

## Scoping Review

# Preconception care focusing on parenting preparedness among future parents: a scoping review

Siti Nurul Fadhilah Sari, Andari Wuri Astuti\*, Luluk Rosida

Department of Midwifery, Faculty of Health Sciences, Universitas Aisyiyah Yogyakarta, Sleman, Indonesia

 [astutiandari@unisayogya.ac.id](mailto:astutiandari@unisayogya.ac.id)

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## Abstract

Promoting preconception health care is a crucial public health strategy that promotes the development, growth, and well-being of child. However, awareness and knowledge of the importance of preconception care are still lacking among future parents. The purpose of this study was to identify information about implementation of preconception care focusing on parenting preparedness among future parents, including relevant sources of evidence from each article that has been found. The scoping review used the Arkey and O'Malley approach. Article search used three databases, such as PubMed, ScienceDirect and Wiley, published between 2019-2023. Results A total of 1,767 were then selected into 12 relevant articles. Several things that must be considered in providing preconception care in preparation for becoming parents to prospective bride and groom couples, namely the importance of physical, mental/psychological, and economic preparation and equality in sharing the role of parents in raising children. Creating good care for children is influenced by several factors, namely good knowledge, education, information access, and healthcare providers needed by prospective couples for providing preconception care in preparation for becoming parents. Examining policy frameworks that facilitate the provision of preconception care at local and national levels, including financing sources and provider guidelines, is necessary to improve understanding and implementation of effective preconception care strategies

**Keywords:** health behaviors; parenthood; preconception care; pregnancy planning; scoping review

## 1. Introduction

Preconception services are services that are useful for identifying things related to health problems, lifestyle habits, or unfavorable social problems that may affect pregnancy (Ojifinni & Ibisomi, 2020). Preconception care involves delivering biomedical, behavioral, and social health interventions to women and their partners prior to pregnancy (Lassi et al., 2014). These services are particularly important given the current high number of maternal and perinatal deaths due to malnutrition, anaemia, and other health complications, of which around 40% of pregnancies are unintended (Smith et al., 2019). In addition to improving women's health and pregnancy outcomes, promoting preconception health care is a crucial public health strategy that promotes the development, growth, and well-being of child (Du et al., 2021). Focusing on parental behaviors before conception offers a significant chance to prevent non-communicable diseases like obesity, diabetes, and cardiovascular issues in upcoming generations (Quayyum & Dombrowski, 2021).

Preconception care must be considered to strategize the implementation of comprehensive preconception care as part of a series of care phases of a woman's life cycle, from before pregnancy to pregnancy planning, childbirth and preparation for parenthood. Reproductive health services include the availability of information and counseling about healthy sexuality, roles and responsibilities for being a good and responsible parent (Salman et al., 2022). Unpreparedness to become a parent has the potential to cause child neglect. Berliana et al. (2019) reported that the prevalence of neglected children

in Indonesia approximately 22.2% and nearly 50% of households have more than one child who has been neglected. Ramos et al. (2023) found that marriage education guidance also helps increase knowledge and mentality in preparation for becoming parents in raising children. The role of parents has a very significant influence on the development of children's character and personality, attention to good parenting from parents will have an impact on children's behavior patterns and personality (Meng et al., 2023). The main caregivers of children are parents who have a big contribution in providing love and attention to children which has a big influence on the development of the child's personality (Jeong et al., 2021).

Preconception health can be done through preconception care and preconception screening in couples who are getting married, which is very useful and has a positive effect on preparation for becoming parents in raising children (Nitsche & Hayford, 2020; Ukoha & Mtshali, 2022). According to Welshman et al. (2023), awareness and knowledge of the importance of preconception care are still lacking. Many pregnant women feel unprepared for the physical and psychological challenges of pregnancy, and there is a noticeable lack of knowledge addressing preconception health (Buultjens et al., 2021). The purpose of this study is to map current information about implementation of preconception care in preparation for becoming parents in prospective bridal couples including relevant sources of evidence from each article that has been found.

## 2. Research Methods

The literature review in this research uses a scoping review, which is a systematic exploration method discussing key theoretical concepts and sources of evidence (Munn et al., 2022). The method used is to identify literature to achieve broad and in-depth results. The framework aims to clarify the scope of the study into an appropriate method to adopt and conduct a systematic literature review. Arksey and O'Malley approach was adopted scoping review, consists of: (1) identifying scoping review questions (2) identify relevant articles (3) selecting articles (4) charting data (5) prepare summarize and report the results (Buus et al., 2022).

### 2.1. Identifying Scoping Review Questions

The Population, Exposure, Outcome, and Study framework Design (PEOS) was used to develop topic focus and literature search strategies for formulating scoping review questions (see Table 1).

Table 1. PEOS Framework

P (Population)	E (Exposure)	O (Outcome)	S (Study Design)
Prospective Bride and Groom Couple	Preconception Care	Preparing to Become a Parent	All studies regarding the Implementation of Preconception Care for Preparation for Becoming Parents in Prospective Bridal Couples

The focus of the question in this scoping review was "how is preconception care implemented in preparation for becoming parents for prospective bridal couples?"

### 2.2. Identify Relevant Articles

In identifying relevant articles, inclusion and exclusion criteria are determined as follows in Table 2.

**Table 2.** Eligibility Criteria

Inclusion Criteria	Exclusion Criteria
Published within 2019-2023	Review Article
Published in Indonesian or English	Opinion Articles
Full-text article	Documents/reports/draft policies/certain
Open-access article	guidelines from WHO/certain formal
Article discussing the Implementation of Preconception	organizations
Care for Preparation for Becoming Parents for	
Prospective Bridal Couples	

### 2.3. Databases

Article search uses three databases, namely Pubmed, ScienceDirect and Wiley which were published between 2019-2023.

### 2.4. Search Literature

Literature sources obtained through searches using several search engines. The search engine in question consists of: article search keywords are written using Boolean, "OR" and "AND". The keywords used in the article search are (Implementation\* OR Application\*) AND (Preconception Care\* OR Prenatal Needs\*) AND (Early Parenthood Preparation\* OR Preparation For Becoming Parent\* OR Parenthood\*) AND (Prospective Bride and Groom\*). Article questions published in the last 5 years (2019 – 2023), using Indonesian and English articles.

### 2.5. Literature Selection

The scoping review used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standard, after which the data was filtered using the author's criteria (Tricco et al., 2018). Following are the steps to filter data using the PRISMA flowchart in Figure 1.

## 3. Results and Discussion

### 3.1. Results

#### 3.1.1. Data Charting

Data from 12 articles were included in the table according to predetermined inclusion criteria. The author recorded the information independently and compared the reviewed data (see Table 3). After selecting studies, a critical appraisal was performed to establish the quality of the selected articles. The Joanna Briggs Institute (JBI) Critical Appraisal Tool was used in this scoping review for critical appraisal. JBI is an international research and development organization that promotes and supports evidence-based health care. Critical appraisal is defined as the process of carefully and methodically evaluating a research paper for its validity and applicability in clinical practice. There are 12 articles that match the problem and the author's criteria at the critical assessment stage; the research designs used included cross-sectional, qualitative, quasi-experimental, and randomized controlled trials. Each research method has a different critical appraisal checklist. JBI has a critical appraisal checklist with different numbers of questions according to the type of research study being conducted. The results of the critical appraisal of the 12 articles used in this scoping review are presented in Table 4.

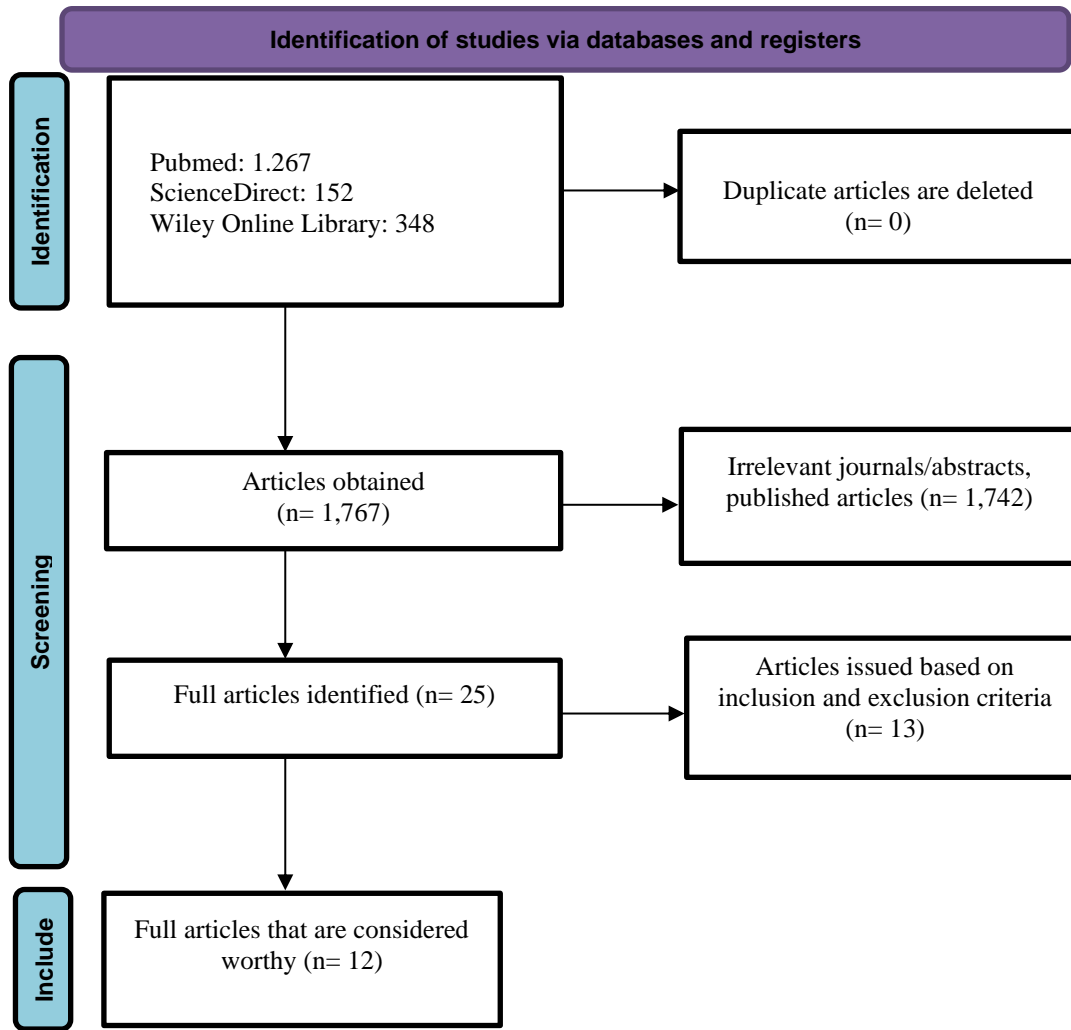


Figure 1. PRISMA Flowcart

Table 3. Charting Data

No	Title/Author/Year	Articles Code	Country	Objective	Types of research	Method	Results
1	Preconceptional knowledge, beliefs and behavior among people of reproductive age: A systematic review of qualitative studies (Welshman et al., 2023).	A1	United Kingdom	Understand the experiences and needs of parents who have participated in an antenatal education program	Qualitative Study	Six databases were searched from each database. Included studies were assessed using the Critical Appraisal Skills Program tool	The study findings indicate that antenatal education programs should prioritize inclusivity and enhance educational resources tailored to individual, cultural, and community needs. These insights can contribute to improving antenatal care policies, ultimately enhancing the experiences of pregnancy, childbirth, and parenthood for both mothers and fathers.

No	Title/Author/Year	Articles Code	Country	Objective	Types of research	Method	Results
2	Knowledge and practices of preconception care among rural Japanese women: findings from a mixed methods investigation (Shibata et al., 2023).	A2	Japan	Assessing preconception care knowledge and behavior among women to find effective interventions	Mixed-Methods	This research was conducted in a rural town in central Japan, conducting interviews, developing a survey based on qualitative results, and then conducting a survey	The study findings suggest that while obstetricians and gynecologists play a key role in providing preconception care and advice on specific procedures post-pregnancy, primary healthcare providers should also engage with schools and community women's groups, promote information sharing among families and close friends, and leverage information technology to enhance knowledge and utilization of preconception services
3	The why, what and how of preconception care: an exploratory descriptive qualitative study in Karnataka, India (Narendra et al., 2023).	A3	India	To explore the challenges and opportunities of implementing preconception care interventions	Qualitative Study	Individual, in-depth, semi-structured interviews (n=25), data analysis was carried out using NVivo software using a phenomenological approach with inductive and deductive analysis	The findings highlight the necessity for intervention during the preconception phase and the significant impact of social and cultural norms on community-level health care seeking behaviour. To enhance women's health and nutrition prior to pregnancy, government representatives suggest a number of measures that might be incorporated into the Maternal, Neonatal, Child, and Adolescent Reproductive Health (RMNCH+A) strategy.
4	Parent's perspectives on preparing for parenthood: a qualitative study on Greenland's universal ranking program MANU 0-1 year (Ingemann et al., 2022).	A4	China	To prepare and support families in the transition and difficulties of becoming parents in caring for children	Qualitative Study	Data were collected in three of Five cities in Greenland. Interviews with 38 mothers and 12 fathers both individually and in pairs: a total of 40 interviews. Apart from that, a Sharing Circle was also held with three fathers.	According to research findings, these programs target parenting experiences; nevertheless, the use of MANU is contingent upon the participation of parents as well as the local organisation and delivery of the program. According to the study, MANU has the potential to establish a place where parents can think and get ready. However, the

No	Title/Author/Year	Articles Code	Country	Objective	Types of research	Method	Results
5	Introducing Norwegian parents to the Circle of Security Parenting program during the postpartum period: A qualitative descriptive study (Glavin et al., 2023).	A5	Norway	To introduce the Circle of Security Parenting program during home visits to parents	Qualitative Study	Interviews were conducted in Greenlandic or Danish  A sample of 24 caregivers (n = 15 mothers, n = 9 fathers) cared for children and conducted in-depth and semi-structured interviews	session facilitation can be examined to ensure that MANU is universal and can reach both fathers and mothers.  Parents believe that these house visits are relaxing and enjoyable for their families, according to the study's findings. According to the parent group, a parenting program was actually necessary to begin the process of considering the value of a child in the context of raising children in general.
6	Perceptions of and challenges faced by primary healthcare workers about perception services in rural India: A qualitative study using focus group discussion (Chutke et al., 2022).	A6	India	To identify obstacles and suggestions for developing appropriate strategies in applying preconception services through community health centers	Qualitative study	Using focus group discussions (FGDs) with 45 health workers in four FGDs (8–14 participants each), in four blocks in Nashik district. Discussion transcripts were analyzed in MAXQDA software using the Socio-Ecological Model as an initial coding guide	The research results show that preconception care services should be considered to develop strategies for implementing comprehensive preconception care as part of a series of care phases of a woman's life cycle, from before pregnancy in the context of pregnancy planning, childbirth and preparation for parenthood.
7	Determinants of practice of preconception care among women of reproductive age group in southern Ethiopia, 2020: content analysis (Habte et al., 2021).	A7	Ethiopia	To assess preconception care practices and their determinants among women of childbearing age	Cross-sectional Study	Sampling techniques and semi-structured questionnaires, data were coded and entered into Epi-Data version 3.1 and exported for analysis to SPSS version 23	Only 6.4% (95%CI: 4.6, 8.6) of moms received all of the chosen PCC services, according to the results. Optimising psychological health was the least common item, received by 16.1% of moms, and folic acid supplementation was the most common, received by 67.2% of mothers. Stakeholders should thus work more to match PCC units with current MCH services.

No	Title/Author/Year	Articles Code	Country	Objective	Types of research	Method	Results
8	First-time parents' experiences related to parental self-efficacy: A systematic review (Sæther et al., 2023).	A8	Norway	To describe and synthesize qualitative studies exploring the experiences of first-time parents	A Systematic Review	Using extracted data, conduct qualitative descriptive thematic analysis, included 58 studies (presented in 61 reports) with 1,341 participants from 17 countries	The research results show that the research findings are a contribution to research in the field of nursing and health, especially nursing practice, which describes parents' experiences regarding PSE in the transition to parenthood in the first year, where the parents' ability to comfort, secure, and regulate children's emotions, is affected. In addition to ensuring nutritional and other physical needs, it is important for a child's development
9	Parents' childbearing motivations, parenting, and child adjustment: From pregnancy to 20-months postpartum (Nachoum et al., 2023).	A9	Israel	To explore how mothers' and fathers' motivations in prenatal childcare relate to toddlers' adjustment through competence and parenting style	Quantitative Study	Carrying out samples from Israeli couples (n = 310)	The results showed that prenatal care provides insight into parenting, and allows doctors to observe parenting motivations and offer solutions to parenting difficulties. In married couples, it is very important to motivate children as an early indicator of future child rearing and child adjustment as well as highlighting child rearing as a complex dyadic process
10	Survey of intention among public health nurses in providing solution-focused parenting support (Theuns-Boumans et al., 2022).	A10	Netherlands	To provide solution-focused parenting support in healthcare practices	Cross-sectional Study	The sample included 781 health workers, by conducting interviews and questionnaires	The results in this study show that health workers in the community intend to provide parenting support solutions that focus on adolescent women who are about to get married, thereby showing their acceptance of this approach. Solution-focused parenting support is a strengths-based approach that is positive and oriented towards the future goals set .
11	Factors associated with parenting self-efficacy: A	A11	Netherlands	To provide an overview of parent, child,	A Systematic Review	A systematic review using Ovid's Medline,	The findings revealed that 89 factors were found among the 30 papers that

No	Title/Author/Year	Articles Code	Country	Objective	Types of research	Method	Results
	systematic review (Fang et al., 2021).			and socio-contextual factors related to parenting self-efficacy (PSE) in general		Web of Science, Embase, and PsycINFO Ovid databases were systematically searched for studies	satisfied the inclusion requirements. There is proof that PSE is correlated with the temperament of the child, household income, perceived social support, maternal depression, parenting stress, and maternal parenting satisfaction. There is conflicting evidence about the association between mother PSE and parity, number of children in the home, and educational attainment.
12	Preconception care utilization and associated factors among reproductive age women in Mizan-Aman town, Bench Sheko zone, Southwest Ethiopia, 2020. A content analysis (Alie et al., 2022).	A12	Ethiopia	To assess preconception care utilization and associated factors among women of reproductive age	Cross-sectional Study	The total number of research participants was 624 women of childbearing age. Data was collected using a questionnaire and entered into Epi-data version 3.1 then exported to STATA version 14 and analyzed accordingly. Univariate and bivariate analysis used the ANOVA test	The results of the study showed that only 1.5% received recommended preconception services, the most commonly known thing in preconception services is folic acid, even though there are many recommended preconception services such as preconception screening and optimizing the health of psychologists in preparation for child care. Age, educational status, economic status, distance from health facilities and attitudes towards preconception care are determining factors in the use of preconception services.

Table 4. JBI Critical Appraisal Results

Articles	Type	Article Grade Results
A1	Qualitative Study	A
A2	Mixed-methods	A
A3	Qualitative Study	A
A4	Qualitative Study	B
A5	Qualitative Study	B
A6	Qualitative Study	A
A7	Cross-sectional Study	A
A8	A Systematic Review	A
A9	Quantative Study	B



A10	Cross-sectional Study	A
A11	A Systematic Review	B
A12	Cross-sectional Study	A

### 3.1.2. Characteristics of Articles

From the 12 selected articles, we categorized the characteristics of the articles based on country, research method, and article grade. The majority of articles in this scoping review were from developed countries (63%), such as the UK (1), Japan (1), the Netherlands (2), Israel (1), and Norway (2). Meanwhile, the other 37% of articles were from developing countries such as India (2), China (1), and Ethiopia (2). Based on research methods, the majority of the articles were qualitative studies (42%). Meanwhile, based on the results of the JBI critical appraisal that has been carried out, there were eight articles (67%) with Grade A and four articles (33%) with Grade B. Characteristics of Articles shown in Table 5.

**Table 5.** Characteristics of Articles

Characteristics of Article	n	percentage (%)
<b>Country</b>		
Developing countries	7	63
Developed countries	5	37
<b>Total</b>	<b>12</b>	<b>100</b>
<b>Research methods</b>		
Qualitative study	5	42
Quantitative study	3	25
Systematic review	2	17
Quatitative study	1	8
Mix-method study	1	8
<b>Total</b>	<b>12</b>	<b>100</b>
<b>Article Grade</b>		
Grade A	8	67
Grade B	4	33
<b>Total</b>	<b>12</b>	<b>100</b>

### 3.1.3. Themes Mapping

The data extracted from the articles obtained was then organized into several themes. The themes that have been included in the aim of this article include preconception care in preparation for becoming parents as well as influencing factors. Based on Table 6, the theme “preconception care in preparation for becoming parents” consists of four sub-themes, including physical preparation; mental preparation; economic preparation; and equality in sharing roles as parents. Meanwhile, the theme “factors influencing preconception care in preparation for becoming parents” consists of the sub-themes of knowledge; education; information access; and healthcare providers.

**Table 6.** Themes Mapping

No	Theme	Sub-Themes	Articles Code
1	Preconception Care for Preparation for Parenthood	Physical preparation	A1, A2, A11
		Mental preparation	A3
		Economic preparation	A5, A9
		Equality in sharing the role of being a parent	A2, A7, A8

2	Factor affecting	Knowledge	A1, A4, A5
		Education	A2, A6
		Information Access	A1, A2, A6
		Healthcare providers	A4, A10, A12

### 3.2. Discussion

The results of this scoping review found several implementations of preconception care in preparation for becoming parents for prospective bride and groom couples were found.

#### 3.2.1. Preconception Care for Preparation for Parenthood

##### 3.2.1.1. Physical preparation

Physical preparation in preconception care is the concept of maintaining physical health by maintaining a healthy diet and doing physical activity as mentioned in three studies in this review. One study discussed how participants felt the importance of having a “healthy lifestyle”, this concept was also mentioned with exercise and diet specifically mentioned as important behaviors to engage in when wanting to get pregnant (A1). Healthy lifestyle behaviors and preconception care are an important part of a comprehensive approach to preparing for parenthood. These elements are essential to increase fertility, ensure a healthy pregnancy, and improve the long-term health of parents and children. Previous research has shown that pregnancy outcomes in the short term and the long-term health of the next generation are strongly influenced by maternal health before conception (Chivers et al., 2020; Stephenson et al., 2018). By adopting healthy lifestyle behaviors, parents can create a healthy environment before conception, which will teach positive attitudes towards physical activity and nutrition to their children from a young age. This can improve their children's health later in life.

Adequate folic acid intake, quitting alcohol and tobacco, managing maternal health by eating a balanced diet and maintaining a healthy body weight, preventing sexually transmitted infections, detecting human papillomavirus (HPV) and rubella infections early, screening for cervical cancer, and family planning are all physical preparations for preconception care (A2). Preconception care carries out screening of prospective mothers to find out other disorders (not related to nutrition) that can cause comorbidities, assess mental health, assess the availability of cheap and nutritious local food, screen for reproductive tract infections, based on article (A11).

##### 3.2.1.2. Mental/psychological preparation

In addition to physical preparation, mental/psychological preparation is also an important part of preconception care for preparation for parenthood. Preconception mental health affects a person's physical health. Poor preconception mental health is associated with lower odds of adopting healthy lifestyle practices during preconception, such as taking folic acid supplements, exercising, eating the required quantity of fruits and vegetables, and abstaining from smoking and using illegal drugs (Tosh et al., 2023).

Preconception mental health is an important indicator of the mother's mental health during pregnancy and after childbirth (Kee et al., 2021; Patton et al., 2015). Previous study shown that among 87% of pregnant women who experience depressive symptoms during pregnancy and 83% of pregnant women with postpartum depression, they reported having a preconception history of mental health problems (Kee et al., 2021). Poor mental health prior to conception is a key, modifiable risk factor for adverse obstetric outcomes and has major consequences for the neurodevelopment of offspring. The quality of the mother's mental health during pregnancy is directly related to the brain structure and connection of the newborn baby (Dean et al., 2018; Qiu et al., 2015, 2017; Sandman et al., 2015). Antenatal maternal mental health has been associated with offspring socioemotional functioning,

academic achievement, and later risk of psychopathology, independent of postpartum maternal mental health (Pearson et al., 2016; Stein et al., 2014).

As they prepare to become parents, soon-to-be married couples require emotional and psychological support (A3). The importance of mental health and psychosocial well-being is acknowledged in preconception care. It include addressing emotional well-being, encouraging stress management, and conducting mental health screenings. Preconception care also includes making the appropriate recommendations for counselling or treatment, if needed, to help people achieve their best potential mental health before getting pregnant (Khekade et al., 2023). A person's psychology will greatly influence the implementation of preconception care in preparation for becoming parents. Focusing on psychological health can be prospective parents ensure that they do not develop mental health problems, enhance parenting quality and maximize the child's development potential. Such preparatory measures benefit the person in question and create a healthy, happy family on solid bases in years to come.

### 3.2.1.3. Economic preparation

Economic preparation in this review relates to access and utilization of preconception services. People from underprivileged backgrounds may find it difficult to prioritize preconception care, pay for services, or access healthcare facilities. According to Khekade et al (2023), access to and use of preconception care are restricted by socioeconomic factors such as low levels of education, poverty, and an absence of social support. Targeted initiatives are needed to address these obstacles, including lowering healthcare disparities, educating people about the advantages of preconception care, and advancing culturally sensitive methods to guarantee fair access for all people and communities. Online resources may provide low-cost intervention opportunities to increase awareness of the importance of preconception health for those who are not actively planning a pregnancy, and also provide specific health information for those who are planning to become pregnant (A5).

### 3.2.1.4. Equality in sharing the role of being a parent

Preconception services are one aspect that directly influences maternal and child health outcomes and preparation for parenthood but are overlooked, preconception services in childcare are an important phase in the series of care for better outcomes (A2). Childcare should be an equally shared responsibility between father and mother. Article (A7) shown that shared parenting is a key factor related to parenting behavior, health, welfare and child development. This research highlights the importance of the relationship between co-parenting and parenting. Specifically, co-parenting is directly related to parenting styles and indirectly related through parental adjustment and individual parental characteristics such as parental mental health.

This review also found that co-parenting is associated with warmth in parenting, which is characterized by affection and comfort in the parent-child relationship. This includes behaviors such as showing support, hugging, closeness and spending time with child (A8). Some previous studies have shown that in addition to having a favorable emotional impact on the family environment, good coparenting has a positive impact on children's mental health and social development (Bergström et al., 2021; Feinberg et al., 2016; Tomfohr-Madsen et al., 2020).

### 3.2.1.5. Factor affecting Preconception Care for Preparation for Parenthood Knowledge

This review found that while adequate nutrition was also considered important, but participants' knowledge of nutritional, physical and psychological preparation for pregnancy was frequently superficial (A1). The results of this review are in line with the results of a study in Australia that showed a lack of knowledge of pregnant women and preconception women about nutrition and supplementation

(Furness et al., 2023). Improving knowledge needs to be done through various efforts such as education by health workers and improving health literacy.

Women's level of knowledge about preconception care will greatly influence the care they provide to create a healthy pregnancy and preparation for the transition to parenthood (A4). Women with adequate nutritional knowledge can choose their healthy diet. It helps to reduce the risk of pregnancy issues and ensures that the mother has enough nutrients, especially during the preconception and early gestational periods (Jankovic-Karasoulos et al., 2021). In addition, parents' knowledge in caring for children will greatly influence parents' attitudes when providing love, caring for, guiding and educating children (A5).

#### 3.2.1.6. Education

Education will influence behavior in implementing preconception care, involvement and implementation of preconception care for success in preparation for becoming parents (A2). Education will influence how parenting in parents' ability to comfort, secure, and regulate children's emotions, in addition to ensuring nutritional and other physical needs, is important for children's development (A6).

#### 3.2.1.7. Information Access

The digital era, like today, makes it easier for someone to access various information anywhere and anytime. The results of this review show that online preconception information is a source of information that is widely accessed by both male and female participants (A1, A2, A6). Prospective bride and groom couples who practice preconception care make maximum use of the Internet as a source of information, in order to know about a healthy pregnancy, physical and mental preparation and preparation for becoming parents (A2).

Although the internet is a useful resource for information, there is still a problem with the reliability of the material it can provide. Untrustworthy internet information could be relevant, particularly when making judgments about health issues. The ability to seek, access, and evaluate information is a crucial step in the decision-making process for pregnant women with adequate health literacy. These women then use their newly acquired knowledge to determine whether they perceive a particular supplement to have a favorable risk-benefit ratio (Barnes et al., 2019c, 2019b, 2019a). Online resources information is used as an initial method of seeking information by consulting preconception services, online health information is also an effective way to reach the knowledge of the adolescent community, research also illustrates the use of social media and influencers to provide information that can be understood by participants the younger one (A6).

#### 3.2.1.8. Healthcare Providers

Healthcare providers play an important role in providing access to preconception services to prospective couples in preparation for becoming new parents (A4). To prevent and reverse the impact of poor maternal and infant health outcomes, promote preconception health services as having high value and benefits that are widely accepted, all healthcare providers in preconception services must begin providing preconception care to every woman at all times (A10). Healthcare providers should be well trained and educated on the importance of preconception care, its possible advantages, and the actions required to make sure it is implemented successfully. By doing this, they are able to successfully attend to the particular requirements and worries of their patients during the preconception stage (Khekade et al., 2023).

If counseling is carried out in preconception care activities for prospective brides and grooms at community health centers to prepare for becoming parents, healthcare providers provide preconception services which include providing health education to women before pregnancy in the

context of planning pregnancy, childbirth and preparation for becoming parents (A12). It might be difficult for healthcare providers to appropriately address preconception care needs because they sometimes have limited time during patient appointments. Missed chances for risk assessment, health promotion, and counseling may arise from insufficient conversations regarding preconception care due to the short time allotted for patient visits. It takes enough time to do comprehensive education, evaluate each person's risk factors, talk about reproductive plans, and create individualized preconception care programs (von dem Knesebeck et al., 2019).

Participants felt obligated to look up topics on their own before discussing with a healthcare provider as a result of this view on the proper use of a doctor's appointment. Given this limited time, consultation with healthcare providers will be more effective if the patient has sought information independently before the consultation is carried out. In line with previous studies, participants felt obligated to look up topics on their own before discussing them with a healthcare provider as a result of this view on the proper use of a doctor's appointment (Lang et al., 2020; M'hamdi et al., 2018).

#### 4. Conclusion

From all the articles that have been analyzed, there are several things that must be considered in providing preconception care in preparation for becoming parents to prospective bride and groom couples, namely the importance of physical, mental/psychological, and economic preparation and equality in sharing the role of parents in raising children. Creating good care for children is influenced by several factors, namely good knowledge, education, information access, and healthcare providers needed by prospective couples for providing preconception care in preparation for becoming parents. Examining policy frameworks that facilitate the provision of preconception care at local and national levels, including financing sources and provider guidelines, is necessary to improve understanding and implementation of effective preconception care strategies.

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#### Reference

- Alie, M. S., Alemu, T., Alemayehu, D., Negesse, Y., & Gebremariam, A. (2022). Preconception care utilization and associated factors among reproductive age women in Mizan-Aman town, Bench Sheko zone, Southwest Ethiopia, 2020. A content analysis. *PLoS ONE*, 17(8 August), 1–21. <https://doi.org/10.1371/journal.pone.0273297>
- Barnes, L. A. J., Barclay, L., McCaffery, K., & Aslani, P. (2019a). Complementary medicine products: Information sources, perceived benefits and maternal health literacy. *Women and Birth*, 32(6), 493–520. <https://doi.org/10.1016/j.wombi.2018.11.015>
- Barnes, L. A. J., Barclay, L., McCaffery, K., & Aslani, P. (2019b). Complementary medicine products information-seeking by pregnant and breastfeeding women in Australia. *Midwifery*, 77, 60–70. <https://doi.org/10.1016/j.midw.2019.06.011>
- Barnes, L. A. J., Barclay, L., McCaffery, K., & Aslani, P. (2019c). Factors influencing women's decision-making regarding complementary medicine product use in pregnancy and lactation. *BMC Pregnancy and Childbirth*, 19(1), 280. <https://doi.org/10.1186/s12884-019-2396-2>

- Bergström, M., Salari, R., Hjern, A., Hognäs, R., Bergqvist, K., & Fransson, E. (2021). Importance of living arrangements and coparenting quality for young children's mental health after parental divorce: A cross-sectional parental survey. *BMJ Paediatrics Open*, 5(1). <https://doi.org/10.1136/bmjpo-2020-000657>
- Berliana, S. M., Augustia, A. W., Rachmawati, P. D., Pradanie, R., Efendi, F., & Aurizki, G. E. (2019). Factors associated with child neglect in Indonesia: Findings from National Socio-Economic Survey. *Children and Youth Services Review*, 106, 104487. <https://doi.org/10.1016/j.childyouth.2019.104487>
- Buultjens, M., Farouque, A., Karimi, L., Whitby, L., Milgrom, J., & Erbas, B. (2021). The contribution of group prenatal care to maternal psychological health outcomes: A systematic review. *Women and Birth*, 34(6), e631–e642. <https://doi.org/10.1016/j.wombi.2020.12.004>
- Buus, N., Nygaard, L., Berring, L. L., Hybholt, L., Kamionka, S. L., Rossen, C. B., Søndergaard, R., & Juel, A. (2022). Arksey and O'Malley's consultation exercise in scoping reviews: A critical review. *Journal of Advanced Nursing*, 78(8), 2304–2312. <https://doi.org/10.1111/jan.15265>
- Chivers, B. R., Boyle, J. A., Lang, A. Y., Teede, H. J., Moran, L. J., & Harrison, C. L. (2020). Preconception Health and Lifestyle Behaviours of Women Planning a Pregnancy: A Cross-Sectional Study. *Journal of Clinical Medicine*, 9(6), 1701. <https://doi.org/10.3390/jcm9061701>
- Chutke, A. P., Doke, P. P., Gothankar, J. S., Pore, P. D., Palkar, S. H., Patil, A. V., Deshpande, A. V., Bhuyan, K. K., Karnataki, M. V., & Shrotri, A. N. (2022). Perceptions of and challenges faced by primary healthcare workers about preconception services in rural India: A qualitative study using focus group discussion. *Frontiers in Public Health*, 10, 888708. <https://doi.org/10.3389/fpubh.2022.888708>
- Dean, D. C., Planalp, E. M., Wooten, W., Kecskemeti, S. R., Adluru, N., Schmidt, C. K., Frye, C., Birn, R. M., Burghy, C. A., Schmidt, N. L., Styner, M. A., Short, S. J., Kalin, N. H., Goldsmith, H. H., Alexander, A. L., & Davidson, R. J. (2018). Association of Prenatal Maternal Depression and Anxiety Symptoms With Infant White Matter Microstructure. *JAMA Pediatrics*, 172(10), 973–981. <https://doi.org/10.1001/jamapediatrics.2018.2132>
- Du, L., La, X., Zhu, L., Jiang, H., Xu, B., Chen, A., & Li, M. (2021). Utilization of preconception care and its impacts on health behavior changes among expectant couples in Shanghai, China. *BMC Pregnancy and Childbirth*, 21(1), 491. <https://doi.org/10.1186/s12884-021-03940-0>
- Fang, Y., Boelens, M., Windhorst, D. A., Raat, H., & van Grieken, A. (2021). Factors associated with parenting self-efficacy: A systematic review. *Journal of Advanced Nursing*, 77(6), 2641–2661. <https://doi.org/10.1111/jan.14767>
- Feinberg, M. E., Jones, D. E., Hostetler, M. L., Roettger, M. E., Paul, I. M., & Ehrenthal, D. B. (2016). Couple-Focused Prevention at the Transition to Parenthood, a Randomized Trial: Effects on Coparenting, Parenting, Family Violence, and Parent and Child Adjustment. *Prevention Science: The Official Journal of the Society for Prevention Research*, 17(6), 751–764. <https://doi.org/10.1007/s11121-016-0674-z>
- Furness, D., Hancock, L., Wurth, J., Wakefield, T. A. N., Stosic, R., & Mazza, D. (2023). Factors associated with Australian preconception and pregnant women's nutrition and nutrient supplement knowledge. *Reproductive, Female and Child Health*, 2(3), 188–202. <https://doi.org/10.1002/rfc2.44>
- Glavin, K., Solberg, B., & Marie Sæther, K. (2023). Introducing Norwegian parents to the Circle of Security Parenting program during the postpartum period: A qualitative descriptive study. *Public Health Nursing*, 40(3), 428–438. <https://doi.org/10.1111/phn.13180>

- Habte, A., Dessu, S., & Haile, D. (2021). Determinants of practice of preconception care among women of reproductive age group in southern Ethiopia, 2020: Content analysis. *Reproductive Health*, 18(1), 1–14. <https://doi.org/10.1186/s12978-021-01154-3>
- Ingemann, C., Jensen, E., Olesen, I., Tjørnhøj-Thomsen, T., Kvernmo, S., & Larsen, C. V. L. (2022). Parents' perspectives on preparing for parenthood: A qualitative study on Greenland's universal parenting programme MANU 0-1 year. *BMC Pregnancy and Childbirth*, 22(1), 859. <https://doi.org/10.1186/s12884-022-05170-4>
- Jankovic-Karasoulos, T., Furness, D. L., Leemaqz, S. Y., Dekker, G. A., Grzeskowiak, L. E., Grieger, J. A., Andraweera, P. H., McCullough, D., McAninch, D., McCowan, L. M., Bianco-Miotto, T., & Roberts, C. T. (2021). Maternal folate, one-carbon metabolism and pregnancy outcomes. *Maternal & Child Nutrition*, 17(1), e13064. <https://doi.org/10.1111/mcn.13064>
- Jeong, J., Franchett, E. E., Ramos de Oliveira, C. V., Rehmani, K., & Yousafzai, A. K. (2021). Parenting interventions to promote early child development in the first three years of life: A global systematic review and meta-analysis. *PLoS Medicine*, 18(5), e1003602. <https://doi.org/10.1371/journal.pmed.1003602>
- Kee, M. Z. L., Ponmudi, S., Phua, D. Y., Rifkin-Graboi, A., Chong, Y. S., Tan, K. H., Chan, J. K. Y., Broekman, B. F. P., Chen, H., & Meaney, M. J. (2021). Preconception origins of perinatal maternal mental health. *Archives of Women's Mental Health*, 24(4), 605–618. <https://doi.org/10.1007/s00737-020-01096-y>
- Khekade, H., Potdukhe, A., Taksande, A. B., Wanjari, M. B., & Yelne, S. (2023). Preconception Care: A Strategic Intervention for the Prevention of Neonatal and Birth Disorders. *Cureus*, 15(6), e41141. <https://doi.org/10.7759/cureus.41141>
- Lang, A. Y., Bartlett, R., Robinson, T., & Boyle, J. A. (2020). Perspectives on preconception health among migrant women in Australia: A qualitative study. *Women and Birth*, 33(4), 334–342. <https://doi.org/10.1016/j.wombi.2019.06.015>
- Lassi, Z. S., Dean, S. V., Mallick, D., & Bhutta, Z. A. (2014). Preconception care: Delivery strategies and packages for care. *Reproductive Health*, 11(3), S7. <https://doi.org/10.1186/1742-4755-11-S3-S7>
- Meng, Z., Luen, L. C., & Abidin, N. H. Z. (2023). Parental Role Orientation's Influence on Children's Personality Formation. *International Journal of Education & Technology*, 1(3), Article 3. <https://doi.org/10.59021/ijetech.v1i3.22>
- M'hamdi, H. I., Sijpkens, M. K., de Beaufort, I., Rosman, A. N., & Steegers, E. A. (2018). Perceptions of pregnancy preparation in women with a low to intermediate educational attainment: A qualitative study. *Midwifery*, 59, 62–67. <https://doi.org/10.1016/j.midw.2018.01.004>
- Munn, Z., Pollock, D., Khalil, H., Alexander, L., Mclnerney, P., Godfrey, C. M., Peters, M., & Tricco, A. C. (2022). What are scoping reviews? Providing a formal definition of scoping reviews as a type of evidence synthesis. *JBI Evidence Synthesis*, 20(4), 950–952. <https://doi.org/10.11124/JBIES-21-00483>
- Nachoum, R., Moed, A., Madjar, N., & Kanat-Maymon, Y. (2023). Parents' childbearing motivations, parenting, and child adjustment: From pregnancy to 20-months postpartum. *Journal of Marriage and Family*, 85(4), 898–922. <https://doi.org/10.1111/jomf.12917>
- Narendra, A. R., Kowlgi, A., Patil, G. H., N, S., & Kar, A. (2023). The why, what and how of preconception care: An exploratory descriptive qualitative study in Karnataka, India. *Archives of Public Health = Archives Belges de Sante Publique*, 81(1), 177. <https://doi.org/10.1186/s13690-023-01180-6>

- Nitsche, N., & Hayford, S. R. (2020). Preferences, Partners, and Parenthood: Linking Early Fertility Desires, Marriage Timing, and Achieved Fertility. *Demography*, 57(6), 1975–2001. <https://doi.org/10.1007/s13524-020-00927-y>
- Ojifinni, O. O., & Ibisomi, L. (2020). Preconception care practices in Nigeria: A descriptive qualitative study. *Reproductive Health*, 17(1), 172. <https://doi.org/10.1186/s12978-020-01030-6>
- Patton, G. C., Romaniuk, H., Spry, E., Coffey, C., Olsson, C., Doyle, L. W., Oats, J., Hearps, S., Carlin, J. B., & Brown, S. (2015). Prediction of perinatal depression from adolescence and before conception (VIHCS): 20-year prospective cohort study. *Lancet (London, England)*, 386(9996), 875–883. [https://doi.org/10.1016/S0140-6736\(14\)62248-0](https://doi.org/10.1016/S0140-6736(14)62248-0)
- Pearson, R. M., Bornstein, M. H., Cordero, M., Scerif, G., Mahedy, L., Evans, J., Abioye, A., & Stein, A. (2016). Maternal perinatal mental health and offspring academic achievement at age 16: The mediating role of childhood executive function. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 57(4), 491–501. <https://doi.org/10.1111/jcpp.12483>
- Qiu, A., Anh, T. T., Li, Y., Chen, H., Rifkin-Graboi, A., Broekman, B. F. P., Kwek, K., Saw, S.-M., Chong, Y.-S., Gluckman, P. D., Fortier, M. V., & Meaney, M. J. (2015). Prenatal maternal depression alters amygdala functional connectivity in 6-month-old infants. *Translational Psychiatry*, 5(2), e508. <https://doi.org/10.1038/tp.2015.3>
- Qiu, A., Shen, M., Buss, C., Chong, Y.-S., Kwek, K., Saw, S.-M., Gluckman, P. D., Wadhwa, P. D., Entringer, S., Styner, M., Karnani, N., Heim, C. M., O'Donnell, K. J., Holbrook, J. D., Fortier, M. V., Meaney, M. J., & the GUSTO study group. (2017). Effects of Antenatal Maternal Depressive Symptoms and Socio-Economic Status on Neonatal Brain Development are Modulated by Genetic Risk. *Cerebral Cortex (New York, N.Y.: 1991)*, 27(5), 3080–3092. <https://doi.org/10.1093/cercor/bhx065>
- Quayyum, F., & Dombrowski, S. U. (2021). Barriers to nutritional pregnancy preparation and support needs in women and men: Qualitative study based on the Theoretical Domains Framework. *Women's Health*, 17, 17455065211042182. <https://doi.org/10.1177/17455065211042182>
- Ramos, A. K., Su, D., Correa, A., & Trinidad, N. (2023). A Concurrent Mixed-Methods Study of Midwestern Latino Parents Participation and Preferences for Parenting Education Programs. *Journal of Child and Family Studies*, 32(2), 530–543. <https://doi.org/10.1007/s10826-023-02547-7>
- Sæther, K. M., Berg, R. C., Fagerlund, B. H., Glavin, K., & Jøranson, N. (2023). First-time parents' experiences related to parental self-efficacy: A scoping review. *Research in Nursing and Health*, 46(1), 101–112. <https://doi.org/10.1002/nur.22285>
- Salman, N., Batman, K. A., & Sorakin, Y. (2022). The needs analysis of the marriage education program for Turkish Cypriot community: Development phase. *Frontiers in Psychology*, 13, 963305. <https://doi.org/10.3389/fpsyg.2022.963305>
- Sandman, C. A., Buss, C., Head, K., & Davis, E. P. (2015). Fetal exposure to maternal depressive symptoms is associated with cortical thickness in late childhood. *Biological Psychiatry*, 77(4), 324–334. <https://doi.org/10.1016/j.biopsych.2014.06.025>
- Smith, C., Teng, F., Branch, E., Chu, S., & Joseph, K. S. (2019). Maternal and perinatal morbidity and mortality associated with anemia in pregnancy. *Obstetrics and Gynecology*, 134(6), 1234–1244. <https://doi.org/10.1097/aog.0000000000003557>
- Shibata, Y., Abe, M., Narumoto, K., Kaneko, M., Tanahashi, N., Fetters, M. D., & Inoue, M. (2023). Knowledge and practices of preconception care among rural Japanese women: Findings from a mixed methods investigation. *BMC Pregnancy and Childbirth*, 23(1), 667. <https://doi.org/10.1186/s12884-023-05940-8>



- Stein, A., Pearson, R. M., Goodman, S. H., Rapa, E., Rahman, A., McCallum, M., Howard, L. M., & Pariante, C. M. (2014). Effects of perinatal mental disorders on the fetus and child. *Lancet (London, England)*, 384(9956), 1800–1819. [https://doi.org/10.1016/S0140-6736\(14\)61277-0](https://doi.org/10.1016/S0140-6736(14)61277-0)
- Stephenson, J., Heslehurst, N., Hall, J., Schoenaker, D. A. J. M., Hutchinson, J., Cade, J. E., Poston, L., Barrett, G., Crozier, S. R., Barker, M., Kumaran, K., Yajnik, C. S., Baird, J., & Mishra, G. D. (2018). Before the beginning: Nutrition and lifestyle in the preconception period and its importance for future health. *Lancet (London, England)*, 391(10132), 1830–1841. [https://doi.org/10.1016/S0140-6736\(18\)30311-8](https://doi.org/10.1016/S0140-6736(18)30311-8)
- Theuns-Boumans, L., Mathijssen, J., Rots-de Vries, C., & van de Goor, I. (2022). Survey of intention among public health nurses in providing solution-focused parenting support. *Public Health Nursing*, 39(3), 643–651. <https://doi.org/10.1111/phn.13032>
- Tomfohr-Madsen, L. M., Giesbrecht, G. F., Madsen, J. W., MacKinnon, A., Le, Y., & Doss, B. (2020). Improved Child Mental Health Following Brief Relationship Enhancement and Co-Parenting Interventions During the Transition to Parenthood. *International Journal of Environmental Research and Public Health*, 17(3), 766. <https://doi.org/10.3390/ijerph17030766>
- Tosh, C., Kavanagh, K., Flynn, A. C., Stephenson, J., White, S. L., Catalao, R., & Wilson, C. A. (2023). The physical-mental health interface in the preconception period: Analysis of 131 182 women planning pregnancy in the UK. *BJOG: An International Journal of Obstetrics & Gynaecology*, 130(9), 1028–1037. <https://doi.org/10.1111/1471-0528.17447>
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., ... Straus, S. E. (2018). PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Annals of Internal Medicine*, 169(7), 467–473. <https://doi.org/10.7326/M18-0850>
- Ukoha, W. C., & Mtshali, N. G. (2022). Preconception care practices among primary health care nurses working in public health facilities in KwaZulu-Natal. *Global Health Action*, 15(1), 2112395. <https://doi.org/10.1080/16549716.2022.2112395>
- von dem Knesebeck, O., Koens, S., Marx, G., & Scherer, M. (2019). Perceptions of time constraints among primary care physicians in Germany. *BMC Family Practice*, 20(1), 142. <https://doi.org/10.1186/s12875-019-1033-5>
- Welshman, H., Dombrowski, S., Grant, A., Swanson, V., Goudreau, A., & Currie, S. (2023). Preconception knowledge, beliefs and behaviours among people of reproductive age: A systematic review of qualitative studies. *Preventive Medicine*, 175(April), 107707. <https://doi.org/10.1016/j.ypmed.2023.107707>