

Original Article

Analysis of Relationship between the Level of Knowledge on Stunting and Socio-demographic Characteristics among Students

Anisah^{1*}, Dyah Suryani¹, Sitti Nur Djannah¹, Nurul Kodriati¹

¹Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

(Correspondence author's e-mail, anisah2107053010@webmail.uad.ac.id / 082340093053)

ABSTRACT

Stunting is a developmental disorder in children caused by malnutrition, repeated infections, and inadequate psychosocial stimulation. The incidence of stunting will have a negative impact on the development of children during adolescence in the form of suboptimal growth. Stunting is the result of long-term nutritional deficiencies and often results in retarded mental development, poor performance and reduced intellectual capacity due to the level of knowledge and awareness of parents about the importance of meeting nutritional needs of children as the main causal factor for high stunting rate in Indonesia. Such knowledge and awareness does not develop automatically, and must be continuously nurtured and instilled from an early age, namely during adolescence. This study aims to determine relationship between the level of knowledge on stunting and the characteristics among the students of MA Madania of Bantul. This was a Cross Sectional Study with observational approach. Among 72 study population, the study samples were selected using Random Sampling to obtain 50 respondents. The results of the study showed that most of students had a poor level of knowledge on stunting by 80.6%, while only 19.4% of respondents who had a good level of knowledge. Furthermore, the cross-tabulation result showed that there was a relationship between the independent variable and the dependent variable with p values for gender, age and Grade of 0.04, 0.03 and 0.047, respectively, which were lower than the significant value of 0.05. There is a need for health education on nutrition for adolescents in schools in order to increase their knowledge on the incidence of stunting and nutritional problems among adolescents.

Keywords: *The Prevalence of Stunting, Nutritional Problem, Knowledge, Adolescents.*

<https://doi.org/10.33860/jik.v17i1.1843>



© 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).

INTRODUCTION

Stunting is a form of failure to thrive in under-five children characterized by short stature as the result of chronic nutritional insufficiency¹. The prevalence of stunting among under-five children in Indonesia showed the second highest rate in the Southeast Asian region after Laos by 43.8%. However, based on

the 2017 Nutritional Status Monitoring (PSG), it was recorded that there were 26.6% of under-five children who experienced stunting, consisted of 9.8% in the very short category and 19.8% in the short category².

Furthermore in 2018, the Indonesian Ministry of Health through the Health Research

and Development Agency (Litbangkes) conducted Basic Health Research (Riskesdas) on the Prevalence of Stunting³. Based on this research, it was revealed that the rate of stunting or short for age among children decreased from 37.2%³. However, the prevalence of underweight increased considerably from 16.3% to 17%⁴. The national prevalence of stunting among under-five children in 2019 reached 27.7% and in 2021 it decreased to 24.4%⁵. Meanwhile, based on the results of the data derived from SSGI in 2022, the prevalence of stunting decreased from 24.4% in 2021 to 21.6% in 2022. However, hard work is still needed to achieve the target of 14%⁶.

Despite there was a decrease in the prevalence rate, stunting is still a problem in Indonesia because the prevalence rate was still above 20%. Therefore, stunting is still a serious problem and must be managed immediately so that stunting rates can decrease and in line with WHO recommendation⁷. In addition, stunting may lead to suboptimal children's cognitive, motoric and verbal development. In the future, children who experience stunting have a higher risk of obesity and various other diseases. In addition, children's learning capacity and performance as well as productivity and work capacity will not be optimal. Stunting also has an adverse effect on reproductive health⁴.

Stunting is a chronic nutritional problem caused by various factors such as socio-economic conditions, maternal nutrition during pregnancy, illness during infancy, and lack of balanced nutritional intake during adolescence⁸. In the future, stunted children may experience difficulties in achieving optimal physical and cognitive development when they are teenagers⁹.

Stunting is a state of malnutrition associated with insufficient nutrients. One of the causal factors of stunting is high-risk pregnancies such as too young maternal age, lack of maternal knowledge about health and nutrition before and during pregnancy, and after childbirth¹⁰. In addition, teenage pregnancy, short birth spacing, hypertension, and the maternal mental health condition also the risk factors of stunting in children¹¹.

Based on the regulation of the Minister of Health number 97 of 2014 concerning health services during pre-conception, pregnancy, childbirth, and postpartum periods, contraception service delivery, and sexual health services, there are several risk factors for

pregnancy, namely too young, too old, too young, frequent births, and too close birth spacing. Too young maternal age (under 20 years) will place the women at risk of giving birth to babies with low birth weight (BBRL), which will further lead to around 20% of the incidence of stunting¹⁰.

Education has an important role for the development of knowledge since education is fundamental in developing knowledge and experience of adolescents. The older they get, the better their mental processes, and they can learn something well. An educational institution has an important role to form quality adolescents¹². his study aims to determine relationship between the level of knowledge on stunting and the characteristics among the students of MA Madania of Bantul.

METHOD

This was a quantitative study with the type of data analysis of SPSS 25 using a cross sectional analysis study. The current study was conducted on December 10-15, 2022 at Madrasah Aliyah Madania of Bantul. The study population involved all students who were selected using a non-probability sampling technique, which is a technique that does not provide equal opportunities for each element of the population to be selected as a sample, namely purposive sampling. The study samples involved 50 respondents. Data collection process was carried out through distributing questionnaires to the students of MA Madania of Bantul.

RESULTS

Table 1. Characteristic of Respondents by Gender.

No	Gender	N	%
1	Female	31	60.0%
2	Male	20	39.2%
Total		51	100%

Based on the results of analysis regarding characteristic of respondents by gender, it was found that 31 respondents (60.8%) were female and 20 respondents (39.2%) were male.

Table 2. Characteristic of Respondents by Age.

No	Age	N	%
1	13-15 Years	24	47.1%

2	16-19 Years	27	52.9%
Total		51	100%

Based on the results of analysis regarding characteristic of respondents by age, it was found that 24 respondents (47.1%) aged 13-15 years, and 27 respondents (52.9%) aged 16-19 years.

Table 3. Characteristic of Respondents by Grade.

No	Grade	N	%
1	X Religion	10	20.5%
2	X Natural Science	9	17.6%
3	XI Religion	14	27.5%
4	XI Natural Science	9	17.6%
5	XII Religion	5	9.8%
6	XII Natural Science	4	8.0%
Total		51	100%

Based on the results of analysis regarding characteristic of respondents by grade, it was found that 10 respondents (20.5%) were in the Grade X Religion, 9 respondents (17.6%) were in the Grade X Natural Science, 14 respondents (27.5%) were in the Grade XI Religion, 9 respondents (17.6%) were in the Grade XI Natural Science, 5 respondents (9.8.0%) were in the Grade XII Religion, and 4 respondents (8.0%) were in the Grade XII Natural Science.

Table 4. Respondents' Level of Knowledge

No	Category	N	%
1	Poor	41	80.4%
2	Good	10	19.6%
Total		51	100%

Based on the results of analysis regarding respondents knowledge on stunting, it was found that 10 respondents (19.6%) had a good level of knowledge and 41 respondents (80.4) had a poor level of knowledge.

Table 5. Results of Cross-Tabulation Regarding Relationship between Level of Knowledge and Gender.

No	Gender	Level of Knowledge		Total
		Poor	Good	
1	Female	80.6%	19.4%	100%
2	Male	80.0%	20.0%	100%
Total		80.4%	19.6%	100%

The results of cross tabulation for the level of knowledge by gender, 6 female

respondents (19.4%) had a good level of knowledge, and 25 female respondents (80.6%) had a poor level of knowledge. On the other hand, 4 male respondents (20.0%) had a good level of knowledge, and 16 male respondents (80.0%) had a poor level of knowledge. It can be concluded that by gender, more respondents had a poor level of knowledge (80.4%) compared to those with a good level of knowledge (19.6%).

Table 6. Results of the Chi Square Test on the Relationship between Level of Knowledge and Gender.

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.003 ^a	1	.004	
Continuity Correction ^b	.000	1	.003	
Likelihood Ratio	.003	1	.005	
Fisher's Exact Test				.000
Linear-by-Linear Association	.003	1	.005	
N of Valid Cases	51			

Based on the results of the Chi-Square Tests analysis, it was obtained an Asymptotic Significance value of 0.04, which was lower than the significant value (p-value) of 0.05. It can be concluded that there was a relationship between gender and the level of knowledge of the respondents.

Table 7. Results of Cross-Tabulation Regarding Relationship between Level of Knowledge and Age.

No	Age	Level of Knowledge		Total
		Poor	Good	
1	13-15 Years	71.4%	28.6%	100%
2	16-19 Years	88.2%	11.8%	100%

Based on the results of analysis regarding relationship between level of knowledge and age, it was found that more respondents had a poor level of knowledge (80.6%) compared to those with a good level of knowledge (19.4%).

Table 8. Results of the Chi Square Test on the Relationship between Level of Knowledge and Age.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.040 ^a	5	.003
Likelihood Ratio	1.000	5	.050
Linear-by-Linear Association	1.002	1	.023
N of Valid Cases	51		

Based on the results of the Chi-Square Tests analysis, it was obtained an Asymptotic Significance value of 0.03, which was lower than the significant value (p-value) of 0.05. It can be concluded that there was a relationship between age and the level of knowledge of the respondents.

Table 9. Results of Cross-Tabulation Regarding Relationship between Level of Knowledge and Grade.

No	Grade	Level of Knowledge		Total
		Poor	Good	
1	X Religion	76.9%	23.1%	100%
2	X Natural Science	77.8%	22.2%	100%
3	XI Religion	85.7%	14.3%	100%
4	XI Natural Science	88.9%	11.1%	100%
5	XII Religion	60.0%	40.0%	100%
6	XII Natural Science	90.0%	10.0%	100%
Total		80.4%	19.6%	100%

Based on the results of analysis regarding relationship between level of knowledge and grade, it was found that more respondents had a poor level of knowledge (80.4%) compared to those with good level of knowledge (19.6%).

Table 10. Results of the Chi Square Test on the Relationship between Level of Knowledge and Grade.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.065 ^a	5	.047

	Value	Df	Asymptotic Significance (2-sided)
Likelihood Ratio	2.009	5	.040
Linear-by-Linear Association	.013	1	.023
N of Valid Cases	51		

Based on the results of the Chi-Square Tests analysis, it was obtained an Asymptotic Significance value of 0.047, which was lower than the significant value (p-value) of 0.05. It can be concluded that there was a relationship between Grade and the level of knowledge of the respondents.

Based on the conclusion derived from the data analysis above, it is necessary to take action to increase knowledge on stunting among adolescents, which can be performed through optimization of the role of adolescents in preventive efforts through communication, information and education about stunting.

DISCUSSION

Based on the results of study, it was found that most of respondents aged >16-19 years by 50%. Furthermore, it was shown that there was a relationship between the independent variables, namely the socio-demographic characteristics of respondents and the dependent variable, namely the level of knowledge of respondents on stunting. The cross-tabulation result showed that there was a relationship between the independents variable and the dependent variable with p values for gender, age and Grade of 0.04, 0.03 and 0.047, respectively, which were lower than the significant value of 0.05. Furthermore, it was revealed that most of respondents had a poor level of knowledge, so that it is necessary to increase the respondent's knowledge.

A previous study conducted by Ayu Namirah Filayeti (2019) showed that there was a relationship between the characteristics of respondents and the respondent's level of knowledge¹². Moreover, another study conducted by

Sisilia Natanael, et al (2022) showed a lack of knowledge on the incidence of stunting among students, the majority (86.6%) of respondents did not know about stunting and the cause of nutritional problems among adolescents, and 50.4% of respondents had a negative perception of stunting, especially in terms of stunting prevention¹³.

A study conducted by Fauziatin, et al (2019) concerning the effect of educational flipcharts on knowledge about stunting prevention among prospective brides revealed that prospective brides had low level of knowledge on the causes of stunting and the impact of stunting¹⁴.

Furthermore, Basitha, (2020) states that currently adolescents do not understand the importance of proper nutrition and stimulation to prevent early stunting. Their knowledge is very limited but they have to get married, get pregnant and become mothers. So, it is important to educate them about the issue of stunting. Stunting is a cycle, if a prospective mother had insufficient nutritional intake since she was a teenager, she will be at risk of having a malnourished child. The cycle starts with the health condition of young women. Therefore, the problem of stunting must be a concern since a young age.

Another study showed that most of respondents (73.3%) had received information about stunting, but there were still 27 people (26.7%) who had never received information about stunting or had never been exposed to it. The result of the current study also found that many people thought the issue of stunting was only for parents and married couples so that many adolescents were not exposed to information about stunting⁷.

A study conducted by Yuni Alfi, Z. C., et al. (2021) regarding the evaluation on the implementation of specific nutrition interventions to reduce stunting targeted for adolescents found that adolescents' knowledge on the definition of anemia and stunting was good with a percentage of 85%, but 77.5% of female adolescents did

not know that anemia had a risk of causing stunting¹⁵.

A study conducted by Yunda, et al further revealed that knowledge of adolescents was influenced by age and grade, because a person will be more mature in thinking, mental development, as well as good emotions. At the age of 15-17 years, adolescents have a level of maturity in thinking well so that they can easily understand and know about nutrition, especially nutrition for female adolescents. Therefore, it is necessary to increase the knowledge of adolescents through the mass media or healthcare workers. Adolescents are also expected to be able to apply knowledge in choosing daily proper nutritional intake needed so as to support good nutritional status of adolescents¹⁵.

Based on the results of several previous studies, it was indicated the importance of providing education for early prevention of stunting among adolescents, especially by emphasizing the aspects of perceived seriousness and perceived benefits to develop awareness regarding preventive efforts toward stunting since an early age¹³.

Adolescent knowledge serves as an indicator to shape one's attitude and behavior in preventing stunting. Incorrect perceptions about stunting prevention can potentially lead to negative behaviors such as ignoring the impact of the problem of Chronic Energy Deficiency (CED) and anemia or ignoring the negative impacts of young marriage and teenage pregnancy¹⁶. Based on the WHO conceptual framework on childhood stunting, teenage pregnancy is a cause of stunting in children, besides that it is also caused by nutritional problems during adolescence (anemia and CED), as well as adolescents with short stature¹³.

The World Health Organization (WHO) states that one of the contributing factors of stunting is malnutrition during pre-conception (adolescence), CED, and anemia. In addition, maternal height also contributes to the occurrence of stunting. Several studies have shown a relationship

between CED, anemia, and maternal height (short stature or height of ≤ 145 cm) during pregnancy and the incidence of stunting¹³. Such condition needs to be explored to what extent perceptions are related to stunting, especially among adolescents.

Stunting cases are still a global health problem because they are associated with the risk of illness and even death. The problem of stunting in Indonesia is ranked fifth in the world. Stunting is failure to thrive in children characterized by short stature due to chronic malnutrition caused by anemia in young women¹⁶. Stunting is a chronic nutritional problem caused by many factors such as socio-economic conditions, maternal nutrition during pregnancy, illness during infancy, and lack of balanced nutritional intake during adolescence⁸. In the future, stunted children may experience difficulties in achieving optimal physical and cognitive development when they are teenagers¹⁷.

Efforts to prevent stunting should be initiated earlier, namely by preparing female adolescents to become healthy adult women, so that they are able and ready to get pregnant and have healthy children by maintaining a good, balanced and regular diet¹⁸. Thus, it is very important to hold health education on stunting preventive efforts with the aim of increasing the knowledge and insights of adolescents in preparing for future pregnancies¹⁸.

In addition, increasing knowledge of nutrition will provide provision for adolescents on how to choose healthy foods and understand that food is closely related to nutrition and health. Providing an overview of nutritional problems, stunting education and prevention for adolescents is one way to reduce stunting rates in the future¹⁹. Some nutritional and health problems during adulthood can actually be corrected during adolescence through the provision of knowledge and awareness about healthy eating habits and lifestyle¹⁵.

Implementation of health efforts for school-age children and adolescents aims to maintain healthy living habits so that they

have the knowledge, understanding and skills to implement the principles of healthy living and actively participate in health improvement programs, namely at school, at home and in the community. Adolescents have an opportunity to improve stunting preventive efforts. One of the preventive efforts that can be carried out is optimizing the role of adolescents in stunting prevention through effective communication, providing accurate information and health education²⁰.

CONCLUSION

It can be concluded that there was a relationship between the independent variables of gender, age and grade with the dependent variable of the level of students' knowledge on stunting. There is a need for health education on nutrition for adolescents in schools in order to increase their knowledge on the incidence of stunting and nutritional problems among adolescents. It is expected that the information obtained by adolescents may increase their knowledge and awareness or positive perceptions regarding the problem of stunting.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Siampa IT, Hasan W, Aulia F, Saputri EE, Rustam SN, Fuad M, Ikhsan M, Syam A, Asrianti T, Rachmat M. Upaya pencegahan stunting melalui edukasi dan pemberian tablet tambah darah pada sasaran kunci di desa: stunting prevention efforts through education and provision of IFA supplements to key targets in the village. *Poltekita: Jurnal Pengabdian Masyarakat*. 2022 May 9;3(2):174-83.
2. Kementerian Kesehatan Republik Indonesia. Hasil Riset Kesehatan Dasar Tahun 2018. Jakarta: Kementerian Kesehatan Republik Indonesia. 2018.
3. Rahmadhita K. Permasalahan stunting dan pencegahannya. *Jurnal Ilmiah Kesehatan Sandi Husada*. 2020 Jun 30;9(1):225-9.
4. Kementerian Kesehatan Republik

- Indonesia. Hasil SSGI Tahun 2021 Tingkat Kabupaten Kota. Jakarta: Kementerian Kesehatan Republik Indonesia. 2021.
5. Rizkiana E. Pengetahuan dan Sikap Remaja Putri terhadap Konsumsi Tablet Tambah Darah (TTD) sebagai Pencegahan Stunting. *Jurnal Ilmu Kebidanan*. 2022 Dec 12;9(1):24-9.
 6. Liza Munira, S. Disampaikan pada Sosialisasi Kebijakan Intervensi Stunting Jakarta, 3 Februari 2023 Hasil Survei Status Gizi Indonesia (SSGI) 2022. 2023.
 7. Teja M. Stunting Balita Indonesia Dan Penanggulangannya. *Pusat Penelitian Badan Keahlian DPR RI, XI (22)*. 2019 Nov:13-8.
 8. Ekyanthi NW, Suryani P. Edukasi gizi pada ibu hamil mencegah stunting pada kelas ibu hamil. *Jurnal Kesehatan*. 2019 Nov 30;10(3):312-9.
 9. Kementerian Kesehatan Republik Indonesia. *Buletin Stunting. Kementerian Kesehatan Republik Indonesia*. 2018.
 10. Choirina AD. Peningkatan Pengetahuan Murid SMA Terkait Kesehatan Reproduksi Untuk Mencegah Stunting Di Desa Mayangrejo, Kalitidu. *Jurnal of Public Service*. 2021;5(1), 233-240.
 11. Andari W, Siswati T, Paramashanti BA. Tinggi Badan Ibu Sebagai Faktor Risiko Stunting Pada Anak Usia 24-59 Bulan Di Kecamatan Pleret Dan Kecamatan Pajangan, Kabupaten Bantul, Yogyakarta. *Journal of Nutrition College*. 2020 Nov 19;9(4):235-40.
 12. Filayeti AN. Hubungan Pengetahuan Tentang Stunting. *Repository.UIN Jakarta*. 2019.
 13. Rachmawati R. Kontribusi Zat Gizi Makanan Jajanan Terhadap Asupan Energi Sehari Di Indonesia (Analisis Data Survey Konsumsi Makanan Individu 2014)[Food Away From Home (Fafh) Contribution of Nutrition To Daily Total Energy Intake in Indonesia]. *Penelitian Gizi Dan Makanan (The Journal of Nutrition and Food Research)*. 2020 Sep 28;43(1):29-40.
 14. Winarti R, Hartati S. Pengetahuan Mahasiswa Akper Hermina Manggala Husada Tentang Pencegahan Stunting Pada Balita: Pengetahuan Mahasiswa Tentang Stunting. *Jurnal Ilmiah Keperawatan Altruistik*. 2022 May 13:31-8.
 15. Jayanti YD, Novananda NE. Hubungan pengetahuan tentang gizi seimbang dengan status gizi pada remaja putri kelas XI akuntansi 2 (di SMK PGRI 2 Kota Kediri). *Jurnal Kebidanan*. 2017;6(2):100-8.
 16. Nurmala I, Rahman F., Nugroho A., Erlayani N., Laily N., Anhar VY. *Promosi Kesehatan*. Surabaya: Universitas Airlangga. 2018.
 17. Kementerian Kesehatan Republik Indonesia. *Cegah Stunting, itu Penting*. Kementerian Kesehatan Republik Indonesia. 2018.
 18. Permatasari A, Suciati S. Edukasi Perbaikan Pola Makan Remaja Putri Sebagai Upaya Dini Pencegahan Stunting. *Prosiding Seminar Nasional Program Pengabdian Masyarakat*; 2021: 917–924.
 19. Asatuti NB, Sumardi RN, Ngardita IR, Lusiana SA. Pemantauan Status Gizi Dan Edukasi Gizi pada Remaja Sebagai Upaya Pencegahan Stunting. *ASMAT: Jurnal Pengabmas*. 2021 Dec 30;1(1):46-56.
 20. Sandjojo EP. *Buku saku desa dalam penanganan stunting*. Kementerian Desa, Pembangunan Daerah Tertinggal dan Transmigrasi. 2017.