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PRE-CONCEPTION READINESS AMONG PROSPECTIVE BRIDES

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Abstract

Background: Preconception is the best preparation time for the First 1000 Days of Pregnancy. Prospective brides are a group that must receive attention and monitoring regarding health conditions, including nutritional status, to prepare for pregnancy and the birth of a healthy baby. This research aims to determine the preconception nutritional readiness of prospective brides. **Method**: This type of research was quantitative with a cross-sectional descriptive design. The population in the study was 30 prospective brides and was obtained using a consecutive sampling technique of 20 prospective brides. The variables studied were the bride and groom's sociodemographic data, including age, highest level of education, work status, and sources of nutrition and health information. Other variables studied were body mass index nutritional status, chronic lack of energy status, anemia status, energy, protein, iron, calcium, folic acid intake, ferro supplementation and folic acid supplementation, and preconception nutritional knowledge. The collected data will be entered and processed using Microsoft Excel and SPSS, then analyzed univariately using a descriptive frequency test. **Results**: The results of this study show that the sociodemographics of the majority of prospective brides are in the early adult age category (55%), have secondary education (75%), are not working (75%), and receive health and nutritional information from health workers (45%). Adequate energy intake level (75%), insufficient protein (55%), insufficient iron (85%), insufficient calcium (95%), insufficient folic acid (100%), no supplementation (85%), nutritional status of each -respectively normal and obese (35%), not CED (60%), not anemic (80%), lacking knowledge (70%), and lacking preconception nutritional readiness (85%). **Conclusion**: Most prospective brides cannot meet at least half of the preconception nutritional readiness indicators measured.

Keywords: Preconception, Prospective woman bride, Intake

INTRODUCTION

Pregnancy is part of the First 1000 Days of Life, which determines the quality of a child's health and growth in the future. Health and nutritional problems that are not intervened before conception will affect the pregnancy and the child born. Interventions carried out during conception or when pregnancy occurs are too late to carry out (Dieny et al., 2019). Preconception is the best time to prepare for

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the First 1000 Days of Pregnancy, namely the pregnancy period (270 days) and two years (730) of the baby's life after birth. Therefore, preconception is the main period for preventing nutritional problems in pregnant women, which impacts future generations (Afifah et al., 2022). Women of reproductive age are a group that must receive attention and monitoring regarding health conditions, including nutritional status, to prepare for pregnancy and the birth of a healthy baby.

Women of reproductive age are women in the 15-49 years age group who are still in their reproductive age and are married or unmarried, young women, pregnant/postpartum women, adult women who are not pregnant, and prospective brides (Nurachma, 2022; Sulaeman, 2021). Nutritional problems that women of reproductive age often experience are anemia and chronic lack of energy. Anemia in pregnant women is at risk of causing bleeding, which is the main factor in maternal mortality in Indonesia (Angrainy, 2017). Meanwhile, Chronic Energy Deficiency (CED) experienced by pregnant women is at risk of causing low birth weight (LBW), and there is a high possibility of stunting in the children they give birth to (Laura et al., 2022). Insufficient nutritional intake is a direct cause of dietary problems and is influenced by indirect causal factors such as inadequate knowledge about preconception nutrition (Umisah, 2017). Preconception nutritional knowledge is essential in preparing for pregnancy to prevent dietary deficiencies (Umisah, 2017). Chronic lack of energy and anemia are closely related to chronic energy and protein deficiencies. Besides energy and protein, iron, folic acid, and calcium are very important to prepare before pregnancy (Angraeni and Ayuningtyas, 2017).

The reproductive health of the prospective bride is the starting point for a picture of pregnancy and the child being born, where preparations can be made early before the wedding (Yulivantina et al., 2021). Minister of Health Regulation Number 97 of 2014 states that preconception health services are provided to prospective brides and couples of reproductive ages to prepare for a healthy and safe pregnancy and birth and to obtain a healthy baby (Wirenviona et al., 2021). Preconception preparations for prospective brides in Indonesia are still limited to physical examinations. It is infrequent to measure preconception nutritional readiness regarding the adequacy of food intake, nutritional status, knowledge

about preconception nutrition, or consumption of folic acid supplements (Paratmanitya et al., 2021). This research aims to determine the preconception nutritional readiness of prospective brides.

METHOD

This type of research was quantitative research with a cross-sectional descriptive design. The population in this study were prospective brides who registered their marriage at the Religious Affairs Office Tenggarang District, Bondowoso Regency, from March to April 2024, with 30 prospective brides. The sampling technique was consecutive sampling, in which all samples that came and met the inclusion criteria in the form of prospective brides who registered their marriage at the Religious Affairs Office Tenggarang District in March-April 2024, women of reproductive age aged 19-49 years, never married and married in an unregistered marriage, willing to be a respondent and the exclusion criteria were prospective brides who were pregnant, suffering from chronic diseases such as tuberculosis, and who could not read.

The variables studied were the bride and groom's sociodemographic data obtained through sociodemographic questionnaire interviews, which included age, highest level of education, work status, and sources of nutritional and health information. Other variables studied were Body Mass Index (BMI) nutritional status obtained through measurements using scales and microtones, chronic lack of energy status obtained from Mid-upper arm circumference (MUAC) measurements using Medline, Hb levels obtained based on the results of the health examination of the prospective bride and groom at the Community Health Center or measured using easy-touch Glucose; Cholesterol; Hemoglobin (GCHb) if the prospective bride and groom did not undergo examination health, nutritional intake including energy, protein, iron, calcium and folic acid based on the results of a 2x24 hour recall interview, supplementation history based on a questionnaire on supplementation consumed in the last three months and level of preconception nutritional knowledge based on a preconception nutritional knowledge questionnaire. Assessment of nutritional readiness is based on the nutritional readiness score obtained according to the assessment criteria set out in Table 1. This

research has undergone an ethical test by the Health Research Ethics Commission (KEPK) of the Faculty of Dentistry, University of Jember, with number 2463.UN25.8/KEPK/DL/2024 . The collected data will be entered and processed using Microsoft Excel and SPSS, then analyzed univariately using the descriptive frequency test.

Table 1. Adjustment Criteria on Nutritional Status of Prospective Brides

Indicators	Category	Score
Nutritional status	BMI <18,5 kg/m^2	0
	BMI 18,5-25,0 kg/m^2	1
	BMI >25,0 kg/m^2	0
Risk of chronic energy deficiency	MUAC <23,5 cm	0
	MUAC ≥23,5 cm	1
Anemia status	<12,0 g/dl	0
	≥12,0 g/dl	1
Energy intake	<80% daily energy requirements	0
	80%-110% daily energy requirements	1
	>110% daily energy requirements	0
Protein intake	<80% daily protein requirements	0
	80%-110% daily protein requirements	1
	>110% daily protein requirements	0
Iron intake	<80% RDA	0
	≥80% RDA	1
Folic acid intake	<80% RDA	0
	≥80% RDA	1
Calcium intake	<80% RDA	0
	≥80% RDA	1
Preconception nutritional knowledge	Less (<75% questions correct)	0
	Good (≥75% of questions correct)	1
Iron and/or folic acid supplementation	No	0
	Yes	1

RESULTS AND DISCUSSION

Research result

The sociodemographic characteristics of the prospective bride are shown in Table 2, including the prospective bride's age at marriage, highest level of education, work status, and source of nutritional and health information for the prospective bride.

Table 2. Sociodemographic Characteristics of Prospective Brides

Sociodemographic	Frequency (n)	Percentage (%)
Age		
Late teens	9	45
Early adulthood	11	55
Total	20	100
Last education		
Intermediate	15	75
Tall	5	25
Total	20	100
Working status		
No	15	75
Yes	5	25
Total	20	100
Source of preconception health and nutrition information		
Health workers	9	45
Electronic media	3	15
There isn't any	8	40
Total	20	100

The characteristics of the prospective bride are that she is married in the early adulthood group (55%) and has secondary education (75%), namely junior high and high school levels. Most prospective brides do not work (75%) and receive preconception health and nutrition information from health workers (45%) when conducting health checks for prospective brides at the Community Health Center. The following are the achievements of preconception nutritional readiness indicators obtained by prospective brides related to energy intake, protein intake, iron intake, calcium intake, folic acid intake, iron and/or folic acid supplementation,

Body Mass Index (BMI), Mid-upper Arm Circumference (MUAC), anemia status, and preconception nutritional knowledge.

Figure 1. Percentage of Achievement of Preconception Nutritional Readiness Indicators

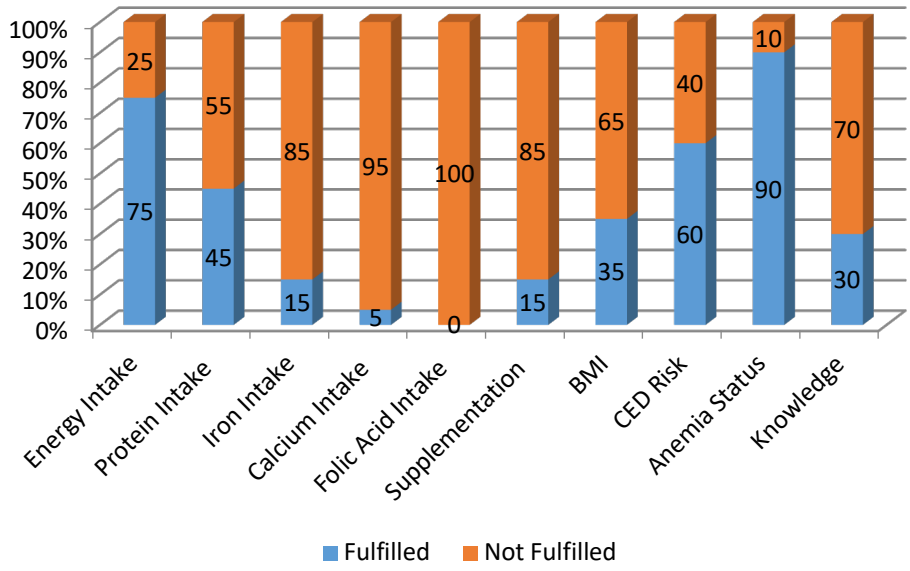


Figure 1 shows that the majority of indicators achieved by prospective brides are related to energy intake (75%), anemia status (90%), and MUAC (60%). Meanwhile, the indicators with the lowest achievements were folic acid intake (0%) and calcium intake (5%). The majority of prospective brides' protein intake indicators do not reach 80-110% of an individual's daily protein requirement (55%), and the majority of prospective brides cannot meet their iron needs (15%) according to the nutritional adequacy figure (RDA). There is (35%) of prospective brides who have normal nutritional status. The majority of prospective brides do not supplement with TTD and/or folic acid (75%), and the level of preconception

nutritional knowledge of prospective brides is dominated by the poor category (70%).

The indicators achieved by each prospective bride and groom will be added up to determine the level of preconception nutritional readiness of the prospective bride and groom from a score of 0 to 10.

Figure 2. Preconception Nutritional Readiness Score of the Bride-To-Be

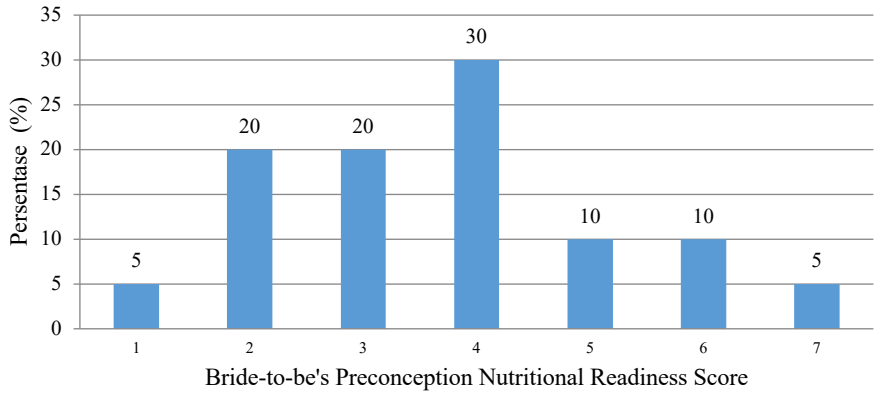


Figure 2 shows that the accumulated score for preconception nutritional readiness indicators for prospective brides in this study was between 3.0 and 4.0 (median = 3.7), with the highest score being seven and the lowest being 1. A score of 7 was obtained by one prospective bride (5%), scores 5 and 6 were obtained by each of the two prospective *brides* (10%), a score four was received by six vans (30%), scores 2 and 3 were obtained by each of the four prospective brides (20%), and score one was obtained by one prospective bride and groom (5%).

Based on the preconception nutritional readiness score obtained by each prospective bride and groom. The preconception nutritional readiness of 20 prospective brides was categorized using the indicator media value (5); prospective brides who did not reach at least half of the measured indicators had a level of insufficient readiness, and prospective brides who had a score exceeding half of the measured indicators were categorized as having poo*r* nutritional readiness. In Table 2, 17 prospective brides (85%) have insufficient preconception nutritional readiness, and three (15%) have sufficient nutritional readiness.

Table 2 Frequency distribution of preconception nutritional readiness of prospective brides

Preconception Nutritional Readiness of the Bride and Groom	Frequency (n)	Percentage (%)
Not enough	17	85
Enough	3	15
Total	20	100

Figures 3 and 4 show that the average intake of energy, protein, iron, and calcium tends to increase along with the increase in the preconception nutritional readiness score obtained. Prospective brides who achieve a one indicator score tend to have lower intake than those with a higher score. Figure 5 shows a graph of BMI that fluctuates due to the presence of prospective bride with fat nutritional status, affecting their daily food intake. A higher ~~more excellent~~ nutritional readiness score indicates an increase in the length of MUAC.

Figure 3. Average Energy, Calcium, and Folic Acid Intake Based on Preconception Nutritional Readiness Score

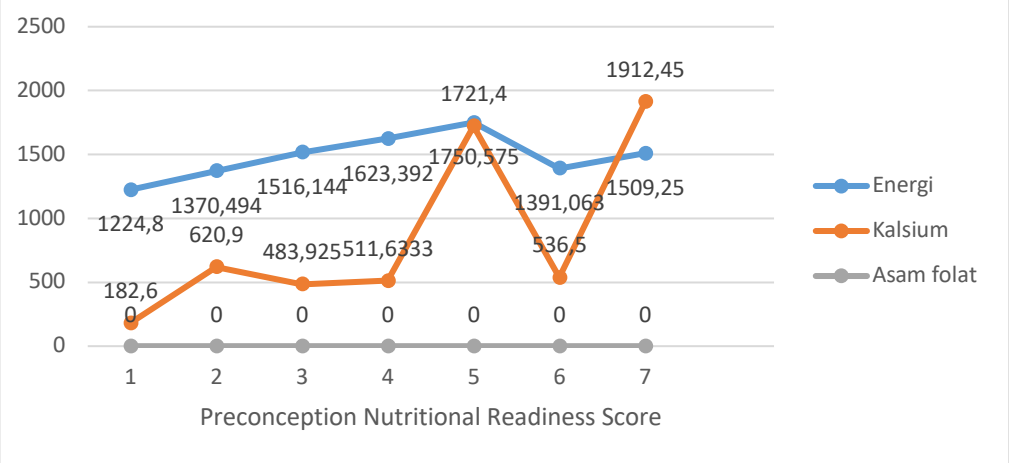


Figure 4. Average Protein and Iron Intake Based on Preconception Nutritional Readiness Score

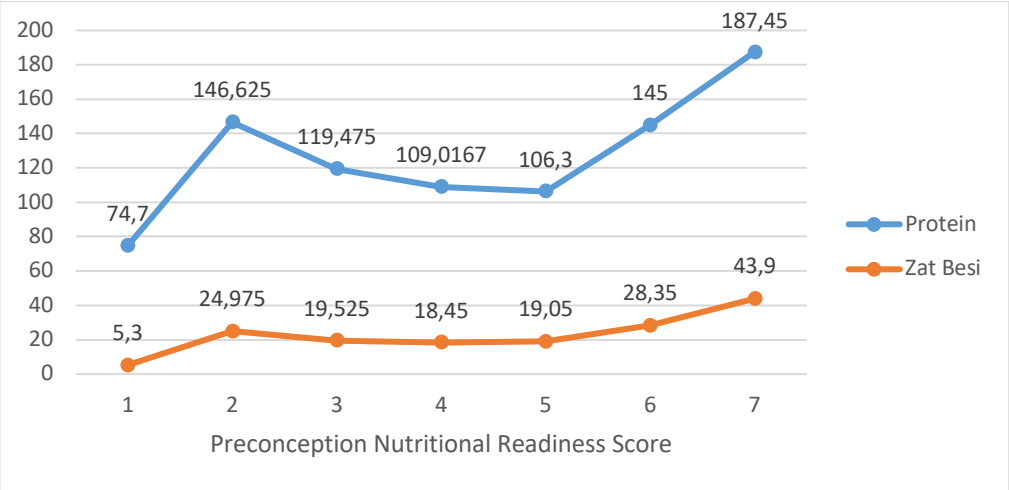
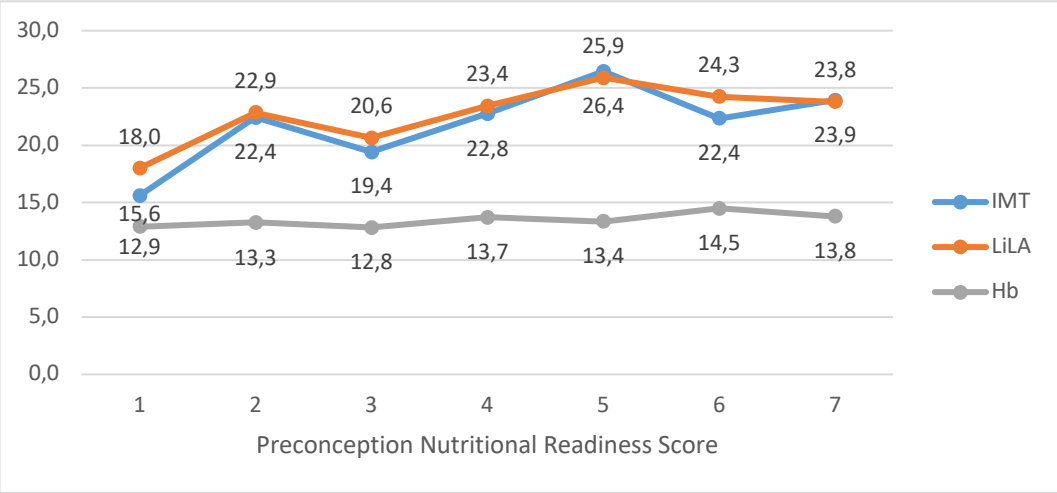


Figure 5. Average BMI, MUAC, and Hb Levels Based on Preconception Nutritional Readiness Score



Discussion

Sociodemographics of Prospective Brides

Based on the results of research on 20 prospective brides, it is known that at the marriage age of prospective brides at the Religious Affairs Office Tenggarang, there are 11 prospective brides (55%) who are married in the early adult age group, based on the education level of 15 prospective brides (75%) are secondary education, most of prospective brides (75%) women do not work, , and the source of information on the health and nutrition of prospective brides is limited from health workers as many as nine prospective brides (45%). The marriage age of the prospective bride is the ideal age for marriage and a good reproductive age for women, e.g. 21-25 years, according to the National Population and Family Planning Agency in 2017. The reproductive organs of women at that age are physiologically well-developed and ready to give birth (BKKBN, 2017).

Pregnancy is very possible after marriage. The best age for pregnancy and childbirth is 20-30 years, where if pregnancy occurs at less than 20 years or more than 30 years, there is a risk of experiencing pregnancy problems (Sukma & Sari, 2020). This is in line with previous research, which states that women who marry young have lower post-marital readiness compared to those who marry at a more mature age, so there is a need to increase efforts to mature the marriage age by institutions that oversee the field of the family (Mawaddah et al., 2019).

After determining the ideal age for marriage (Hamdi & Syahniar, 2019), readiness for marriage is an essential factor for early adult individuals. Readiness for marriage can be viewed from seven aspects, namely intellectual, social, emotional, moral, individual, financial, and mental aspects of the wife (Syeptiana et al., 2018). Their latest level of education influences a person's knowledge. A prospective bride with high level of education can increase their decision-making in accessing more optimal health care before marriage. The level of education has quite an influence on their acceptance of newly acquired knowledge and information (Firda et al., 2021). Education significantly affects the prospective bride and groom's knowledge because it can influence the perspective in receiving health information (Dini & Nurhelita, 2020).

Preconception nutritional readiness can be seen from the food intake the prospective bride and groom consumes. Meeting nutritional needs is greatly influenced by the availability of food ingredients and the ease of accessing food. The better the income, the better the food consumed in terms of quality and quantity, and vice versa (Duha, 2018). This will have an impact on the level of food consumed. Good food intake is seen from the quantity and quality of food consumed. Knowledge of nutrition and health is needed to prepare nutritional intake and reproductive health to support the preconception nutritional preparation of the prospective bride and groom. The sources of information for prospective brides in this study were limited to health workers due to a lack of awareness of accessing nutritional and health information via the Internet. The more information you get, the better prepared a woman will be before becoming a mother. Providing materials to the prospective bride and groom before marriage and exposure to information from the mass media can help prepare the prospective bride and groom for life after marriage (Adyani et al., 2023).

Preconception Nutritional Readiness of the Prospective Brides

Brides are a group of preconception women who need to prepare their bodies for adequate nutrition before conception to achieve optimal nutritional status. The bride and groom's good dietary status will impact the fetus's growth development and safety during the birthing process (Paratmanitya et al., 2021). In line with the LCT (Life Course Theory), which states that the birth output of a child

is greatly influenced by the long-term relationship of the woman's genes, behavior, and environment (healthy food) before pregnancy (Dieny et al. 2019).

The bride and groom's nutritional adequacy can be met with a quality diet. A quality diet is a healthy, nutritious, balanced, safe, and hygienic eating pattern that can meet individual nutritional needs to achieve optimal body condition (Anggraeny Nawiza et al., 2023). Intake of instant and frozen food affects the nutritional adequacy of future bride and groom. These foods tend to be high in calories but low in nutrients. So, only energy intake meets the needs, while the bride and groom's nutritional intake of protein, iron, calcium, and folic acid is not met. Apart from that, the lack of diverse sources of protein consumed also affects the level of iron and calcium intake. Brides-to-be who eat fish, chicken, and beef tend to meet their iron and calcium requirements. Meanwhile, folic acid intake was not met in this study due to insufficient consumption of food sources of folic acid, such as green vegetables and fruit, so additional folic acid intake was needed through supplementation. However, prospective Brides-to-be still do not have the awareness to carry out supplementation in this study. This is similar to research in Bantul, which showed that supplementation in women of reproductive age was relatively low (23.4%) (Paratmanitya et al., 2021). Supplementation is essential for pregnant women and women of reproductive age and must also be paid attention to. There is a need to provide education regarding the importance of getting women of reproductive age into the habit of consuming ferrous iron and/or folic acid supplement tablets from an early age to create a habit of consuming ferrous iron supplement tablets and/or folic acid from an early age.

Food intake will directly affect nutritional status. Nutritional status results from the balance of nutrients consumed and nutrients released as an energy source (Supariasa and Purwaningsih, 2019). The majority of prospective brides in this study were not at risk of developing chronic lack of energy because they had normal nutritional status and were obese. This differs from research on women of reproductive age in the Bantul area, which showed that most samples had normal nutritional status and were not at risk of developing a chronic lack of energy (Paratmanitya et al., 2021). Good nutritional status is needed to ensure that the mother's body has sufficient nutritional reserves to be shared with her child

(Anggraeny Nawiza et al., 2023). When women enter the breastfeeding phase, the woman's nutritional status plays an essential role in the long-term growth and development of the child. This is because, during the critical 1000-day period for a child, especially from conception to 6 months of birth, the mother is the only source of nutrition for the developing child.

A nutritional problem often experienced by prospective brides apart from chronic lack of energy is anemia. Prospective brides are prone to anemia due to inadequate dietary intake and menstruation every month (Mantika & Mulyati, 2014). The results of this study show that most of the intake of protein, iron, calcium, and folic acid does not meet needs. However, the number of prospective brides who experienced anemia in this study was deficient.

Preconception women who experience chronic lack of energy are at risk of developing anemia. In this study, prospective brides who experienced anemia were also indicated to have chronic lack of energy. Anemia is closely related to a deficiency in the intake of macro and micronutrients, which affects the hemoglobin (Hb) synthesis process. Energy and protein are the macronutrients that play a role in the Hb process. Energy has a significant role in the body's physiological processes and Hb synthesis, which, if its needs continue to be unmet, can disrupt body performance, and protein breakdown occurs. The main factors influencing Hb levels are energy intake and nutritional status (Nisa et al., 2019). If inadequate energy intake occurs continuously, there is a risk of decreased nutritional status. The breakdown of protein as an energy source due to chronic energy deficiency risks disrupting iron transport, storage, and Hb formation (Mantika et al., 2019). The prospective bride and groom are closely related to the pregnancy and breastfeeding period, so the body must be in normal nutritional status and free from anemia.

Nutritional knowledge has an essential role in efforts to fulfill a person's dietary needs. Preconception nutritional knowledge is an indirect factor in nutritional problems in prospective brides. Adequate nutritional knowledge will influence behavior in selecting and processing food ingredients (Hubu et al., 2018). The low knowledge of preconception nutrition in this study was due to not all prospective brides receiving preconception nutrition counseling and low awareness

of accessing information related to health and food via the internet. This research has the same results as research conducted at the Religious Affairs Office in Wanasaba, which shows that prospective brides who have the same characteristics (age at marriage, highest level of education, and working status) have low knowledge before being given health education (Faizzaturrahmi and Aprianti, 2023).

Based on the indicators measured to assess preconception nutritional readiness, no single bride and groom could meet the ten indicators. This is the same as the awareness of the importance of preconception nutritional preparation in previous research, which showed similar results in which not a single women of reproductive age could meet the ten indicators of preconception nutritional readiness (Paratmanitya et al., 2021). The reason women still have a low awareness of preparing for preconception nutrition is that pregnancy has not yet occurred (Dieny et al., 2019). This is to the results of this study, which show that the majority of prospective brides cannot fulfill the minimum five indicators of preconception nutritional readiness, so it can be said that awareness of preconception nutritional readiness among women of reproductive age, especially among prospective brides, is still low.

The attitude of being ready to get married among women of reproductive age who register their marriage must be balanced with awareness of the importance of preparing preconception nutrition. It is considered that prospective brides are a group that will enter the pregnancy phase after the wedding. This aims to create a healthy pregnancy with minimal risk for the mother, fetus, and baby born later. So, it is necessary to provide assistance and monitor the prospective bride's preconception nutritional readiness to prepare for a healthy and smooth pregnancy and birth. The National Population and Family Planning Agency (BKKBN, 2022) has established a mandatory mentoring, counseling, and screening program (height, weight, upper arm circumference, and Hb levels) starting three months before marriage, which is carried out at community health centers (Novita et al., 2022).

This program aims to detect nutritional problems at risk of causing problems in pregnancy and impaired growth and development of children born. Badan Kependudukan dan Keluarga Berencana Nasional or National Population and

Family Planning Board (BKKBN) launched the Elsimil (Electronic Ready for Marriage and Pregnancy) application to support this program. This application contains information about premarital readiness, preconception readiness, reproductive health, contraception, cancer prevention, and nutrition-related consultations for prospective brides, which prospective brides can access independently as a source of information to prepare for pregnancy. The Elsimil application is also practical as a medium for recording the results of health examinations and the nutritional status of the prospective bride and groom. Each prospective bride and groom will be accompanied by a Family Assistance Team consisting of family planning cadres, Family Welfare Empowerment'cadres, or midwives who will direct the use and monitor the results of filling out the questionnaire at Elsimil after the prospective bride and groom undergo an examination at a health facility (Nasution and Zulkarnain, 2019). Filling out the questionnaire on Elsimil will produce a marriage certificate, which will later become one of the administrative files when registering for a marriage at the Religious Affairs Office (Nasution, 2023).

CONCLUSION AND SUGGESTION

The sociodemographics of women are dominated by the early adulthood age group with secondary education and not working and receiving nutritional and health information from health workers. Women's nutritional intake is met with energy, and protein, iron, calcium, and folic acid do not meet their needs. Most prospective brides are not supplemented with ferrous iron and/or folic acid supplement tablets. The nutritional status of female cats is normal and fat, with most prospective brides not experiencing CED or being anemic. The preconception nutritional knowledge level of the majority of women is poor. Most women's preconception nutritional readiness levels are less or cannot meet at least half of the nutritional readiness indicators measured. It is hoped that further research can expand the study area to a broader area, using a more in-depth research design, such as looking for relationships or influences and adding other factors, such as knowing dietary patterns through the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) and culture on pre-conception nutritional readiness.

DECLARATION

Conflict of Interest
The authors declare that they have no competing interests.

Authors' Contribution
SM and DAK conceived the study idea. SM, DAK, and SNR designed the study and planned its implementation. SM collected, prepared, analyzed, and interpreted results. SM and DAK drafted the manuscript and read the entire manuscript critically. DAK revised the manuscript. All authors read and approved the final manuscript.

Ethical Approval
This research has undergone an ethical test by the Health Research Ethics Commission (KEPK) of the Faculty of Dentistry, University of Jember, with number 2463.UN25.8/KEPK/DL/2024.

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Nil.

Data Availability
The datasets used and analyzed during the current study are available from the corresponding author upon request.

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REFERENCES

Adyani, K., Wulandari, C. L., & Isnaningsih, E. V. (2023). Faktor – Faktor yang Mempengaruhi Pengetahuan Calon Pengantin dalam Kesiapan Menikah. Jurnal Health Sains, 4(1), 109–119. https://doi.org/10.46799/jhs.v4i1.787

Anggraeny Nawiza, R., Yunita, L., & Irawan, A. (2023). Pelaksanaan Pendampingan Catin Untuk Mencegah Stunting Dengan Skrinning Status Gizi Dan Indeks Masa Tubuh (Tagindas). Jurnal Ilmu Kedokteran dan Kesehatan Indonesia, 3(3), 81–95. https://doi.org/10.55606/jikki.v3i3.2138

BKKBN. (2017). Usia pernikahan ideal 21 – 25 tahun. https://www.bkkbn.go.id Badan Keluarga BKKBN Usia Pernikahan Ideal 21-25 Tahun https://www.bkkbn.go.id/detailpost/bkkbn-usia-pernikahan-ideal-21-25-tahun Diakses Desember 2018.

BKKBN. (2023). Pendampingan Calon Pengantin Oleh Tim Pendamping Keluarga. https://kampungkb.bkkbn.go.id/kampung/19424/intervensi/780468/pendampingan-calon-pengantin-oleh-tim-pendamping-keluarga

Dini, A. Y. R., & Nurhelita, V. F. (2020). Hubungan Pengetahuan Remaja Putri Tentang Pendewasaan Usia Perkawinan Terhadap Risiko Pernikahan Usia Dini. Jurnal Kesehatan, 11(1), 50–59. https://doi.org/10.38165/jk.v11i1.197

Dieny, Fillah Fithra, Ayu Rahadiyanti, Dewi Marfu'ah K. 2019. *Gizi Prakonsepsi*. Jakarta: Bumi Medika.

Duha, Y. (n.d.). Hubungan Ketahanan Pangan Dan Mutu Gizi Pangan (Mgp) Rumah Tangga Dengan Status Gizi Wanita Usia Subur (WOMEN OF REPRODUCTIVE AGE) Di Desa Paluh Sibaji Kecamatan Pantai Labu.

Firda, F., H Ramlan, & Ayu Dwi Putri Rusman. (2021). Analisis Karakteristik Calon Pengantin Terhadap Kesiapan Menjadi Ibu Di Kua Kota Parepare. Jurnal Ilmiah Manusia Dan Kesehatan, 4(2), 287–298. https://doi.org/10.31850/makes.v4i2.616

Hamdi, M. R., & Syahniar, S. (2019). Kesiapan menikah mahasiswa ditinjau dari jenis kelamin, latar belakang budaya dan sosial ekonomi. JPGI (Jurnal Penelitian Guru Indonesia), 4(2), 76. https://doi.org/10.29210/02243jpgi0005

Laura Zeffira, Putri, S. D. ., & Dewi, N. P. (2022). Profil Kehamilan Ibu Terhadap Kejadian Stunting Pada Anak Usia 6–24 Bulan di Wilayah Kerja Puskesmas Air Dingin Kota Padang. Scientific Journal, 1(3), 190–197. https://doi.org/10.56260/sciena.v1i3.45

Mantika, A. I., & Mulyati, T. (2014). Hubungan Asupan Energi, Protein, Zat Besi Dan Aktivitas Fisik Dengan Kadar Hemoglobin Tenaga Kerja Wanita Di Pabrik Pengolahan Rambut Pt. Won Jin Indonesia. Journal of Nutrition College, 3(4), 848–854. https://doi.org/10.14710/jnc.v3i4.6890

Mawaddah, S., Safrina, L., Mawarpuri, M., & Faradina, S. (2019). Perbedaan Kesiapan Menikah Pada Dewasa Awal Ditinjau Dari Jenis Kelamin Di Banda Aceh. Jurnal Empati, 8(1), 320–328. https://doi.org/10.14710/empati.2019.23649

Nasution, B. H. (2023). Implemenasi Aplikasi Elsimil (Elektronik Siap Nikah, Siap Hamil) Sebagai Syarat Pendaftaran Nikah Perspektif Maqashid Syariah (Studi Kasus Di Kantor Urusan Agama Kecamatan Medan Tembung). 8.

Novita, Firma, dkk., Modul 4: Aplikasi Elsimil Bagi Pendamping Keluarga; TOT Pelatihan Teknis Tim Pendamping Keluarga (TPK) dalam Upaya Percepatan Penurunan Stunting, Jakarta: Pusat Pendidikan dan Pelatihan Kependudukan dan Keluarga Berencana BKKBN, 2022.

Paratmanitya, Y., Helmyati, S., Nurdiati, D. S., Lewis, E. C., & Hadi, H. (2021). 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), 8(2), 68. https://doi.org/10.21927/ijnd.2020.8(2).68-79

Sukma, D. R., & Sari, R. D. P. (n.d.). Pengaruh Faktor Usia Ibu Hamil Terhadap Jenis Persalinan di RSUD DR. H. Abdul Moeloek Provinsi Lampung.

Umisah, I. N. A., *and* Puspitasari, D. I. (2017). Perbedaan pengetahuan gizi prakonsepsi dan tingkat konsumsi energi protein pada wanita usia subur (WOMEN OF REPRODUCTIVE AGE) usia 15-19 tahun kurang energi kronis (KEK) dan tidak KEK di SMA Negeri 1 Pasawahan. *Jurnal kesehatan*, *10*(2), 23-36. https://doi.org/10.23917/jk.v10i2.5527

Wirenviona, Rima, A.A.I.D Cinthiya Riris et al. 2021. *Kesehatan Reproduksi Dan Tumbuh Kembang Janin Sampai Lansia Pada Perempuan*. Surabaya: Airlangga Universuty Press.

Yulivantina, E. V., MufdMUACh, M., *and* Kurniawati, H. F. (2021). Pelaksanaan Skrining Prakonsepsi pada Calon Pengantin Perempuan. *Jurnal Kesehatan Reproduksi*, *8*(1), 47-53. . https://doi.org/10.22146/jkr.55481