 (32.6)	79 (40.9)	66 (43.4)	21 (28.8)	66 (38.2)	0.137
>12 months [n (%)]	113 (15.4)	20 (14.2)	33 (17.1)	22 (14.5)	11 (15.1)	27 (15.6)	0.952
Missing data [n (%)]	62 (7.8)	16 (10.2)	17 (8.1)	13 (7.9)	6 (7.6)	10 (5.5)	
Predominant breastfeeding duration							
>1 month [n (%)]	428 (77.5)	81 (74.3)	112 (79.4)	87 (74.4)	35 (70.0)	113 (83.7)	0.185
>2 months [n (%)]	369 (66.8)	65 (59.6)	99 (70.2)	76 (65.0)	32 (64.0)	97 (71.9)	0.270
>3 months [n (%)]	291 (52.7)	51 (46.8)	79 (56)	62 (53.0)	26 (52.0)	73 (54.1)	0.686
>4 months [n (%)]	128 (23.2)	22 (20.2)	35 (24.8)	28 (23.9)	13 (26.0)	30 (22.2)	0.895
>5 months [n (%)]	71 (12.9)	10 (9.2)	22 (15.6)	15 (12.8)	7 (14.0)	13 (9.6)	0.479

Table 2. Prevalence and duration of any breastfeeding according to socio-demographic maternal characteristics in Geração XXI (n=794)

	Any breastfeeding duration									
	Never n (%)	p	>1 mo n (%)	p	>4 mo n (%)	p	>6 mo n (%)	p	>12 mo n (%)	p
Maternal age (years)										
<25	6 (5.9)		71 (78.0)		30 (33.0)		19 (20.9)		8 (8.8)	
25-29	14 (5.0)	0.599	212 (80.6)	0.001	142 (54.0)	<0.001	91 (34.6)	<0.001	31 (11.8)	0.005
30-34	14 (5.4)		222 (91.7)		160 (66.1)		107 (44.2)		42 (17.4)	
>34	12 (8.1)		115 (87.1)		80 (60.6)		59 (44.7)		31 (23.5)	
Maternal education (years)										
<6	12 (8.1)		115 (84.6)		73 (53.7)		49 (36.0)		22 (16.2)	
7-9	14 (7.4)	0.245	132 (79.0)	0.012	83 (49.7)	0.052	57 (34.1)	0.201	21 (12.6)	0.626
10-12	9 (4.1)		174 (83.7)		115 (55.3)		72 (34.6)		30 (14.4)	
>12	10 (4.6)		185 (91.1)		129 (63.5)		88 (43.3)		35 (17.2)	
Marital status										
Married/cohabiting	41 (5.5)	0.310	590 (86.0)	0.036	394 (57.4)	0.124	264 (38.5)	0.238	106 (15.5)	0.955
Not married	9.1 (4.0)		28 (73.7)		17 (44.7)		11 (28.9)		6 (15.8)	
Professional status										
Employed	31 (5.3)		457 (84.3)		304 (56.1)		204 (37.6)		76 (14.0)	
Unemployed	7 (5.7)	0.744	100 (87.0)	0.864	67 (58.3)	0.977	44 (38.3)		21 (18.3)	
Housewife	3 (10.7)		21 (84.0)		13 (52.0)		11 (44.0)	0.908	5 (20.0)	0.538
Student	2 (7.7)		19 (86.4)		12 (54.5)		7 (31.8)		5 (22.7)	
Other situation*	0 (0.0)		4 (100.0)		2 (50.0)		2 (50.0)		1 (25.0)	
Household monthly income (euros)										
<=1000	16 (6.6)		188 (83.2)		110 (48.7)		71 (31.4)		32 (14.2)	
1001-2000	14 (4.4)	0.104	250 (85.3)	0.302	175 (59.7)	0.001	115 (39.2)	0.066	46 (15.7)	0.922
>2000	5 (4.5)		93 (91.2)		69 (67.6)		46 (45.1)		16 (15.7)	
Don't know/ Don't want to say	6 (13.0)		33 (84.6)		16 (41.0)		12 (30.8)		7 (17.9)	
Social class										
Entrepreneurs and Executives	2 (3.2)		55 (93.2)		28 (47.5)		17 (28.8)		8 (13.6)	
Professionals and Managers	9 (5.9)	0.801	122 (88.4)	0.041	93 (67.4)	0.040	64 (46.4)		25 (18.1)	
Self-employed	1 (6.7)		12 (85.7)		8 (57.1)		5 (35.7)	0.110	2 (14.3)	0.696
Routine Employees	22 (6.2)		265 (81.5)		178 (54.8)		121 (37.2)		47 (14.5)	
Industrial Workers	2 (3.3)		44 (75.9)		29 (50.0)		18 (31.0)		6 (10.3)	

*Included the disabled and the retired.

Table 3. Prevalence and duration of predominant breastfeeding according to socio- demographic maternal characteristics in Geração XXI (n=625)

	Predominant breastfeeding duration									
	Never n (%)	p	>1 mo n (%)	p	>2 mo n (%)	p	>4 mo n (%)	p	>5 mo n (%)	p
Maternal age (years)										
<25	6 (8.0)	0.236	50 (72.5)	0.448	38 (55.1)	0.068	8 (11.6)	0.018	3 (4.3)	0.036
25-29	33 (14.2)		155 (77.9)		138 (69.3)		44 (22.1)		26 (13.1)	
30-34	19 (9.0)		155 (80.7)		136 (70.8)		57 (29.7)		31 (16.1)	
>34	14 (13.5)		67 (74.4)		56 (62.2)		19 (21.1)		7 (7.8)	
Maternal education (years)										
<6	10 (9.3)	0.051	80 (81.6)	0.013	65 (66.3)	0.021	23 (23.5)	0.070	11 (11.2)	0.436
7-9	11 (7.9)		86 (66.7)		72 (55.8)		19 (14.7)		13 (10.1)	
10-12	31 (17.1)		118 (78.7)		104 (69.3)		40 (26.7)		16 (10.7)	
>12	20 (11.1)		130 (81.3)		116 (72.5)		42 (26.3)		25 (15.6)	
Marital status										
Married/cohabiting	68 (11.6)	0.786	405 (78.5)	0.070	350 (67.8)	0.135	124 (24.0)	0.193	65 (12.6)	0.408
Not married	3 (8.8)		20 (64.5)		17 (54.8)		4 (12.9)		2 (6.5)	
Professional status										
Employed	58 (12.4)	0.643	310 (76.0)	0.554	270 (66.2)	0.816	92 (22.5)	0.745	46 (11.3)	0.541
Unemployed	10 (10.4)		72 (83.7)		58 (67.4)		24 (27.9)		15 (17.4)	
Housewife	1 (5.3)		14 (77.8)		11 (61.1)		5 (27.8)		3 (16.7)	
Student	2 (10.0)		14 (77.8)		13 (72.2)		4 (22.2)		2 (11.1)	
Other situation*	1 (33.3)		2 (100.0)		2 (100.0)		0 (0.0)		0 (0.0)	
Household monthly income (euros)										
<=1000	22 (11.7)	0.618	129 (77.7)	0.979	103 (62.0)	0.267	34 (20.5)	0.108	21 (12.7)	0.758
1001-2000	27 (10.7)		174 (77.3)		156 (69.3)		59 (26.2)		28 (12.4)	
>2000	11 (11.6)		66 (78.6)		61 (72.6)		26 (31.0)		13 (15.5)	
Don't know/ Don't want to say	6 (8.8)		21 (80.6)		16 (61.5)		3 (11.5)		2 (7.7)	
Social class										
Entrepreneurs and Executives	8 (13.3)	0.673	36 (80.0)	0.564	27 (60.0)	0.032	14 (31.1)	0.199	11 (24.4)	0.035
Professionals and Managers	13 (11.1)		83 (79.8)		80 (76.9)		27 (26.0)		11 (10.6)	
Self-employed	1 (7.7)		8 (66.7)		7 (58.3)		2 (16.7)		2 (16.7)	
Routine Employees	30 (10.8)		186 (74.7)		160 (64.3)		57 (22.9)		29 (11.6)	
Industrial Workers	8 (17.0)		27 (69.2)		20 (51.3)		4 (10.3)		1 (2.6)	

*Included the disabled and the retired.

Table 4. Determinants of any and predominant breastfeeding up to 12 months and 6 months

Covariate	Any breastfeeding up to 12 months				Predominant breastfeeding up to 6 months			
	Coefficient	HR	95% CI	p	Coefficient	HR	95% CI	p
Maternal age (years)								
<25	0.000	1.00		<0.001	0.000	1.00		0.010
25-29	-0.352	0.70	0.55; 0.90		-0.372	0.69	0.53; 0.91	
30-34	-0.603	0.55	0.42; 0.71		-0.466	0.63	0.48; 0.83	
>34	-0.661	0.52	0.39; 0.69		-0.291	0.75	0.55; 1.02	
Maternal education (years)								
<6	0.000	1.00		0.133	0.000	1.00		0.050
7-9	0.159	1.17	0.92; 1.50		0.232	1.26	0.97; 1.64	
10-12	0.063	1.07	0.84; 1.35		-0.008	0.99	0.77; 1.28	
>12	-0.101	0.90	0.71; 1.15		-0.089	0.92	0.71; 1.18	
Marital status								
Married/cohabiting	0.000	1.00		0.263	0.000	1.00		0.097
Not married	0.203	1.23	0.86; 1.75		0.307	1.36	0.95; 1.95	
Professional status								
Employed	0.000	1.00		0.886	0.000	1.00		0.938
Unemployed	-0.082	0.92	0.74; 1.15		-0.103	0.90	0.72; 1.14	
Housewife	-0.110	0.90	0.57; 1.40		-0.046	0.96	0.60; 1.53	
Student	-0.098	0.91	0.56; 1.47		-0.033	0.97	0.60; 1.55	
Other situation*	-0.355	0.70	0.26; 2.18		-0.166	0.85	0.21; 3.40	
Household monthly income (euros)								
<=1000	0.000	1.00		0.247	0.000	1.00		0.472
1001-2000	-0.122	0.89	0.73; 1.07		-0.091	0.91	0.75; 1.12	
>2000	-0.235	0.79	0.61; 1.02		-0.172	0.84	0.65; 1.10	
Don't know/ Don't want to say	0.037	1.04	0.71; 1.51		0.100	1.11	0.73; 1.67	
Social class								
Entrepreneurs and Executives	0.000	1.00		0.244	0.000	1.00		0.250
Professionals and Managers	-0.255	0.78	0.56; 1.08		0.015	1.02	0.71; 1.45	
Self-employed	-0.102	0.90	0.48; 1.69		0.225	1.25	0.66; 2.37	
Routine Employees	-0.035	0.97	0.72; 1.30		0.121	1.13	0.82; 1.55	
Industrial Workers	0.069	1.07	0.73; 1.58		0.421	1.52	0.99; 2.35	

*Included the disabled and the retired.

Figure 1. Kaplan-Meier curve for any breastfeeding up to 12 months

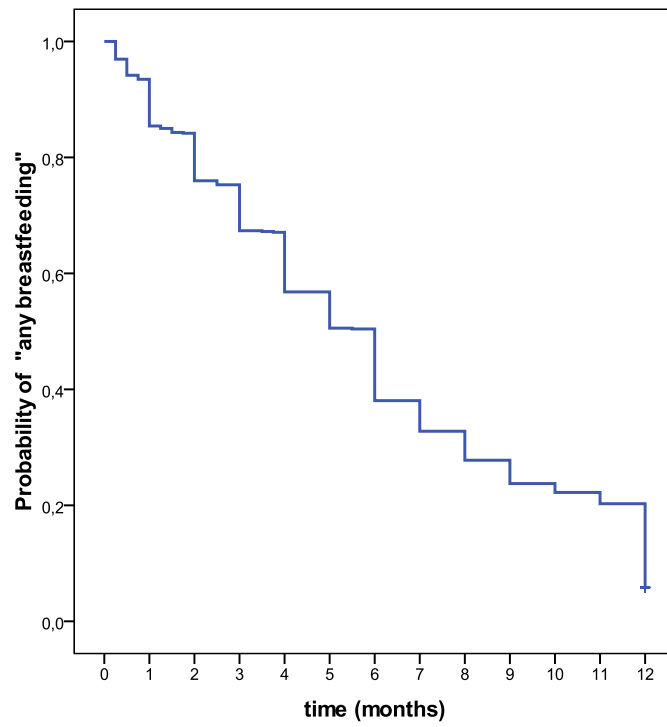
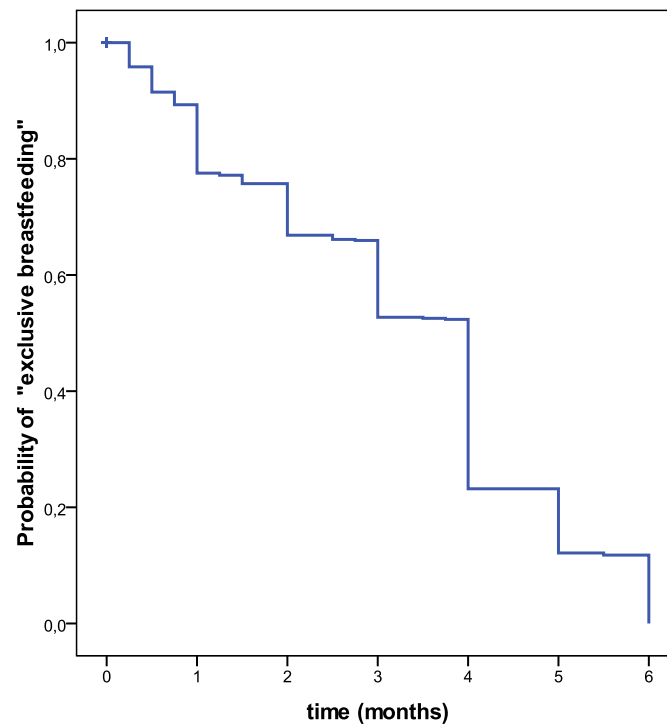


Figure 2. Kaplan-Meier curve for predominant breastfeeding up to 6 months



CONCLUSÃO

A escolha dos pais pelo local do parto nem sempre coincidiu com o sistema oficial de referência hospitalar materno-infantil. A ocorrência de partos em hospitais fora da área de referência esteve positivamente associada ao uso de cuidados de saúde pré-natais no sector privado, a níveis elevados de escolaridade das mães e a pertença às classes das trabalhadoras independentes e das empresárias, dirigentes e profissionais liberais. Os partos realizados fora da área de referência foram menos frequentes nos casos em que a mãe realizou a primeira consulta pré-natal depois das 12 semanas de gestação, em mulheres desempregadas e cuja gravidez não foi planeada.

A mediana da duração de qualquer aleitamento materno foi de 6 meses e de 3 meses para o aleitamento materno predominante. As proporções elevadas de iniciação do aleitamento materno (94,2%) desceram para 56,6%, 38% e 15,4% a partir dos 4, 6 e 12 meses, respectivamente. A partir do quinto mês apenas 12,9% das mulheres praticavam o aleitamento materno predominante. A duração do aleitamento materno associou-se a características socio-demográficas da mãe, em particular a idade e nível de escolaridade. O abandono do aleitamento predominante verificou-se de forma marcada aos 4 meses, coincidindo com o fim da licença de maternidade.

Em suma, a hierarquização do espaço social portuense repercute-se na reprodução de iniquidades sociais no acesso a maternidades públicas e na prevalência e duração do aleitamento materno. É necessário promover a equidade no acesso a maternidades públicas e o aleitamento materno, especialmente nas mulheres mais novas e menos escolarizadas.

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