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A relação dos contactos sociais com a saúde mental dos presos – uma revisão sistemática da literatura

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A relação dos contactos sociais com a saúde mental dos presos – uma revisão sistemática da literatura

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Resumo:

Contexto

A questão da saúde mental dos reclusos e suas interações sociais é uma preocupação de grande complexidade e relevância em muitos países. Fatores desafiadores, tais como superlotação, restrições nos horários de visitas e políticas rigorosas, podem afetar negativamente os laços familiares e os relacionamentos íntimos dos mesmos. No entanto, a natureza da ligação entre as interações sociais e a saúde mental dos reclusos ainda carece de clareza. Assim sendo, o propósito deste estudo consistiu em examinar de forma sistemática a relação entre as interações sociais (incluindo apoio social percebido e objetivo, bem como a solidão) e a saúde mental dos reclusos.

Métodos

Esta revisão sistemática foi elaborada segundo as diretrizes de *Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA).* Um protocolo foi desenvolvido e registado na plataforma *PROSPERO* (CRD42023372942). Uma estratégia de pesquisa foi aplicada nas bases de dados seguintes: Medline (via Ovid SP), PsycINFO, Scopus e Web of Science. A avaliação de qualidade dos estudos foi realizada através da utilização da CASP checklist para estudos longitudinais. Os dados foram descritos através de síntese narrativa.

Conclusões

Após a realização do processo de triagem, 32 estudos corresponderam aos critérios de inclusão. A maioria dos estudos apresentaram um desenho transversal (k=27), enquanto outros cinco adotaram um desenho longitudinal. O número total de participantes envolvidos nesta revisão foi de 10.613 indivíduos, e o tamanho das amostras variou de 39 a 1.485 participantes. O instrumento mais utilizado para medir os contatos sociais foi a MSPSS (*Multidimensional Scale of Perceived Social Support*).

A análise dos resultados dos estudos incluídos revelou uma tendência consistente. A maioria dos estudos indicou que a perceção de apoio social, tanto subjetiva quanto objetiva, estava associada de forma inversa com a presença de sintomas de transtornos mentais comuns, como a depressão, ansiedade e transtorno de stress pós-traumático (TEPT). Por outro lado, observou-se uma correlação positiva entre a solidão e a manifestação desses sintomas.

Interpretação

A ausência de apoio social emerge como um fator de significativa influência na saúde mental dos prisioneiros, contribuindo para o surgimento ou agravamento de vários transtornos mentais comuns (TMC). Estratégias destinadas à melhoria do suporte social no ambiente carcerário, tais como a diminuição das barreiras às visitas e a provisão de meios para a comunicação virtual, desempenham um papel crucial no fortalecimento dos sistemas de suporte dos indivíduos em reclusão, bem como na ampliação das oportunidades para uma reintegração bem-sucedida na sociedade.

Palavras-chave

Reclusos, Contactos sociais, Transtornos mentais comuns, Revisão sistemática.

Abstract

Background

Prisoners' mental health and their social contacts is a complex and significant concern worldwide. Challenges such as overcrowding, limited visitation hours, and restrictive policies can strain family connections and intimate relationships. However, it is not clear what the association is between social contacts and the mental health of inmates. Our aim was to systematically identify the relationship of social contacts (i.e., perceived, and objective social support, and loneliness) with prisoners' mental health.

Methods

This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). A protocol was developed and registered in PROSPERO (CRD42023372942). A search strategy was applied to Medline via Ovid SP, PsycINFO, Scopus and Web of Science. The quality assessment entailed the use of the CASP Checklist for cohort studies. The data was reported through a narrative synthesis.

Findings

Upon screening, 32 studies that fulfilled the inclusion criteria were included in this review. Most of the studies were cross-sectional (k=27) whilst five had a longitudinal design. The total number of study participants was 10,613 and the sample sizes ranged from 39 to 1485. The most used instrument to measure social contacts was the MSPSS (Multidimensional Scale of Perceived Social Support). The majority of the studies reported that perceived, and objective social support were negatively correlated with symptoms of common mental health disorders (CMD), specifically, depression, anxiety and post-traumatic stress disorder (PTSD), whereas loneliness was positively correlated.

Interpretation

Lack of social support is related to inmates' mental health and the development or exacerbation of various CMD. Efforts to improve social contacts in prisons such as reducing barriers to visits and providing access to technology for virtual communication can help incarcerated individuals strengthen their support systems and increase their opportunities of successful reintegration into society.

Keywords

Prisoners, Social contacts, Common mental disorders, Systematic review.

Table of contents

List of abbreviations

CMD -Common mental disorders

PTSD – Post traumatic stress disorder

MDE – Major depressive episode

CASP - Critical Appraisal Skills Programme

ICD -11 - International Classification of Diseases 11th Revision

GAD-7 – Generalized Anxiety Disorder -7

OSSS-3 - 3-item Oslo Social Support Scale

MSPSS - Multidimensional Scale of Perceived Social Support

MOS-SSS – Medical Outcomes Study Social Support Survey

SSQ – Social Support Questionnaire

HAM-D - Hamilton Rating Scale for Depression

UCLA LS – UCLA Loneliness Scale

BDI - Beck Depression Inventory

BDI-II – Beck Depression Inventory — Second Edition.

PHQ-9 - Patient Health Questionnaire-9

PHQ-8 - Patient Health Questionnaire-8

PSQ – Personal Health Questionnaire

CES-D - Center for Epidemiologic Studies Depression Scale

BSI – Brief Symptom Inventory

SPS – Social Provisions Scale

SNQ- Social Network Questionnaire

SSQ- Sarason Social Support Questionnaire

MINI – Mini International Neuropsychiatric Interview

HRSD – Hamilton Rating Scale for Depression

GDS – Geriatric Depression Scale

DHS – Depression, Hopelessness and Suicide Screening Form

SAD – Social Avoidance and Distress Scale

PSSS – Perceived Social Support Scale

BAI – Beck Anxiety Inventory

GHQ-20 - General Health Questionnaire -20

STAI - State-Trait Anxiety Inventory

PCL-C - Posttraumatic Stress Disorder Checklist- Civilian Version

PCL-5 - Posttraumatic Stress Disorder Checklist-5

PRISMA - The Preferred Reporting Items for Systematic reviews and Meta-Analyses

SDS - Zung Self-Rating Depression Scale

Research in context

Evidence before this study

We conducted searches in four databases (Medline (via OVID SP); APA PsycINFO; Scopus, and Web of Science) for quantitative studies that examined the relationship between social contacts and prisoners' mental health, from database inception to March 30, 2023. Consistent keywords were used across all databases to capture relevant literature on social contacts ("social contact*" OR "social network*" OR "interpersonal relationship*" OR "social support" OR "social isolat*" OR "friend*" OR "lonel*" OR "social interaction*" OR "social relation*" OR "social tie*" OR "social connection*" OR "social integration*" OR "social environment" OR "contact network*" OR "social withdrawal"), common mental disorders ("GAD" OR "generalised anxiety disorder*" OR "obsessive-compulsive disorder*" OR "OCD" OR "obsessive compulsive disorder*" OR "post-traumatic stress disorder*" OR "PTSD" OR "post traumatic stress disorder*" OR "panic*" OR "phobi*" OR "anxi*" OR "agoraphobi*" OR "depress*" OR "mood") and prisoners ("prison*" OR "detain*" OR "inmate*" OR "criminal*" OR "convict*" OR "offender*" OR "incarcerat*" OR "felon*" OR "jail*" OR "imprison*" OR "penitentiar*" OR "detention" OR "behind bar*" OR "delinquen*). Searches were conducted using boolean operators 'AND/OR/NOT', with "NOT" used to refine the search by excluding age groups such as adolescents (less than 18 years old) and populations other than inmates. We identified 15 systematic reviews (1-15) focused on prisoners, which examined topics like trauma exposure and mental disorders, substance use disorders, suicide, the prevalence of mental and physical disorders, risk factors for self-harm, and the effectiveness of psychological intervention inside prisons. However, none of these reviews addressed the role and significance of social contacts in the onset or exacerbation of CMD among inmates.

Added value of this study

This study is the first systematic review to investigate the relationship between social contacts and CMD among inmates, covering a sample of 10,613 individuals. It highlights that the lack of social contacts can significantly impact an individual's mental health, contributing to the development or exacerbation of various CMD, including depression, anxiety, and post-traumatic stress disorder (PTSD). This review shows that social contacts are inversely related to CMD. The dynamics of this relationship can manifest in three distinct patterns: i) increased social contacts tend to reduce the incidence of CMD, or ii) decreased social contacts often correlate with heightened symptoms of depression, anxiety, and PTSD; or iii) increased CMD can result in diminished social contacts.

Implication of all the available evidence

Implementing evidence-based strategies within prisons to enhance social contacts, including the integration of technology for communication between inmates and their families, educational programs on the importance of social connection, initiatives to reduce stigma, and advocacy for supportive policies, may have a positive impact on mental health, reduce recidivism, and improve inmates' prospects for successful reintegration into society. Future research should include long-term studies that follow inmates before, during, and after their incarceration to gain a comprehensive understanding of how social contacts within prison impact their life trajectories.

Introduction

According to the World Prison Population List there are approximately 11 million prisoners worldwide (16) and the prevalence of mental disorders is higher in prisoners compared to the general population (17). Inmates face a hostile environment (18) characterised by violence, overcrowding, victimization and sex-based segregation, with rates of physical assault in prisons being 13–27 times higher than in the community (17, 19). The mental health consequences of such stressors are reflected in the disproportionately higher levels of depression and anxiety (20). These common mental disorders (CMD) are highly prevalent within the prison population, encompassing depressive and anxiety disorders and disorders specifically associated with stress as per the ICD-11 (21), including major depressive disorder, generalized anxiety disorder (GAD), panic disorder, phobias, post-traumatic stress disorder (PTSD). Symptoms range in terms of severity - from mild to severe - and duration - from months to years (20).

The context of imprisonment is unique regarding the role of social contacts and their direct or indirect impact on mental health (22). Social contacts encompass various facets of social interaction, including social support, social networks, social relationships, social ties and loneliness. They are defined as interpersonal interactions individuals have with others (i.e., family, friends, colleagues, romantic partners, social groups) within their social network, significantly influencing a person’s quality of life (23). Social support can be categorised into two types: perceived social support, which refers to an individual's subjective perception or belief regarding the availability of help, care, and assistance from their social network, which includes friends, family members, and significant others(24, 25); objective social support encompasses concrete actions and assistance provided by one's social network, such as the frequency of visits, letters received from relatives, friends or children, and the number of phone calls an inmate makes to family or friends (26). Conversely, loneliness is the subjective perception of being alone or disconnected from others, even when the inmate is surrounded by people (27). High levels of loneliness have been associated with reduced perceived social support and increased distress (27).

The lack of social contacts in the prison context poses distinctive challenges and consequences for inmates (24), primarily due to severe restrictions on contact with the outside world with limited visiting hours. Previous research reported a strong association between high levels of the different facet of social contacts and improved mental health outcomes, with various studies linking social contacts to reduced rates of anxiety and depression (28-30).The support provided by these social contacts has a positive impact on mental health by aiding individuals in adapting to conditions they find stressful (31).

Nevertheless, the receipt of social support both within and outside the prison environment can exacerbate anxiety symptoms; inside prison, forming friendships and alliances within the incarcerated community can be fraught with tension, competition, and conflicts (32). Additionally, social support from outside prison can serve as a reminder of the separation and restrictions imposed by the prison environment (26). The process of separation following each visit presents challenges, as inmates may struggle to effectively manage and process these encounters, potentially leading many to decline visits, including those involving children (18, 26, 33).

This systematic review aims to explore the correlation between social contacts among prisoners and their mental health status, particularly regarding CMD. These insights can help address the mental health needs of incarcerated individuals, enhance their quality of life, and facilitate the reintegration into the community upon release.

Methods

Study design

We conducted a systematic review of the literature following the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (34) to identify articles examining the relationship between social contacts and prisoners' mental health.

Search strategy

Primary research papers relevant to the review were identified using four electronic databases: MEDLINE (via OVID SP), APA PsycINFO, Scopus, and Web of Science, employing a combination of search terms relating to social contacts, CMDs, and prisoners, with no language or timeline restriction, until March 30, 2023. A protocol based on the PICO framework (35) was registered in the PROSPERO database (CRD42023372942) (36). Eligible studies had to: (i) address the relationship between social contacts and CMD quantitatively; (ii) assess CMD through a validated instrument; (iii) focus on samples above 18 years and imprisoned at the time of study. Studies were excluded if they: (i) did not include primary data; (ii) did not present a quantitative design; (iii) focused on populations with substance abuse as primary or comorbid disorder.

Data screening and quality assessment

Two researchers (NM, LA) screened the studies independently by title and abstract based on the inclusion criteria. The studies were then assessed by full text review.

Discrepancies were resolved upon discussion with two additional researchers (MPC, EP). Extracted data encompassed the following: authors and publication year; sample characteristics, study design, aims, methods, instruments used, type and strength of the relationship reported. Two authors independently (NM, LA) conducted the quality assessment using the CASP Checklist for Cohort studies (37). This tool comprised twelve questions assessing bias related to research aim; sample recruitment; suitability of the methodology; confounding variables; participant follow-up; result validity; generalizability; clinical relevance; and does not provide a global score. These questions were answered using a “Yes”; “Can’t Tell” or “No” format. The two questions regarding participants’ follow-up were not rated in studies with a cross-sectional design. A narrative synthesis was conducted following the Guidance on the Conduct of Narrative Synthesis in Systematic Reviews (38). The findings were divided based on the type of social contacts examined.

Results

The search initially yielded 2,792 records, with 2,046 remaining after excluding 746 duplicates. Following the initial screening, 1,961 records were excluded, leaving 85 full text records for further assessment, of which 32 were ultimately included (See Figure 1 for the PRISMA flow chart).

Most of the studies had strong to moderate quality, based on the CASP checklist (Appendix 1).

Table 1 presents the characteristics of the included studies. The studies were published between the years of 1993 and 2023. The majority were conducted in the USA (k=15), followed by China (k=3) and Ethiopia (k=3) and had a cross-sectional design (k=27). In six studies the sample was only of female inmates; 15 had only male, and 11 had both. The most frequently used instrument to measure social contacts was the Multidimensional Scale of Perceived Social Support (MSPSS) (k=11) (39); Loneliness was measured through the UCLA Loneliness Scale (UCLA-LS) (40) (k=6). Regarding CMD, among the 32 studies, only five focused on individuals with a formal diagnosis. For the remaining, depression symptoms were the most commonly examined outcome (k=31), using the Beck's Depression Inventory (BDI; BDI-II) (41) (k=8), the Patient Health Questionnaire-9 (PHQ-9) (42) (k=6) and the Center for Epidemiologic Studies Depression Scale (CES-D) (43) (k=5). Anxiety was evaluated using the Brief Symptom Inventory (BSI) (44) (k=2), the State-Trait Anxiety Inventory (STAI) (45) (k=2) and the Generalized Anxiety Disorder (GAD-7) (46) (k=1). To assess post-traumatic stress disorder (PTSD), the Posttraumatic Stress Disorder Checklist (PCL-C; PCL-5) (47, 48) (k=2) was used.

Figure. 1 - PRISMA flow diagram of the screening procedure via online databases.

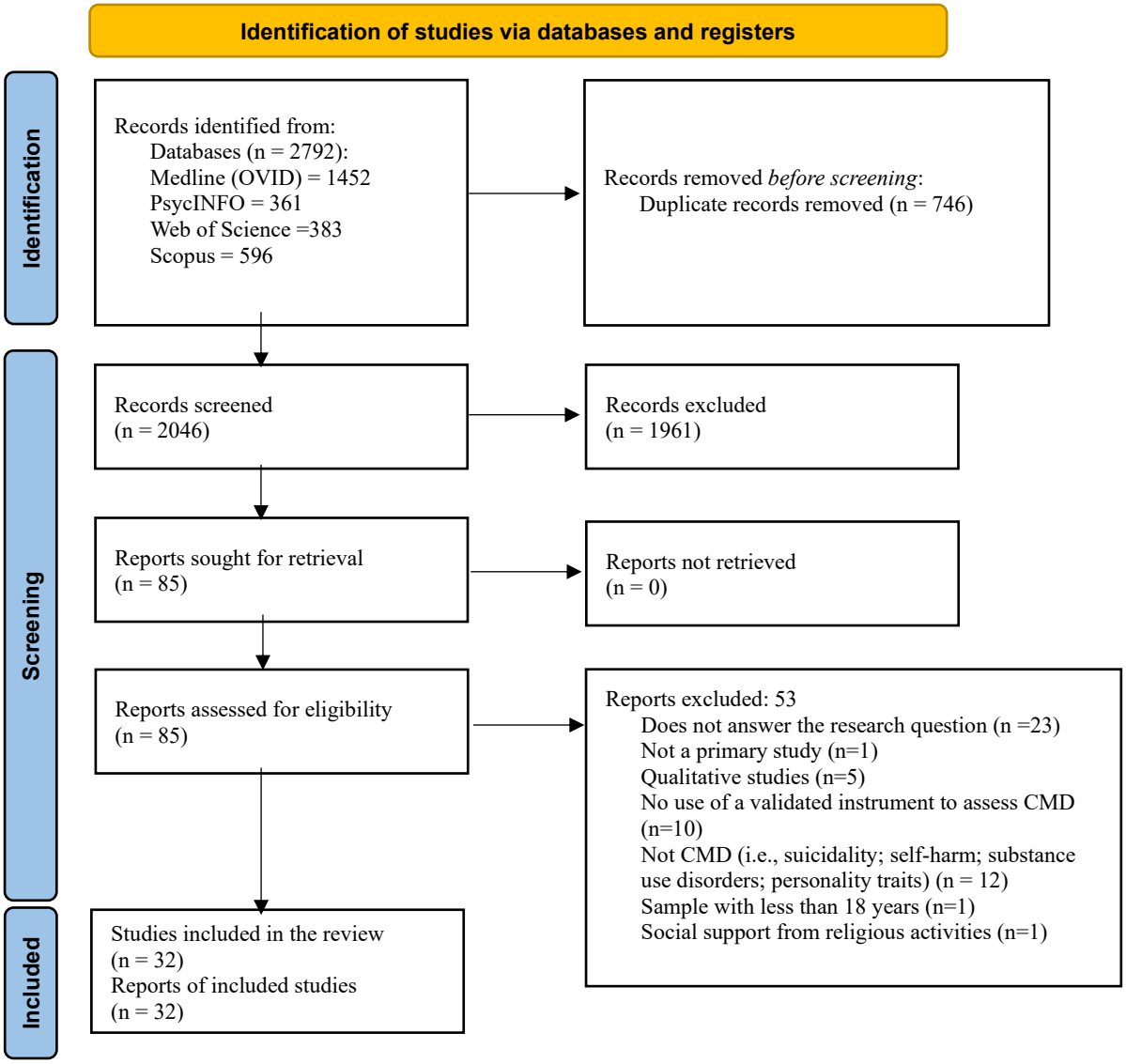

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Perceived social support									
Cross-sectional studies									
Dadi et al (2019)	583 male (89.8%) and 66 female (10.2%); Median IQR age: 28 years; Median year in the correctional institution (IQR): 10 years; Marital status: 306 single (47.1); 228 married (35.1%); 138 life-sentenced prisoners (21.3%); Education status: 108 (16.6%) were illiterate.	n=649	Ethiopia	MSPSS	Perceived social support	PHQ-9	Depression	No	Higher levels of perceived social support were associated with lower levels of depressive symptoms. Having a friend inside the correctional institution and prisoner's residence before imprisonment, significantly affected the level of prisoner's perceived social support. Being a male inmate was associated with a decrease in perceived social support. Prisoners who did not make any friend in the correction center had a significantly low level of perceived social support and prisoners residing in rural areas before imprisonment had low perceived social support compared to those in urban areas.
Huang et al (2020)	Male and female inmates.	n=1106	China	PSSS	Perceived social support	GHQ-20	Depression Anxiety	No	Perceived social support was negatively associated with depression and anxiety symptoms. Resilience emerged as a mediator between perceived social support and the levels of mental health, especially for depressive symptoms. Married inmates had higher scores in perceived social support.
Asberg & Renk (2014)	Females' inmates; Mean age: 37,82 years; 64.1% of participants were White, 30.8% were Black, and 5% did not provide information regarding their racial identity; Average of 12.20 years of education (SD = 1.57), with 38% not having completed high school; 80% of participants reported being the parent of a minor child.	n=39	USA	MSPSS	Perceived social support	BDI-II BAI	Depression Anxiety	No	Perceived social support was negatively associated with depressive and anxiety symptoms. Social support emerged as a factor associated with depressive symptoms, with an inadequate social support being correlated with greater symptoms of depression. Higher levels of perceived social support were associated with lower levels of anxiety symptoms. Social support emerging as a significant predictor of anxiety symptoms in female offenders.

Note - MSPSS (Multidimensional Scale of Perceived Social Support); PSSS (Perceived Social Support Scale); PHQ-9 (Patient Health Questionnaire 9); GHQ-20 (General Health Questionnaire); BDI-II (Beck Depression Inventory – Second edition); BAI (Beck Anxiety Inventory).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Perceived social support									
Cross- sectional studies									
Alboukordi et al (2010)	Male prisoners; Mean of age: 22.18 years; 32.9% had high school education.	n=82	Iran	SSQ	Perceived social support	BDI	Depression	No	The relationship between depressive symptoms and perceived social support was not significant.
Scanlon et al (2018)	African American male inmates; Age: 18 years or over; Incarcerated for a nonrape/murder offense in the North Carolina Department of Public Safety for 3 years or less.	n= 189	USA	MSPSS	Perceived social support	CES-D	Depression	No	Low family support and low perceived support from a committed partner were associated with depressive symptoms, but not with low friend support.
Lindquist (2000)	95 males and 103 females; Various lengths of incarceration; 112 were parents (57%); 33 were married (17%).	n=198	USA	Survey	Perceived social support	BSI	Depression Anxiety	No	Social support within the jail was not associated with lower depressive or anxiety symptoms. Married inmates showed greater depression and anxiety than unmarried inmates. Females presented higher levels of depression compared to males. Being a male inmate was associated with a decrease in perceived social support.
Çıvgın & Gün (2022)	385 men and 89 women; Ages: 18 and 84 years; Married: 204; single: 181; divorced: 77; Most common crime: selling drugs.	n= 474	Turkey	MSPSS	Perceived social support	BDI	Depression	No	Higher levels of perceived social support were associated with lower levels of depressive symptoms. Resilience emerged as a mediator between perceived social support and the levels of mental health, especially depression, acting as a protective factor.
Yaacob et al (2022)	Male (166) and female (135) prisoners; Age - 21 to 60 years; Mean age: 31 years; Ethnicity: Malay (255); Chinese (24); other (22); Marital status: single (136), divorced or widowed (75), married (90); Median total sentence duration: 24 months.	n=301	Malaysia	MSPSS	Perceived social support	PHQ-9	Depression	No	Higher levels of perceived social support from family, friends and significant others were associated with lower levels of depressive symptoms. Male inmates were found to have two times higher odds of having higher levels of depressive symptoms compared to female inmates. Those who received low- to medium-support from friends had 1.7 times odds of having depressive symptoms compared to those who received high support.

Note - MSPSS (Multidimensional Scale of Perceived Social Support); SSQ (Social Support Questionnaire); BDI (Beck Depression Inventory); Center for Epidemiologic Studies Depression Scale (CES-D); BSI (Brief Symptom Inventory); PHQ-9 (Patient Health Questionnaire 9).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Perceived social support									
Cross- sectional studies									
Luo et al (2012)	Female criminals; Age range: 18 to 45 years old.	n= 171	China	PSSS	Perceived social support	SDS	Depression	No	Perceived social support was negative associated with depressive symptoms.
Wittenborn et al (2020)	Women (66) and male (118) prisoners; DSM-IV criteria for MDD; Age: 18 and 65 years. Median (IQR) age of 39.5. Ethnicity: Non-Hispanic (81.4%; n = 150); White race (63.0%; n = 116); African American or Black (22.8%; n=42); Median sentence length: 58 to 60 months; 15% serving life sentences.	n= 184	USA	MSPSS	Perceived Social Support	HAM-D	Depression	Yes	Negative relationship between perceived social support and depression severity, in which incarcerated adults with a severe current major depressive episode (MDE) had lower levels of perceived social support than for incarcerated adults with a non-severe current MDE.
Geng et al (2023)	Male prisoners; Age range: 18 to 69 years; Mean of age: 35.39 (SD=9.62); Average of sentence: 6 months to 20 years.	n=1485	China	MSPSS	Perceived social support	PCL-5	PTSD	Yes	Inmates with the dissociative subtype of PTSD (D-PTSD) reported less perceived social support compared to other sub-types of PTSD, indicating social support as an important protective factor of D-PTSD.
Archuleta et al (2020)	Male prisoners; Age: 45 - 54 years (M=55.70; SD= 7.48); Years incarcerated: M=11.74; SD= 9.55.	n=91	USA	Single items questions	Perceived social support Objective social support	PHQ-8	Depression	No	Depressive symptoms were negatively correlated with carceral network size. Prisoners that had a good perceived social support and were satisfied with their social relationships were less likely to be depressed. Having a trusted peer was a risk factor for depression.

Note - MSPSS (Multidimensional Scale of Perceived Social Support); PSSS (Perceived Social Support Scale); SDS (Zung Self-Rating Depression Scale); HAM-D (Hamilton Depression Rating Scale); PCL-5 (Posttraumatic Stress Disorder Checklist-5); PHQ-8 (Patient Questionnaire Health 8).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Perceived social support									
Cross- sectional studies									
Moore et al (2021)	Female and male; Average age: 18-65 years (M=40 years; SD=10.3); 62.5% identified as white, 23.8% identified as Black, 1.3% identified as Asian, 6.3% identified as Native American or Alaskan Native, and 12.5% identified as other race; 81.8% identified as non-Hispanic; Never married (58.5%); Rage of incarceration: 6 to 488 months (M=78, SD=88.6); Men (M=97 months, SD=98.0) incarcerated longer than women (M=34 months, SD=32.4).	n=160	USA	MSPSS UCLA - LS	Loneliness Perceived social support	HRSD QIDS	Depression	No	Perceived social support was negatively correlated with depressive symptoms. Increased depressive symptoms were found in incarcerated individuals with high rates of loneliness.
Brown & Day (2008)	Male prisoners; Mean age: 31 years; Average length of time on remand was 16 weeks; Australian (70%), Australian Aboriginal/Torres Strait Islander (18.3%), French (1.7%), Chinese/Cambodian (1.7%), Turkish (1.7%), Irish (1.7%), Macedonian (1.7%), and Serbian (1.7%).	n=60	Australia	MSPSS UCLA -LS	Loneliness Perceived social support	DHS	Depression	No	Depressive symptoms were associated with prisoners that have a higher level of loneliness. There was no significant difference found between the levels of depressive symptoms and the levels of perceived social support. .
Aquino (1992)	Male elderly inmates; Age: 50 to 72 years; Mean age: 56.1 years; 87% was White; 11.1% was Black and 1,6% American Indian 30% of the participants were married at the time of the study; 15,9% serving life sentences; First offenders: 69.8%; Range of number of months served; 1 to 387 months with a mean of 52.9 months.	n=63	USA	The short version of SPS SNQ	Perceived social support Objective social support	CES-D	Depression	No	Perceived social support was not significantly related to depressive symptoms. Objective social support was not a significant predictor of depressive symptoms.

Note – UCLA-LS (UCLA Loneliness Scale); MSPSS (Multidimensional Scale of Perceived Social Support); GDS (Geriatric Depression Scale); HRSD (Hamilton Rating Scale for Depression); QIDS (Quick Inventory of Depressive Symptomatology); DHS (Depression, Hopelessness and Suicide Screening Form-03).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Perceived social support									
Longitudinal studies									
Felton et al (2020)	Male (67.3%) and female (32.7%) inmates; Age: 20 to 61 years (M=39.61; SD= 10.45); Ethnicity: 61.9% White; 23.2% Black/African-American, and 14.9% identifying as another race/ethnicity.	n=168	USA	MSPSS UCLA-LS	Loneliness Perceived social support	HAM-D PCL-C	Depression PTSD	Yes	Prisoners with higher levels of perceived social support were less likely to have high levels of depression. Loneliness was positively correlated to PTSD and depression. Gender had an impact on depression levels, with females presenting higher levels of depression compared to males. Being a female inmate was linked to an increase in perceived social support.
Salina et al (2011)	Incarcerated women with co-occurring disorders; Average age: 36.8 years; 75.4% single; 6.4% married; 8% separated, 8.2% divorced and 2.8% widowed.	n= 281	USA	Single items questions	Perceived social support	BDI	Depression	Yes	Female inmates who reported a high level of perceived social support reported lower levels of depression.
Shrestha et al (2017)	Male inmates in a maximum-security prison; Average age - 41.8; 62% were African American; 23% were White; 16% indicated other.	n=301	Malaysia	MOS-SSS	Perceived social support	CES-D	Depression	No	Prisoners with lower levels of perceived social support were more likely to have high levels of depressive symptoms.
Borelli et al (2010)	Pregnant women inmates; Age: 18-45 years (M=28.5; SD=6.47); First time mothers (52.2%); Ethnicities: 42% African American; 33.3% White; 20.3% Hispanic; 4.3% multi-racial; Range of maternal sentences: 2 months to 10 years.	n=69	USA	SSQ	Perceived social support Objective social support	CES-D	Depression	No	The depressive symptoms were negatively correlated with number of social support figures and with perceived social support.

Note - MSPSS (Multidimensional Scale of Perceived Social Support); UCLA-LS (UCLA Loneliness Scale); MOS-SSS (Medical Outcomes Study Social Support Survey); SSQ (Sarason Social Support Questionnaire); HAM-D (Hamilton Depression Rating Scale); PCL-C (Posttraumatic Stress Disorder Checklist – Civilian Version); BDI (Beck Depression Inventory); CES-D (Center for Epidemiological Studies Depression Scale).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Objective social support									
Cross- sectional studies									
Mengesha et al (2023)	587 (84.6%) male and 107 female; Age: 18 years or over (M= 33.15; SD= 12.3); 4% divorce, 50.2% married and 45.8% single; No formal education: 8.4%; Mean duration of stay in prison: 38.74 months (SD=44.7).	n=694	Ethiopia	OSS-3	Objective social support	PHQ-9	Depression	No	Poor social support was a significant correlate of depressive symptoms among prisoners. Prisoners who reported poor social support were three times more likely to be depressed than those with strong social support.
Tripathy et al (2022)	Male prisoners; Age: 18 -75 years; Mean age: 32.12 years; Single: 53; married: 50; divorced: 2; Place of residence: urban: 36; rural: 67; semiurban: 2	n= 105	India	Single items	Objective social support	PHQ-9	Depression	No	Prisoners with low social support and those with moderate social support had significantly higher chances of suffering from depressive symptoms.
Haynie et al. (2018)	Male inmates; Age (log): 3,67%; Ethnicity: 51.88% Black; 32.33% White and 15.79% Hispanic.	n= 132	USA	Single items	Objective social support	CES-D	Depression	No	Authors found no evidence between number of ties received and depressive symptoms. The most integrated inmates were less likely to be depressed.
Whitney-Gildea (2001)	Female inmates with various personality disorders; Age: 19 to 79 years; Mean age: 33.49 years (SD = 9.07); The mean education level was 11th grade (SD = 1.80). The average length of stay was 1453.51 days (3.98 years); 47,2% were single; 20,4% married or in common law marriage; 27,3% divorced; 76,9% were parents; 19,9% no children; First offenders: 68.1%	n=216	USA	PSQ	Objective social support	BDI-II	Depression	No	No significant relationship between inmate social support and depressive symptoms.

Note – UCLA-LS (UCLA Loneliness Scale); MSPSS (Multidimensional Scale of Perceived Social Support); BDI-II (Beck Depression Inventory – Second Edition); SAD (Social Avoidance and Distress Scale); HAM-D (Hamilton Depression Rating Scale); PCL-C (Posttraumatic Stress Disorder Checklist – Civilian Version).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Objective social support									
Cross- sectional studies									
Birkie et al (2022)	333 male (79.33%) and 87 female (20.7%) Age range: 18-62 years old; Mean age: 29.79 years; SD=8.29; Marital status: 216 married (51.4%); 177 single (42.1%); 14 divorced (3.3%); 13 widowed (3.1%); Education status: only 77 (18.3%) were illiterate.	n= 420	Ethiopia	OSSS-3	Objective social support	PHQ-9 GAD-7	Depression Anxiety	No	Those who had moderate social support or strong social support were 51 and 64% less likely to have depressive symptoms, respectively, as compared to those having poor social support. Prisoners that had strong social support were 75% less likely to develop anxiety symptoms than those having poor social support. Age was positively associated with anxiety symptoms.
Cooper & Berwick (2001)	Male offenders; Only 3rd group "lifers" aged over 21 meets criteria of this study; Age range: 21-57 years,	n=52	England	Questionnaire	Objective social support	BDI STAI	Depression Anxiety	No	Contact with the outside world through visits and letters was associated with lowered levels of anxiety symptoms. There was no evidence that visits and letters are related to levels of depressive symptoms.
Celinska & Fanarraga (2022)	Female inmates; Mean age of 41.37 years; 41.30% White; 31.52 Black; 27.17% Other; Latino 24.31%; Non-Latino 75.69%; 73.58% were mothers; 7.37% married; 68.95% single; 19.47% divorced.	n=194	USA	Quantitative survey	Objective social support	BSI-18	Depression Anxiety	No	Depressive symptoms were found to be positively correlated with being visited by a friend outside prison and negatively correlated with phone calls and letters. In person visits by friends and family were positively correlated with anxiety symptoms, while phone calls from friends, family and children were negatively correlated. Age was positively associated with anxiety symptoms.
Kreager et al (2016)	Male offenders; Age between 18 and 65 years.	n= 467	Netherlands	Single items questions Dichotomous measure created by the authors	Objective social support	BSI	Depression Anxiety	No	Having a trusted peer was related to higher levels of depressive and anxiety symptoms. Detainees who reported visits from out-of-facility friends had lower levels of depression.
Li et al (2022)	Incarcerated males; Age: 50 or older (average: 56.9 years); Participants who had spent 20 or more consecutive years in prison at the time of study; Average of years served: 26.6 years; Recidivists: 68%; 40% White,51% Black, and 9% Hispanic/Other; Never been married: 53%	n=65	USA	MSPSS 7-item survey adapted from the MOS-SSS.	Objective social support	PHQ-9	Depression	No	No significant relationship between objective social support and depressive symptoms was found.

Note –MSPSS (Multidimensional Scale of Perceived Social Support); MOS-SSS (Medical Outcomes Study Social Support Survey); PHQ-9 (Patient Health Questionnaire 9); GAD-7 (Generalized Anxiety Disorder 7); BDI (Beck Depression Inventory); STAI (State-Trait Anxiety Inventory); BSI-18 (Brief Symptom Inventory 18); BSI (Brief Symptom Inventory).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Objective social support									
Cross-sectional studies									
Benavides et al (2019)	Male prisoners over 18 years old; Primary education or less: 153 (49.5%); High school or college: 156 (50.5%); Having children: 230 (74.4%).	n=309	Ecuador	Structured questionnaire	Objective social support	MINI	Depression	Yes	Those who did not receive visits reported higher levels of depression.
Archuleta et al (2020)	Male prisoners; Age: 45 - 54 years (M=55.70; SD= 7.48); Years incarcerated: M=11.74; SD= 9.55.	n=91	USA	Single items questions	Perceived social support Objective social support	PHQ-8	Depression	No	Depressive symptoms were negatively correlated with carceral network size. Prisoners that had a good perceived social support and were satisfied with their social relationships were less likely to be depressed. Having a trusted peer was a risk factor for depression.
Aquino (1992)	Male elderly inmates; Age: 50 to 72 years; Mean age: 56.1 years; 87% was White; 11.1% was Black and 1,6% American Indian 30% of the participants were married at the time of the study; 15,9% serving life sentences; First offenders: 69.8%; Range of number of months served; 1 to 387 months with a mean of 52.9 months.	n=63	USA	The short version of SPS SNQ	Perceived social support Objective social support	CES-D	Depression	No	Perceived social support was not significantly related to depressive symptoms. Objective social support was not a significant predictor of depressive symptoms.
Longitudinal studies									
Borelli et al (2010)	Pregnant women inmates; Age: 18-45 years (M=28.5; SD=6.47); First time mothers (52.2%); Ethnicities: 42% African American; 33.3% White; 20.3% Hispanic; 4.3% multi-racial; Range of maternal sentences: 2 months to 10 years.	n=69	USA	SSQ	Perceived social support Objective social support	CES-D	Depression	No	The depressive symptoms were negatively correlated with number of social support figures and with perceived social support.

Note – SPS (Social Provisions Scale); SNQ (Social Network Questionnaire); MINI (Mini International Neuropsychiatric Interview, version 5.0.0); PHQ-8 (Patient Health Questionnaire 8); CES-D (Center for Epidemiologic Studies - Depression Scale).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Loneliness									
Cross- sectional studies									
Gizatullina (2014)	303 male inmates and 365 female inmates; Age: from 17 to 80 years.	n= 668	Kazakhstan	UCLA-LS	Loneliness	BDI STAI	Depression Anxiety	No	An increased level of depressive symptoms was found in prisoners with high rates of loneliness. High loneliness levels were statistically significant in the levels of anxiety symptoms.
Merten et al (2012)	Male offenders; Ages: 45-80 (M =57.59, SD = 8.41); 162 White; 56 African-American; 30 Native American; Mean age of first incarceration for older prisoners (55 and over): 41.30 years compared to 31.42 years for younger prisoners (younger than 55).	n=261	USA	UCLA-LS	Loneliness	10-item short form of the Geriatric Depression Scale (GDS)	Depression	No	Higher levels of loneliness were significantly and positively associated with depressive symptoms.
Moore et al (2021)	Female and male; Average age: 18-65 years (M=40 years; SD=10.3); 62.5% identified as white, 23.8% identified as Black, 1.3% identified as Asian, 6.3% identified as Native American or Alaskan Native, and 12.5% identified as other race; 81.8% identified as non-Hispanic; Never married (58.5%); Rage of incarceration: 6 to 488 months (M=78, SD=88.6); Men (M=97 months, SD=98.0) incarcerated longer than women (M=34 months, SD=32.4).	n=160	USA	MSPSS UCLA-LS	Loneliness Perceived social support	HRSD QIDS	Depression	No	Perceived social support was negatively correlated with depressive symptoms. Loneliness was positively correlated with depressive symptoms.
Brown & Day (2008)	Male prisoners; Mean age: 31 years; Average length of time on remand was 16 weeks; Australian (70%), Australian Aboriginal/Torres Strait Islander (18.3%), French (1.7%), Chinese/Cambodian (1.7%), Turkish (1.7%), Irish (1.7%), Macedonian (1.7%), and Serbian (1.7%).	n=60	Australia	MSPSS UCLA-LS	Loneliness Perceived social support	DHS	Depression	No	Depressive symptoms were associated with prisoners that have a higher level of loneliness. There was no significant difference found between the levels of depressive symptoms and the levels of perceived social support. .

Note - MSPSS (Multidimensional Scale of Perceived Social Support); UCLA-LS (UCLA Loneliness Scale); HRSD (Hamilton Depression Rating Scale); BDI (Beck Depression Inventory); STAI (State-Trait Anxiety Inventory); GDS (Geriatric Depression Scale); QIDS (Quick Inventory of Depressive Symptomatology); DHS (Depression, Hopelessness and Suicide Screening Form-03).

Table 1 - Summary table with the characteristics of the included studies.

Authors/ Year	Sample Characteristics	Sample size	Country	Social contacts instruments	Type of social contacts	CMD instruments	CMD	Formal diagnosis of CMD	Findings
Loneliness									
Longitudinal studies									
Wielinga et al (2019)	Male prisoners; The mean age of the sample: 42.1 years (SD = 1.1; range 19.7–80.5); 73.6% were White, 17.2% were of Indigenous or Métis descent, 4.5% Asian, 2.9% Black, and 1.7% were other or unknown; All men had at least one or more index convictions for contact sexual offenses; 40.4% had at least one prior conviction for a sexual offense.	n= 348	Canada	UCLA-LS	Loneliness	BDI-II SAD	Depression Anxiety	No	Social connectedness was negatively correlated with depressive symptoms, whereas isolation was positively correlated with depressive symptoms. Social connectedness and isolation were both positively correlated with anxiety symptoms.
Felton et al (2020)	Male (67.3%) and female (32.7%) inmates; Age: 20 to 61 years (M=39.61; SD= 10.45); Ethnicity: 61.9% White; 23.2% Black/African-American, and 14.9% identifying as another race/ethnicity.	n=168	USA	MSPSS UCLA-LS	Loneliness Perceived social support	HAM-D PCL-C	Depression PTSD	Yes	Perceived social support was negatively correlated with PTSD and depression. Loneliness was positively correlated to PTSD and depression.

Note - MSPSS (Multidimensional Scale of Perceived Social Support); UCLA-LS (UCLA Loneliness Scale); HAM-D (Hamilton Depression Rating Scale); PCL-C (Posttraumatic Stress Disorder Checklist – Civilian Version); BDI-II (Beck Depression Inventory – Second Edition); SAD (Social Avoidance and Distress Scale).

Perceived social support

A total of 19 studies examined the relationship between perceived social support and CMD in prisoners (22, 24, 27, 49-63).

Depression

Eighteen studies (22, 24, 27, 49-55, 57-63) investigated the association between perceived social support and depression. Ten cross-sectional studies reported a negative relationship (22, 51, 52, 54, 57-59, 62-64) indicating that higher levels of perceived social support from family, friends and significant others were associated with lower levels of depressive symptoms, influencing prisoners' psychological adjustment (52, 57). Inmates with strong perceived social support and satisfaction with their social relationships were less likely to be depressed (51, 54). Conversely, those who received low to medium support from friends had 1.7 times higher odds of experiencing high levels of depressive symptoms compared to those who received high support (63). On the other hand, low family support and low perceived support from a committed partner were associated with depressive symptoms, but not with low friend support (64). In one study, social support emerged as a factor associated to depressive symptoms, with inadequate social support correlating with more severe depression symptoms (52).

While the majority of the studies consistently found an association between perceived social support and depressive symptoms, three studies reported no significant relationship between them (27, 49, 50), whereas one study (24) indicated that internal social support inside the jail was not associated with depressive symptoms.

Several variables played a role in shaping the relationship between perceived social support and CMD, including having a friend inside prison, prisoner residence before imprisonment, psychological resilience, marital status, and gender. In one study, having a friend inside the correctional institution and the prisoner's residence before imprisonment, significantly affected the level of perceived social support (54). Prisoners who did not form any friendships in the correction center had significantly lower perceived social support and prisoners residing in rural areas before imprisonment had lower perceived social support compared to those in urban areas (54). In two studies, resilience emerged as a mediator between perceived social support and depression, acting as a protective factor (22, 57). Marital status also affected this relationship, with married prisoners perceiving higher levels of social support (24, 57, 62, 63). However, one study reported that married inmates exhibited greater depression and anxiety than unmarried inmates (24). In four studies (24,

54, 59, 63), females presented higher levels of depressive symptoms compared to males. Nonetheless, in one of these studies, male inmates were found to have two times higher odds of experiencing higher levels of depressive symptoms compared to females (63), whereas being male was associated with a decrease in perceived social support in two studies (24, 63).

Four longitudinal studies (53, 55, 60, 61) supported the cross-sectional findings, indicating that high levels of perceived social support, may result in reduced depressive symptoms. Furthermore, three studies involved participants with a formal diagnosis of depression, and all of them reported a negative relationship between perceived social support and depression severity (55, 60, 62). In one study, being female was associated to an increase in perceived social support and higher levels of depression (55).

Anxiety

Three studies (24, 52, 57) examined anxiety and its relationship with perceived social support. In two studies, this relationship was negative, with higher levels of perceived social support associated with lower levels of anxiety symptoms (52, 57). However, in one study (24) social support within jail was not associated with lower anxiety levels.

When exploring factors influencing the relationship between social contacts and anxiety, two studies found that married inmates had higher scores in perceived social support (24, 57). Additionally, marital status played a significant role in predicting distress levels for males compared to females (24). In one study, social support emerged as a significant predictor of anxiety symptoms only among female offenders (52).

None of the studies was longitudinal, and there were no studies assessing perceived social support levels in clinically diagnosed inmates with anxiety.

Post-traumatic stress disorder (PTSD)

Only two studies examined the relationship between perceived social support and post-traumatic stress disorder (55, 56). One was cross-sectional and suggested that inmates with the dissociative subtype of PTSD (D-PTSD) reported lower perceived social support compared to other PTSD subtypes, indicating social support as an important protective factor of D-PTSD (56). The other study was longitudinal, indicating that larger decreases in social support were associated with higher PTSD levels (55), confirming the

findings from the cross-sectional study. For both studies, participants had a formal PTSD diagnosis (55, 56).

Regarding the examination of factors that might have influenced this relationship, only one study reported that being female was associated with higher levels of perceived social support (55).

Objective social support

A total of 13 studies examined the relationship between objective social support and CMD, more specifically depression (26, 32, 50, 51, 53, 65-72) and anxiety (26, 32, 66, 67).

Depression

Twelve studies investigated the relationship between objective social support and depressive symptoms (26, 32, 50, 51, 53, 66-72), while one examined the association between social support and clinical depression (65). Incarcerated individuals with moderate or strong objective social support were 51 and 64% less likely to have major depressive disorder, respectively, compared to those with poor social support (66). Conversely, prisoners reporting poor objective social support were three times more likely to experience depression than those with strong social support (69, 72). Furthermore, depressive symptoms were positively correlated with being visited by a friend outside prison and negatively correlated with phone calls and letters (26). The size of one's carceral network also played a role (51), as most integrated inmates were less likely to be depressed (71). However, having a trusted peer inside prison was related to higher levels of depression (32), emerging as a risk factor (32, 51). Longitudinal findings confirmed the negative impact of having few social support figures on depressive symptoms (53). However, four studies (50, 67, 68, 70) did not find a significant relationship between inmate objective social support (67) and depression.

There was only one study, with participants diagnosed with depression, indicating that those who did not receive visits reported higher levels of depression (65).

Anxiety

Four studies examined the association between objective social support and anxiety (26, 32, 66, 67). One study reported that prisoners with strong social support were 75% less likely to develop anxiety symptoms (66). Contact with the outside world through visits and letters was associated to reduced anxiety symptoms (67). However, one study reported that

in-person visits by friends and family were positively correlated with anxiety symptoms, while phone calls from friends, family and children were negatively correlated (26). No longitudinal studies focused on this relationship.

When examining other factors that might have influenced this relationship, two studies reported that age was positively associated with anxiety symptoms (26, 66). In one study, having a trusted peer inside prison increased anxiety symptoms (32).

There were no studies with participants formally diagnosed with any of anxiety disorders.

Post-traumatic stress disorder (PTSD)

No study examined the association between objective social support and post-traumatic stress disorder (PTSD).

Loneliness

A total of six studies examined the relationship between loneliness and CMD, particularly depression (27, 55, 59, 73-75); anxiety (73, 74) and PTSD (55).

Depression

In six studies, higher levels of depressive symptoms were observed in incarcerated individuals with higher levels of loneliness (27, 55, 59, 73-75).

Two of these studies were longitudinal (55, 73). In one of them, loneliness was deconstructed into two concepts, inversely correlated with depressive symptoms: social connectedness had a negative relationship, while isolation had a positive relationship (73). Findings aligned with cross-sectional results and remained consistent with the findings among prisoners diagnosed with depression (55).

Anxiety

Two studies assessed the relationship between loneliness and anxiety (73, 74) reporting a positive correlation between the two. One study was longitudinal, reporting that both social connectedness and isolation were positively correlated with anxiety symptoms (73).

Post-traumatic stress disorder (PTSD)

Only one longitudinal study examined the relationship between loneliness and PTSD reporting that increased levels of loneliness were associated with higher levels of PTSD symptoms in participants diagnosed with PTSD (55).

Discussion

Key findings

Most studies focused on depressive symptoms and their relationship with various facets of social contacts. The findings demonstrate a negative relationship between perceived social support and depressive symptoms in prisoners. Low perceived family support and support from a committed partner are associated with higher levels of depressive symptoms, although low friend support is not consistently tied to depression. Regarding anxiety, higher levels of perceived social support are linked to lower anxiety levels. With respect to objective social support, external contacts influenced depressive symptoms. Visits from family members, children, and friends were positively linked to depression and anxiety, while phone calls and letters had a negative impact on prisoners' mental health. However, in some studies, visits from outside prison friends were linked to lower depression levels. The carceral network size, reflecting integration within the prison community, was negatively correlated with depressive symptoms, indicating that inmates more integrated within the prison were less likely to be depressed. However, having a trusted peer inside prison was associated with higher levels of depression, indicating increased psychological distress. Longitudinal studies support the cross-sectional findings, confirming initial evidence of social support (perceived and objective) influencing the symptoms of anxiety, depression, and PTSD. Regarding loneliness, increased feelings of loneliness were linked to symptoms of depression, anxiety, and PTSD.

Comparison with the literature

In this systematic review, we investigated the association between social contacts and depression, in which perceived social support consistently exhibited a negative correlation, suggesting that perceived social support plays a critical role in mitigating depressive symptoms among prisoners. Prior research in the general population suggested that perceived support is more influential than received support in affecting depression, acting as a protective factor (29). Lower perceived social support tends to predict more severe symptoms and poorer recovery/remission among individuals with clinical depression (30). Similar to our review, previous research has also identified that lower perceived social

support is associated with more severe anxiety symptoms and poorer remission from anxiety disorders (30).

With respect to objective social support, in our systematic review, in-person visits were associated with increased psychological distress, including depression and anxiety, whereas support through letters and phone calls was associated with lower anxiety and depressive symptoms. These findings confirm previous research where larger social networks, combining close family relationships and diverse peer networks, were associated with lower depression risk (29). However, visitations can be emotionally challenging for both inmates and their visitors, as the prison environment can be harsh, and the emotional toll of seeing loved ones behind bars can lead to stress and anxiety, especially for females who are mothers (76), as it can be difficult for children to visit them.

As most studies included in this review are cross-sectional, causality between social contacts and CMD cannot be inferred. One can contribute to the other in an interactive manner. CMD can lead to poor social support, as friends and family members may struggle to understand or connect with someone experiencing these conditions. An important consideration for interpreting this relationship is that individuals with depression are prone to evaluating their social support as insufficient and experiencing emotional isolation (30). Conversely, those experiencing mental health challenges may struggle to establish or maintain social support networks (77) within the confines of the prison, further exacerbating their mental symptoms (28, 30). The absence of a reliable network of friends, family, or peers can leave individuals vulnerable to the negative impact of stressors and emotional distress, increasing their risk of experiencing mental health issues (77).

In our review, we found that resilience can act as an intermediary factor that influences the strength and direction of this relationship. Prior research reported that incarcerated individuals with access to social support networks may be more resilient in coping with the challenges of prison life and may experience improved mental well-being (30).

Regarding loneliness, a positive relationship with depression is suggested; as feelings of loneliness increase, so do symptoms of depression. Past studies reported that greater loneliness is associated with more severe depression and anxiety symptoms and poorer remission from depression (30), suggesting that feeling socially connected in relationships that offer proximity and belongingness appears to protect against depression (29). In the context of incarceration, physical separation from society, limited social interactions, loss of personal autonomy and restricted communication with the outside world create an environment that fosters loneliness (78).

Strengths and limitations

This systematic review represents the first comprehensive examination of the relationship between social contacts and CMD among prisons inmates. A main strength was that to comprehensively capture the multifaceted nature of social contacts, our review encompasses both subjective and objective dimensions of social support and loneliness. This enhances our understanding and provides a holistic perspective on the role of social contacts in the context of CMD. Furthermore, in our extensive search there were no language restrictions. This approach allowed us to incorporate valuable insights from diverse countries, lending credibility to our findings and underscoring their international relevance. Additionally, we selected studies that employed well-established scales for assessing CMD which have undergone rigorous psychometric testing, ensuring the reliability and validity of the data underpinning our review.

However, this review also has limitations. In the existing literature there are methodological issues concerning the measurement of social support, which may restrict the inferences we can make from the studies. Notably, some studies assessed objective social support using single-item questions rather than validated instruments. This limitation hinders our ability to make direct comparisons across studies and may have influenced the conclusions. The CASP Checklist for cohort studies use may have influenced our conclusions on the study quality assessment, as the majority of the included studies were cross-sectional. Furthermore, this review did not delve into an in-depth examination of the nature of the relationship between social support and CMD, as qualitative evidence was beyond our scope. Lastly, the studies primarily focused on depression, anxiety, and post-traumatic stress disorder (PTSD), limiting insights into a broader spectrum of mental health conditions.

Research and practice implications

Understanding the relationship between social contacts and prisoners' mental health has significant implications for both research and clinical practice (32, 71, 72). This review reports a relationship that may indicate that social contacts impact CMD. However, it is crucial to expand research to explore the inverse relationship, i.e. investigating whether greater social support is associated with a lower risk of mental disorders, or whether the presence of mental disorders among prisoners is correlated with reduced social support. they receive. This bidirectional approach will allow for a more comprehensive and accurate

understanding of the dynamics between social support and mental health in the prison context. It is also important to highlight the importance of raising awareness about the role of social contacts outside prison as a preventive strategy in the development of mental disorders. Furthermore, it is crucial to recognize the complexity of the role of friendships in prison, as the relationship with depression is not consistent. Interventions that strengthen social bonds through family visits and communication by telephone and letter may be beneficial, although the specific impact of each form of contact must be carefully considered, and intervention strategies must be sensitive to these nuances and adaptable to individual needs.

In clinical practice, it is imperative to adopt a holistic approach to assessment, which considers both the quality and quantity of social contacts as essential elements for understanding the psychosocial context of inmates. This comprehensive approach empowers healthcare professionals to adjust treatment plans in a more informed and personalized way, recognizing the significant impact that social interactions can have on individuals' mental health. In this way, clinical assessment covers not only medical aspects, but also considers the complexity of social relations as an intrinsic component of comprehensive care for prisoners.

Prison mental health services employ various approaches, including group therapy (55), peer-support initiatives (79), and educational programs (80), aiming to enhance social interactions and social support networks. These initiatives also work to combat the stigma associated with having incarcerated family members and champion legal and policy changes facilitating inmate connections with their support networks. Peer-support programs within prisons play a pivotal role in addressing mental health challenges, fostering an empathetic and supportive environment that helps inmates navigate the unique stressors of incarceration (79). Social connections can serve as a motivating factor, particularly when limited social support results from CMD like depression rather than causing them.

Future longitudinal research is needed to establish causality and clarify the direction of effect in the relationship between social contacts and CMD. Cross-national or cross-regional comparative studies could examine variations in social contact dynamics and their outcomes within different prison systems, thereby highlighting best practices and areas for improvement. Understanding how cultural, racial, and social factors intersect with social support and mental health would promote culturally sensitive research approaches in the future.

Notably, studies on loneliness in prisons are scarce, and further research should be conducted as it may impact inmates' mental health (28-30), particularly within this constricted environment.

Conclusions

It is imperative that prisoners have social contacts, both within and outside prison. Allowing inmates to have social connections with fellow prisoners can be beneficial, as peer-support and a sense of community can help individuals in coping with the challenges of incarceration. It is essential to support external social contacts with immediate family members, children, and spouses, as they can help reduce recidivism rates and provide a strong support network for individuals upon their release. However, the extent and nature of these contacts should be subject to case-by-case assessment and may require supervision, especially in cases involving violent or high-risk offenders. Balancing the need for social contacts with the need for public safety is crucial in the management of prisoners' interactions, both inside and outside the prison.

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APPENDIXES

Appendix I. Quality assessment of the included studies.

	SECTION A: Study validity								SECTION B: Results precision		SECTION C: Contribution to local context		
Authors/year	1. Did the study address a clearly focused issue?	2. Was the cohort (sample) recruited in an acceptable way?	3. Was the exposure accurately measured to minimise bias?	4. Was the outcome accurately measured to minimise bias?	5. (a) Have the authors identified all important confounding factors?	5. (b) Have the authors taken account of the confounding factors in the design and/or analysis?	6. (a) Was the follow up of subjects complete enough?	6. (b) Was the follow up of subjects long enough?	8. Are the results accurate?	9. Are the results valid?	10. Can the results be applied to the local population?	11. Do the results of the study fit with other available evidence?	12. Are the implications included in the study?
Cross-sectional studies													
Haynie et al (2018)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Scanlon et al (2018)	YES	YES	YES	YES	NO	NO	N/A	N/A	YES	YES	NO	YES	YES
Geng et al (2023)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	NO
Archuleta et al (2020)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	CAN'T TELL
Kreager et al (2016)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Asberg & Renk (2014)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Celinska & Fanarraga (2022)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	NO	YES	YES
Moore et al (2021)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	YES	YES	YES
Lindquist (2000)	YES	YES	YES	YES	NO	YES	N/A	N/A	NO	YES	YES	YES	YES

Appendix I. Quality assessment of the included studies.

	SECTION A: Study validity								SECTION B: Results precision		SECTION C: Contribution to local context		
Authors/year	1. Did the study address a clearly focused issue?	2. Was the cohort (sample) recruited in an acceptable way?	3. Was the exposure accurately measured to minimise bias?	4. Was the outcome accurately measured to minimise bias?	5. (a) Have the authors identified all important confounding factors?	5. (b) Have the authors taken account of the confounding factors in the design and/or analysis?	6. (a) Was the follow up of subjects complete enough?	6. (b) Was the follow up of subjects long enough?	8. Are the results accurate?	9. Are the results valid?	10. Can the results be applied to the local population?	11. Do the results of the study fit with other available evidence?	12. Are the implications included in the study?
Cross-sectional studies													
Brown & Day (2008)	YES	CAN'T TELL	YES	YES	NO	NO	N/A	N/A	YES	YES	NO	YES	CAN'T TELL
Tripathy et al (2022)	YES	YES	NO	YES	YES	YES	N/A	N/A	YES	YES	NO	YES	YES
Benavides et al (2019)	YES	YES	NO	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Dadi et al (2019)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	YES	YES	NO
Li et al (2022)	Yes	YES	NO	YES	NO	YES	N/A	N/A	NO	YES	NO	YES	CAN'T TELL
Cooper & Berwick (2001	YES	CAN'T TELL	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	CAN'T TELL
Mengesha et al (2023)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	YES	YES	YES
Huang et al (2020)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	YES	YES	NO
Gizatullina (2014)	YES	CAN'T TELL	YES	YES	NO	NO	N/A	N/A	YES	YES	YES	YES	NO

Appendix I. Quality assessment of the included studies.

	SECTION A: Study validity								SECTION B: Results precision		SECTION C: Contribution to local context		
Authors/year	1. Did the study address a clearly focused issue?	2. Was the cohort (sample) recruited in an acceptable way?	3. Was the exposure accurately measured to minimise bias?	4. Was the outcome accurately measured to minimise bias?	5. (a) Have the authors identified all important confounding factors?	5. (b) Have the authors taken account of the confounding factors in the design and/or analysis?	6. (a) Was the follow up of subjects complete enough?	6. (b) Was the follow up of subjects long enough?	8. Are the results accurate?	9. Are the results valid?	10. Can the results be applied to the local population?	11. Do the results of the study fit with other available evidence?	12. Are the implications included in the study?
Cross-sectional studies													
Wittenborn et al (2020)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	YES	YES	YES
Aquino (1992)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Whitney-Gildea (2001)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Alboukordi et al (2010)	YES	CAN'T TELL	YES	YES	NO	NO	N/A	N/A	CAN'T TELL	YES	NO	YES	NO
Çıvgın & Gün (2022)	YES	CAN'T TELL	YES	YES	NO	YES	N/A	N/A	YES	YES	YES	YES	YES
Yaacob et al (2022)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	YES	YES	YES
Luo et al (2012)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	NO	YES	YES
Birkie et al (2022)	YES	YES	YES	YES	NO	YES	N/A	N/A	YES	YES	YES	YES	NO
Merten et al (2012)	YES	YES	YES	YES	YES	YES	N/A	N/A	YES	YES	NO	YES	YES

Appendix I. Quality assessment of the included studies.

	SECTION A: Study validity								SECTION B: Results precision		SECTION C: Contribution to local context		
Authors/year	1. Did the study address a clearly focused issue?	2. Was the cohort (sample) recruited in an acceptable way?	3. Was the exposure accurately measured to minimise bias?	4. Was the outcome accurately measured to minimise bias?	5. (a) Have the authors identified all important confounding factors?	5. (b) Have the authors taken account of the confounding factors in the design and/or analysis?	6. (a) Was the follow up of subjects complete enough?	6. (b) Was the follow up of subjects long enough?	8. Are the results accurate?	9. Are the results valid?	10. Can the results be applied to the local population?	11. Do the results of the study fit with other available evidence?	12. Are the implications included in the study?
Longitudinal studies													
Borelli et al (2010)	YES	Yes	YES	YES	NO	YES	YES	YES	YES	YES	NO	YES	YES
Felton et al (2020)	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES
Salina et al (2011)	YES	CAN'T TELL	YES	YES	NO	NO	YES	YES	YES	YES	NO	YES	YES
Shrestha et al (2017)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES
Wielinga et al (2019)	YES	CAN'T TELL	YES	YES	NO	NO	YES	YES	YES	YES	NO	YES	YES

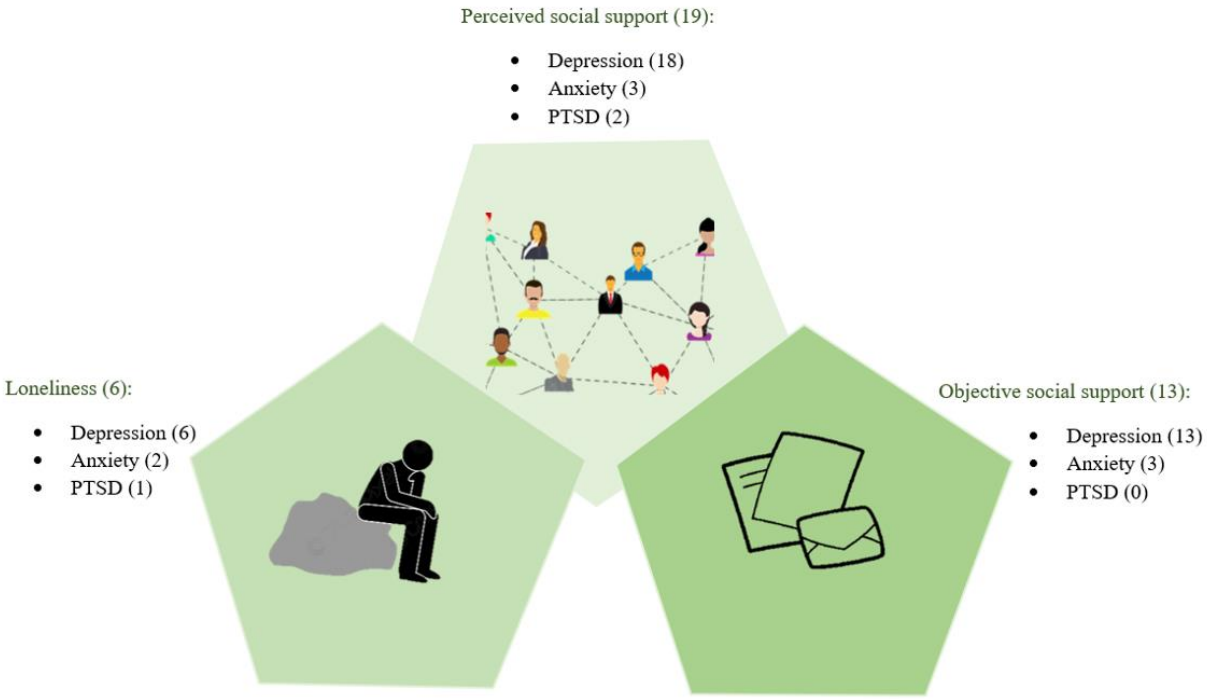
Appendix II. Justifications for the excluded full text studies.

Authors	Title	Reasons for exclusion
Skowronski & Talik (2023)	Psychophysical quality of life and its determinants in prisoners: the role of selected psychosocial factors	Not CMD (personality traits)
Pettus-Davis (2014)	Social support among releasing men prisoners with lifetime trauma experiences	Does not answer the research question
Rogers et al (2022)	Coping, aggression, perceived social support and demographic variables as predictors of prison adjustment among male incarcerated offenders	Does not answer the research question
Johnson et al (2019)	Randomized cost-effectiveness trial of group interpersonal psychotherapy (IPT) for prisoners with major depression	No use of a validated instrument to assess CMD
Beaurepaire & Bénézech (2008)	Violence in prison	Qualitative study
Koenig et al (1995)	Depression and anxiety disorder among older male inmates at a federal correctional facility	No use of a validated instrument to assess CMD
Aureli et al (2020)	Can the chronic exclusion-resignation link be broken? An analysis of support groups within prisons	Does not answer the research question
Richie et al (2021)	Social Support and Suicidal Ideation Among Prisoners with Major Depressive Disorder	Not CMD: suicidal ideation
Rivlin et al (2013)	Psychosocial characteristics and social networks of suicidal prisoners: towards a model of suicidal behaviour in detention	Not CMD: suicidality
Sedivy et al (2021)	Suicidal behaviour and quality of life in Slovene prisons	Not CMD: suicidal behavior
Skarupski et al(2016)	The association of adverse childhood experiences with mid-life depressive symptoms and quality of life among incarcerated males:exploring multiple mediation	Does not answer the research question
Georgiadis et al (2016)	The social, relational and mental health characteristics of justice- involved men in the south-west England	Does not answer the research question
Fogel & Belyea (2001)	Psychological risk factors in pregnant inmates. A challenge for nursing	Does not answer the research question
Wittouck et al (2016)	Correlates of suicidal ideation in incarcerated offenders: a pilot studyin three Belgian prisons	Not CMD: suicidal ideation
Booth (1989)	Health status of the incarcerated elderly: Issues and concerns	Qualitative study
Chen (2006)	Social support, spiritual program, and addiction recovery	Does not answer the research question
Plant & Taylor (2012)	Recognition of problem drinking among young adult prisoners	Does not answer the research question
Ruiz (2007)	Psychological symptoms, emotional climate, culture, and psychosocial factors in prisons	Qualitative study
Dutton et al (1994)	Traumatic responses among battered women who kill	Does not answer the research question
Galván et al (2006)	La importancia del apoyo social para el bienestar físico y mental de las mujeres reclusas.	Qualitative study
Lindquist (1997)	Life behind bars: Environmental congruence, social support, andmental distress among jail inmates	Not a primary study
Buitrago et al (2015)	Suicidal risk factor and associated factors in female inmates of aprison in Caldas (Colombia): cross sectional study	Not CMD: suicidal risk
Easton (2018)	Older prisoners, gender, and family life	Qualitative study

Authors	Title	Reasons for exclusion
Baranauskiene et al (2020)	The social-psychological factors influencing women-prisoners feeling of loneliness	No validated instrument to measure common mental disorders
Johnson & Zlotnick (2008)	A pilot study of group interpersonal psychotherapy for depression in substance-abusing female prisoners	Does not answer the research question
Dhingra et al (2015)	Suicide attempts among incarcerated homicide offenders	No use of a validated instrument to assess CMD
Levitt & Loper (2009)	The influence of religious participation on the adjustment of female inmates	Social support from religious activities
Glllls et al (1998)	Some psychological dimensions of mentally retarded sex offenders	Does not answer the research question
Bolano et al (2016)	Detained and distressed: Persistent distressing symptoms in a population of older jail inmates	Does not answer the research question
Malcome et al (2019)	Weathering Probation and Parole: The Protective Role of Social Support on Black Women's Recent Stressful Events and DepressiveSymptoms	Does not answer the research question
Rocha et al (2015)	Cognitive function is associated with prison behavior among women in prison but not with subjective perception of adjustment to prison	Does not answer the research question
Aday (2006)	Aging prisoners' concerns toward dying in prison	Not CMD: death anxiety
Adlirna et al (2007)	The factors, effects, and management of stress among wardens and prisoners in Selangor	No use of a validated instrument to assess CMD
Gamman (1995)	Hazardous health effect of isolation. A clinical study of 2 groups of persons in custody.	Does not answer the research question
Way et al (2005)	Factors related to suicide in New York state prisons	Does not answer the research question
Murphy - Peaslee (1993)	An investigation of incarcerated females: Rorschach indices and psychopathy checklist scores	Does not answer the research question
Gottfried et al (2016)	The Associations Between the Minnesota Multiphasic PersonalityInventory-2-Restructured Form and Self-Reported Physical and Sexual Abuse and Posttraumatic Symptoms in a Sample of Incarcerated Women	No use of a validated instrument to assess CMD
Caravaca-Sanchez etal (2022)	Latent class analysis of self-reported substance use during incarceration: Gender differences and associations with emotionaldistress and aggressiveness	Does not answer the research question
Edwall et al (1989)	Females incarcerated for assaultive crimes: Differential personality and demographic variables	Does not answer the research question
Ruiz Pérez et al (2005)	Mental morbidity and social support in prisoners in treatment with antiretrovirals	No use of a validated instrument to assess CMD
Jiang et al (2014)	The Impact of Prison Adjustment Among Women Offenders: ATaiwanese Perspective	No use of a validated instrument to assess CMD
Görgülü & Tutarel-Kişlak(2014)	Submissive behaviors, depression and suicide probability in male arrestees and convicts	Does not answer the research question
Mowen et al(2020)	Strain and Depression following Release from Prison: The Moderating Role of Social Support Mechanisms on Substance Use	No use of a validated instrument to assess CMD
Wulf-Ludden (2016)	Pseudofamilies, Misconduct, and the Utility of General Strain Theory in a Women's Prison	Does not answer the research question
Cox et al (1984)	Prison crowding research: The relevance for prison housing standards and a general approach regarding crowding phenomena	No use of a validated instrument to assess CMD
Nargiso et al (2014)	Social support network characteristics of incarcerated women with co-occurring major depressive and substance use disorders	Not CMD: substance use disorders
Coticchia & Putnam (2021)	Effects of a correspondence-based educational program on prisoner loneliness, self-esteem, and depressive symptoms	Does not answer the research question

Soto Blanco et al (2005)	Adherence to antiretroviral therapy among HIV-infected prison inmates (Spain)	Does not answer the research question
Gonçalves et al (2020)	Prison Visitation and Mental Health in Detained Young Adults	Sample with less than 18 years
Marzano et al (2011)	Psychosocial influences on prisoner suicide: a case-control study of near-lethal self-harm in women prisoners	Not CMD: self-harm
Murdoch et al (2008)	Depression in elderly life sentence prisoners	Does not answer the research question
Kothari et al (2022)	Locked Up and Locked Down: How the Covid-19 Pandemic has Impacted the Mental Health of Male Prisoners and Support Staff	No use of a validated instrument to assess CMD
Caravaca-Sánchez et al (2023)	Mental health, substance abuse, prison victimization and suicide attempts amongst incarcerated women	Not CMD: suicidality

Appendix III. Figure of studies distribution by social contacts' type.



Note - There are studies that examine several CMDs simultaneously.

Appendix IV. PRISMA checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Cover page
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page vi
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 1,2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 2
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 2
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 2,3,4
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 2,3
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page 2,3
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page 3
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 3

Appendix IV. PRISMA checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	N/A
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 3, 4
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	N/A
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 3
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 2,3,4 Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Appendix II
Study characteristics	17	Cite each included study and present its characteristics.	Page 3,19
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Appendix I
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	N/A

Appendix IV. PRISMA checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	N/A
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page 19,20
	23b	Discuss any limitations of the evidence included in the review.	Page 21
	23c	Discuss any limitations of the review processes used.	Page 21
	23d	Discuss implications of the results for practice, policy, and future research.	Page 21,23
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 2
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 2
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	N/A
Competing interests	26	Declare any competing interests of review authors.	N/A
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Table 1

Appendix V – Presentations and publications linked with this study.

1. Oral communication of this study's project to the students of the second year of the MSc in Legal Medicine on December 3rd, 2023.
2. Oral communication of the theme "The relationship of social contacts with prisoners' mental health: a systematic review" in the IJUP (Investigação Jovem da Universidade do Porto) congress on May 10th, 2023.
3. The article by Nicole Machado, Lee Abreo, Eleni Petkari and Mariana Pinto da Costa with the title "The relationship of social contacts with prisoners' mental health: a systematic review" was submitted for publication (under review).