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A qualitative study on the experiences of the prospective brides about nutritional preparation during the preconception period

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Abstract

Background: Stunting is still a nutritional problem in Indonesia, where maternal malnutrition is one of the causes. Studies show that prospective brides and women of childbearing age in Indonesia are not physically and knowledgeably ready for pregnancy. Nutritional preparation is crucial during preconception, as preconception nutritional status can have cross-generational impacts, yet it is often overlooked.
Objective: This study aimed to explore the experiences of prospective brides regarding nutritional preparation during the preconception period.
Methods: This qualitative research was conducted in Bogor, Indonesia, using in-depth interviews and participatory methods. The main informants of this study were 20 prospective brides selected through convenience sampling. Additionally, 21 key informants were involved for triangulation. Data analysis was conducted by coding verbatim transcripts using NVivo12 software. The results of this study used a pre-determined theme aligned with the research objectives.
Result: Almost all informants agreed that preconception nutritional preparation was crucial before marriage. Several nutritional preparation activities carried out by prospective brides emerged from this study, such as pre-pregnancy weight management and eating nutritious and healthier foods. However, many prospective brides still did not perform these activities optimally.
Conclusion: Many prospective brides were already putting efforts to undertake nutritional preparation. However, knowledge gaps and misunderstandings among brides and grooms regarding nutritional preparation persist. There is a need to improve their awareness at preconception period and ensure government programs are accessible, equitable, and effective. This study offers new insights into nutritional preparation for brides, an area that is underexplored.

Keywords: nutrition, preconception, before pregnancy, prospective brides

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Introduction

Stunting is the main nutritional problem for infants and children under 2 years in Indonesia.[1] In 2021, the Indonesian nutrition status study or Studi Status Gizi Indonesia (SSGI) revealed that 19.4% of Indonesian children under five were born with short birth length (<48 cm), and 24.4% were stunted. Indonesia's target for stunting is 14% by 2024. The percentage of stunting in West Java was 24.5%, with Bogor Regency having a higher percentage at 28,6%.[2]

Previous studies show that many prospective brides and women of childbearing age in Indonesia are unprepared for pregnancy, both physically and in terms of knowledge.[3–5] Meanwhile, maternal factors, such as nutritional status, play a significant role in stunting.[6,7] However, women often experience the most vulnerable periods for nutrition, such as before pregnancy, during pregnancy, and lactation.[9] Preconception nutritional status is closely linked to nutritional status during pregnancy and pregnancy outcomes and can have generational impacts, yet this period is often neglected.[8,9]

Improving women's nutrition and health before and during pregnancy will support optimal fetal growth, better obstetrical outcomes, and improved long-term health for both mother and child.[10] Preconception women should ensure proper nutrition before conception. Gastrulation starts in the third week of pregnancy, with organs that have developed ready for further maturation by the end of the eighth week, marking the start of the fetal phase.[11] However, pregnancy awareness typically occurs around 5.5 weeks.[12] Therefore, good preconception health and nutrition are essential for avoiding adverse pregnancy outcomes.

The Indonesian government, through the National Population and Family Planning Board (BKKBN), has begun to take serious steps in paying attention to the nutritional status of prospective brides in an effort to prevent stunting. However, there is limited information on preconception nutritional preparation. Further research is necessary to get more information and identify potential interventions. This study aims to explore the experiences of prospective brides regarding nutritional preparation during the preconception period in Bogor Regency.

Methods

This qualitative study focuses on prospective brides and grooms in Bogor Regency, Indonesia, particularly those registered at the Cibinong Subdistrict Religious Affairs Office (KUA). The office was purposively chosen because it had the highest marriage rate, according to 2016-2020 marriage data from the Central Statistics Agency (BPS) of Bogor Regency. The study was conducted from May 2022 to December 2024, with data collection taking place from June 2023 to January 2024.

The main informants were women aged 19-35 who were apparently healthy, able to communicate in Indonesian, and willing to participate. The number of main informants required was based on significant variations of the main informant characteristics and the saturation achievement. Variations considered included socio-demographic factors such as age, education level, occupation, and type of living (with parents or not). To gain a broader and deeper understanding of the social conditions under study, triangulation was used by involving key informants.

Convenience sampling was used to select informants. Researchers visited the KUA on premarital briefing days and invited all attending prospective brides and grooms to participate, ensuring the required variations were met. Interviews were conducted at the KUA, with brides interviewed ahead of the grooms. Key informants of significant others were identified through the prospective bride's recommendations and were interviewed later at a mutually agreed time and place. The study included 20 prospective brides as main informants and 21 key informants, consisting of 17 prospective grooms and 4 significant others of prospective brides.

This study used a participatory method and in-depth interviews with semi-structured questionnaires for prospective brides (main informants) and only in-depth interviews for key informants. The participatory method involved newly developed cards in this study, which were

designed to collect information through the main informants' involvement in selecting and arranging the cards. The participatory cards contained words related to the types of preparations typically or must be made before marriage. A total of 28 cards covered marriage procedures,[13] wedding ceremony preparations,[14] preparations related to nutrition and health,[15] preparations related to family readiness,[5] and 2 other things such as discussing pregnancy planning with a prospective husband and losing weight from previous research.[8,16] Main informants were asked to choose a maximum of 15 cards out of 28 cards (6 nutrition and health-related cards and 22 other cards), sorting them based on importance and preparations that have/have not been done. During the in-depth interviews, questions focused on the informants' views on nutritional preparations, nutritional preparations carried out by the prospective bride, and their general health conditions. Prior to data collection, a pilot test was conducted on three couples from the same subdistrict to refine the interview flow, clarify questions, and ensure understanding.

Interview recordings were transcribed verbatim and analyzed through coding using N-Vivo12 (Version 12.7.0 (3873)). Before being interviewed, all informants were informed about the study and signed an informed consent form to confirm their agreement to participate. The study was approved by the FKUI Ethics Committee on June 26, 2023 (877/UN2.F1/ETIK/PPM.00.02/2023).
Additionally, permits were obtained from the local authorities.

Results

Informant characteristic

A total of 20 prospective brides participated in this study, with the majority aged over 25 to 35 years. Most of the prospective brides had a high school education or lower, worked (have income), and still lived with their parents. Details of the main informants' characteristics are shown in **Table 1**. For the key informants, most prospective grooms were aged over 25 to 35 years, with a higher proportion having a high school education or lower compared to those with a diploma or higher. Most of the prospective grooms were employed in private-sector jobs. The significant others of the prospective brides were mainly family members, primarily mothers. All significant others had a high school education or lower, and most were housewives.

Table 1. Characteristics of the main informants

Characteristics	n=20
Age	
• 19-25 years	8
• Over 25 to 35 years	12
Education	
• High School or lower	12
• Diploma or higher	8
Occupation	
• Working	17
• Not working	3
Type of living	
• Living with parents	17
• Not living with parents	3

Nutritional preparation was considered important to do during the preconception period.

Based on the participatory method, researchers obtained a general picture of prospective brides' opinions regarding the nutritional and health preparations they considered important and the types of preparations they had done (**Table 2**).

According to most informants, preparations related to nutrition and health that were considered important to do before marriage included health checks and increasing the consumption of certain nutrients, such as iron and folic acid, which ranked in second place. The number of informants who considered having a healthy and balanced diet and doing physical activity/exercise regularly as important preparations before marriage was the smallest. However, not all informants who considered these preparations important carried out preparation. In fact, the healthy and balanced diet they implemented was not entirely in accordance with what the WHO defined as a healthy and balanced diet.

Table 2. Nutritional and health preparation as something that was considered important to do during the preconception period.

No	Preparation	Frequency	
		Considered it as important	Have implemented it
1.	Health check (Premarital health check)	19	12
2.	Increase consumption of certain nutrients (iron, folic acid)	18	14
3.	Avoiding caffeine, cigarettes, alcohol, and drugs	15	13
4.	Managing body weight (ideal/healthy)	13	12
5.	Healthy and balanced diet	9	8
6.	Do exercise regularly	9	9

Nutritional preparation activities during the preconception period

Most main and key informants agreed that preconception nutritional preparation was important before marriage. However, some prospective brides mentioned that nutritional preparation was only necessary if one intended to get pregnant immediately after marriage. Additionally, some prospective grooms were not sure whether preconception nutritional preparation was important.

The results of this study revealed several nutritional preparation activities carried out by prospective brides. The information that researchers obtained from triangulation was also included in the results. Although not all nutritional preparation activities were carried out by each prospective bride, details of nutritional preparation activities during the preconception period can be seen in **Table 3**.

Some prospective brides managed their weight by making various efforts, and the results varied for each individual. However, some of them admitted that they wanted to gain weight but did not know how. Even one prospective bride did it with actions that tended to be careless and risky for health, such as frequently eating instant noodles at night while rarely consuming main meals and snacking more often on biscuits and chips. As a result, she failed to gain weight. In **Table 3**, researchers categorized food-related issues as eating regularly and eating nutritious and healthier foods rather than categorizing them as a healthy and balanced diet. This was because when asked about a healthy and balanced diet, no one could answer correctly according to the concept socialized by WHO or the Ministry of Health, the majority answered that a healthy and balanced diet was "4 healthy 5 perfect", eating nutritious food, or at least including side dishes.

For prospective brides who enjoy drinking coffee, avoiding or reducing caffeine consumption was also necessary before the wedding. Most of the prospective brides did not smoke. However, one of them admitted that she was an active smoker and found it difficult to quit. She realized that smoking was dangerous for her and her fetus's health if she got pregnant later. In addition, there was still the potential for several other prospective brides to become passive smokers because their partners smoked.

Not all brides who underwent premarital health checks in the Public Health Centre received nutritional counseling, especially if their results were normal. Brides with weight issues were advised to gain or lose weight but lacked guidance on how to do so. None had searched for preconception health or nutrition information, but some sought advice on weight loss, exercise, or pregnancy-related topics from their significant others, the internet, or doctors.

Table 3. Nutritional preparation activities during the preconception period

Themes	Categories	Description
Nutritional preparation activities during the preconception period	Pre-pregnancy weight management	• Monitored weight and determined whether their weight was ideal or not. • Made efforts to control, gain, or lose weight (went on a diet such as a calorie deficit, reduced the frequency of meals, practiced intermittent fasting and followed blood type diet). • Exercise or improve physical activity.
	Eating regularly	Ate at mealtimes; ate on time anyway; had breakfast regularly.
	Eating nutritious & healthier foods	• Consumed nutritious food every day, such as rice, side dishes, vegetables, and fruit. Some also added milk or nuts to their daily diet. • Brought a packed lunch or brought healthier food for lunch at work. • Reduced buying ready-to-eat food and preferred to cook at home. • Avoided instant noodles. • Reduced the spicy level of food.
	Pay attention to the intake of certain nutrients	• Increased protein intake. • Paid attention to vitamin and mineral intake, such as increasing vegetable and fruit intake, taking supplements, and drinking milk. • Increased water intake. • Reduced fat intake, carbohydrate intake (including sugar), and salt.
	Consuming herbal medicine	• Drank the herbal medicine provided by their mother regularly
	Avoiding caffeine, cigarette, alcohol, and drugs	• Cut back on coffee or reduce caffeine by decreasing the number of cups of coffee that they drink each day and replacing it with water. • Did not smoke and avoided cigarette smoke. • Did not consume alcohol or drugs.
	Do physical activity	• Warmed up • Walked more, such as walking from the station or bus stop to the office or walking on holidays. • Did sports such as yoga, workout, treadmill, aerobic, jogging, biking, and swimming.
	Strive for physical & mental health	• Conserved of tooth root canals • Had check-ups for existing diseases and received advice for conditions such as GERD. • Consulted with a psychiatrist to treat sleep disorders, ADHD, and anxiety Gerd. • Avoided stress. • Managed sleep patterns
	Follow existing government programs	• Underwent a premarital health check (checked blood pressure, height, weight, and upper arm circumference, and conducted blood tests such as HIV/AIDS, blood sugar, cholesterol, and Hb levels) • Received tetanus toxoid immunization. • Received iron and folic acid (IFA) supplements. • Received premarital education/counseling.
	Increase knowledge of nutrition and health	• Discussed/shared with significant others or their prospective husband. • Consulted a doctor or health professional. • Read information from brochures, social media, and journals, browse the internet, and watch YouTube.

Discussion

Nutritional preparation activities during the preconception period

Not all informants agreed on the necessity of preconception nutritional preparation. Similar to other studies, many young adults lack awareness of preconception health. They often did not know what it was, why it was important, or how to prepare for pregnancy.[18] Kasim et al. found that 10.4% of young respondents disagreed that preconception care is important during reproductive years, possibly due to limited knowledge and few interactions with healthcare services.[17]

Several nutritional preparation activities carried out by prospective brides include managing their pre-pregnancy weight, eating regularly, eating nutritious and healthier foods, paying attention to their intake of certain nutrients, consuming herbal medicine, avoiding caffeine, cigarettes, alcohol, and drugs, doing physical activity, striving for physical and mental health, following existing government programs, and making efforts to increase their knowledge of nutrition and health.

Some prospective brides tried to lose or gain weight in various ways. Almost all of those who tried to gain weight complained that they did not know how. Inappropriate dietary attitudes about the value of diet, irregular mealtimes, and poor chewing were linked to obesity. In contrast, fussy eating and skipping three meals a day were linked to being highly underweight.[18] Both conditions can negatively affect pregnancy outcomes.[19–23] Therefore, it is crucial to aim for a healthy preconception weight within the normal BMI range (18.5-24.9) to reduce risks and achieve optimal health before pregnancy.[24]

Then, prospective brides made efforts to eat more regularly, consume nutritious and healthier food, and pay attention to the intake of certain nutrients. Maintaining a consistent eating and fasting schedule supports a healthy circadian rhythm and boosts metabolism, while irregular eating habits can disrupt the body's physiology and are linked to obesity, type 2 diabetes, and heart disease. So, eating at the same time each day is beneficial for health.[25]

Some prospective brides said they paid more attention to their food before marriage by eating nutritious and balanced food. However, they did not fully understand what a nutritious and balanced diet meant. They tended to try to eat nutritious food and choose healthier food to consume. Most of them said that nutritious and balanced eating was 4 healthy 5 perfect, with practices that were also not in accordance with 4 healthy 5 perfect. In line with this study, Colozza's qualitative study in Indonesia found that many participants in the groups he studied began by also citing "4 healthy, 5 perfect" when asked about healthy food.[26] However, Dyke et al. stated that knowledge to practice healthy eating, which falls under the category of "Cognitive factors." Participants often viewed it as unrealistic and ultimately trumped by the need and/or desire for convenience, a combination of external factors of food, namely the social environment and personal condition factors (psychological components).[27]

Women trying to conceive or who are pregnant are often more motivated to improve their diet due to concerns about the adverse effects of poor diet on the health of their unborn baby.[28] A study showed a significant link between mothers' dietary patterns before conception and during pregnancy.[29] Another study showed that there was an increase in consumption of water, fruit juice, and milk from before pregnancy to early pregnancy among Norwegian nulliparous women.[30] Similarly, Yonezawa et al. found that more women consumed vegetables and fruits daily or more frequently from preconception to early pregnancy.[31]

However, a cohort study in Southern Benin found no significant change in dietary diversity between the preconception period and pregnancy, suggesting that some women do not alter their diet after learning they are pregnant.[32] So, practicing a healthy and balanced diet earlier will undoubtedly have a better impact. At least those good habits on a daily basis increased

significantly from pre-pregnancy to early pregnancy.[30]

Women's health should be monitored from adolescence, not just during pregnancy. While consuming micronutrients like vitamins and minerals during pregnancy can help correct maternal malnutrition, substantial improvements in child health may be delayed if nutritional status is only addressed after conception. To improve long-term outcomes for mothers and infants, women's nutritional status should be improved before pregnancy.[33] Some prospective brides reported increasing their intake of vegetables and fruits from the time they were planning to get married. However, not all prospective brides regularly consume vegetables, fruits, and grains. A systematic review showed that women often fail to meet minimum vegetable and cereal grain intakes during the preconception and pregnancy periods.[34]

Some prospective brides started taking supplements, which may be important for meeting vitamin and mineral needs to support metabolic changes and fetal development. In this study, some prospective brides took iron and/or folate, vitamin E, C, or D. Australian research also found that 63% of women consumed one or more dietary supplements during the preconception period, with multi-micronutrient supplements being the most common. They also reported the use of supplements containing folic acid or iodine, and supplements containing single nutrients such as folic acid, omega-3 fatty acids, vitamin C, vitamin B, iron, and calcium.[35]

Ensuring adequate water intake was a practice that a number of prospective brides did. Sufficient water intake supports organ function, hormone balance, toxin removal, and, ultimately, fertility.[36] Women should develop the habit of drinking enough water before pregnancy to prepare for physiological changes. It is recommended that women of childbearing age aim for 2 liters (2,000 ml) of fluid daily.[37] Additionally, some prospective brides had started reducing their intake of fat, carbohydrates, and salt for health and appearance reasons.

Several prospective brides also consumed herbal medication as part of their nutritional preparations, using natural remedies like ginger, turmeric, lemongrass, and betel leaves to boost their immune systems and maintain health. Several medicinal plants found in Indonesia contain secondary metabolites with immunomodulatory effects.[38] A study in Brisbane found that 8.3% of women seeking obstetric care used herbal medicine during the preconception period, and about 55.8% stopped using them once they became pregnant.[39]

Some prospective brides have limited or avoided coffee consumption due to concerns about its impact on health. While opinions on coffee use during the preconception period vary, numerous studies link high coffee or caffeine intake to various health risks. A study of nulliparous women in Norway found a similar trend in beverage consumption from before to early pregnancy. The use of coffee, sugar-sweetened beverages, and artificially sweetened beverages reduced considerably from before pregnancy to early pregnancy.[30] Coffee consumption before pregnancy ≥4 servings per day (caffeine >400 mg/day) increases the risk of spontaneous abortion (SAB), especially during weeks 8-19.[40] Other studies have shown that hemoglobin levels decrease with increasing daily coffee consumption.[41] In addition, blood ferritin levels can decreased significantly with increasing total coffee and green tea intake.[42]

The prospective brides stated that they tried to avoid cigarette smoke, but they were potentially passive smokers because many of the grooms smoke. There is no safe level of exposure to cigarette smoke, and in some people, even brief exposure may immediately cause negative effects. Passive smokers can develop lung cancer, coronary heart disease, stroke, and other health issues, with women also facing reproductive health risks like low birth weight.[43]

Unfortunately, one prospective bride still smoked, which aligns with a study in the UK involving pregnant women, which found that as many as 22.9% of women smoked and 85% of women who smoked did not quit smoking in the year before pregnancy.[44] The US Centers of

Disease Control and Prevention (CDC) states that a woman should quit smoking before she becomes pregnant. However, if she is already pregnant, quitting can still help protect her and her baby from health problems.[45] However, a retrospective cohort study found that smoking during the preconception period or quitting in the first trimester can increase the risk of fetal malformations such as gastroschisis by up to 40%.[46] One prospective bride was also still undergoing psychiatric treatment and taking medications, including sleeping pills. In such a case, she and her future husband should plan the pregnancy and consult a doctor about medications that are safe during pregnancy.

Women in the preconception period are advised to engage in at least 30 minutes of light exercise a day, 5 days a week (150 minutes per week), do muscle-strengthening exercises twice a week, and minimize prolonged sitting.[47,48] However, only a few prospective brides reported regular exercise, with some increasing their activity through walking. A study in Poland found that only 27% of women were sufficiently active in the 6 months before conception.[49] Preconception physical activity strongly predicts continued activity during pregnancy, making this a critical time for behavior change.[50]

Since about half of pregnancies are unplanned, it is important to be aware of health conditions and risk factors that could affect the woman or her baby later on.[51] Some prospective brides took steps to address health issues by undergoing check-ups and consulting doctors for proper therapy, addressing both physical and mental health. Poor preconception mental health can increase the risk of pregnancy complications, such as non-live births, low birth weight, and premature births.[52]

Some prospective brides had already completed premarital health checks at the Public Health Centre. Premarital health checks are actually one of the government programs related to prospective brides and grooms besides tetanus toxoid immunization, Iron Folic Acid (IFA) supplementation, and counseling from midwives or nutritionists. These health checks include measuring blood pressure, height, weight, and upper arm circumference and conducting blood tests for HIV/AIDS, blood sugar, cholesterol, and hemoglobin levels.

The Ministry of Health of the Republic of Indonesia states that premarital health checks are essential preventive measures for prospective brides and grooms to avoid health issues for themselves, their partners, or their future children. These checks should ideally be conducted 3-6 months before marriage.[53] A scoping review showed that premarital health checks reduced at-risk marriages by 2–58% and at-risk births with β-thalassemia by 65–100%. However, the effectiveness of these checks depends on other factors as well.[54]

After a premarital health check, prospective brides would receive tetanus immunization and IFA (Iron Folic Acid) supplements. Indonesian guidelines recommend intermittent IFA supplementation (60 mg of elemental iron and 400 mcg of folic acid).[55] As a preventive measure, IFA is taken regularly, one tablet every week.[56] However, according to prospective brides and grooms, not all who underwent premarital health checks received nutritional counseling, mainly if their examination results were normal. Ideally, all individuals undergoing premarital health checks at Public Health Centres should receive nutritional counseling.

Counseling is not only about providing knowledge but should also be a collaborative process involving the individual, family, and service provider. Information is shared, and support is provided so that individuals and families can make decisions and take action to improve their nutrition.[57] WHO recommendations on preconception care for women include information, education and counseling on nutrition, promotion of exercise, iron and folic acid supplementation, and supplementation with energy and nutrient-dense foods.[57] Evidence shows that counseling during the preconception period can lead to healthier behaviors and better outcomes for both mother and infant.[58]

Some prospective brides also tried to improve their knowledge about nutrition and health. Their family, prospective husbands, and friends served

as sources of information and discussion partners regarding their health issues. A study by Shibata et al. found that family and friends were one of the primary sources of preconception care knowledge among rural Japanese women (60%), with the internet being the primary source (70%). Other sources included books and magazines, obstetricians, and primary care physicians.[59] Regarding prospective brides seeking information through social media, an Australian study showed that 40% of women used social media for general health information, 32% for preconception health advice, and 20% for pregnancy-related information.[60]

Some brides have undertaken nutritional preparation, but the efforts made have not been maximized by only doing a few types of nutritional preparation activities, such as increasing the consumption of certain nutrients and avoiding caffeine, cigarettes, alcohol, and drugs. In fact, a prospective bride who was underweight did not do any preparation at all. Although the BKKBN has potential programs such as the Family Assistance Team (TPK) and the "Electronics Ready for Marriage and Pregnancy" (Elsimil) app, they have not reached their full potential, and almost all informants were unaware of them. The TPK program and the Elsimil application have significant potential to assist prospective brides and grooms by offering health support and tracking key health indicators.[61,62]

The Cibinong Subdistrict KUA was partnered with local Public Health Centres to provide nutrition and health education during marriage guidance sessions. However, the program was not fully effective because marriage guidance was not mandatory, resulting in many prospective brides and grooms not participating. Additionally, midwives were occasionally absent, which hindered the delivery of education and counseling. At the time of data collection, premarital health checks for a marriage eligibility certificate were also not mandatory, causing many couples to skip them. In fact, both the marriage guidance sessions and post-health check counseling could have been valuable opportunities to educate couples on proper nutritional preparation before conception.

The authors acknowledged the strengths and limitations of this study. The findings of this study provided new insights for researchers and readers about nutritional preparation among prospective brides that were currently underexplored. Furthermore, the findings of this study can help policymakers improve health promotion programs, especially for prospective brides, as the target audience of the program.

This study had several limitations. First was the potential for selection bias due to the recruitment of prospective brides, grooms, and their significant others. With only four significant others (three mothers and one friend) interviewed, data saturation for non-family significant others was not achieved. Additionally, during the study report, regulations from the KUA were changed: starting in July 2024, Marriage Guidance (Bimwin) became mandatory for prospective brides and grooms, and the KUA now requires a marriage eligibility certificate from the Public Health Centre, which includes a premarital health check. These regulatory changes may address some of the issues identified in this study, although the researcher could not confirm the changes directly with prospective brides and grooms.

Conclusion

This study highlights the various nutritional preparation activities among prospective brides during the preconception period, including managing weight, eating nutritious and healthier foods, engaging in physical activity, and several other things. However, several informants lacked an understanding of the importance of preconception health. Many prospective brides still do not have a clear understanding of how to properly carry out nutritional preparation activities, such as maintaining a balanced diet and achieving an ideal body weight. Additionally, government programs that have the potential to improve the understanding of prospective brides to prepare their nutrition and

health are underutilized and have not been optimally implemented.

It is essential to ensure that existing government programs, such as premarital health checks, iron and folic acid (IFA) supplementation, and nutritional counseling, are accessible to all prospective couples and delivered effectively. Education on preconception nutrition and health needs to be improved to equip both women and their prospective husbands with the knowledge necessary to make informed decisions before pregnancy. Information from family members and the use of social media can help couples gain knowledge about nutritional preparation during the preconception period. However, the role of health workers remains critical in guiding these efforts. Socialization of the program and improvement of the implementation of programs related to prospective brides and grooms is also essential, such as the active empowerment of the TPK to assist prospective brides with education and support in preparing their nutrition and health during the preconception period.

Conflict of interest

Authors declared no conflict of interest regarding this article.

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References

1. Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN). Antisipasi Generasi Stunting Guna Mencapai Indonesia Emas 2045 [Internet]. BKKBN. 2021 [cited 2023 Mar 16]. Available from: https://www.kominfo.go.id/content/detail/32898/indonesia-cegah-stunting-antisipasi-generasi-stunting-guna-mencapai-indonesia-emas-2045/0/artikel_gpr
2. Kementerian Kesehatan Republik Indonesia. Buku Saku Hasil Studi Status Gizi Indonesia (SSGI) Tingkat Nasional, Provinsi, dan Kabupaten/Kota Tahun 2021 [Internet]. 2021. Available from: https://www.litbang.kemkes.go.id/buku-saku-hasil-studi-status-gizi-indonesia-ssgi-tahun-2021/
3. Sartika AN, Fadhilah TM. Diet Diversity to Assess Diet Quality of Pre-Conception Women in Bekasi, West Java. Journal of Global Nutrition. 2021;1(1):46–55.
4. Paratmanitya Y, Helmyati S, Nurdiati DS, Lewis EC, Hadi H. Assessing preconception nutrition readiness among women of reproductive age in Bantul, Indonesia: findings from baseline data analysis of a cluster randomized trial. Jurnal Gizi dan Dietetik Indonesia (Indonesian Journal of Nutrition and Dietetics). 2021;8(2):68.
5. Ardiana I, Aps M. Perhitungan Indikator Kinerja Utama BKKBN Tahun 2021 (Pengolahan Pendataan Keluarga Tahun 2021) [Internet]. BKKBN. 2021 [cited 2022 Jul 13]. Available from: https://cis.bkkbn.go.id/latbang/?wpdmpro=paparan-hasil-perhitungan-iku-bkkbn-2021
6. Young MF, Nguyen PH, Gonzalez Casanova I, Addo OY, Tran LM, Nguyen S, et al. Role of preconception nutrition in offspring growth and risk of stunting across the first 1000 days in Vietnam. PLoS One. 2018;2–10.
7. Santosa A, Arif EN, Ghoni DA. Effect of maternal and child factors on stunting: partial least squares structural equation modeling. Clinical and experimental pediatrics, 65(2), 90. Clin Exp Pediatr. 2022;65(2):90–7.
8. Stephenson J, Heslehurst N, Hall J, Schoenaker DAJM, Hutchinson J, Cade JE, et al. Before the beginning: nutrition and lifestyle in the preconception period and its importance for future health. The Lancet. 2018;391(10132):1830–41.
9. Juan J, Yang H. Early life 1000 days: Opportunities for preventing adult diseases. Chin Med J (Engl). 2022;135(5):516–8.
10. Marshall NE, Abrams B, Barbour LA, Christian P, Friedman JE, Jr WWH, et al. The importance of nutrition in pregnancy and lactation: lifelong consequences. 2022;226(5):607–32.
11. Donovan, Mary F; Cascella M. Embryology, Weeks 6-8 [Internet]. Treasure Island (FL): StatPearls Publishing; 2022. Available from: https://www.ncbi.nlm.nih.gov/books/NBK563181/#!po=94.4444
12. Branum AM, Ahrens KA. Trends in Timing of Pregnancy Awareness Among US Women. Matern Child Health J. 2017;21(4):715–26.

13. Kantor Wilayah Kementerian Agama Provinsi Bali. Persyaratan Nikah. Layanan Agama Kecamatan. 2023.
14. Kellogg, Kristi; Olson, Anna Price; DiGiovanna JM. The Ultimate Wedding-Planning Checklist and Timeline [Internet] Brides. 2023. [cited 2023 Mei 16]. Available from: https://www.brides.com/story/brides-wedding-checklist-custom-wedding-to-do-list
15. Khan NN, Boyle J, Lang AY, Harrison CL. Preconception health attitudes and behaviours of women: A qualitative investigation. Nutrients. 2019;11(7).
16. Prichard I, Tiggemann M. An examination of pre-wedding body image concerns in brides and bridesmaids. Body Image. 2008;5(4):395–8.
17. Kasim R, Draman N, Kadir AA, Muhamad R. Knowledge, Attitudes and Practice of Preconception Care among Women Attending Appointments at a Rural Clinic in Kelantan. Education in Medicine Journal. 2016;8(4):57–68.
18. Huo Y, Monma T, Kataoka C, Takeda F. Dietary Knowledge, Attitudes, and Behaviors Related to Obesity and Highly Underweight Among Urban Chinese High School Students: A Cross-Sectional Study. Int J Public Health. 2024;69(August):1–8.
19. Li C, Zhu N, Zeng L, Dang S, Zhou J, Pei L, et al. Effect of maternal pre-pregnancy underweight and average gestational weight gain on physical growth and intellectual development of early school-aged children. Sci Rep. 2018;8(1):1–9.
20. González-Plaza E, Bellart J, Martínez-Verdú MÁ, Arranz Á, Luján-Barroso L, Seguranyes G. Pre-pregnancy overweight and obesity prevalence and relation to maternal and perinatal outcomes. Enferm Clin. 2022;32:S23–30.
21. Elder, Leslie; Ransom E. Nutrition of Women and Adolescent Girls: Why It Matters. Population Reference Bureau. 2023.
22. Yan R, Liu X, Peng Y, Peng X. Preconception underweight and the risk of offspring congenital heart diseases in young pregnant women: Evidence from the China Birth Cohort Study. *Int J Gynecol Obstet*. 2024; 167: 1207-1213.
23. Kaneko K, Suto M, Miyagawa E, Mikami M, Nakamura Y, Murashima A, et al. Preconception underweight impact on postnatal osteoporotic fracture: a retrospective cohort study using Japanese claims data. BMC Pregnancy Childbirth. 2024;24(1):1–10.
24. Moutos CP, Lozovyy V, Clark SM. Addressing optimal maternal weight and exercise during the preconception period and pregnancy. Clin Exp Obstet Gynecol. 2020;47(5):624–8.
25. Manoogian ENC, Chaix A, Panda S. When to Eat: The Importance of Eating Patterns in Health and Disease. J Biol Rhythms. 2019;34(6):579–581.
26. Colozza D. Dietary health perceptions and sources of nutritional knowledge in an urban food environment: A qualitative study from Indonesia. Public Health Nutr. 2021;24(10):2848–58.
27. Van Dyke N, Murphy M, Drinkwater EJ. "We know what we should be eating, but we don't always do that." How and why people eat the way they do: a qualitative study with rural Australians. BMC Public Health. 2024;24(1):1–15.
28. Forbes LE, Graham JE, Berglund C, Bell RC. Dietary change during pregnancy and women's reasons for change. Nutrients. 2018;10(8):1–10.
29. Gete DG, Waller M, Mishra GD. Changes in dietary patterns from preconception to during pregnancy and its association with socio-demographic and lifestyle factors. Public Health Nutr. 2022;25(9):2530–40.
30. Skreden M, Bere E, Sagedal LR, Vistad I, Overby NC. Changes in beverage consumption from pre-pregnancy to early pregnancy in the Norwegian Fit for Delivery study. Public Health Nutr. 2015;18(7):1187–96.
31. Yonezawa Y, Ueno F, Obara T, Yamashita T, Ishikuro M, Murakami K, et al. Fruit and vegetable consumption before and during pregnancy and developmental delays in offspring aged 2 years in Japan. British Journal of Nutrition. 2022;127(8):1250–8.
32. Djossinou DRA, Savy M, Fanou-Fogny N, Landais E, Accrombessi M, Briand V, et al. Changes in women's dietary diversity before and during pregnancy in Southern Benin. Matern Child Nutr. 2020;16(2).
33. Jaisamrarn U, Esteban-Habana MA, Padolina CS, Decena DCD, Dee MT, Damodaran P, et al. Vitamins and minerals, education, and self-care need during preconception to 1000 days of life in Southeast Asia: An expert panel opinion. SAGE Open Med. 2023;11.
34. Caut C, Leach M, Steel A. Dietary guideline adherence during preconception and pregnancy: A systematic review. Matern Child Nutr. 2020;16(2):1–20.
35. McKenna E, Hure A, Perkins A, Gresham E. Dietary supplement use during preconception: The Australian longitudinal study on women's health. Nutrients. 2017;9(10):1–12.
36. American Pregnancy Association. How to Get Pregnant Naturally. American Pregnancy Association. 2024.
37. Derbyshire E. Hydration for Pregnancy and Motherhood. Natural Source Water Association. 2016.
38. Sianipar EA. the Potential of Indonesian Traditional Herbal Medicine as Immunomodulatory Agents: a Review. Int J Pharm Sci Res. 2021;12(10):5229.
39. Charaf S, Wardle JL, Sibbritt DW, Lal S, Callaway LK. Women's use of herbal and alternative medicines for preconception care. Australian and New Zealand Journal of Obstetrics and Gynaecology. 2015;55(3):222–6.
40. Gaskins, Audrey J.; Rich-Edwards, Janet W.; Williams PL; et al. Pre-pregnancy caffeine and caffeinated

beverage intake and risk of spontaneous abortion. Eur J Nutr. 2018;57(1):107–117.
41. Wartiningsih M, Brotosudarmo THP, Gonaldy VA, et al. Effect of Coffee Drinking Habit to Blood Pressure and Hemoglobin Levels on Women of Childbearing Age. Journal of Epidemiology and Public Health. 2024;9(3):276–283.
42. Lee J. Association between Coffee and Green Tea Consumption and Iron Deficiency Anemia in Korea. Korean J Fam Med. 2023;44(2):69–70.
43. Centers for Disease Control and Prevention. Health Problems Caused by Secondhand Smoke. Centers for Disease Control and Prevention. 2024.
44. Schoenaker DAJM, Stephenson J, Smith H, Thurland K, Duncan H, Godfrey KM, et al. Women's preconception health in England: a report card based on cross-sectional analysis of national maternity services data from 2018/2019. BJOG. 2023;130(10):1187–95.
45. Office on Smoking and Health NC for CDP and HP (organization). Smoking, Pregnancy, and Babies. Centers for Disease Control and Prevention. 2023.
46. Lassi ZS, Imam AM, Dean S V., Bhutta ZA. Preconception care: Caffeine, smoking, alcohol, drugs and other environmental chemical/radiation exposure. Reprod Health. 2014;11(Suppl 3):1–12.
47. Society A, College A, Committee G. Prepregnancy counseling: Committee Opinion No. 762. Fertil Steril. 2019;111(1):32–42.
48. Prosen M, Žvanut B, Pucer P, Mivšek AP, Petročnik P, Tuomi J. The importance of physical activity in improving preconception health. Kontakt. 2021;23(4):247–55.
49. Kruszewski A, Przybysz P, Kacperczyk-Bartnik J, Dobrowolska-Redo A, Romejko-Wolniewicz E. Physical Activity during Preconception Impacts Some Maternal Outcomes—A Cross-Sectional Study on a Population of Polish Women. Int J Environ Res Public Health. 2023;20(4).
50. Kandel P, Lim S, Dever M, Lamichhane P, Skouteris H, Currie S, et al. Enablers and Barriers Related to Preconception Physical Activity: Insights from Women of Reproductive Age Using Mixed Methods. Nutrients. 2023;15(23).
51. Office on Women's Health. Preconception health. U.S. Department of Health and Human Services. 2021.
52. Sūdžiūtė K, Murauskienė G, Jarienė K, Jaras A, Minkauskienė M, Adomaitienė V, et al. Pre-existingmental health disorders affect pregnancy and neonatal outcomes: A retrospectivecohort study. BMC Pregnancy Childbirth. 2020;20(1):1–7.
53. Kementerian Kesehatan Republik Indonesia. Pentingnya Pemeriksaan Kesehatan Pra Nikah. Kementerian Kesehatan Republik Indonesia. 2018.
54. Al-Shafai M, Al-Romaihi A, Al-Hajri N, Islam N, Adawi K. Knowledge and Perception of and Attitude toward a Premarital Screening Program in Qatar: A Cross-Sectional Study. Int J Environ Res Public Health. 2022;19(7).
55. Ministry of Health Republic of Indonesia and United Nations Children's Fund. Maternal Nutrition in Indonesia: Landscape Analysis & Recommendations [Internet]. Jakarta; 2023. [cited 2024 Dec 20]. Available from: https://www.unicef.org/indonesia/media/19111/file/Maternal nutrition in Indonesia.pdf
56. Kemenkes RI. Kartu Calon Pengantin Sehat [Internet]. 2019 [cited 2024 Dec 20]. Available from: https://gizikia.kemkes.go.id/assets/file/pedoman/Kartu Catin Sehat.pdf
57. Harriet Torlesse, Nita Dalmiya VT and VA. Counselling to improve maternal nutrition: Considerations for programming with quality, equity and scale. Unicef. 2021;1–16.
58. Atrash H, Jack B. Preconception care to improve pregnancy outcomes: clinical practice guidelines. Journal of Human Growth and Development. 2020;30(3):407–16.
59. Shibata Y, Abe M, Narumoto K, Kaneko M, Tanahashi N, Fetters MD, et al. Knowledge and practices of preconception care among rural Japanese women: findings from a mixed methods investigation. BMC Pregnancy Childbirth. 2023;23(1):1–15.
60. Skouteris H, Savaglio M. The use of social media for preconception information and pregnancy planning among young women. J Clin Med. 2021;10(9).
61. Humas Jabar. Tim Pendamping Keluarga Bergerak Bangun Keluarga Sejahtera [Internet]. 2022 [cited 2022 May 13]. Available from: https://jabarprov.go.id/index.php/news/46644/2022/05/12/Tim-Pendamping-Keluarga-Bergerak-Bangun-Keluarga-Sejahtera
62. BKKBN. Cegah Stunting, BKKBN Upayakan Generasi Siap Nikah dan Siap Hamil. 2022.