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REVIEW

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Reproductive health needs of incarcerated women in developed countries: a mixed-method systematic review

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Abstract

Background With the increasing number of women prisoners under 45 years of age, identifying the reproductive health needs of these marginalized women has become crucial for providing healthcare and improving their well-being. This systematic review aims to determine the reproductive health needs of incarcerated women in developed countries.

Methods In this systematic review, four electronic databases (PubMed, Scopus, Web of Science, and Google Scholar) were searched until January 2023. The methodological quality of the included studies was assessed using the Mixed Methods Appraisal Tool. Qualitative studies were analyzed using thematic synthesis.

Results Seventeen studies were selected and analyzed narratively. The reproductive health needs of incarcerated women were classified into four main categories: preventive care, medical care, childbearing care, and health-promoting services. Key needs included appropriate screening tests, infection control practices, medical and psychological services, pregnancy-related care, parenting services, family planning, hygiene, nutrition, and health education.

Conclusion This study highlights the need for tailored reproductive healthcare for incarcerated women. An all-inclusive strategy involving various stakeholders is required to improve the health status of these vulnerable women.

Keywords Reproductive health, Women, Prisons, Incarceration

Introduction

The global prison population exceeds 11.5 million, with women representing a growing proportion [1]. Over 740,000 women and girls are incarcerated worldwide, most under 45 years of age, necessitating attention to their reproductive healthcare needs. Studies indicate that imprisoned women require services for menstrual management, family planning, cancer screening, chronic disease management, abortion access, and prenatal, childbirth, and postpartum care [1–4].

The third goal of the Sustainable Development Goals (SDG) mandates adequate health services in prisons [5]. Studies in Canada and the US found that approximately 80% of incarcerated women have unmet contraception needs [6–8]. Internationally, incarcerated women have less access to prenatal care and higher rates of pregnancy complications, such as preterm birth and low birth weight, compared to the general population [9, 10]. Also, stress from incarceration can lead to higher rates of amenorrhea and menstrual irregularities, which are threefold more common than the general population [11, 12].

Furthermore, the National Commission on Correctional Health Care [13] and the American Congress of

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Obstetrics and Gynecology [14] have established standards for pregnancy-related healthcare in correctional facilities, comparable to community standards [15]. These include timely pregnancy recognition [13, 14], access to antenatal care and abortion services [13, 15], and continuity of care post-release [14]. Prisons should also provide screening and treatment for infectious diseases [13, 16], mental health, and substance-related disorders [13, 14, 16], along with pre- and post-release services [13, 17].

While previous studies have focused on contraceptive needs and pregnancy-related care, broader reproductive healthcare needs, such as cancer screening, medical examinations, sexual health, infection control, parenting services, and hygiene, have been overlooked. This systematic review aims to address these gaps by assessing reproductive health care needs of women in prison.

Materials and methods

This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist for systematic reviews [18]. Also, it is part of a master's dissertation at Tehran University of Medical Sciences, with ethical approval number IR.TUMS.FNM.REC.1401.121.

Search strategy

An intensive and systematic search of articles was conducted in databases including PubMed, Scopus, Web of Science, and Google Scholar, as well as the reference lists of retrieved articles through hand-searching, from 2000 to the end of January 2023. First, the related key words according to study objectives were selected, then the following search strategy was used:

1. "Pregnancy" OR "pregnant women" OR "prenatal care" OR "antenatal care" OR "postpartum care" OR "childbirth" OR "birth" OR "delivery" OR "reproductive health" OR "sexual transmitted health" OR "screening" OR "gynecological care" OR "sexual health" OR "Menstruation" OR "puberty" OR "maturity" OR "contraceptive" OR "contraception" OR "family planning" OR "health" OR "breast feeding" OR "childbearing".
2. "Prisoners" OR "jail" OR "jailed" OR "prison" OR "imprison" OR "convict" OR "felon" OR "incarcerate" OR "correctional" OR "inmate".
3. "Need" OR "problem" OR "requirement" OR "expectation" OR "perception".
4. "Woman" OR "women" OR "female".
5. "developed country" OR "high- income country"
6. #1 AND #2
7. #1 AND #2 AND #3 AND #4 AND #5

Eligibility screening

Studies were eligible for inclusion if they met the following criteria: 1. Studies published in peer-reviewed English journals whose full text was available, with transparent findings, 2. Studies in which participants were incarcerated women, 3. Original studies which were a qualitative, quantitative or mixed-method study of any type and review article, and 4. Were conducted in developed countries. Editorials, letters to the editor, commentaries, opinion pieces, policy briefs, newspapers and newsletters, and conference summaries were excluded.

Study selection

The initial search yielded 2358 results. The eligibility of these articles was hierarchical and initially made on the basis of the study title, followed by the study abstract and finally the full-text article. The selection of studies was independently performed by two reviewers (MM and MGh) and any disagreement was discussed until consensus was reached. Figure 1 demonstrated the process of study selection.

Quality appraisal

The Mixed Methods Appraisal Tool (MMAT) was used to assess methodological quality. Appraisal Tool (MMAT), a valid and reliable tool designed for use in systematic mixed studies reviews [19]. Studies were rated as low (meeting 2 criteria), medium (3 criteria), or high (4–5 criteria). Low-quality studies were excluded. Two reviewers (MM and MGh) independently conducted the appraisal, with disagreements resolved by consensus or consultation with other reviewers (MA and ZBM). Results were narratively integrated into the synthesis.

Data extraction

Two authors independently extracted data, including author, year, study design, geographic region, participants, and main results (Table 1). Disagreements were resolved through discussion.

Results

The results of this review identified the reproductive health needs of incarcerated women in four categories: preventive care, medical care, childbearing care, and health-promoting services (Table 2).

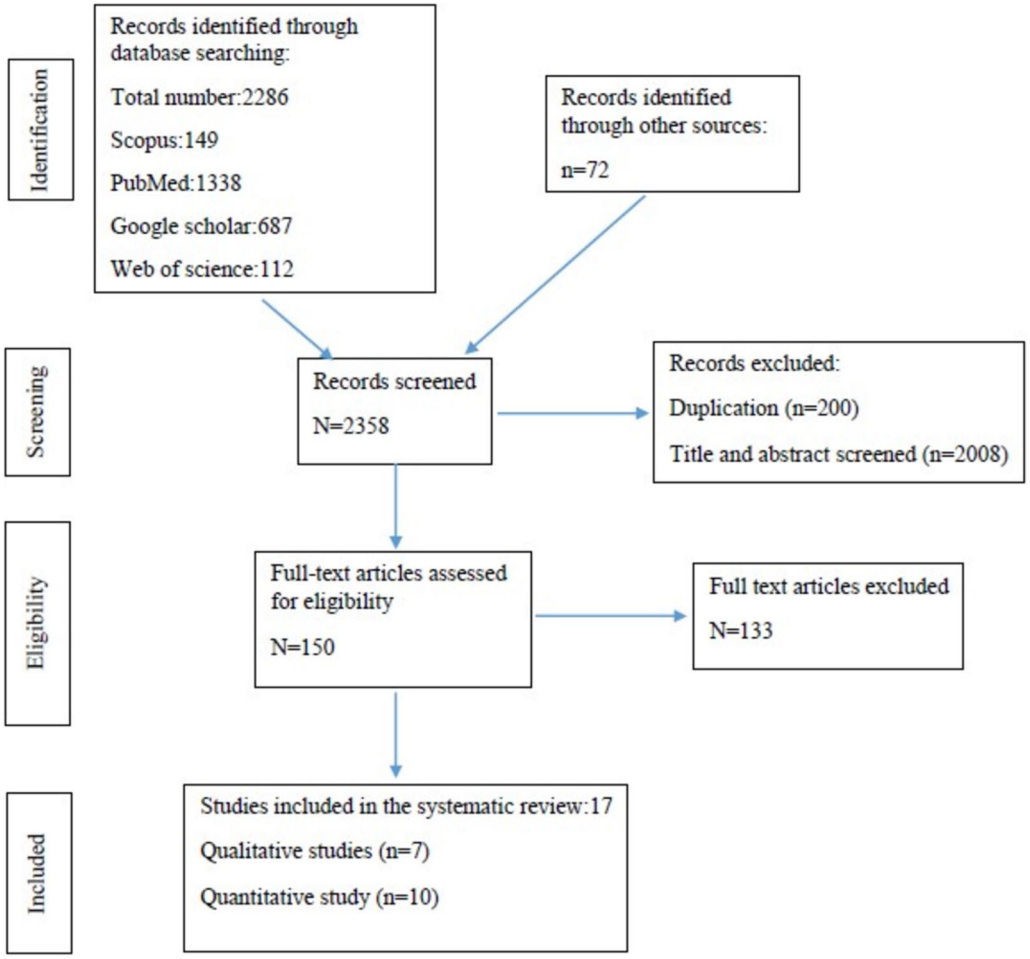

Fig. 1 Flow chart of selecting articles

Preventive care

This category refers to the significant needs of the majority of incarcerated women to ease access to preventive care services that provide all aspects of disease prevention that are essential for healthy life including screening services, timely and adequate access to infection control practices.

Appropriate screening care

Studies reported that imprisoned women require screening for cervical cancer immediately after entering prison, during incarceration, and even after discharge [20–22]. Also, a study demonstrated that some incarcerated women want to be tested for co-test including cervical smear human papilloma virus (HPV) DNA test instead of pap smear alone [20]. Mental health, sexual and drug abuse were other screening needs of these women [23, 24].

Additionally, some studies showed that the cost of screening services in prison should be appropriate and supported by the government or insurance organizations [20, 22, 23].

Infection control practices

Preventing infectious diseases such as HIV, TB, HPV, Hepatitis A/B/C, and STIs is a priority for incarcerated women [8, 21, 25–27]. Women entering prison should be tested for HIV, with timely antiviral therapy provided to reduce transmission risks [25]. Imprisoned women need preventive measures including free HIV test, condom access, and sterile needles [4, 27], as well as care to prevent mother-to-child HIV transmission during pregnancy and breastfeeding [21]. In addition, these women require adequate trained healthcare providers to provide appropriate time and confidential counselling services regarding controlling the spread of the HIV infection [23].

Table 1 Descriptive characteristics of included studies

Authors/year	Title	Country	Study design	Participants	Main results	MMAT score
Liauw/2021 [8]	Reproductive healthcare in prison: A qualitative study of women's experiences and perspectives in Ontario, Canada	Canada	Qualitative study	21 participants in a provincial prison	The data reflected three components of a reproductive justice framework: (1) women have limited access to healthcare in prison, (2) reproductive safety and dignity influence attitudes toward pregnancy and contraception, and (3) women in prison want better reproductive healthcare	4
Kouyoumdjian/2018 [20]	Cevical Cancer Screening Access for Women Who Experience Imprisonment in Ontario, Canada	Canada	Retrospective cohort study	4552 women in the prison group and 3 647,936 women in the general population group	- Women in the prison group had 2.20 times the odds of being overdue for cervical cancer screening compared with women in the general population	4
Sufrin/2009 [21]	Incarcerated Women and Abortion Provision: A Survey of Correctional Health Providers	USA	Cross sectional study	286 health professionals	- Lack of full access to abortion services	3
McConnon/2019 [22]	Colorectal and Breast Cancer Screening Status for People in Ontario Provincial Correctional Facilities	Canada	Retrospective cohort study	Correctional and breast cancer samples were 3803 and N = 249, respectively and in the general population 2,757,584 and N = 1,099,942, respectively	- Compared with the general population, people in the corrections group were 1.53 times more likely to be overdue for colorectal cancer screening and 2.25 times more likely to be overdue for breast cancer screening	4
Catz/2012 [23]	Prevention Needs of HIV-Positive Men and Women Awaiting Release from Prison	USA	Qualitative study	30 incarcerated HIV-positive men and women awaiting release from state prison	- Unmet information needs, - Social motivational barriers to risk reduction, - Personal motivational barriers, - Behavioral skills needs, - Stigma and privacy concerns	3
Ferszt/2012 [24]	Health care of pregnant women in U.S. state prison	USA	Descriptive study	Nineteen women's state correctional facilities	- Nutritional recommendations for a healthy pregnancy are not met, adequate rest is compromised and lower bunks are not required, - Psychosocial support and education are minimal at best, - The use of restraints, which can compromise the health and safety of the woman and her baby, continues as a matter of procedure in many facilities even during labor and delivery	3

Table 1 (continued)

Authors/year	Title	Country	Study design	Participants	Main results	MMAT score
Oswalt/2010 [25]	The Contraceptive Needs for STD Protection Among Women in Jail	USA	Descriptive study	188 incarcerated women	- Intended contraceptive use following release varied depending on women's ability to bear children, - Women planning to use condoms after release were more likely to have had an STD and more sexual partners than were women not planning to use condoms, These women appeared to need education about contraception methods and safe sex practices	3
Sufrin/2009 [26]	Contraception services for incarcerated women: a national survey of correctional health providers	USA	cross-sectional study	950 correctional health providers	- Contraception does not appear to be integrated into the routine delivery of clinical services to incarcerated women	3
Clarke/2006 [27]	Reproductive health care and family planning needs among incarcerated women	USA	Descriptive study	484 incarcerated women	- Being high risks for STDs and pregnancy, which was characterized by inconsistent birth control (66.5%) and condom use (80.4%), multiple partners (38%), and a high prevalence of unplanned pregnancies (83.6%) and STDs (49%)	3
Myers/2021 [28]	Jail as a Point of Contraceptive Care Access: Needs and Preferences Among Women in an Urban Jail	USA	Cross-sectional study	148 reproductive-age women (aged 18–48) incarcerate	- Having high interest in accessing contraceptives while in jail (73%) - Injectable, the implant, and intrauterine devices were more interested	3

Table 1 (continued)

Authors/year	Title	Country	Study design	Participants	Main results	MMAT score
Wenzel/2021 [29]	Contraceptive Needs Among Women Recently Incarcerated at a Rural Appalachian Jail	USA	Descriptive study	193 women Recently Incarcerated	- Most of pregnancies were unintended, - Ninety-four percent of women reported vaginal intercourse during the 3 months before jail - Only 46% of those who did not want to get pregnant reported consistent contraceptive use - Condoms and withdrawal were the most common methods used - Forty percent of women were eligible for emergency contraception (EC) - Most (78%) participants anticipated sex with a man within 6 months of release, and most (63%) did not want to become pregnant within a year of release - Almost half (47%) expressed interest in receiving birth control while in jail	3
Schroeder/2005 [30]	Doula birth support for incarcerated pregnant women	USA	Qualitative study	18 Incarcerated Pregnant Women	- Doula's support can help women have positive birth experiences	4
Thomson/2023 [31]	Evaluation of birth companions perinatal and peer support in English prison settings	UK	Exploratory mixed-methods study	Observations of support groups and peer support supervision sessions (n = 9); audio recorded interviews (n = 33) with prison and health-care staff, women in prison, peer supporters and BC staff	- Birth companions provided instrumental/practical support, emotional support, information support, signposting to services and advocating for women to the prison concerning their perinatal needs and rights Key themes revealed that support	5
Thomson/2023 [32]	Evaluation of Birth Companions perinatal support in prisons during the COVID-19 pandemic	UK	Qualitative study	nineteen participants (six women, eight Birth Companions, and five health/social care professionals)	- Facilitating support - Challenges in support provision	4
Kelsey/2017 [33]	An Examination of Care Practices of Pregnant Women Incarcerated in Jail Facilities in the United States	USA	Cross-sectional	53 jail facilities	- Only 37.7% of facilities pregnancy test all women upon entry, 45.7% put opioid addicted women through withdrawal protocol, and 56.7% of facilities use restraints on women hours after having a baby	3

Table 1 (continued)

Authors/year	Title	Country	Study design	Participants	Main results	MMAT score
Sapkota/2022 [34]	Navigating pregnancy and early motherhood in prison: a thematic analysis of mothers' experiences	Queensland	Qualitative study	Incarcerated mothers (n = 75)	- For most mothers, imprisonment adds vulnerability and isolation during pregnancy and childbirth - Although mothers felt that residing together with their children in prison motivated them to change for a better future, they were concerned about the potential negative impact of the prison environment on the child's development - Most mothers voiced losing autonomy and agency to practice motherhood independently within custodial settings	4

Table 2 categories and subcategories of reproductive health needs of women in prison

Categories	Sub-categories
Preventive care	Appropriate screening test
	Infection control practices
Medical care	Diagnostic and therapeutic services
	Psychological health services
Childbearing care	Pregnancy and childbirth care
	Parenting services
	Family planning services
Health promoting services	Hygiene and healthy nutrition
	Health education

Medical care

Some studies reported the incarcerated women require comprehensive diagnostic, therapeutic and counseling services [4, 20–22, 25, 26].

Diagnostic and therapeutic services

Two studies show that imprisoned women need well-equipped and standard medical clinics [21, 28]. Women need general health assessments, including dental, gynecological, and chronic disease evaluations (e.g., diabetes, hypertension, migraines, rheumatoid arthritis) [8, 26, 27] Also, these women want to have timely, equitable, and non-discriminatory therapeutic care [20, 21, 25, 26, 28, 29], alongside financial support through insurance [20, 22, 23, 28]. Furthermore, skilled healthcare providers must be consistently available [8].

Psychological health services

Confidential and private psychological health services are vital, including providing diagnostic and screening tests for psychological disorders of imprisoned women and their families [26, 30] They need counselling services for issues such as substance and sexual abuse, fears, sleep disorders, post-traumatic stress and self-harm disorders [26].

Appropriate childbearing care

This category is merged from three sub-categories: pregnancy and childbirth care, parenting services and family planning services.

Pregnancy and childbirth care

Incarcerated pregnant women require comprehensive prenatal care, including management of complications, routine check-ups, nutrient supplements, and standard lab tests [8, 24, 30, 31, 33, 34]. Additionally, they need healthy nutrition and an environment conducive to well-being [8, 24, 30, 31], adequate rest [8, 31], maternity clothing [24, 30, 31], and access to exercise facilities [24]. Furthermore, they require appropriate information and training regarding nutrition, rest, work, pregnancy care, and childbirth [24, 30, 31], as well as mental health screening and psychological support [24, 31].

Standard childbirth care should include access to doulas or companions, freedom of movement during labor [30], well-equipped birthing centers [30–32], rooming-in with newborns, and support for successful breastfeeding [24, 31]. Other essential needs include temporary leave from prison for childbirth and postpartum recovery, as well as consideration for reduced sentencing [24, 31].

Parenting services

Women need financial support for their children [24, 32], and access to welfare facilities such as kindergartens or shared living spaces [21, 24, 32]. Pediatric care and emergency hospital referrals must be available [21]. Mothers should have opportunities for face-to-face communication with their children outside prison [21] and receive counseling on custody and child-rearing [26, 35].

Family planning services

Women require voluntary, non-discriminatory access to family planning during and after incarceration [8, 25, 26, 28–30]. This includes continuous and understandable education and counseling services, as well as assessments of family planning preferences upon entry [8, 25, 28, 29]. Some women may need to continue therapeutic contraceptives (e.g., for menstrual regulation) or access emergency contraception as needed [26, 28, 29]. Affordable options, such as condoms [8, 29], intrauterine devices (IUDs) [8, 28], oral contraceptive pills (OCPs) [25], implants [28], Depot medroxyprogesterone acetate (DMPA) [28], and tubal ligation (TL) [8], should be available. Laws supporting family planning access and prohibiting forced sterilization are also critical [26].

Health-promoting services

This category encompasses hygiene and healthy nutrition and health education.

Hygiene and healthy nutrition

Imprisoned women require access to hygiene facilities, including clean toilet with proper ventilation, detergents and soaps, as well as clean clothes and hygienic living spaces [21]. Additionally, overcrowding exacerbates hygiene issues and increases the risk of disease [21].

Furthermore, nutritional needs must be addressed, including special diets for women with medical

conditions and age-appropriate diets for children [21, 24]. Also, standard food quality and quantity are essential [21].

Health education

Incarcerated women require education on preventing high-risk behaviors, infectious diseases, and screenings (e.g., for cervical and breast cancer) [21, 25, 28, 29], as well as pregnancy and childbirth care and positive parenting skills [30, 31, 33, 34]. Additionally, they need education on healthy lifestyles, including nutrition, physical activity, sexual health, and drug avoidance [21, 28]. This education must be continuous and easily understandable [21].

Discussion

This study is the first systematic review to synthesize qualitative and quantitative literature on the reproductive healthcare needs of imprisoned women. The findings highlight four key categories: preventive care, medical care, childbearing care, and health-promoting services. Preventive care focuses on cancer and infectious disease prevention, with reducing sexually transmitted infections (STIs) being a critical priority. Incarcerated women exhibit significantly higher rates of syphilis, chlamydia, gonorrhea, and HIV compared to the general population, largely due to unprotected sex, drug abuse, and mental health vulnerabilities [35, 36].

Medical care encompasses diagnostic, therapeutic, and counseling services. Providing counseling services is mandatory for women in prison because they report more mental health issues than physical disorders throughout their lifetimes compared to men [37, 38]. Mental health problems reported by women in jail include, but are not limited to, anxiety [39], suicidal ideation [40], depression [41], borderline personality disorder [42], and post-traumatic stress disorder [39].

Childbearing care is a significant concern, as many women enter prison while they are pregnant [44]. The World Health Organization and the United Nations emphasize the need for reproductive healthcare, including contraception and pregnancy-related services, in correctional settings [43]. Incarcerated pregnant women face challenges such as mental health struggles, dehumanizing prenatal care, lack of privacy, stigma, psychological trauma, lack of emotional support, and shackling during pregnancy and/or labor. Separation from newborns postdelivery is described as particularly devastating [45].

Childbirth can be a daunting experience even under the best of circumstances. For pregnant prisoners, labor and delivery may be anxiety-provoking due to a lack of control over the birth experience, limited health education, lack of support from family or friends, separation from the baby after delivery, and concerns about the baby's well-being. Therefore, childbirth support and education are especially important for women in prison, who are already at increased risk for complicated pregnancies [48]. Another important issue in the reproductive health of imprisoned women is related to mothers who are in prison during their breastfeeding period [49]. Maternal nutrition is a protective factor against developing depression during childbirth [50]. A mother's confinement can be very difficult, as separation from children can cause distress and anxiety [51, 52]. The fear of losing custody of their children is described as a "grave concern" among incarcerated mothers [53]. Notably, incarcerated mothers with children have a lower risk of suicide than incarcerated women without children [54]. There is a need to increase mental health support for pregnant and postpartum women in prison and to develop procedures and policies to support mothers and babies in this regard [55].

Additionally, women who enter prison are at high risk for unplanned pregnancies upon release due to a lack of access to contraception methods [46]. A comparative study found that women who had access to contraceptive services while incarcerated were more likely to start and continue using contraception after their release from prison compared to those who only began using contraception after release [7]. Furthermore, Peat and Knittel reported that incarcerated women desire access to standard and emergency contraception from carceral healthcare systems [47].

The strengths of this study include the breadth of resources reviewed, the use of appropriate search methods, and the narrative synthesis to integrate the findings. However, this study has some limitations. First, the heterogeneity of the studies reviewed restricts the interpretation of results. Second, the included studies were conducted in high-income countries such as the United States, the UK, and Canada, which limits the generalizability of these findings, particularly to middle- and low-income countries. Third, one notable aspect that seems to have been overlooked pertains to the potential influence of cultural nuances on the outcomes of the interventions examined in the included studies. Therefore, it is recommended that the significant effects of social and cultural aspects on the sexual and reproductive health (SRH) needs of incarcerated women in various countries be investigated.

Conclusion

The present study demonstrates that incarcerated women require comprehensive reproductive healthcare, including preventive, medical, childbearing, and health-promoting services. Key needs include screening, infection

control, medical and psychological care, pregnancy-related services, parenting support, family planning, hygiene, nutrition, and health education. To address these needs, health systems must implement training for medical providers, improve coordination among involved centers, and establish robust monitoring and evaluation systems. An all-inclusive strategy involving incarcerated women, communities, healthcare professionals, managers, healthcare schools, and other stakeholders is required to improve the health status of these marginalized women.

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Author contributions
MGh designed the study and collected the data and performed the data analysis. MM designed the study and collected the data and performed the data analysis and drafted the manuscript. ZBM and MA participated in the design of the study, performed the data analysis and helped to revise the manuscript. All authors took part in revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Availability of data and materials
The datasets analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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