



THE RELATIONSHIP BETWEEN EDUCATIONAL LEVEL AND KNOWLEDGE OF STUNTING AMONG FEMALE ENGAGED WOMEN

Mawaliya Najwa Sabrina*, Kusuma Estu Werdani

Faculty of Health Science, Public Health Study Program, Universitas Muhammadiyah Surakarta, Jl. A Yani, Pabelan, Kartasura, Sukoharjo, Jawa Tengah 57162, Indonesia

*mawaliyasabrina308@gmail.com

ABSTRACT

Stunting remains a serious health issue, including in the city of Surakarta. This problem requires comprehensive efforts, one of which is through preconception interventions targeted at prospective brides and grooms as a preventive measure to tackle chronic malnutrition from an early stage. However, individual background characteristics influence health knowledge and literacy levels. This study aims to identify individual characteristics—including age, educational level and employment status—that are associated with the level of knowledge among prospective brides regarding the prevention of stunting. A quantitative study using a cross-sectional approach was conducted in April–May 2025 at the Office of Religious Affairs (KUA) in Banjarsari Sub-district, Surakarta City, with a sample size of 102 respondents selected using total sampling and who met the inclusion criteria. Data analysis was performed using univariate and bivariate analyses with the chi-square test at a 95% significance level. A total of 51% of respondents had a high level of knowledge, whilst 49% had a low level of knowledge. The majority of respondents did not yet understand clinical aspects such as the characteristics of haemophilia and external risk factors relating to the mother. The results of the bivariate analysis indicated a significant association between educational level and knowledge of stunting ($p = 0.044$). Educational attainment is a key factor underpinning the cognitive abilities and health literacy of prospective brides in relation to stunting. There is a need for pre-marital education programmes to optimise conceptual and analytical skills, with a particular focus on groups with low educational attainment, such as Sultanikah Capingan.

Keywords: educational level; knowledge of stunting; stunting

How to cite (in APA style)

Mawaliya Najwa Sabrina, & Werdani, K. E. (2026). The Relationship Between Educational Level and Knowledge of Stunting among Female Engaged Women. *Indonesian Journal of Global Health Research*, 8(5), 625–632. <https://doi.org/10.37287/ijghr.v8i5.2310>.

INTRODUCTION

Stunting is a linear growth disorder caused by chronic malnutrition, resulting in height that is not appropriate for a child's age. Furthermore, stunting is also linked to impaired brain development and cognitive function in children; therefore, preventative measures need to be taken through optimal nutritional interventions (Endrinikapoulos et al., 2023). Globally, the prevalence of stunting remains high, at 22.3 per cent, or around 148.1 million under-fives in 2022 (UNICEF-WHO-World Bank Group, 2023). This figure remains above the target set by the WHO (World Health Organisation), which is to reduce the prevalence to below 20 per cent by 2024 (Kemenkes RI, 2023).

In 2017, according to the Joint Child Malnutrition Estimates, 55 per cent of under-fives suffering from stunting were in Asia and 38 per cent in Africa. Within Asia, South Asia accounted for the highest figure at 58.7 per cent, followed by South-East Asia at 14.9 per cent. Indonesia is among the countries with a high prevalence of stunting, at 36.4% in 2017, making stunting one of the targets under the Sustainable Development Goals (SDGs), specifically Goal 2: to end hunger and achieve better food security and nutrition.

In Indonesia, stunting remains a serious public health issue. According to the 2021 Indonesian Nutrition Status Survey (SSGI), Central Java Province is one of the regions with a relatively high prevalence of stunting, at 20.9 per cent, affecting around 540,000 under-fives. The city of Surakarta is one of the areas with a persistently high prevalence of stunting among under-fives, at 20.4 per cent, ranking 17th out of 35 regencies and cities in Central Java (Kemenkes RI, 2021). These high figures indicate that efforts to prevent stunting need to be comprehensive, not only during pregnancy and after birth, but also during the preconception period, i.e. before pregnancy.

Preventing stunting during the preconception period is crucial, as health and nutritional status prior to pregnancy have a significant impact on the quality of the pregnancy and foetal growth (Tazkiyah et al., 2024). A systematic review conducted by Siregar (2023) shows that the nutritional knowledge of prospective brides and grooms remains relatively low, highlighting the need to strengthen education as part of efforts to prevent stunting before pregnancy. Puspita et al. (2023) show that education on preconception nutrition has been shown to improve prospective brides and grooms' understanding of the importance of preparing for pregnancy. A literature review by Eva Lestari et al. (2023) states that nutritional interventions starting in the preconception period have been shown to be effective in reducing stunting and improving pregnancy readiness. Furthermore, results from the multicentre Women First Trial indicate that nutritional supplementation commencing during the preconception period can increase a baby's birth length and reduce the risk of stunting up to the age of 2 years (Krebs et al., 2021). Preconception interventions have also been shown to reduce key risk factors for stunting, such as chronic energy deficiency (CED), maternal anemia, and the incidence of low birth weight (LBW), making this period a strategic stage in early stunting prevention efforts. Prospective brides' knowledge of preconception preparations still needs to be improved; therefore, education is a key factor in supporting their readiness for pregnancy (Laily et al., 2025).

Knowledge about stunting is a crucial aspect for prospective brides and grooms as a preconception group, as it will influence their readiness to plan a healthy pregnancy. Engaged couples with good knowledge tend to pay more attention to reproductive health and nutritional intake, and to adopt behaviours to prevent stunting from an early stage. Nutritional preparation during the preconception period is not only related to meeting nutritional requirements, but is also influenced by the experiences, understanding and readiness of prospective couples to adopt a healthy lifestyle prior to pregnancy (Emirza et al., 2024). Conversely, a lack of knowledge can increase the risk of nutritional and health problems that may lead to stunting. Research by Rahmiwati and Aggraeni (2023) shows that health education for couples of reproductive age can significantly improve their knowledge and attitudes towards stunting prevention.

The level of knowledge among prospective brides and grooms is influenced by various factors, such as educational attainment, access to information, experience of participating in health education programmes, and the role of healthcare professionals. Educational attainment is significantly associated with knowledge levels regarding nutrition and stunting; individuals with lower levels of education tend to have lower levels of knowledge (Septina et al., 2023). Consequently, access to health education and educational attainment are key factors influencing the knowledge of the reproductive-age population in efforts to prevent stunting. This study aims to identify the individual characteristics—including age, educational attainment and employment status—that are associated with the level of knowledge among prospective brides regarding the prevention of stunting.

METHOD

This study is a quantitative study that uses a cross-sectional approach to analyse the characteristics associated with prospective brides' knowledge of stunting. The independent variables in this study are individual characteristics, including age, educational level and employment status. The dependent variable in this study is knowledge of stunting. Respondent characteristics were categorized as follows: age (at risk: <20 years and >35 years; not at risk: 20–35 years); educational

attainment (low: primary to lower secondary school; high: upper secondary school or equivalent); and employment status (employed, unemployed). The research was conducted at the KUA (Office of Religious Affairs) in Banjarsari Sub-district, Surakarta City, during April–May 2025, with a sample comprising women aged 17–54 who were registered as prospective brides at the Banjarsari KUA. The study population comprised all prospective brides in Banjarsari Sub-district, Surakarta City, and the sample size was determined using the Lemeshow formula with a 95 per cent confidence level and a 5 per cent margin of error, resulting in a minimum sample size of 44 respondents. In practice, the sampling technique used was total sampling of all eligible female prospective brides who had registered at the Banjarsari KUA, totalling 102 respondents. Data collection was carried out directly by visiting the Banjarsari KUA.

The data collection instrument consisted of a questionnaire designed using a categorical scale. The questionnaire was developed by the researcher based on material sourced from the book *Sultanikah Capingan Kota Surakarta*. The questionnaire used had undergone a validity test using Pearson's Product-Moment correlation (significance level <0.05) and a reliability test using Cronbach's Alpha; it comprised 12 questions. Knowledge of stunting was measured using a total score ranging from 0 to 12, which was then categorized as 'low' or 'high' based on the median value of the score distribution across all respondents. Respondents with a total score below or equal to the median were categorized as having 'low' knowledge, whilst those with a score above the median were categorized as having 'high' knowledge. Data analysis was performed using univariate and bivariate analysis with the chi-square test ($P\text{-value} < 0.05$).

RESULT

Table 1.
Frequency Distribution of Characteristics (Age, Education, Occupation) and Respondents' Knowledge

Characteristics	Category	f	%
Age	Risky (<20 & >35 years)	9	8,8
	Non-risky (20 – 35 years)	93	91,2
Education	Low (SD-SMP)	7	6,9
	High (If $\geq$ graduated from SMA)	95	93,1
Occupation	Not Working	6	5,9
	Working	96	94,1
Knowledge	Low (median <10)	50	49,0
	High (median ≥ 10)	52	51,0

Based on age characteristics, the majority of respondents fell within the non-risk age group (20–35 years), accounting for 91.2% ($n=93$), whilst those in the risk age groups (<20 years and >35 years) accounted for only 8.8% ($n=9$). This distribution reflects the fact that the majority of prospective brides and grooms registering at the Banjarsari KUA are of reproductive age, which is categorised as medically safe. With regard to the educational attainment variable, the dominance of the highly educated group ($\geq$ upper secondary school or equivalent) was striking, at 93.1% ($n=95$), whilst the low-educated group (primary to lower secondary school) accounted for only 6.9% ($n=7$). Similarly, regarding employment status, 94.1% ($n=96$) of respondents were in employment and only 5.9% ($n=6$) were unemployed. These figures indicate that prospective brides and grooms in urban areas such as Surakarta tend to have a relatively better socio-economic background compared to those in rural areas.

The distribution of knowledge about stunting was almost evenly split between the low category (median < 10), at 49.0% ($n = 50$), and the high category (median ≥ 10), at 51.0% ($n = 52$). This means that, although more than half of the respondents were classified as having good knowledge, nearly half of the others were still below the median threshold. This warrants serious attention, given that the pre-marital period is a strategic time before the first pregnancy begins.

Table 2.
Percentage and Frequency of Questions with Correct Answers

Question	Percentage (%)
Definition of stunting	76
The best time to prevent stunting	85
Symptoms of stunting in children	72
Internal factors in mothers that cause stunting	86
External factors relating to the mother that cause stunting	42
The preconception period is crucial for preventing stunting	44
Early marriage is not a risk factor	36
The impact of birth spacing	67
LiLA measurements indicating a risk of stunting	50
The impact of thalassaemia on pregnancy	57
Characteristics of haemophilia	40
The adverse effects of exposure to toxic environments on pregnancy	75

From the distribution of answers per question, the questions with the highest percentage of correct answers were ‘internal factors in the mother that cause stunting’ (86 per cent) and ‘the best time for stunting prevention’ (85 per cent), indicating that basic information about stunting is fairly well understood. Conversely, the questions with the lowest correct response rates were “the risks of early marriage” (36%), “the characteristics of haemophilia” (40%), and “external factors in mothers that cause stunting” (42%). These three questions represent more complex and specific dimensions of knowledge, rather than merely general knowledge about the definition or symptoms of stunting.

Table 3.
Relationship between Characteristics and Knowledge of the Stunting Programme

Relationship between Characteristics and Knowledge of the Stunting Programme								
Characteristics	Categories	Knowledge				Total		P-value
		Good		Poor		f	%	
		f	%	f	%			
Age	Risky	2	22,2	7	77,8	9	100	0,071
	Non-risky	50	53,8	43	46,2	93	100	
Education	Low	1	14,3	6	85,7	7	100	0,044
	High	51	53,7	44	46,3	95	100	
Occupation	Not working	1	16,7	5	83,3	6	100	0,083
	Working	51	53,1	45	46,9	96	100	

In the bivariate analysis above, the age variable showed that only 22.2 per cent of prospective brides and grooms in the high-risk age group had good knowledge, which was significantly lower than the 53.8 per cent recorded in the low-risk age group. However, the chi-square test yielded a p-value of 0.071, meaning that this difference was not statistically significant ($p > 0.05$). In contrast to educational level, this variable showed a significant association (p -value = 0.044). Only 14.3 per cent of those with a low level of education had good knowledge, whilst the figure for those with a high level of education was 53.7 per cent. As for the occupation variable, it yielded a p-value of 0.083, thus failing to meet the threshold for statistical significance, although descriptively it appears that employed respondents had a higher proportion with good knowledge (53.1%) compared to those who were unemployed (16.7%).

This statistically non-significant finding regarding the age variable can be interpreted in two ways. On the one hand, the very small number of respondents in the at-risk age group ($n=9$) does indeed limit the power of the statistical test. On the other hand, it is possible that age is not the primary factor influencing knowledge; rather, it is the interaction between age and length of education or exposure to information that is more decisive. A similar study by Suhardiningsih et al. (2023) on prospective brides in East Java also found that, although age was not directly associated with knowledge scores, maternal education remained a consistent and stronger factor. And this is what

distinguishes the findings regarding these two variables in the present study.

DISCUSSION

The significant association between educational attainment and knowledge of stunting ($p=0.044$) is consistent with various findings in the existing literature. These findings are consistent with the research by Daly et al. (2022), which shows that women's knowledge of preconception health remains limited; consequently, providing health information tailored to their level of education is a key factor in improving the preparedness of prospective brides and grooms prior to pregnancy. Laksono et al. (2022), in a study based on Indonesian national data published in PLOS ONE, found that the lower a mother's educational attainment, the higher the risk of having a stunted child; the mechanism for this is actually via knowledge and the ability to absorb nutritional information. Husnaniyah (2020) in the *Jurnal Ilmiah Kesehatan* also confirmed that a low level of education (primary to lower secondary school) is consistently associated with a lack of knowledge about stunting, with a p -value of 0.005. Theoretically, formal education shapes an individual's cognitive ability to access and evaluate health information—a concept referred to in the literature as health literacy (Mazida et al., 2024). Women with higher levels of education do not merely 'know more', but tend to be better able to link that knowledge to actual behaviour in their daily lives.

The data in Table 2 support this argument. The question regarding "the preconception period being the most crucial for preventing stunting" was answered correctly by only 44 per cent of respondents, even though this is the core of the entire premarital education programme. Rahayuwati et al. (2023) found that low maternal knowledge of the preconception period is associated with suboptimal childcare practices, which ultimately contribute to the incidence of stunting. This study, however, shows that respondents have a better understanding of "when stunting can be prevented" in general (85%), but their understanding of "why the preconception period itself is the most crucial" is lower (44%). There is a gap between declarative knowledge and deep conceptual knowledge, and it is this gap that needs to be addressed by premarital counselling programmes. This is also supported by Welshman et al. (2023), who state that women of reproductive age still have a low level of knowledge and understanding of preconception health; therefore, education provided prior to pregnancy can be an important strategy for improving health behaviours.

The employment variable, which was not statistically significant ($p=0.083$), requires clear interpretation. Descriptively, employed respondents demonstrated a higher proportion of good knowledge (53.1%) compared to those who were unemployed (16.7%). However, this difference did not reach statistical significance, most likely because the very small size of the unemployed group ($n=6$) rendered the comparison unstable. The findings from the Wedi KUA reported by Shoaliha et al. (2024) also revealed that the majority of employed respondents actually had lower levels of knowledge, indicating that the type and context of employment—rather than simply the status of being employed or unemployed—are more relevant factors in determining knowledge. It is not the status itself that is decisive, but the exposure to information that accompanies it.

From an intervention perspective, this study provides a fairly clear indication of the direction in which premarital education should be steered. Preconception preparedness among prospective brides and grooms indicates that health readiness and an understanding of stunting are interrelated components in preparing for a healthy pregnancy; therefore, premarital education needs to be provided in a comprehensive manner (Millah et al., 2024). Hasanah et al. (2024), in the *African Journal of Reproductive Health*, demonstrated through a cross-sectional study across 10 districts in North Sumatra ($n=1000$) that structured premarital education can significantly improve knowledge of nutrition and the prevention of stunting. In line with this, Yuliasari et al. (2023) noted that pre-marriage classes organized at the KUA successfully improved participants' average knowledge scores. At the Banjarsari KUA, which already runs the 'Sultanikah Capingan' programme, there is

significant untapped potential, particularly for reaching low-educated groups, who have been shown to be most vulnerable to knowledge gaps. In addition to enhancing knowledge, pre-marital education programmes should also be designed to help prospective couples prepare to adopt healthy lifestyle habits prior to pregnancy. In line with the research by Hartati et al. (2024), this preparedness is closely linked to prospective couples' ability to fully understand information on nutrition, reproductive health and the prevention of stunting.

The areas of knowledge where respondents were weakest in this questionnaire were haemophilia, maternal external factors, and the risks of early marriage, reflecting gaps in clinical and contextual knowledge rather than merely factual recall. Atamou et al. (2023) demonstrated that mothers' insufficient knowledge of the causes of non-nutritional stunting (including genetic factors and toxic environments) independently increases the risk of stunting. Meanwhile, Kusumawati (2021) revealed that mothers with low levels of education tend to be unable to integrate information about these risk factors into their parenting practices. These gaps in knowledge, which generally require a more analytical understanding, may reflect limitations in the educational materials provided, rather than solely the respondents' own limitations.

This study confirms that educational attainment is the most significant factor in shaping prospective brides' knowledge of stunting. This study is not in isolation; it is consistent with both national and international literature, which identifies education as a fundamental factor in maternal health literacy. It is important to note, however, that this study was conducted in a single urban area where the majority of respondents were highly educated; therefore, any generalization to rural areas or regions with different educational profiles must be made with caution.

CONCLUSION

This study confirms that educational attainment is the most significant factor in shaping prospective brides' knowledge of stunting. This study is not in isolation; it is consistent with both national and international literature, which identifies education as a fundamental factor in maternal health literacy.

REFERENCES

- Atamou, L., Rahmadiyah, D. C., Hassan, H., & Setiawan, A. (2023). Analysis of the determinants of stunting among children aged below five years in stunting locus villages in Indonesia. *Healthcare*, 11(6), 810.
- Daly, M. P., White, J., Sanders, J., et al. (2022). Women's knowledge, attitudes and views of preconception health and intervention delivery methods: A cross-sectional survey. *BMC Pregnancy and Childbirth*, 22, 729.
- Emirza, P., Wiradnyani, L. A. A., & Ermayani, E. (2024). A Qualitative Study on the Experiences of the Prospective Brides about Nutritional Preparation During the Preconception Period. *World Nutrition Journal*, 8(2).
- Endrinikapoulos, A., Nur Afifah, D., Mexitalia, M., Andoyo, R., Hatimah, I., & Nuryanto. (2023). Study of the importance of protein needs for catch-up growth in Indonesian stunted children: A narrative review.
- Eva Lestari, Zahroh Shaluhiah, & Mateus Sakundarno Adi. (2023). Intervensi Pencegahan Stunting pada Masa Prakonsepsi : Literature Review. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, 6(2), 214–221.
- Hartati, S., Mardhika, A., & Retnani, A. D. (2024). Knowledge and Readiness of Adolescents as Prospective Brides and Grooms in Stunting Prevention Efforts. *Journal of Vocational Nursing*, 5(2).
- Hasanah, W. K. P., Pratomo, H., Latipatul, A. F., Mulyana, E., Jumhati, S., & Maya, L. S. (2024). A premarital services education model of preventing stunting among prospective newlyweds from North Sumatera, Indonesia. *African Journal of Reproductive Health*, 28(9).

- Husnaniyah, D., Yulyanti, D., & Lisnawati. (2020). Hubungan tingkat pendidikan ibu dengan kejadian stunting. *The Indonesian Journal of Health Science*, 12(1), 57–62.
- Kemendes RI. (2023). https://yankes.kemkes.go.id/view_artikel/2657/mengenal-lebih-jauh-tentang-stunting
- Krebs, N. F., Hambidge, K. M., Westcott, J. L., Garcés, A. L., Figueroa, L., Tsefu, A. K., Lokangaka, A. L., Goudar, S. S., Dhaded, S. M., Saleem, S., Ali, S. A., Bose, C. L., Derman, R. J., Goldenberg, R. L., Thorsten, V. R., Sridhar, A., Chowdhury, D., & Das, A. (2021). Growth from birth through six months for infants of mothers in the Women First preconception maternal nutrition trial. *The Journal of Pediatrics*, 229, 199–206.e4.
- Kusumawati, E., & Rahardjo, S. (2021). Hubungan tingkat pendidikan dengan kejadian balita stunting. *Jurnal Ilmiah Kesehatan Ar-Rum Salatiga*, 5(2), 1–8.
- Laily, N. A., Farahdiba, I., & Gusriani. (2025). Pengetahuan Calon Pengantin Wanita Tentang Persiapan Prakonsepsi di Kota Tarakan Kalimantan Utara. *Sport Science and Health*, 7(2), 75–80.
- Laksono, A. D., Wulandari, R. D., Amaliah, N., & Wisnuwardani, R. W. (2022). Stunting among children under two years in Indonesia: Does maternal education matter? *PLOS ONE*, 17(7).
- Mazida, Z., Noveyani, A. E., & Prasetyowati, I. (2024). Mother's health literacy with stunting incidence of toddlers in Jember. *The Indonesian Journal of Public Health*, 19(2), 380–388.
- Millah, S., Kusumawardani, D. A., & Rahmawati, S. N. (2024). Pre-Conception Readiness Among Prospective Brides. *Indonesian Midwifery and Health Sciences Journal*, 8(4), 387–403.
- Puspita, N. L. M., Fitriyani, M. E., Rohmawati, H., Novitasari, K., Lestari, D. A., & Saputri, I. F. (2023). The Influence of Health Education Counseling Methods on Knowledge of Preconceptional Nutrition on Future Bride. *Journal of Global Research in Public Health*, 8(1), 37–40.
- Rahayuwati, L., Komariah, M., Sari, C. W. M., & Nurhidayah, I. (2023). Exploring the relationship between maternal education, parenting practice, and stunting among children under five: Findings from a cross-sectional study in Indonesia. *F1000Research*, 12, 722.
- Rahmiwati, R., & Aggraeni, D. (2023). Pengaruh edukasi kesehatan terhadap pengetahuan dan sikap pasangan usia subur dalam pencegahan stunting. *Jurnal Ilmu Kesehatan*, 12(2), 123–130.
- Septina, Y., Nurasiah, A., & Rosdiana, R. (2023). Hubungan antara pendidikan dan pengetahuan ibu tentang menu gizi seimbang dengan kejadian stunting pada anak usia 24–59 bulan. *Journal of Nursing Practice and Education*, 4(1), 150–156.
- Shoaliha, M., Yanti, S. I., & Shoaliha, M. (2024). Hubungan pengetahuan dengan sikap penggunaan tablet Fe pada wanita dalam pencegahan stunting. *Jurnal Ilmiah Farmasi Imelda*, 7(2), 78–85.
- Siregar, M. H. (2023). Nutritional Knowledge of Prospective Brides in Indonesia: A Systematic Review. *Jurnal Al-Azhar Indonesia Seri Sains dan Teknologi*, 8(1).
- Suhardiningsih, A. V., Widyatuti, W., & Permana, I. (2023). Determining knowledge of stunting among prospective brides in East Java, Indonesia. *International Journal of Advanced Life Sciences Research*, 6(4), 25–30.
- Tazkiyah, N. D., Suprpti, S., Wulandari, L. P., Sunaeni, S., & Mansur, H. (2024). Preconception Health of Prospective Brides and Grooms in Malang Regency, Indonesia. *Al-Sihah: The Public Health Science Journal*, 16(1).
- UNICEF-WHO-World Bank Group. (2023). <https://data.unicef.org/resources/jme-report-2023/>
- 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, 107707.
- Yuliasari, A., Hardiansyah, F., & Jamiah, R. (2023). Edukasi calon pengantin tentang dinamika perkawinan dan pencegahan stunting pada kelas calon pengantin. *ETTISAL: Journal of Communication*, 8(1), 1–10.

