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The Effect of Pineapple Juice on The Healing of Postoperative Sectio Caesarea Wounds at Bogor City Mulia Pajajaran Hospital in 2023

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Abstract

Background: According to RISKESDAS in 2018, the number of childbirths using the sectio caesarea method in women aged 10-54 years in Indonesia reached 17.6% of the total number of deliveries. Recovery in the puerperium for mothers who have given birth by sectio caesarea surgery can be done by gradual early mobilization, because there is an incision wound on the abdomen of the mother. In addition to the mobilization of factors affecting wound healing is the intake of maternal nutrients. The role of nutrition in wound healing is very important in wound healing. Nutrient intake is high in protein such as in fish, eggs and fruits. Pineapple fruit can accelerate wound healing because there is a bromelain enzyme that can convert protein into amino acids that can regenerate damaged cells so that wound healing will take place faster.

Purpose: To know the Effect of Pineapple Juice on The Healing of Postoperative Sectio Caesarea Wounds at Bogor City Mulia Pajajaran Hospital in 2023

Methods: This research is a quasi-experiment with a pre-posttest only control group research design. The sampling technique uses non probability sampling with accidental sampling method. The samples in this study were calculated by large samples with a paired numerical analytical formula with the results of a large sample of 32 samples, and the group was divided into 2, namely the control group and the intervention group. Data collection is carried out by observation. Data analysis was performed using the Wilxocon Test.

Results: Based on the results of the study showed that there was an effect of giving Pineapple Juice on wound healing in postoperative sectio caesarea mothers with a p-value of 0.000 meaning < 0.05.

Conclusion: Consumption of Pineapple Juice can speed up the healing process of postoperative sectio caesarea wounds at Mulia Pajajaran Hospital, Bogor City. It is hoped that consuming pineapple juice can be recommended and applied by health workers to postpartum mothers whose delivery is by sectio caesarea surgery.

Keywords: Pineapple Juice Consumption, Post SC, Wound Healing.

Introduction

According to RISKESDAS in 2018, the number of childbirths using the sectio caesarea method in women aged 10-54 years in Indonesia reached 17.6% of the total number of deliveries. In West Java, the risk factor for mothers to give birth with SC was 13.4% in

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2018.[1] Recovery in the puerperium for mothers who have given birth by sectio caesarea surgery can be done by gradual early mobilization, because there is an incision wound on the abdomen of the mother.[2]

In addition to the mobilization of factors affecting wound healing is the intake of maternal nutrients. The role of nutrition in wound healing is very important in wound healing. Nutrient intake is high in protein such as in fish, eggs and fruits.[6] Pineapple fruit can accelerate wound healing because there is a bromelain enzyme that can convert protein into amino acids that can regenerate damaged cells so that wound healing will take place faster.[7]

Childbirth by sectio caesarea (SC) surgery method is performed surgically to give birth to the fetus through incisions in the abdominal and uterine walls, so that the fetus is born through the abdominal wall and uterine wall so that the child is born intact and healthy. Recovery in the puerperium for mothers who have given birth by sectio caesarea surgery can be done by gradual early mobilization and intake of nutrients that support wound healing[8].

This wound healing starts from the process of replacing and repairing the function of damaged tissues. In mothers who have just given birth, many normal physical components in the postnatal period require healing to varying degrees. The puerperium tends to be related to the process of returning the mother's body to its pre-pregnancy condition, and many of these processes are related to the process of uterine involution, accompanied by healing at the placenta (extensive wounds) including ischemia and autolysis.[10] The success of such resolutions is critical to maternal health, but apart from nutrition there are other factors such as the hygiene and lifestyle of each of these individuals.

Based on the care of health workers for the wound care process, there are currently many complementary treatments that can combine to help in the wound healing process. One of his complementary upbringings was with herbs, herbs that were used in this upbringing using fruit. There are various fruits that can support a person's recovery process to be better than one on pineapple. In pineapple fruit there are enzymes that can convert proteins into amino acids so that the wound healing process can help repair these damaged tissues[5].

Based on observations at the Mulia Pajajaran Hospital in Bogor City, there are postpartum mothers with sectio caesarea who feel that if after the operation it will take a long recovery process in healing their wounds so that many are afraid to move or mobilize

and lack knowledge about the intake of what protein sources can accelerate the healing of surgical wounds. Based on the survey above, researchers are interested in conducting a study entitled "The Effect of Pineapple Juice on Wound Healing After Sectio Caesarea Surgery at Mulia Pajajaran Hospital, Bogor City".

Method

1. Research design

This type of research is quantitative research, because the data from the study is in the form of numbers that can be analyzed based on statistical procedures. This research is a type of quasi-experimental research with a pretest-postttest design with a control group. This study was divided into two groups, namely the control group that was not given treatment and the intervention group that was given treatment.

2. Settings and samples

The research was conducted in January 2023 at Mulia Pajajaran Hospital, Bogor City. The population in this study was postpartum mothers who gave birth sectio caesarea at the Bogor City Mulia Pajajaran Hospital. Sampling technique with nonprobability sampling technique with accidental sampling method is a method of determining samples by taking respondents who happen to exist or are available somewhere according to the research context and obtained by the formula of the sample size of the numerical analytical formula in pairs with a total sample of 32 respondents and divided into 2 groups of 16 respondents.

3. Measurement and data collection

The research instrument used in this study was an observation sheet for SC surgical wound healing using the REEDA scale. The instruments used in this study are intended to obtain appropriate results, namely with the REEDA scale, there are 5 categories, namely redness, edema (swelling), ecchymosis (sign of bleeding), Discharge (Fluid discharge), and Approximation (density between the edges of the wound). The assessment of both groups of respondents was carried out before and after the treatment. Standard Operating Procedure (SOP) for making pineapple juice is with 150 gr of pineapple fruit and 150 ml of water blended until smooth. How to consume 150 ml in the morning and evening (2 times a day) after meals. Pineapple juice in regular consumption for 7 days.

4. Data analysis

Data analysis using SPSS (Statistical Package for the Social Sciences) software using statistical tests, namely the Wilcoxon test with a p value of 0.000 <0.05 which means that statistical tests show an influence on the intervention group given the treatment.

Result

Table 1.
Average Before Intervention

Group		N	Min.	Max.	Mean	SD
Control	Pretest	16	5	7	5.50	0.730
Intervention	Pretest	16	5	6	5.31	0.479

Based on the table above, information was obtained on the average value of the 1st day of the control group, which was 5.50 and the standard deviation value was 0.730. The minimum score for the control group is 5 and the maximum score is 7. In the inervention group, the average nilan of day 1 was 5.31 and the standard deviation value was 0.479. a minimum score of 5 and a maximum score of 6. From the two data, there is no difference in the average value which is very different because the same two groups have not been given treatment and monitoring.

Table 2.
Average After Intervention

Group		N	Min.	Max.	Mean	SD
Control	Posttest	16	0	4	1.81	1.223
Intervention	Posttest	16	0	1	0.38	0.500

Based on the table above, information on the average value after treatment and monitoring for 7 days was obtained. For the control group that was not given treatment and only standard treatment for its score of 1.81 and standard deviation value of 1,223, the minimum score value was 0 and the maximum score value was 4. Meanwhile, in the invention group that was given treatment for 7 days for an average value of 0.38 and

standard deviation value of 0.500, the minimum score was 0 and the maximum value score was 1. From these two data, we can see that there is a decrease in the average value, which means that there is an acceleration of healing after being given intervention.

Table 3.
Effect of Pineapple Juice on Postoperative Sectio Caesrea Wound Healing

Group	N	Pretest Mean	Posttest Mean	Difference Mean	*P-value*
Intervention (Pineapple Juice)	16	5.31	0.38	4.93	0.000

Based on the table above, it is known that the average wound healing before giving pineapple juice is 5.31 while the average after giving pineapple juice is 0.38 with a difference of 4.93 with Wilcoxon results getting a P-value of 0.000 < 0.05. From this information, it can be concluded that there is an influence of pineapple juice on the healing of postoperative caesarean section wounds at MP Hospital, Bogor City in 2023.

Table 4.
Effect of Standard Care on Postoperative Sectio Caesarea Wound Healing

Group	N	Pretest Mean	Posttest Mean	Different Mean	P value
Control (Standard Care)	16	5.50	1.81	3.69	0.000

Based on table above, it is known that the average wound healing in standard treatments before monitoring is 5.50 while the average value after monitoring for 7 days is 1.8.1 with a mean difference of 3.69 with Wilcoxon results getting a P-value of 0.000 <0.05. From this information, it can be concluded that there is an influence of standard monitoring without intervention on the healing of postoperative caesarean section wounds at Mulia Pajajaran Hospital, Bogor City in 2023.

Table 5.
Mean Difference Value Results between 2 groups

Value	Group Intervention	Group Control	Difference Mean	P *value*
Difference Value	4.93	3.69	1.24	0.000

Based on table 5, it is known that the value of the difference in the mean of the intervention group is 4.93 and the value of the difference in the mean of the control group is 3.69, the result of the mean difference between the two groups is 1.24 with the result of P value 0.000 <0.05. From this information, it can be concluded that there is a difference in wound healing between those given pineapple juice interventions and those that are not given interventions.

Table 6.
Differences in the Effect of Pineapple Juice on Post SC Wound Healing

Group	N	Mean Rank	Sum of Rank	P *Value*
Intervention (Pineapple Juice)	16	10.81	173.000	
Control (Standard Care)	16	22.19	355.000	0.000
Total	32			

In the table above, obtained from the results of the Mann Whitney Test for mean rank values in the intervention group 22.19 and in the control group 10.81. As well as the value of Asymp.Sig (2-tailed) of 0.000 < 0.05. So it can be said that the results of the hypothesis are accepted, thus it can be said that there are differences in the administration of pineapple juice to the control group and the intervention group. Because there is a significant difference, it can be said that there is an influence of pineapple juice on the healing of postoperative sectio caesarea wounds.

Discussion

The results of bivariate analysis in the 3rd table show the influence of the intervention. The decrease in the score value can be seen from the difference value of the

Wilcoxon test. So that the pineapple juice consumed has a signification effect on the healing of postoperative sectio caesarea wounds that are given the consumption of pineapple juice.

This result is supported by previous research conducted by Bunga et.al (2022) which suggests that there is an effect of pineapple juice on perineal wound healing in postpartum mothers. Another research that is in line has also been carried out by Farida et.al (2021) to get the result that there is perineal wound healing with a p-value of 0.002. This proves that pineapple juice can accelerate wound healing compared to without giving pineapple juice. Pineapple juice has the ability to heal wounds because it contains the enzyme bromelain. This enzin plays a role in the inflammatory phase of the wound healing process. The potential of bromelain as a pain reliever, antiedema, debridement due to burns, accelerates wound healing, and improves the absorption of antibiotics, in this case it is very beneficial for postoperative healing15.

Based on the results of the data analysis that has been carried out, researchers assume that there is an effect of pineapple juice on the healing of postoperative sectio caesarea wounds. This is because pineapple juice contains the enzyme bromelain which is useful as an anti-inflammatory and accelerates the healing of yamh wounds felt by respondents who consume pineapple juice.

By consuming pineapple juice can help the healing process of postoperative sectio caesarea wounds. However, although there are differences in average values between groups, lifestyle, hygiene, mobilization and nutritional intake consumed by respondents are also factors that can affect wound healing.

Limitations

In the implementation of this study, there were several limitations and obstacles experienced by researchers, including the lack of samples used in this study. the timing of the study was adjusted to the sample, the researcher only focused on one intervention, namely the consumption of pineapple juice.

Conclusion

There is an effect of giving pineapple juice consumption on the acceleration of wound healing after sectio caesarea surgery at Mulia Pajajaran Hospital, Bogor City, West Java in 2023, with the Wilcoxon test results obtained a p value of 0.000 (<0.05). It can be

recommended for health workers to carry out complementary care to support the healing process of wounds both for normal delivery that has a perineal wound and sectio caesarea delivery that has an incision wound on the abdomen. It is suggested that the results of this study can be input in efforts to improve services and management of health problems as well as additional information in health services as an alternative effort to heal surgical wounds, especially caesarean section section by consuming pineapple juice.

Ethical Approval

The research has gone through a review from the ethics commission.

Acknowledgments

Thank you to all parties involved.

Conflict of Interest

No conflict of interest.

Author's contribution

In compiling and designing research, conduct a REEDA scale observation sheet to obtain results that are appropriate to the state of the wound. And it is hoped that the results of this study can be used as a reference for the development of further research on the effect of consuming pineapple juice on wound healing after sectio caesarea surgery.

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Analysis of Long-Term Contraception in Women of Childbearing Age on Mekarbakti Panongan Village Tangerang Regency in 2022

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Abstract

Background: One of the government's programs in family planning is the improvement of family planning services with long term contraception, but this was still hampered due to the high use of non-longterm contraception in Indonesia. Based on data from the Indonesian Ministry of Health, especially in Banten, it also shows that there is still a high use of non- long term contraception compared to long term contraception. The purpose of the study was to determine the relationship between age, occupation, knowledge, information on family planning services, husband support, culture, and attitudes of FAC women with the use of longterm contraception.

Purpose: This study aims to determine factors related with long-term contraceptive use on Mekarbakti Panongan sub-district, Tangerang Regency, Banten Province, in 2022.

Methods: The method used an analytical survey with a cross-sectional approach. The population in this study was all acceptors recorded in the family planning register located in the working area of Mekarbakti Panongan Village, Tangerang, who use long term contraception and those who do not use long term contraception, which is 1,984 acceptors. Sampling using accidental sampling, where 96 samples were obtained.

Results: Chi-square test results (0.05) for age sig-p value 0.050, work sig-p value 0.892, knowledge sig-p value 0.000, information by health workers sig-p value 0.014, husband support sig-p value 0.038, culture sig-p value 0.005, and attitude sig-p value 0.062.

Conclusion: In this study, there was an influence of age, knowledge, information provided by health workers, husband support, and culture on the selection of long term contraception, while occupational factors and attitudes did not have an influence on the selection of long term contraception.

Keywords: Age, Culture, Husband support, Knowledge, Information by health workers, MKJP, Occupation.

Introduction

Population development, especially in Indonesia, needs to be carried out, which aims to create a balanced population and improve the quality of family life, so that family planning programs can be made. According to Government Regulation No. 87 of 2014 concerning population development, family planning, and family information factors, family planning is an effort to regulate childbirth, the distance and ideal age of childbirth,

and pregnancy through promotion, protection, and assistance in accordance with reproductive rights to realize a quality family.[4]

The total fertility rate, or TFR, is the average number of children who will be born until the end of their reproductive years. According to one article by the Family Planning Coordinating Board, the total birth rate is the average ability of a woman to give birth at the age of 15–49 years, according to her reproductive period.[2]

The Family Planning Program in Indonesia is in Book I of the National Medium-Term Development Plan (RPJMN 2020-2024) to improve family planning services with long-term contraception users to reduce the risk of drop-outs and non long term contraception users by providing information on an ongoing basis. Fostering resilience and family empowerment through family development group activities is necessary to preserve family planning participation.[2]

Long-acting contraception is a contraceptive that has a high effectiveness and continuity rate with a low failure rate. The classification consists of IUD contraception, implants, and steady contraception, namely the male surgical method and the female surgical method.[5]

But the program is a little bit of an obstacle because people are more inclined to use contraceptive pills and injections, where non-long-term contraception users were 61.5% and long-term contraception were 15.5%. Based on these data, long-term contraception is divided into 2 types, namely IUD and Implant, where IUD contraceptive users are 7.23% and Implant contraceptive users were 11.37%. long-term contraception users in Banten for IUDs were 5.09% and Implants were 10.88%; this figure is not comparable to non- long-term contraception users, namely in contraceptive pills, which were 23.17%, and injections were 51.53%.[6]

This problem is what makes the government adopt national policies and strategies, namely managing the desired pregnancy, reducing MMR, increasing access to family planning services, increasing male participation, and promoting exclusive breastfeeding. The government's target in 2017 is the total birth rate per woman (15–49 years), which is 2.33, with the general target of the population program on fertility, namely the achievement of population conditions growing in balance in 2015 and continuing until 2035.[2]

At the time of the initial survey, researchers also found that in Mekarbakti Village, Tangerang Regency, in 2019, the number of fertile age couples (FAC) was 2.900, with

1,939 active family planning participants (66.86%) and 129 long-term contraception users (6.65%). In 2020, the number of FAC was obtained by 2.904 people, with active family planning participants as many as 1.960 (67.49%) and long-term contraception users as many as 127 (6.47%). Furthermore, in 2021, the number of FAC in Mekarbakti Village, Tangerang Regency, was 3,037, with 1.990 active family planning participants (65.52%) and 517 long-term contraception users (25.97%). This shows that long-term contraception users in Mekarbakti Village, Tangerang Regency, are still relatively low considering the number of FAC and active family planning participants, which is very high.

Based on the background above, researchers are interested in conducting a study entitled Factors for Long-Term Contraception Use in Mekarbakti Panongan Village, Tangerang Regency in 2022.

Method

1. Research design

The design of this study is an observational study that is analytical in nature using a cross-sectional design.

2. Setting and samples

The location of the study conducted on Mekarbakti Village, Panongan District, Tangerang Regency, Banten. The research conducted from November 15, 2022 to December 15, 2022. The population taken in this study was all acceptors recorded in the family planning register in the working area of Mekarbakti Panongan Village, Tangerang who use long term contraceptives and those who do not use long term contraseption, which is 1,984 acceptors. Calculation of sample size with Taro Yamane / Slovin formula as much as 96. Sampling method using accidental sampling

a. Inclusion Criteria

   1) Active acceptors in the period October – December 2022

   2) Acceptors willing to become respondents

   3) Mothers who are eligible to use long-term contraception

b. Exclusion Criteria

   1) Mothers who present with complications such as continuous bleeding, continuous severe dizziness.

   2) Birth control acceptors who are not willing to be respondents

3. *Measurement and data collection*

The instrument used in this study was a questionnaire.

4. *Data analysis*

Data analysis using *chi square* with SPSS.

Results

Univariate Analysis

Table 1.

Distribution of Contraceptive Methods Used by Respondents in Mekar Bakti Village, Tangerang Regency in 2022

Contraceptive methods used	f	%
MKJP	20	20,8
Non MKJP	76	79,2
Sum	**96**	**100**

Table 2.

Age Distribution of Respondents in Mekar Bakti Village, Tangerang Regency in 2022

Age	f	%
Ending Phase (>30 Years)	37	38,55
Thinning phase (20-30 years)	59	61,5
Sum	**96**	**100**

Table 3.

Distribution of Respondents' Jobs in Mekar Bakti Village, Tangerang Regency in 2022

Work	f	%
Not Working	30	31,3
Work	66	68,7
Sum	**96**	**100**

Table 4.

Knowledge Based Distribution in Mekar Bakti Village, Tangerang Regency in 2022

Knowledge	f	%
Good	50	52,1
Not Good	46	47,9
Sum	**96**	**100**

Table 5.

Distribution Based on Information by Health Workers in Mekar Bakti Village, Tangerang Regency in 2022

Information ByHealth Professionals	f	%
Good	51	53,1
Not Good	45	46,9
Sum	**96**	**100**

Table 6.

Distribution Based on Husband Support in Mekar Bakti Village, Tangerang Regency in 2022

Husband Support	f	%
Support	45	46,9
Less Support	51	53,1
Sum	**96**	**100**

Table 7.

Distribution Based on Culture in Mekar Bakti Village, Tangerang Regency in 2022

Culture	f	%
Good	43	44,8
Not Good	53	55,2
Sum	**96**	**100**

Table 8.

Distribution Based on Attitudes in Mekar Bakti Village, Tangerang Regency in 2022

Attitude	f	%
Positive	47	49
Negative	49	51
Sum	**96**	**100**

Table 9.

Age Cross-Tabulation with the Use of Long-Term Contraceptive Method in Mekar Bakti Village, Tangerang Regency in 2022

Age	Use of MKJP				Total		*Sig-p*	OR
	MKJP		NON MKJP					
	f	%	f	%	f	%		
Age >30 years	12	32,4	25	67,6	37	100	0,050	0,327
Age 20-30 years	8	13,6	51	86,4	59	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

Table 10.

Cross-tabulation of Work with the Use of Long-Term Contraceptive Methods in Mekar Bakti Village, Tangerang Regency in 2022

Work	Use of MKJP				Total		*Sig-p*	OR
	MKJP		NON MKJP					
	f	%	F	%	f	%		
Not Working	7	23,3	23	76,7	30	100	0,892	0,806
Work	13	19,7	53	80,3	66	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

Table 11.

Cross-Tabulation of Knowledge with the Use of Long-Term Contraceptive Methods in Mekar Bakti Village, Tangerang Regency in 2022

Knowledge	Use of MKJP				Total		*Sig-p*	OR
	MKJP		NON MKJP					
	f	%	f	%	f	%		
Good	19	38	31	62	50	100	0,000	27,581
Not good	1	2,2	45	97,8	46	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

Table 12.

Cross-tabulation of Information by Health Workers with the Use of Long-Term Contraceptive Methods in Mekar Bakti Village, Tangerang Regency in 2022

Information by health professionals	Use of MKJP				Total		Sig-p	OR
	MKJP		NON MKJP					
	f	%	F	%	f	%		
Good	16	31,4	35	68,6	51	100	0,014	4,686
Not good	4	8,9	41	91,1	45	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

Table 13.

Cross-Tabulation of Husband Support with the Use of Long-Term Contraceptive Methods in Mekar Bakti Village, Tangerang Regency in 2022

Husband Support	Use of MKJP				Total		Sig-p	OR
	MKJP		NON MKJP					
	f	%	f	%	f	%		
Support	14	31,1	31	68,9	45	100	0,038	3,387
Less supportive	6	11,8	45	88,2	51	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

Table 14.

Cross-Cultural Tabulation with the Use of Long-Term Contraceptive Methods in Mekar Bakti Village, Tangerang Regency in 2022

Culture	Use of MKJP				Total		Sig-p	OR
	MKJP		NON MKJP					
	f	%	f	%	f	%		
Good	15	34,9	28	65,1	43	100	0,005	5,143
Not Good	5	9,4	48	90,6	53	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

Table 15.

Cross-Tabulation of Attitudes with the Use of Long-Term Contraceptive Methods in Mekar Bakti Village, Tangerang Regency in 2022

Attitude	Use of MKJP				Total		*Sig-p*	OR
	MKJP		NON MKJP					
	f	%	f	%	f	%		
Positive	14	29,8	33	70,2	47	100	0,062	3.040
Negative	6	12,2	43	87,3	49	100		
Total	**20**	**20,8**	**76**	**79,2**	**96**	**100**		

*MKJP : Long term contraception

Discussion

1. The Effect of Age on Long-Term Use of Contraceptive Methods

Based on the results of the study, it showed that in the analysis of the age relationship to the use of long term contraception, the ending phase (>30 years) with a total of 37 respondents where 12 respondents used ong term contraception (32.4%) and 25 respondents used non-ong term contraceptioncontraceptives (67.6%), with ρ.value of 0.05 the value was equal to α=0.05 so that the initial hypothesis stated that there was a relationship between age with the use of long-term contraception statistically proven, Ha was rejected. The OR value was obtained 0.327, thus respondents with the ending phase age had the opportunity to use ong term contraception by 0.327 times compared to respondents with the rare phase category.

This result is in line with the results of research by Anggraeni, P (2014, 98), where the OR value obtained at 95% CI is 4.565, thus the OR value is concluded that KB acceptors aged more than 30 years have a 4,565 times chance of using ong term contraception compared to KB acceptors aged less than 30 years

Based on the current state of research conducted in Kelurahan Mekar Bakti, respondents with the dehumidification phase and the ending phase predominantly used short-term contraception. Based on the research obtained, the reason respondents prefer short-term contraception is that at the age (20-30 years) consider long-term contraception only used for people who do not want to have more children, while for respondents at the age (>30 years) most respondents are still afraid to use Long-acting contraceptives, such as implanted contraceptives they still don't really understand about the contraception, they

think it will make them not free to work, while their IUD contraception is afraid because the installation is done in the uterus. This increasing age sometimes makes respondents lazy to change methods because they assume their age will be close to menopause. This study tends not to answer the actual situation, where age determines that the higher the age of respondents, the higher the use of ong term contraception.

2. The Effect of Work on the Use of Long-Term Contraception

Based on research data, 30 respondents (31.3%) were found to be unemployed compared to 66 respondents (68.7%). The results of the analysis of the relationship between work and the use of long term contraception obtained the results of respondents who did not work by 30 respondents where 7 respondents used long term contraception (23.3%) and 23 respondents did not use long term contraception (76.7%) with the results of the chi square test found that $\rho = 0.892$ where the results were greater than $\alpha = 0.05$, so that the initial hypothesis that states there is a relationship between work and Long-term contraceptive use is not statistically proven, thus an OR value of 0.806 means that respondents who do not work are 0.806 times more likely to use long term contraception.

This study is in line with Fienalia, R, A (2012) where the results of the chi square test obtained that there was no significant relationship between work and long-term contraceptive use with $\rho=1,000$ where the results were greater than $\alpha=0.05$. Respondents in Mekar Bakti Village are indeed mostly factory workers and self-employed, so it is easier in terms of use using short-term methods such as pills and injections, respondents who work will have a high chance of getting good information from colleagues or from other media. According to Fienalia (2012), working women may be more aware of the uses and benefits of birth control, and more aware of the choice of methods available when compared to women who do not work.[3]

3. The Effect of Knowledge on the Use of long-term contraception

The knowledge variable has a sig-p *value of* 0.000 < 0.05, meaning that knowledge has a significant influence on the selection of long-term contraception in Mekar Bakti Village in 2022. The result of OR (Odds Ratio) on the knowledge variable is 27.581. This means that poor knowledge tends to have 27,581 times the influence on not voting for long term contraception on respondents.

This study is in line with research conducted by Mahmudah in 2015 on Analysis of Factors Associated with the Selection of Long-Term Contraceptive Methods (long term

contraception) in Female Birth Control Acceptors in Banyubiru District, Semarang Regency, showing that the variable related to the selection of long term contraception is knowledge (sig = 0.001*), with the selection of* long term contraception.[7]

The results in this study show that most respondents do not have a good understanding of long-term contraception, so they are still reluctant to choose long term contraception. This is because the fear of respondents such as long-term contraception causes tremendous pain and the use of long-term contraception according to them can cause adverse side effects for women in using long term contraception. This incident made respondents still choose to use long term contraception. Good knowledge of family planning participants about the nature of family planning programs will influence them in choosing contraceptive methods / devices to be used including flexibility or freedom of choice, suitability, effective choice or not, comfort and safety, also in choosing a more suitable place of service because the insight is better, so that their awareness is high to continue to use services

4. The Effect of Information by Health Workers on the Use of long-term contraception

The information variable by health workers has *a sig-p* value of 0.014 < 0.05, meaning that the role of health workers has a significant influence on the election of long-term contraception in Mekar Bakti Village in 2022. The OR result on the information variable by health workers showed an OR value of 4.686. This means that information by good health workers tends to have a 4,686-fold influence on the choice of long-term contraception use in respondents.

This study is in line with research conducted by Ranaswati in 2014 on Factors that Distinguish the Selection of *Intrauterine Devices (IUD)* Contraceptives and Pills in Women of Childbearing Age in the Working Area of Baki District, Sukoharjo Regency, showing that there is a difference between income, knowledge, attitudes, access to health services and health worker support in the selection of IUD and Pill contraceptives in women of childbearing age.

According to the results of the study showed that information by health workers had an influence on the selection of long-term contraception. This is because the efforts made by health workers in inviting FAC women to use long term contraception are quite good. The lack of long-term contraception users is not due to health workers who do not provide good information, but from the reaction of FAC women themselves who still do not want to use

long term contraception. Health workers themselves have a role in providing information related to the use of long-term contraception. Health workers play a role in providing information, counseling and explaining about contraceptives, especially about long-term contraception. Health workers play a lot of roles in providing encouragement and advice, but there are still FAC women who do not care about the information provided by health workers.

5. The Effect of Husband Support on the Use of long-term contraception

The variable husband support has a sig-p *value of 0.038 < 0.05, meaning that husband support has a* significant influence on the election of long-term contraception in Mekar Bakti Village in 2022. The OR result on the husband support variable showed an OR value of 3.387. This means that husbands who are not supportive tend to have 3 times the influence on not voting for long term contraception on respondents

This research is in line with research conducted by Tristanti in 2016 on the Relationship of Husband Support in the Selection of Long-Term Contraceptive Methods (long term contraception), showing that based on statistical tests using the Chi square test, it was found that the p value of 0.001 means that there is a relationship between husband support and the selection of long-term contraceptive methods with a relationship value of 0.542.[10]

According to the results of the study, it shows that the support of the husband has an influence on the election of long-term contraception. Husband support includes obtaining information, choosing contraceptives, delivering to health services and facilitating the installation of contraceptives. The better the support provided by the husband, the decision making in accordance with the wishes of the husband and wife, on the other hand, if the husband's support is less, there will be dissatisfaction with the husband in the use of contraceptives. Husband support has a relationship in making decisions on the use of contraceptives, but husbands have not contributed to the choice of methods or types of contraceptives.

6. Cultural Influence on the Use of long-term contraception

Socio-cultural variables have a *sig-p* value of 0.005 < 0.05, meaning that socio-culture has a significant influence on the election of long-term contraception in Mekar Bakti Village in 2022. The result of OR on socio-cultural variables showed an OR value of 5.143. This means that poor socio-culture tends to have a 5-fold influence on not voting for long term contraception in FAC women.

This study is in line with research conducted by Sumartini in 2016 on Factors Affecting

the Desire of FAC in the Use of Long-Term Contraceptive Methods in the Working Area of Puskesmas Pacar Keling Surabaya, showing that the results obtained are age, socio-culture, behavior, side effects, wanting to have more children, husband and family support affecting the use of long-term contraceptive methods.[9]

According to the results of the study shows that culture has an influence long term contraception she election of long-term contraception. Some respondents admitted that there is a culture around that prohibits using certain types of contraceptives, there are respondents who are required by families to install contraceptives are female officers. There are also some families of respondents who prohibit the use of long-term contraception because it will cause bleeding which results in respondents not being able to perform worship. The use of long-term contraception is closely related to culture, because contraceptives are related to the way of installation and habits of use. In addition, its use is related to the habits of people who live in certain environments. A person will be interested in using the wrong contraceptive if the people around him use the same contraceptive.

7. Influence of Attitude towards the Use of Long-Term Contraception

The attitude variable has a *sig-p* value of $0.062 > 0.05$, meaning that attitude does not have a significant influence on the election of long-term contraception in Mekar Bakti Village in 2022. The OR result on the attitude variable shows an OR value of 3.040. This means that negative attitudes tend to have 3 times no influence on not voting for long term contraception in PUS women.

This research is not in line with research conducted by Widyarni in 2018 on the Relationship of Knowledge and Attitude of Mothers towards the Use of family planning at Paramasan Health Center, Banjar Martapura Regency, showing that there is a relationship between knowledge towards the use of long-term contraception (p-value = 0.001*) and there is a relationship between attitudes towards the use of KB* long term contraception *(p-value = 0.000).*[11]

According to the results of the study showed that attitude had no influence on the use of long term contraception. Respondents' attitudes about long term contraception are influenced by several factors, including personal experience, the influence of people who are considered important, the influence of culture and mass media. In their lives, respondents certainly experience interaction with the environment, both the family environment and the community environment. This interaction will result in an experience

of long-term contraception both from seeing it directly and from other people's stories. These experiences can be in the form of understanding long term contraception, side effects of long-term contraception, types of long-term contraception and can also be in the form of people's attitudes in having long term contraception. The experience received by respondents, especially about the attitude of using long term contraception, is one of the sources or references of respondents in responding to the use of long-term contraception.

Conclusion

In this study, there was an influence of age, knowledge, information by health workers, husband support, and culture on the selection of long-term contraception, while occupational factors and attitudes did not have an influence on the selection of long-term contraception.

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The Differences of First Stage Labor with Lemon and Lavender Aromateraphy in Panongan Health Centre Tangerang Regency

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Abstract

Background: Severe pain during labor can cause fatigue in the mother so that there is a risk of prolonged labor which can endanger the mother and fetus. Panongan Community Health Center, Tangerang Regency, Banten in January-March 2022 there were 142 deliveries, 11 mothers (7.8%) of whom delivered SC at the mother's request because they could not stand the pain of labor.

Purpose: To determine the differences in labor pain in the first stage of labor for mothers who were given lavender aromatherapy and lemon aromatherapy at the Panongan Health Center, Tangerang Regency, in 2022.

Methods: Quasy experimental design study with two group pre-post test design. The sample in this study was 30 respondents using a purposive sampling technique. Data were analyzed using paired sample t-test and Independent T-Test which were previously tested for normality and homogeneity.

Results: Pain in the first stage of labor in women giving birth before giving lavender aromatherapy averaged 6.00 and after being given lavender aromatherapy an average of 3.20 with an average difference of 2.80. Pain in the first stage of labor in women giving birth before giving lemon aromatherapy averaged 6.47 and after being given lemon aromatherapy averaged 1.73 with an average difference of 4.74. The results of bivariate analysis with paired sample t-test giving lavender aromatherapy a value of 0.000 and lemon aromatherapy a p value of 0.000. Independent T-Test results posttest p value 0.002.

Conclusion: there are differences between lavender aromatherapy and lemon aromatherapy on first stage labor pain among mothers. It is hoped that giving lemon and lavender aromatherapy can be applied thoroughly in Indonesian health services.

Keywords: Labor pain, Lavender aromatherapy, Lemon aromatherapy.

Introduction

One of the needs of a mother in labor is to get help to relieve pain. Pain is a physiological condition in labor that causes discomfort due to stimulation of certain nerve endings. During labour, pain is caused by uterine contractions, cervical dilatation and perineal distension. Pain during labor is unique and different for each individual, this is because the pain is influenced by fear or anxiety about childbirth, fatigue during the birth

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process, social culture, and previous birth experiences.[1] (Alyensi & Arifin, n.d.)

Meanwhile, the phenomenon of maternal mortality in Banten Province is still relatively high. According to the Banten Province Health Profile in 2019 there were 226 cases, in 2020 there were 135 cases and in 2021 there were 329 cases of maternal death. This indicates that maternal mortality in 2021 has increased compared to the previous year.[4] Tangerang Regency found 34 maternal mortality rates.[4] The Panongan Health Center, Tangerang Regency, is one of the areas in Tangerang Regency, where AKI was found in 2020 and there was no maternal mortality rate, but in 2021 there will be another maternal death of 1 person. The cause of maternal death is due to bleeding.

Looking at these data it can be seen that one of the causes of death is caused by prolonged labor. The duration of labor is influenced by the hormone cortisone where when there is a decrease in this hormone it will result in increased HSP (Heat Shock Protein) synthesis so that it can increase uterine muscle contractions. Good uterine muscle contractions play a role in facilitating the progress of labor and shortening the length of labor. The reduction in pain in the first active phase has a major influence on the fetal outcome as indicated by the assessment of the baby's fitness.[9]

Complications in the length of time of delivery, fatigue, stress on the mother can cause the mother's blood flow through the placenta to decrease, so that the flow of oxygen to the fetus is reduced, resulting in fetal distress and this can cause asphyxia. Fear and anxiety about labor pain will stimulate the release of excessive catecholamine and steroid hormones, causing vasoconstriction which results in reduced blood flow and oxygen to the uterus causing uterine inertia (inadequate contractions). Factors related to the duration of the first stage of labor include maternal age, parity, TFU, gestational age, distance from pregnancy, activity during pregnancy and physiotherapy.[9]

During childbirth, if a person feels anxious, the brain will release a substance that shuts down the release of endorphins so that the pain is felt even more extraordinary and causes the mother to become stressed in facing her birth which makes the pain impulses increase and the contractions of the uterine muscles weaken.[3] In labor in the first stage of labour, the pain felt is visceral in nature arising from uterine contractions and cervical dilatation which is innervated by sympathetic afferents and transmitted to the spinal cord in the 10th Thoracal – Lumbar 1st segment via delta nerve fibers and C nerve fibers originating from the wall lateral and uterine fundus. Pain will increase with isometric

contractions in the uterus against obstacles by the cervix/uterus and perineum.[11]

There are many methods for dealing with labor pain. Ways to deal with labor pain, by pharmacological and non-pharmacological methods. There is some research evidence supporting the efficacy of the choice of pharmacological methods in the management of labor pain, but the systematic overview also highlights that there is a relationship between the administration of pharmacological methods and a number of side effects.[6]

Giving pharmacological methods, labor pain will be reduced physiologically, but the psychological and emotional conditions of the mother will be neglected.[10] Whereas non-pharmacological methods are effective without adverse side effects and can increase satisfaction during labor because the mother can control her feelings and strength.[11] These methods include hot and cold therapy, touch therapy, massage, reflexology, relaxation, dancing, sugar-free gum, trans or subcutaneous nerve stimulation, water therapy, using birth balls, music therapy, acupressure and aromatherapy.[7]

Aromatherapy in the form of lavender essential oil is a complementary therapy that is able to treat pain and infection because it is an anti-inflammatory, analgesic and antimicrobial.[16] Linalool (43.32%) and Linalyl Acetate (26.32%) are the largest components of lavender flower oil.[20] The content of linalool and linalyl acetate is what stimulates the parasympathetic and has a narcotic effect and linalool acts as a sedative. Annida in her research by giving 4 drops to mothers during the first active phase in 50 milliliters (ml) of water in an aromatherapy diffuser for 30 minutes showed that lavender aromatherapy intervention had a significant effect on reducing the intensity of labor pain during the first active phase of labor.[2]

Apart from using lavender aromatherapy, it turns out that giving lemon aromatherapy has a limonene content of 70.58%.[19] Limonene is the main component in citrus chemical compounds that can inhibit the prostaglandin work system so that it can reduce pain which can be an effective anesthetic in reducing anxiety during the delivery process, where anxiety results in a long labor process so that it can be fatal to the fetus (fetal outcome).[12]

Panongan Community Health Center, Tangerang Regency, Banten is one of the health facilities for childbirth. Based on the pre-survey of the Panongan Community Health Center, Tangerang Regency, Banten, the incidence of prolonged labor in 2020 was 28.7% (201 cases out of 699 deliveries), while in 2021 it was found to be 37.9% (297

cases out of 784 deliveries). Preliminary survey at the Panongan Community Health Center, Tangerang Banten Regency by recording secondary data from the last 3 months, August-October 2022, there were 142 deliveries, out of 142 deliveries 11 mothers (7.8%) included SC deliveries at the request of the mothers themselves because they could not stand the pain of labor. Seeing the results of previous studies giving lavender and lemon aromatherapy can reduce labor pain. Based on this background, researchers felt interested in conducting research with the title Differences in First Stage Labor Pain in Mothers Given Lavender Aromatherapy and Lemon Aromatherapy at the Panongan Health Center, Tangerang Regency in 2022.

Method

1. Research design

The research design is a quasy experimental design. The design used was a two-group pre-post test design.

2. Settings and Samples

The location of the research was carried out at the Panongan Health Center, Tangerang Regency. When the research was conducted in November 2022-January *2023*. The population in this study were all mothers giving birth at the Panongan Health Center, Tangerang Regency, Banten in August-October 2022, there were 142 respondents. Calculation of the minimum sample size is based on calculations using a hypothesis test with the lameshow formula, the number of samples is 15 respondents multiplied by 2 becomes 30.

The sampling method that the researchers used was purposive sampling. The intervention group was given lavender aromatherapy and the control group was given lemon aromatherapy.

The inclusion, non-inclusion and exclusion criteria of this study are as follows:

a. Inclusion criteria

1) Mothers who give birth at the Panongan Health Center, Tangerang Regency.

2) Mothers who do not experience pregnancy complications

3) Patients aged 15 -35 years

4) Cervical dilatation $\geq$ 4 - 8 cm

5) Mothers who feel pain on a scale $\geq$ 4

6) Patients who do not have a history of allergies to lavender or lemon aromatherapy

7) Patients who are willing to be respondents

b. Exclusion criteria

1) Ibu bersalin dengan kala II dan III persalinan

2) Ibu bersalin yang dirujuk

3) Ibu yang tidak sadarkan diri

4) Ibu yang menjalami cyto

5) Ibu yang memiliki penyakit polip atau keterbatasan dalam penciuman

3. Intervention

Each group of researchers only gave therapy for 30 minutes. The research procedure for administering aromatherapy was carried out by incorporating 4 drops of lavender or lemon aromatherapy essential oil in 50 milliliters (ml) of water, put it in an aromatherapy diffuser, turn it on and inhale for 30 minutes.

4. Measurement and data collection

Researchers collected data with pain observation sheets before and after giving lavender and lemon aromatherapy to each group.

5. Data analysis

Data analysis used paired sample t-test and Independent T-Test.

Results
Univariat Analysis

Table 1.
Pain Level in the First Stage of Labor for Mothers in Birth Before and After Giving Lavender and and Lemon Aromatherapy at the Panongan Health Center, Tangerang Regency in 2022

Intervention	Lavender and Lemon Aromateraphy						
	Pretest			Post test			
	Mean	Min	Max	Mean	Min	Max	Mean Differences
Lavender	6,00	4	8	3,20	1	6	2,80
Lemon	6,47	4	8	1,73	0	3	4,74

Normality Test

Table 2
Shapiro-Wilk Normality Test Results

First Stage Labor Pain of Childbirth Women	Asymp.Sig(2-tailed	Results
Lavender aromateraphy		
Pre test	0,103	Normal
Post test	0,296	Normal
Lemon aromateraphy		
Pre test	0,175	Normal
Post test	0,063	Normal

Homogenity Test

Tabel 3
Homogenity Results

First Stage Labor Pain of childbirth women	Sig	Results
Pretest	0,379	Homogen
Posttest	0,166	Homogen

Bivariat Analysis Results

Table 4

The Effect of Lavender Aromatherapy and Lemon Aromatherapy on Pain in the First Stage of Labor among Childbirth Women at the Panongan Health Center, Tangerang Regency in 2022

	First Stage Labor Pain of Childbirth Women							
Inter vention	**Pretest**			**Post test**				
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean diff**	**P Value**
Lavender	6,00	4	1	3,20	8	6	2,80	0,000
Lemon	6,47	4	0	1,73	8	3	4,74	0,000

Table 5

Differences in Pain in the First Stage of Labor in Mothers Given Lavender and Lemon Aromatherapy at the Panongan Health Center, Tangerang Regency in 2022

First Stage Labor Pain of Childbirth Women	Lavender *Mean*	Lemon *Mean*	Mean difference	P Value
Pretest	6,00	6,47	0,47	0,346
Posttest	3,20	1,73	1,47	0,002

Discussion

1. The Effect of Lavender Aromatherapy on Pain in the First Stage of Labor among Childbirth Women at the Panongan Health Center, Tangerang Regency in 2022.

Based on the results of the study, the calculation of the difference in the mean (average) pretest and posttest pain levels in the first stage of labor in women giving birth in the lavender aromatherapy group was 2.80. The results of the Paired Sample Test show a significance value of 0.000 > 0.05, so it can be concluded that there is an effect of lavender aromatherapy on labor pain in the first stage of labor in mothers giving birth at the Panongan Health Center, Tangerang Regency in 2022.

Lavender oil is one of the well-known aromatherapy agents for its sedative, hypnotic and anti-neurodepressive effects on humans because lavender oil can give a sense of calm, so it can be used as a stress management agent.[22]

In accordance with the results of previous research, their research showed that the P-value was 0.002 <0.05 so it can be concluded that there was an effect of lavender aromatherapy on active phase I labor pain at the Afifah Clinic, Bandung Regency.[15]

Researchers assume that there is an effect of lavender aromatherapy on the level of pain in laboring mothers, this is due to the presence of linelol acetate which will create a pleasant smell that makes mothers relax and has an impact on reducing pain in laboring mothers.

2. The Effect of Lemon Aromatherapy on Pain in the First Stage of Labor among Childbirth Women at the Panongan Health Center, Tangerang Regency in 2022

Based on the results of the study, the calculation of the difference in the mean (average) pretest and posttest the level of labor pain in the first stage of labor in the lemon aromatherapy group was 4.74. The results of the Paired Sample Test show a significance value of 0.000 > 0.05, so it can be concluded that the effect of lemon aromatherapy on

labor pain in the first stage of labor in women giving birth at the Panongan Health Center, Tangerang Regency in 2022.

The content of linalool is a sedative (sedative) and limonene has the benefit of increasing blood circulation. Linalool is useful for stabilizing the nervous system so that it can have a calming effect on anyone who inhales it.[13]

In accordance with the results of Soraya's research giving lemon-citrus aromatherapy inhalation can reduce labor pain in the first stage of the active phase with a p value of 0.009.[17] Ginting, et al. in his research showed the effectiveness of lemon aromatherapy for labor pain $p = 0.019$ where the value of $p < 0.05$.[5]

According to researchers, there is the effect of lemon aromatherapy on pain levels among childbirth women. The presence of limonene content which can inhibit prostaglandins so that it can reduce pain during labor, besides that the presence of linalil acetate in lemon-citrus aromatherapy is able to normalize unbalanced emotional states so that through giving lemon aromatherapy the pain experienced by mothers in labor is reduced.

3. **The Differences of Pain in the First Stage of Labor among Childbirth Women Given Lavender Aromatherapy and Lemon Aromatherapy at the Panongan Health Center, Tangerang Regency in 2022**

Based on the results of the Independent T-Test different test, it is known that the significance value is $0.002 < 0.05$, so it can be concluded that there is a difference in the level of pain in the first stage of labor after being given treatment in the lavender aromatherapy group and the lemon aromatherapy group in mothers giving birth at the Panongan Health Center, Tangerang Regency, Year 2022.

Lemon aromatherapy is a type of therapy that can be used to reduce pain intensity, the substances contained in lemons are useful for stabilizing the nervous system which can make a calm, comfortable and relaxing effect for anyone who inhales it, the smell of lemon aromatherapy fragrances can have a direct effect on the human brain.[14] Meanwhile, the fragrance produced by lavender aromatherapy will stimulate the thalamus to secrete enkephalins, which function as natural pain relievers. Enkefalin is a neuromodulator that functions to inhibit physiological pain.[18]

Researchers have not found the same study that compared differences in the level of pain in the first stage of labor after being given treatment in the lavender aromatherapy

group and the lemon aromatherapy group in labor mothers.

According to researchers, seeing the results of a decrease in the administration of lemon and lavender aromatherapy, both of them can reduce labor pain because both can affect the activity of brain function through the nervous system and can increase the production of brain nerve conduction mass which can restore psychological conditions such as emotions, feelings, thoughts and desire, besides that aromatherapy can also provide a relaxing effect on nerves and tense muscles. When viewed based on the results of the decrease, it was found that birth mothers who received lemon aromatherapy experienced a decrease compared to those who received lavender aromatherapy, this was because the aromatherapy of lemon gave off a distinctive and stronger aroma compared to lavender aromatherapy so that the smell/aroma response was soothing and The resulting refreshing effect will stimulate the work of brain chemical neuro cells and can stabilize the nervous system and then cause a higher calming effect compared to lavender aromatherapy.

Limitation

There are limited time and costs, so the observation time is only one week and the process of ordering diffuser materials takes a long time so that the research process is a little hampered.

Conclusion

There is a difference in giving lavender aromatherapy and lemon aromatherapy to the level of labor pain in the first stage of labor for women giving birth at the Panongan Health Center, Tangerang Regency, in 2022 with a significance level of 0.002.

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Factors Related to Anemia in Adolescents of SMK Bina Am Makmur in Tangerang Regency 2022

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Abstract

Background: There was still a lot of anemia in adolescent girls, which is suspected to be 64% of adolescent girls experiencing anemia related to knowledge about anemia, diet, and activities of adolescent girls at SMK BINA AM MAKMUR in Tangerang Regency.
Purpose: To determine the factors related to anemia in adolescents at SMK BINA AM MAKMUR in Tangerang Regency in 2022.
Methods: This research design used quantitative methods, non-experimental approaches, and *cross-sectional* approaches. The study sample amounted to 62 adolescents. The sampling technique used *was simple random sampling.* The research instrument consisted of questionnaires on anemia, knowledge, diet, and activity. Data analysis used descriptive statistics and kai squared with *chi-square formulation* to determine the relationship between knowledge, diet, and activity and the incidence of anemia in adolescents.
Result: Of the 62 adolescent girls, 48 (77.4%) had anemia. There was a relationship between knowledge (p value = 0.000), diet (p value = 0.007), and activity (p value = 0.004) with the incidence of anemia in adolescents at SMK BINA AM MAKMUR, Tangerang Regency, Banten in 2022.
Conclusions: The incidence of anemia in adolescents at SMK BINA AM MAKMUR Tangerang Regency in 2022 is quite high at 77.4%. It is expected that there will be strengthened coordination with all sectors, especially with the Tangerang Regency Health Office regarding the program for handling anemia in adolescents.

Keywords: Activity, Adolescents, Anemia, Diet, Knowlegde

Introduction

Adolescence is the stage where a person experiences a transition period to adulthood. Adolescence is an age stage that comes after childhood ends and is characterized by rapid physical growth. Adolescents in society are known by various terms that denote age groups that do not include children but are not adults. In general, anemia is more common in women and adolescent girls compared to men. What is very unfortunate is that most sufferers do not know or do not realize it. Even when you know, you still consider anemia a trivial problem.[1] Young women are prone to suffering from

anemia because adolescent girls are growing up and experiencing menstruation every month, which causes iron loss.[2]

Anemia is a condition when the number of red blood cells or the concentration of oxygen carriers in the blood (Hb) is insufficient for the physiological needs of the body. According to WHO and Ministry of Health guidelines from 1999*, anemia cut-off points* vary between age groups as well as individuals. Certain age groups or groups of individuals were considered more susceptible to anemia than other groups. The reference *cut-off point* for anemia in toddlers aged 12-59 months is Hb levels below 11.0 g/dL. Schoolchildren aged 6–12 years were considered anemic if the Hb level is <12.0 g/dL. Pregnant women were considered anemic if their Hb levels are below 11.0 g/ddL. Meanwhile, men aged 15 years were considered to have anemia if Hb levels are <13.0 g/ddL and women of childbearing age 15–49 years experience anemia if Hb levels are <12.0 g/dL.[10]

Anemia is a nutritional problem around the world, especially in developing countries like Indonesia. The rate of iron deficiency anemia in Indonesia was 72.3%. As many as 60.2% of these anemias are hypochrome microcytic anemia (small cells with a small amount of hemoglobin in the cells), which is mostly caused by iron deficiency anemia. Meanwhile, based on Basic Health Research in 2010, more than 10% of school-age children in Indonesia have anemia.[10]

The impact of anemia on adolescent girls includes declining reproductive health, inhibiting motor, mental, and intelligence development, reducing learning ability and concentration, disrupting growth so that height does not reach optimal, reducing physical exercise and fitness levels, and causing pale faces.[8]

One of the causes of low levels of hemoglobin in the blood is insufficient intake. Daily nutrient intake is strongly influenced by eating habits. One of the factors influencing adolescent eating habits is knowledge.[6]

Lack of knowledge causes teenagers to choose to eat out or only consume snacks. Another cause is a lack of adequate eating and consuming food sources containing iron; besides that, consumption eats enough, but the food consumed has low iron bioaccessibility, so the amount of iron absorbed by the body is less.[13]

The results of the previous study showed that factors associated with anemia were the length of menstruation ($p = 0.003$), the length of the menstrual cycle ($p = 0.004$),

the level of education of parents (mother) (p = 0.000), and the level of income of parents (p = 0.000). A factor not associated with anemia was nutritional status (p = 0.064).[5]

Young women who received blood-added tablets were 76.2%, received TTD at school as much as 80.9%, and adolescent girls who took blood-added tablets (52 grains) as much as 98.6%. Blood Add Tablets (TTD) is a blood-enhancing nutritional supplement in the form of tablets, caplets, or capsules that can be obtained from the Program or independently.[10]

Based on a preliminary study conducted on adolescent girls at SMK Bina Am Makmur, Tangerang Regency, in November 2022 by measuring Hb levels using the Microlab-300 brand Hemoglobinometer, it is known that the prevalence of anemia in grade X adolescent girls is 64% (35 out of 55 adolescent girls). At the same time, a brief interview with 55 young women about anemia was conducted, and it was found that 42 young women did not know about anemia. While 13 other adolescent girls know about anemia only in terms of symptoms such as weakness, fatigue, lethargy, fatigue, and paleness, if symptoms of anemia occur in adolescence, it will also have an impact on when she will give birth and cause low birth. They also do not know that anemia is caused by iron deficiency due to a lack of intake, and they say they do not have time to eat breakfast because of the rush, and during school break they prefer to consume fast food such as meatballs, chicken noodles, grilled meatballs, fried foods, instant noodles, and other snacks. SMK Bina Am Makmur Tangerang Regency is one of the Private Vocational Schools in Banten Province, Tangerang Regency, and has never been used as a place for scientific research on health.

Based on the background above, the researchers conducted a study on factors associated with anemia in adolescents of SMK Bina Am Makmur in Tangerang Regency in 2022.

Method

1. *Research design*

   This study was used quantitative methods*, cross-sectional design.*

2. *Setting and samples*

   The location of the research was conducted at SMK Bina Am Makmur in Tangerang Regency. The study was conducted in December 2022. The population in this study was

all students of classes X, XI, and XII, totaling 165 students at SMK BINA AM MAKMUR in Tangerang Regency. The sample size calculated with the Slovin formula was 62 respondents. The sampling method uses *Simple Random Sampling.*

a. Inclusion Criteria

   1) Class X, XI, and XII Students of SMK Bina AM Makmur in Tangerang Regency in 2022

   2) Students who are not undergoing menstruation

   3) Willing to follow research, as evidenced by the signing of approval sheets.

b. Exclusion Criteria

   1) Students who were not present at the time of the study

   2) Female student who is menstruating

   3) Student was sick

3. *Measurement and data collection*

The instruments used in this study were questionnaires and interviews.

4. *Data analysis*

Data analysis using the *chi-squared statistical test.*

Results

Univariate Analysis

Table 1.
Distribution of Anemia Frequency in Adolescents at SMK BINAAM MAKMUR, Tangerang Regency, Banten in 2022

Anemia in adolescents	Frequency (f)	Percent (%)
Anemia	48	77,4
No Anemia	14	22,6
Sum	**62**	**100**

Table 2 .
Distribution of Knowledge Frequency to Adolescents at SMK BINA AM MAKMUR, Tangerang Regency, Banten in 2022

Knowledge	Frequency (f)	Percent (%)
Less	44	71
Good	18	29
Sum	**62**	**100**

Table 3.
Distribution of Dietary Frequency in Adolescents at SMK BINAAM MAKMUR, Tangerang Regency, Banten in 2022

Diet	Frequency (f)	Percent (%)
Less	46	74,2
Enough	16	25,8
Sum	**62**	**100**

Table 4.
Distribution of Activity Frequency in Adolescents at SMK BINAAM MAKMUR, Tangerang Regency, Banten in 2022

Activity	Frequency (f)	Percent (%)
Light	50	80,6
Keep	12	19,4
Sum	**62**	**100**

Results of Bivariate Analysis

Table 5.
The Relationship between Knowledge and Anemia in Adolescents at SMK BINA AM MAKMUR, Tangerang Regency, Banten in 2022

Knowledge	Anemia in adolescents				Total		P Value	OR (95% CI)
	Anemia		No Anemia					
	(f)	(%)	(f)	(%)	(f)	(%)		
Less	40	90,9	4	9,1	44	100	0,000	12,500 (3,126-49,980)
Good	8	44,4	10	55,6	18	100		
Sum	**48**	**77,4**	**14**	**22,6**	**62**	**100**		

Table 6.
The Relationship between Diet and Anemia in Adolescents at SMK BINAAM MAKMUR, Tangerang Regency, Banten in 2022

Diet	Anemia in adolescents				Total		P Value	OR (95% CI)
	Anemia		No Anemia					
	(f)	(%)	(f)	(%)	(f)	(%)		
Less	40	87	6	13	46	100	0,007	6,667 (1,812-24,525)
Enough	8	50	8	50	16	100		
Sum	**48**	**77,4**	**14**	**22,6**	**62**	**100**		

Table 7.

The Relationship between Activities and Anemia in Adolescents at SMK BINA AM MAKMUR, Tangerang Regency, Banten in 2022

| Activity | Anemia in adolescents | | | | Total | | P Value | OR (95% CI) |
| | Anemia | | No Anemia | | | | | |
	(f)	(%)	(f)	(%)	(f)	(%)		
Light	43	86	7	14	50	100	0,004	8,600
Keep	5	41,7	7	58,3	12	100		(2.124-34,815)
Sum	**48**	**77,4**	**14**	**22,6**	**62**	**100**		

Discussion

1. The relationship between adolescent knowledge and the incidence of anemia at SMK Bina Am Makmur in Tangerang Regency in 2022.

The results of the analysis found that adolescents who had less knowledge were less likely to experience anemia, which was as much as 40 (90.9%), while adolescents who had good knowledge tended not to experience anemia, which was as much as 10 (55.6%). The results of the *chi-square* analysis obtained a p value of 0.000, which means that there is a meaningful relationship between knowledge and anemia in adolescents at SMK Bina Am Makmur, Tangerang Regency, Banten in 2023. The OR (Odd Ratio) value is 12,500, so it can be stated that adolescents who have less knowledge tend to experience anemia 12 times more than adolescents who have good knowledge.

The results of research by Budianto show that there is a relationship between knowledge about Anemia and the incidence of Anemia in adolescent girls in Massachusetts. Mathla'ul Anwar Gisting with pvalue = 0.002 < α (0.05), while the results of research by Umriaty and Qudriani M. (2018) found that most female students have good knowledge (51.8%), have a positive perception of vulnerability (55.4%), and have a negative perception of seriousness (56.6%). The number of female students who experience anemia is 13.3%. The results of the analysis showed no significant relationship between knowledge (p value 0.399), perception of vulnerability (p value 0.215), and perception of seriousness (p value 0.145).[3]

Knowledge is the result of knowing, which occurs after someone senses a certain object. This sensing occurs through all five human senses, such as sight, hearing, smell, taste, and touch. Most of human knowledge comes from sight and hearing.[9]

Researchers assume that adolescents who have less knowledge are caused by a lack of understanding of anemia, its signs and symptoms, causes, effects, and efforts to prevent it. This is due to the eating habits of adolescents, who choose food outside or only consume snacks, and the lack of information obtained by young women about anemia. So it is very necessary for policymakers in schools to include the topic of anemia in the school curriculum.

2. **The relationship between adolescent diet and the incidence of anemia at SMK Bina Am Makmur in Tangerang Regency in 2022**

The results of the analysis found that adolescents who had a lower diet tended to experience anemia, which was as high as 40 (87%), while adolescents who had a sufficient diet tended not to experience anemia, which was as high as 8 (50%). The results of the *chi-square* analysis obtained *a p value* of 0.007, which means that there is a significant relationship between diet and anemia in adolescents at SMK Bina Am Makmur, Tangerang Regency, Banten in 2023. The OR (Odd Ratio) value is 6.667, so it can be stated that adolescents who have a lower diet tend to experience anemia 6.6 times more than adolescents who have an adequate diet.

The results of previous research explain that the factors associated with anemia in adolescent girls are: knowledge factor P = 0.611; age factor P = 0.851; diet factor P = 1.144; nutritional status factor P = 0.041; menstrual pattern factor P = 1.000; disease factor accompanied by P = 0.169; and income factor P = 0.169.[7]

The results of research in 2018 showed that most of the 39 (82.1%) respondents whose food intake was not enough experienced anemia, and less than a third, namely as many as 23 (26.1%) respondents, had anemia. The results of statistical analysis showed that there was an association between food intake and the incidence of anemia in adolescent girls (nilan p = 0.000), and respondents with insufficient food intake had a 12 times higher chance of anemia compared to respondents with adequate food intake (OR = 12.65).[12]

Modern patterns and lifestyles make teenagers tend to prefer eating outside the home with their groups. Young women often practice dieting in ways that are not right, such as abstinence or limiting or reducing the frequency of eating to prevent obesity. In general, adolescents have poor eating habits. Some adolescents, especially adolescent girls, often consume food in an unbalanced amount compared to their needs for fear of obesity and call eating not only in the context of consuming staple foods but snacks are also categorized as eating.[2]

The quantity and quality of food and beverages consumed will affect nutritional intake, which will affect the health of individuals and society as a whole. Optimal nutrition is essential for normal growth as well as the physical development and intelligence of infants, children, and all age groups. Good nutrition makes normal or healthy weight possible; the body is not susceptible to infectious diseases; work productivity increases; and the body is protected from chronic diseases and premature death. A good state of nutrition can improve individual and community health.

Balanced Nutrition for adolescents aged 10–19 years (Pre-pubertal and Puberty) This group is the transitional age group from children to young adolescents to adults. Important conditions that affect the nutritional needs of this group are rapid growth entering puberty, snacking habits, menstruation, and attention to physical appearance and body image in adolescent girls. Thus, the calculation of nutritional needs for this group must pay attention to these conditions. Especially for adolescent girls, more attention should be paid to their preparation before marriage.

According to the researchers' assumptions, the average teenager consumes food in the school cafeteria, which only provides food such as rice cakes, fried rice, boiled noodles, fried noodles, fried chicken, fried foods (bakwan, tofu, tempeh), meatballs, mini martabak, and snacks. And based on questionnaires given to adolescents in general, adolescents like to eat fast food such as boiled noodles and fried chicken, and some teenagers like snacks or consume snacks that are easy to consume without paying attention to the nutritional content contained in food. So, the lower the level of food intake, the more susceptible adolescents are to becoming anemic. The majority of respondents have a bad diet. The wrong diet can cause weight loss, which results in decreased brain ability, decreased enthusiasm for adolescents in learning, and adolescent anemia.

3. The relationship between adolescent activities and the incidence of anemia at SMK Bina Am Makmur in Tangerang Regency in 2022

The results of the analysis found that adolescents who had light physical activity tended to experience anemia as much as 43 (86%) while adolescents who had moderate activity tended not to experience anemia, which was as much as 7 (58.3%). The results of the *chi-square* analysis obtained *a p value* of 0.004, which means that there is a significant relationship between physical activity and anemia in adolescents at SMK Bina Am Makmur, Tangerang Regency, Banten in 2023. The OR (Odd Ratio) value is 8,600, so it can be stated that adolescents who have light physical activity tend to experience anemia 8.6 times greater than adolescents who have moderate physical activity.

Physical activity includes all movements of the human body, such as daily activities, hobbies, and competitive sports.[14] Physical activity is a complex behavior. There are two classifications of physical activity, namely active and inactive. It is said to be active if a person does one of the strenuous or moderate activities or a combination of the two. While it is said to be inactive if a person does not do one of the strenuous or moderate activities, explained that there are three classifications of physical activity, namely: a. Light Physical Activity: Light physical activity is an activity carried out in daily life such as resting (sleeping) for 8 hours or doing housework such as sweeping, mopping, cooking, washing dishes, and ironing. Sit and work at the computer, reading or writing. Take a leisurely walk around the house, park, or shopping center. Play video games, paint, draw, or play music. b. Moderate Physical Activity: Moderate physical activity includes the equivalent of resting (sleeping) for 8 hours. Household activities such as moving light items, planting trees or gardening activities, and washing cars. Fast walking (speed 5 km/hh) on a flat surface indoors or outdoors to get somewhere Badminton, playing table tennis, cycling on a flat track, skateboarding c. Strenuous Physical Activity: Strenuous physical activity includes 8 hours of sleep. Household activities such as moving heavy items, playing, or carrying a younger sibling. Walking very fast (speed more than 5 km/hh), carrying heavy weight on the back, climbing mountains, jogging (speed 8 km/hh), running, cycling more than 15 km/hh with a climbing track, competitive badminton, volleyball.[4]

According to the researchers' assumptions, this is influenced by non-optimal nutritional intake habits and a lack of physical activity. Food is one of the factors that affect activity because if the amount and portions of food are too large, the body will feel easily tired and not want to do activities such as sports or carry out other activities. The content of fatty foods also affects the body a lot. To carry out daily activities or exercise, the food to be consumed should be considered for its nutritional content so that the body does not experience excess energy that cannot be released optimally.

Conclusion

There is a relationship between knowledge, diet, and activity with the incidence of anemia in adolescents at SMK BINA AM MAKMUR Tangerang Regency in 2022. Knowledge variables have a high probability of anemia incidence in adolescents (p value = 0.000, OR = 12.500).

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Factors Related to The Incidence of Anemia in Young Girls at SMPN 4 Babelan, Bekasi

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Abstract

Background: Anemia is a condition that often occurs in young women because they are still growing and entering puberty. Young women also experience menstruation every month which during this period they will be at risk of anemia. Other factors that can affect adolescent anemia are knowledge, diet, economic status, and consumption of iron supplement (Fe) tablets.

Purpose: To determine the relationship between knowledge, menstrual patterns, economic status, diet, and adherence to consumption of Fe tablets with the incidence of anemia in young women at SMPN 4 Babelan, Bekasi Regency.

Methods: This research uses descriptive analytic with cross sectional approach. The sample in the study amounted to 95 young women who had experienced menstruation with the non-probability sampling technique of taking samples in total sampling. The research instrument used a Hb check tool and a questionnaire.

Results: The results of the study were tested by statistical tests using the chi-square test. Based on the results of statistical tests using chi square, it showed that factors related to the incidence of anemia were menstrual patterns (p=0.002), and factors that were not related to the incidence of anemia were knowledge (p=0.305), economic status (p=0.361), eating patterns (p=0.186), and consumption of Fe tablets (p=0.884).

Conclusion: There was a significant relationship between menstrual patterns and the incidence of anemia in young women.

Keywords: Adolescent Girl, Anemia, Menstrual Patterns

Introduction

The incidence of anemia in Indonesia is still relatively high, anemia is the most common nutritional problem in both developed and developing countries, and in people with low and high socio-economic status. Anemia can occur in anyone and in any age group. Especially in the group of young women (10-19 years) who suffer from anemia, as much as 20-30% experience decreased physical abilities (productivity) and academic abilities. Young women have a ten times greater risk of suffering from anemia compared to

young men. This is because young women experience menstruation every month and are in a period of growth, so they need more iron intake.[1]

Basically, anemia is directly affected by consumption of daily foods that lack iron, in addition to infection as a trigger. In general, food consumption is closely related to nutritional status. If the food consumed has good nutritional value, then the nutritional status is also good, conversely if the food consumed has less nutritional value, it will cause malnutrition and can cause anemia.[2]

Nutritional anemia mainly caused by iron deficiency is the most common nutritional disorder in developing countries. Iron deficiency anemia is prone to occur in young women because of the increased need for iron during the growth period, this is due to the large amount of iron lost during menstruation. In addition, it is exacerbated by a lack of iron intake, where iron in young women is needed by the body to accelerate growth and development.[3]

Anemia in young women can cause decreased academic achievement, decreased body resistance so that they are susceptible to infectious diseases, decreased fitness levels resulting in decreased productivity and sports achievements, also not achieving maximum height because during this period there is a peak in height growth. Factors that affect anemia in female adolescents include a lack of knowledge, attitudes and skills of adolescents due to a lack of delivery of information, lack of concern for parents, society and government for adolescent health and not yet optimal health services.[4]

According to the World Health Organization (WHO) 2018, anemia in young girls around the world is still quite high, the world prevalence of anemia ranges from 40-88% and the incidence of anemia in young women in developing countries is around 53.7 %, and in young women in Indonesia by 23% of all young women. Anemia often attacks young women due to stress, experiencing menstruation every month, inadequate diet, and disobedience in consuming Fe tablets.

Based on the 2018 Basic Health Research (Riskesdas) data, in Indonesia iron deficiency anemia is still a public health problem, especially with the prevalence of anemia in adolescents (10-19) of 32%, meaning that 3-4 out of 10 adolescents suffer from anemia. Indonesian adolescents with anemia are faced with decreased immunity, concentration, academic achievement, adolescent fitness and productivity. Especially for young women

who will later become mothers, anemia can also trigger pregnancy complications, such as premature birth, or babies born with low body weight and the risk of death due to bleeding during childbirth.[5]

The results of the data obtained from West Java Provincial Health Office, 2018 the number of female adolescents who have experienced anemia in the last 2 years has increased. Data for 2018 the number of adolescents who experienced anemia was 39.2% and increased in 2019 to 41.5%. The head of the health office stated that the coverage of young women who received appropriate blood-supplement tablets in West Java in 2021 was only 25.2% and was still below West Java's target of 52%. The head of the health office hopes that young women can continuously change their behavior to routinely take iron tablets to meet iron adequacy of young women, so that the hemoglobin level of young women remains normal and not anemic.

The results of a preliminary study conducted at SMP Negeri 4 Babelan, Bekasi Regency, based on teacher information obtained data in class IX which totaled 120 students, every month there are always students who do not go to school due to illness, every day there are students who are taken to the School Health Unit (UKS), there were even female students who fainted during the ceremony. The results of interviews with their class IX students said that their vision was often dizzy, they often felt tired quickly, and lethargic. Moreover, they often skip breakfast so that their nutritional intake is not fulfilled properly when doing activities.

Method

1. *Research design*

This research is quantitative research with a descriptive analytic research design using a cross sectional method.

2. *Setting and samples*

This research was conducted at a school, namely SMP Negeri 4 Babelan, Bekasi Regency in December-January 2023. The sample in the study was 95 female adolescents who had experienced menstruation using the non-probability sampling technique. Total sampling was in accordance with predetermined inclusion criteria.

3. *Measurement and data collection*

Data collection was carried out using the Easy Touch brand Hb checking tool to determine hemoglobin levels and using a questionnaire to measure variables.

4. *Data analysis*

The research results were then tested and analyzed using the chi-square test.

Results

Table 1.
Frequency Distribution of Respondents Based on The Incidence of Anemia in Young Girls

Anemia Incidence	Frequency	Percentage (%)
Anemia	44	46.3
Not Anemia	51	53.7
Total	95	100

Based on table 1 above, it shows the results of the distribution of the frequency of occurrence of anemia in young girls at SMPN 4 Babelan, Bekasi Regency, out of 95 respondents whose hemoglobin levels were examined, 44 (46.3%) respondents had anemia, while most of them had 51 (53.7%) respondents did not experience anemia.

Table 2.
Frequency Distribution of Respondents Based on Knowledge of Young Women

Knowledge	Frequency	Percentage (%)
Not enough	40	42,1
Good	55	57,9
Total	95	100

Based on table 2, it shows the results of the distribution of the frequency of knowledge of young women at SMPN 4 Babelan, Bekasi Regency, that out of 95 respondents, 40 (42.1%) had less knowledge, while most of them had 55 (57.9%) respondents who had good knowledge about anemia in adolescent.

Table 3.
Frequency Distribution of Respondents Based on Menstrual Patterns for Young Women

Menstrual Pattern	Frequency	Percentage (%)
Abnormal	30	31,6
Normal	65	68,4
Total	95	100

Based on table 3, it shows the results of the distribution of the frequency of menstrual patterns for young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, 30 (31.6%) teenagers had abnormal menstrual patterns and 65 (68.4%) respondents had normal menstrual patterns.

Table 4.
Frequency Distribution of Respondents Based on the Economic Status of Young Women

Economic Status	Frequency	Percentage (%)
Low	47	49.5
Tall	48	50.5
Total	95	100

Based on table 3, the results of the frequency distribution of the economic status of young women at SMPN 4 Babelan Bekasi show that out of 95 respondents, more than half (50.5%) of the respondents' parents had an income above the UMK of Bekasi Regency.

Table 5.
Frequency Distribution of Respondents Based on Diet of Young Women

Dietary habit	Frequency	Percentage (%)
Insufficient	47	49.5
Sufficient	48	50.5
Total	95	100

Based on table 5, it shows the results of the distribution of the frequency of eating patterns of young women at SMPN 4 Babelan Bekasi that out of 95 respondents, almost half (49.5%) of adolescents have an inadequate diet, and as many as 48 (50.5%) of adolescents have an inadequate diet. sufficient for daily nutritional needs.

Table 6.
Frequency Distribution of Respondents Based on Consumption of Fe Tablets by Female Teenagers

Consumption of Fe Tablets	Frequency	Percentage (%)
Not obey	55	57,9
obey	40	42,1
Total	95	100

Based on table 6, it shows the results of the frequency distribution of consumption of Fe tablets for young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, there

were 55 (57.9%) teenagers who did not regularly consume Fe tablets and as many as 40 (42.1%) teenagers regularly consumed Fe tablets given by health workers.

Table 7.
Relationship between knowledge and the incidence of anemia in young women

| Knowledge | Adolescent Anemia Incidence | | | | | | *P-Value* |
| | Anemia | | Not Anemia | | Total | | |
	f	%	F	%	f	%	
Less Knowledge	21	44,4	19	55,6	40	100	
Good Knowledge	23	46,2	32	53,8	55	100	0.305
Total	44	45,3	51	54,7	95	100	

Based on table 7, it shows that of the 40 adolescents who have less knowledge, 21 (44.4%) have anemia, while 32 (53.8%) adolescents with good knowledge do not have anemia. From the bivariate analysis with statistical tests using the chi square test, it was obtained a p- value of 0.305> 0.05, so it can be concluded that there is no significant relationship between knowledge and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

Table 8.
The Relationship between Menstrual Patterns and the Incidence of Anemia in Young Women

| Menstrual Pattern | Adolescent Anemia Incidence | | | | | | *P-Value* |
| | Anemia | | Not Anemia | | Total | | |
	F	%	F	%	F	%	
Abnormal	21	70.0	9	30.0	30	100	
Normal	23	35,4	42	64,6	65	100	0.002
Total	44	46,3	51	53,7	95	100	

Based on table 8, it shows that of the 30 respondents, the most common occurrence of anemia occurs in adolescents who have abnormal menstrual patterns with a percentage of (70.0%) and based on the analysis of the relationship between menstrual patterns and the incidence of anemia using the chi square test, a p-value of 0.002 is obtained. <0.05,

which means that there is a significant relationship between menstrual patterns and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

Table 9.
Relationship between Economic Status and Anemia Incidence in Young Women

Economic Status	Adolescent Anemia Incidence						*P-Value*
	Anemia		Not Anemia		Total		
	F	%	F	%	F	%	
Low	24	51,1	23	48,9	47	100	
Tall	20	41.7	28	58,3	48	100	0.361
Total	44	46,3	51	53,7	95	100	

Table 9 shows that out of 47 respondents, 24 (51.1%) teenagers who had low economic status experienced anemia, while 28 (58.1%) of 48 respondents with high economic status did not experience anemia. From the bivariate analysis using the chi square test, it was found that the p-value was 0.361 > 0.05. It can be concluded that there is no significant relationship between economic status and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

Table 10.
Relationship between diet and the incidence of anemia in young women

Dietary habit	Adolescent Anemia Incidence						*P-Value*
	Anemia		Not Anemia		Total		
	f	%	F	%	F	%	
Insufficient	25	53,2	22	46,8	47	100	
Sufficient	19	39,6	29	60,4	48	100	0.186
Total	44	46,3	51	53,7	95	100	

Based on table 10, it shows that of the 47 respondents, adolescents with an inadequate diet, 25 (53.2%) experienced anemia, while of the 48 respondents, adolescents with an adequate diet, 29 (60.4%) did not experience anemia. From the bivariate analysis using the chi square test, it was found that the p-value was 0.186 > 0.05. It can be concluded that there is no significant relationship between diet and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan, Bekasi Regency.

Table 11.
Consumption of Fe Tablets with Anemia Incidence in Young Women

Consumption of Fe Tablets	Adolescent Anemia Incidence						P-Value
	Anemia		Not Anemia		Total		
	F	%	F	%	F	%	
Not obey	25	45.5	30	54.5	55	100	
obey	19	47.5	21	52.5	40	100	0.844
Total	44	46,3	51	53,7	95	100	

Based on table 11, it shows that of the 55 respondents, adolescents who were not compliant with consuming Fe tablets, 25 (45.5%) experienced anemia, while of the 40 respondents, adolescents who adhered to consuming Fe tablets, 21 (52.5%) did not experience the event. anemia. From the bivariate analysis using the chi square test, it was found that the p-value was 0.884 > 0.05. It can be concluded that there is no significant relationship between consumption of Fe tablets and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan, Bekasi Regency.

Discussion
1. Frequency Distribution of Respondents Based on Knowledge of Young Women

Based on univariate analysis, table 4.2 shows the results of the frequency distribution of knowledge of young girls at SMPN 4 Babelan, Bekasi Regency, that out of 95 respondents, 40 (42.1%) had less knowledge, while most of them had 55 (57.9%) respondents who had good knowledge. about adolescent anemia.

Knowledge is a sense of knowing as a result of sensing involving the five senses, namely sight, hearing, smell, taste and touch of an object. Knowledge about anemia includes an overview of young women's understanding of anemia, risk factors or causes of anemia, the process of its occurrence, signs and symptoms of anemia and prevention and prevention of anemia. This knowledge can reflect as a form of prevention against anemia in life.

In line with research conducted by Rahayu which stated that there is a relationship between the level of knowledge and the incidence of anemia in young women. Adolescent girls who have good knowledge about anemia will tend to have sufficient food consumption to meet nutritional needs to avoid anemia problems.[4]

According to the researchers, knowledge is one of the factors that can affect anemia in young women, because good knowledge will influence adolescents in choosing, evaluating and deciding something good for themselves so as to avoid the occurrence of anemia such as finding as many sources of information as possible regarding adolescent anemia, choosing food consumed every day to meet daily nutritional needs, and so on. Meanwhile, the lack of knowledge causes them to be unable to distinguish between what is good and what is bad for their health.

2. Frequency Distribution of Respondents Based on Menstrual Patterns for Young Women

Based on table 2, it shows the results of the frequency distribution of menstrual patterns for young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, 30 (31.6%) teenagers had abnormal menstrual patterns and 65 (68.4%) respondents had normal menstrual patterns.

The menstrual pattern is a series of menstrual processes which include the menstrual cycle, length of menstrual bleeding and dysmenorrhea. The menstrual cycle is the time from the first day of menstruation until the arrival of the next menstrual period.[16]

In line with research conducted by Kulsum stated that abnormal menstrual patterns would cause respondents to lose more blood during menstruation than respondents who had normal menstrual patterns. The pattern and length of the menstrual process will affect the number of red blood cells in the body, the longer the menstrual process, the more blood will come out, which can cause anemia problems in young women.[16]

According to researchers, at the age of puberty, the menstrual patterns experienced by female adolescents are generally irregular, thus allowing adolescents to experience excessive bleeding during menstruation. The factors that influence menstrual patterns include hormones, body weight, physical activity, stress and nutritional status. One of these factors can cause abnormal menstrual patterns for young women. Therefore, it is important for young women to know the factors that cause abnormal menstrual patterns resulting in anemia.

3. Frequency Distribution of Respondents Based on Young Women's Economic Status

The results of the frequency distribution of the economic status of young women at SMPN 4 Babelan Bekasi show that out of 95 respondents, more than half (50.5%) of the

respondents' parents had an income above the UMK of Bekasi Regency. According to Abdul Basith et al., (2017) The low economic level (income) of the family will affect the pattern and type of food for the family, where most families who have a low economic level (income) prefer types of carbohydrate-oriented foods rather than protein, vitamins and minerals.[7]

This is because foods that contain carbohydrates are cheaper than others. According to the researchers, economic status is the income of the parents of young women who have a percentage of fulfilling daily needs in the family, for example, is the income of the parents of teenagers sufficient for primary and secondary needs, one of which is the purchasing power of the family in fulfilling the nutritional status of the teenager himself. From the data obtained above, more than half of young women have parents with incomes above the UMK of Bekasi Regency, which means that the fulfillment of nutrition and adolescent diets is likely to be fulfilled. [7]

4. Frequency Distribution of Respondents Based on Diet of Young Women

The results showed that the frequency distribution of the eating patterns of young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, almost half (49.5%) of the teenagers had inadequate eating patterns, and as many as 48 (50.5%) of the teenagers had an inadequate eating pattern. sufficient for daily nutritional needs.

Diet is human behavior in meeting their food needs which includes attitudes, beliefs and food selection. Food is a necessity for living things, food consumed by various types with various types of processing. Eating patterns are influenced by eating habits, namely the way a person eats food three times a day with the frequency and type of food eaten. A nutritious and balanced diet is a diet that pays attention to the composition of the types of food, regular, not excessive, nor lacking.

In line with research by Utami, a good diet needs to be formed as an effort to meet nutritional needs. An inappropriate diet will lead to excess nutrient intake or vice versa. Excess intake can lead to excess weightand other diseases caused by excess nutrients. Conversely, eating less than needed will cause the body to become thin and susceptible to disease. According to researchers, a good diet in adolescents is the eating habits of the adolescents themselves, whether regularly 3 times a day and the portion of food consumed is sufficient for balanced daily nutrition. A bad diet will not meet the daily needs of teenagers

and cause the body to be unable to carry out activities properly, even causing teenagers to lose concentration while studying.[33]

5. Frequency Distribution of Respondents Based on Consumption of Fe Tablets by Female Teenagers

Based on table 4.6, it shows the results of the frequency distribution of consumption of Fe tablets for young girls at SMPN 4 Babelan Bekasi, that out of 95 respondents, there were 55 (57.9%) teenagers who did not regularly consume Fe tablets and as many as 40 (42.1%) teenagers regularly consumed Fe tablets. given by health workers.

Iron (Fe) tablets are additional iron supplements that contain micronutrients needed by the body, especially for young women who have iron deficiency anemia. An iron anemia can be prevented by consuming iron (Fe) tablets regularly.[26]

In line with research in 2017, states compliance is a change regarding previous behavior from behavior that does not comply with regulations. The problem regarding adherence is a matter of daily iron supplementation, which results in safeguards related to adherence in consuming Fe tablets in the presence of health workers directly.[13]

According to researchers, consumption of Fe tablets is needed by young women at least once every 2 weeks, especially during menstruation. Where during menstruation additional iron is very important to prevent anemia deficiency in young women. There are several factors that can affect the consumption of Fe tablets, including the knowledge and attitude of the adolescents themselves in obedience and encouragement to consume Fe tablets.

6. Relationship of Knowledge with Anemia Incidence in Young Women

Based on the results of this study, it was found that out of 40 young women who had less knowledge (44.4%) experienced anemia, and most of the teenagers who had high knowledge (53.8%) did not experience anemia. From the bivariate analysis using the chi square test, it was obtained a p-value of $0.305 > 0.05$, so it can be concluded that there is no significant relationship between knowledge and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan, Bekasi Regency.

Knowledge is a sense of knowing as a result of sensing including the five senses, namely sight, hearing, smell, taste and touch of an object. Through education, self-experience and others, the mass media and the environment are sources of knowledge. Knowledge about anemia includes an overview of young women's understanding of anemia,

risk factors or causes of anemia, the process of its occurrence, signs and symptoms of anemia and prevention and prevention of anemia. This knowledge can reflect as a form of prevention against anemia in life.

The results of this study are in contrast to research conducted by Rahayu et al. which states that there is a relationship between the level of knowledge and the incidence of anemia in young women. Adolescent girls who have good knowledge about anemia will tend to have sufficient food consumption to meet nutritional needs to avoid anemia problems. Adolescent girls are also one of the populations that have a higher risk of developing anemia than boys. This happens because young women experience menstruation and have a desire to stay slim so dieting reduces food which has an impact on fulfilling poor nutrition.[4]

7. The Relationship between Menstrual Patterns and the Incidence of Anemia in Young Women

Based on the results of this study, it was found that of the 65 female adolescents who had an abnormal menstrual pattern (70.0%) experienced anemia, and female adolescents who had a normal menstrual pattern (64.6%) did not experience anemia. From the bivariate analysis using the chi square test, it was obtained a p-value of 0.002 <0.05, so it can be concluded that there is a significant relationship between menstrual patterns and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

The menstrual pattern is a series of menstrual processes which include the menstrual cycle, the duration of menstrual bleeding and dysmenorrhea. The menstrual cycle is the time from the first day of menstruation until the arrival of the next menstrual period.[16]

This research is in line with research conducted by Kulsum which states that there is a relationship between menstrual patterns and the occurrence of anemia in young women with a p-value of 0.001 <0.05. Abnormal menstrual patterns will cause respondents to lose more blood during menstruation than respondents who have normal menstrual patterns. The pattern and length of the menstrual process will affect the number of red blood cells in the body, the longer the menstrual process, the more blood will come out, which can cause anemia problems in young women.[16]

According to researchers, at the age of puberty, the menstrual patterns experienced by young women are generally irregular, thus allowing adolescents to experience excessive bleeding during menstruation. Therefore, young women need iron which is used to replace iron lost with menstrual blood. Because bleeding during menstruation is accompanied by iron that comes out with the blood, women are advised to consume iron either from foodstuffs or available iron (Fe) tablets to maintain balance and prevent anemia. Likewise for adolescents who have normal menstrual patterns but they suffer from anemia.

8. Relationship between Economic Status and Anemia Incidence in Young Women

Based on the results of this study, it was found that out of 48 young women whose parents had high economic status, 28 (58.3%) did not experience anemia. From the bivariate analysis, it shows that young women whose parents have high economic status do not experience anemia, obtained a p-value of 0.361> 0.05. It can be concluded that there is no significant relationship between economic status and the incidence of anemia in class IX young women at SMPN 4 Babelan, Bekasi Regency.

Economic status is the high or low percentage that a person has based on the position he holds in a society based on work, monthly income to meet his needs. Economic status can be seen from the income adjusted for daily basic needs. The low economic level (income) of the family will affect the pattern and type of food for the family, where most families who have a low economic level (income) prefer carbohydrate-oriented foods compared to protein, vitamins and minerals. This is because foods that contain carbohydrates are cheaper than others.[7]

The results of the study are in line with the research of Ayudia, which states that there is no relationship between economic status and the incidence of anemia in young women with a p-value of 0.731> 0.05. Respondents whose parents' income is low and suffer from anemia because the respondents do not pay much attention to the nutritional content they consume every day.[24] From the interview results, respondents said they consumed more cheap and delicious snacks, but they did not pay attention to the quality of the food. Respondents are more concerned with quantity than the quality of nutrition consumed every day.[30]

This research is in contrast to research conducted by Basith et al., regarding factors related to the incidence of anemia in young girls at SMPN 4 that the most common occurrence of anemia is adolescents who have parents with low income levels. with a p-

value of 0.000 <0.05 so it can be concluded that there is a relationship between parents' income levels and the incidence of anemia. Parents' economy is not a direct factor that can cause anemia, but parents' economics can have an impact on family purchasing power. This purchasing power affects the daily intake of young women which can have an impact on the good and bad nutritional status of adolescents.[7]

According to the researcher, what is meant by economic status is the income of the parents of young women who have a percentage of fulfilling daily needs in the family, for example, is the income of the parents of teenagers sufficient for both primary and secondary needs, one of which is the purchasing power of the family in fulfilling the nutritional status of young women . Even though the bivariate test is not significant, in reality the economic status and the incidence of anemia in adolescents have an influence. Because economic status plays an important role in fulfilling the daily nutrition consumed by young women.

9. Relationship of Diet with Anemia Incidence in Young Women

Based on the results of this study, it was found that of the 48 young women who had an adequate diet, 29 (60.4%) did not experience anemia. From the bivariate analysis it showed that young women whose diet was adequate did not experience anemia, obtained a p-value of 0.186> 0.05, so it can be concluded that there was no significant relationship between diet and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan Regency Bekasi.

Diet is human behavior in meeting their food needs which includes attitudes, beliefs and food choices. Food is a necessity for living things, various types of food are consumed with various types of processing. Eating patterns are influenced by eating habits, namely the way a person eats food three times a day with the frequency and type of food eaten. A nutritious and balanced diet is a diet that pays attention to the composition of the types of food, regular, not excessive, nor lacking.

The results of the research are in contrast to previous research by Utami et al, with the titlethe relationship between diet and the incidence of anemia in young women at SMA Muhammadiyah 1 Karanganyar, the results of the study showed that there was a significant relationship between diet and the incidence of anemia in young women at SMA Muhammadiyah 1 Karanganyar.A good diet needs to be formed as an effort to meet nutritional needs. An inappropriate diet will lead to excess nutrient intake or vice versa.

Excess intake can lead to excess weightand other diseases caused by excess nutrients. Conversely, eating less than needed will cause the body to become thin and susceptible to disease.[33]

According to researchers, a good diet in adolescents is the eating habits of the adolescents themselves, whether regularly 3 times a day and the portion of food consumed is sufficient for balanced daily nutrition. It is known that most of the adolescents who attend SMPN 4 Babelan, Bekasi Regency, even though they have economic high, but this is not a benchmark in fulfilling their daily nutritional intake, because in fact more young women skip breakfast and choose to consume external foods whose nutritional content is not guaranteed, for example snacks at school, fast food, drinks containing soda, etc.Even though it was not significant in the bivariate test, in reality the relationship between diet and the incidence of anemia in adolescents is very influential.

10. Correlation between Consumption of Fe Tablets and the Incidence of Anemia in Young Women

Based on the results of this study, it was found that out of 55 young women who obediently consumed Fe tablets, 30 (54.5%) did not experience anemia. From the bivariate analysis it showed that young women who were non-adherent in consuming Fe tablets and did not experience anemia obtained a p-value of $0.844 > 0.05$, so it can be concluded that there was no significant relationship between adherence to consumption of Fe tablets and the incidence of anemia in class IX young women in SMPN 4 Babelan, Bekasi Regency.

Based on previous research, it is known that several factors influence the occurrence of anemia in young women, namely lack of knowledge related to nutrition, inadequate eating patterns, abnormal menstrual patterns and adherence in consuming Fe tablets. Compliance with consuming Fe tablets is influenced by 2 things, namely from health workers and awareness from within a person.

Iron (Fe) tablets are additional iron supplements that contain micronutrients needed by the body, especially for young women who have iron deficiency anemia. An iron anemia can be prevented by consuming iron (Fe) tablets regularly, and can also through a food that has a high iron content. Where hemoglobin levels will affect when taking iron supplements. If the hemoglobin level is within the normal range, the anemia status will also be normal, which is a way to prevent and treat iron deficiency anemia.[26]

Compliance is a change regarding previous behavior from behavior that does not comply with regulations. The problem of adherence is a matter of daily iron supplementation, which results in maintenance related to adherence in consuming Fe tablets in direct presence of health workers.[13] This research is in line with previous research by Lestari et al, with the titleThe Relationship between Iron Consumption and the Incidence of Anemia in Students of SMP Negeri 27 Padang. The results of the study showed that there was no significant relationship between consumption of iron (Fe) and the incidence of anemia in students of SMP Negeri 27 Padang.[18]

According to researchers, consumption of Fe tablets is needed by young women at least once every 2 weeks, especially during menstruation. Where during menstruation additional iron is very important to prevent anemia deficiency in young women. There are several factors that can affect the consumption of Fe tablets, including the knowledge and attitude of the adolescents themselves in obedience and encouragement to consume Fe tablets. Even though it was not significant in the bivariate test, in reality the consumption of Fe tablets and the incidence of anemia in female adolescents is very influential.

Limitations

The limitations of this study were that the research was carried out one by one class (door to door) so that researchers could not reach all classes at SMPN 4 Babelan Bekasi but were only represented by classes IX 1 to IX 5. Then when the researchers examined hemoglobin levels, the questionnaires were distributed to respondents who were not directly supervised, there is a possibility of bias occurring. This bias is caused by several things, including the possibility that the respondent was dishonest in filling out the questionnaire, the respondent filled in by imitating the respondent's answer beside him, and the possibility that the respondent was not serious or thorough in filling out the research questionnaire.

Conclusion

From this research it was found that there is a significant relationship between menstrual patterns and the incidence of anemia in class IX adolescent girls SMPN 4 Babelan Bekasi Regency in 2023. There is no significant relationship between knowledge,

economic status, diet and consumption of Fe tablets with the incidence of anemia in class IX adolescent girls SMPN 4 Babelan Bekasi Regency in 2023.

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Factors Related to Fe Tablet Consumption Compliance among Pregnant Women in The Work Area of Pasir Jaya Health Centre Tangerang District

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Abstract

Background: The prevalence of anemia in pregnant women in Indonesia is 70%, or 7 out of 10 pregnant women suffer from anemia. The low adherence of pregnant women in taking iron supplements is one of the reasons the prevalence rate of anemia is still high.

Purpose: To determine the factors related to compliance with consumption of Fe tablets in pregnant women in the work area of the Pasir Jaya Health Center, Tangerang Regency in 2022

Methods: The research design used is descriptive correlation. This research uses the Cross Sectional method. The number of samples or respondents is 77 respondents with the Simple Random Sampling technique.

Result: The results of the study showed that of the 77 respondents used as the research sample, the results obtained were that 27 respondents had non-compliant compliance criteria with a percentage of 35.1%, and 50 respondents had compliance criteria with a percentage of 64.9%. There is a relationship between knowledge and non-compliance with the sig value. of 0.046, there is a relationship between perception and compliance with the sig value. of 0.018, there is a relationship between family/husband support and compliance with the sig. of 0.016, and there is no relationship between the support of health workers and adherence to the sig. of 0.836.

Conclusions: It is recommended that pregnant women adhere to consuming iron tablets during pregnancy and know the consequences if they are not consumed properly. Iron tablets that have been given by health workers.

Keywords: pregnant women, adherence, Fe tablets.

Introduction

Pregnancy is an important period in the first 1000 days of life so it requires special attention. Pregnant women are one of the nutritionally vulnerable groups. Nutritional intake of pregnant women greatly influences fetal growth.[1] Pregnancy is a process that starts from the conception stage until the birth of the fetus. The normal duration of pregnancy is 280 days (40 weeks) counting from the first day of the last menstruation.[2]

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The need for iron during pregnancy increases because it is used for the formation of new cells and tissues. In addition, iron is an important element in the formation of hemoglobin in red blood cells. Deficiency of hemoglobin is called anemia or is called anemia which can endanger the health of the mother and baby such as low birth weight, bleeding and an increased risk of death. Fish, meat, liver and tempeh are good types of food for pregnant women because of their high iron content. Pregnant women are also advised to consume one iron tablet per day during pregnancy and continue during the postpartum period.[3]

Anemia is a nutritional problem that needs attention and is a public health problem in Indonesia that can be experienced by all age groups, from toddlers, adolescents, pregnant women to the elderly. Anemia can be caused by various things, including iron deficiency, vitamin B12 deficiency, folic acid deficiency, infectious diseases, congenital factors and bleeding. Provision of iron tablet supplementation is an effort by the government to intervene to prevent anemia during pregnancy.[4,6] Anemia is referred to as one of the indirect causes of death which can contribute to the occurrence of maternal mortality in Indonesia.[7,8]

The prevalence of anemia in pregnant women in Indonesia is 70%, or 7 out of 10 pregnant women suffer from anemia, which can contribute to increasing the chances of morbidity and mortality of mothers and babies. One of the contributing factors to the high prevalence of anemia is the low compliance of pregnant women in consuming iron during pregnancy.[9] Blood hemoglobin (Hb) is a parameter used to determine the prevalence of anemia.[10]

The increased plasma volume causes the hemoglobin concentration to decrease somewhat during pregnancy. As a result, the overall viscosity of the blood is reduced. The normal Hb value at the end of pregnancy averages 12.5 g/dL, and about 5% of pregnant women have an Hb level of less than 11.0 g/dL. Hb values below 11.0 g/dL especially in late pregnancy should be considered abnormal and are usually caused by iron deficiency and not due to hypervolemia of pregnancy. Hemoglobin is a dye found in red blood cells and is used to transport oxygen and carbon dioxide in the body, hemoglobin is a protein bond, iron salts, dyes. Most pregnant women will experience some degree of anemia because iron is needed to produce red blood cells in the fetus.[11]

Anemia that occurs in the third trimester tends to be more due to the need for iron

which increases according to gestational age while iron stores in the body are insufficient so that many third trimester pregnant women experience iron deficiency anemia unless the pregnant women are given iron supplements. If the anemia becomes severe and lasts a long time, the amount of blood to carry oxygen decreases, as a result, the fetus cannot get enough oxygen it needs for normal growth, especially in the brain. Pregnant women who experience severe anemia will experience symptoms such as excessive fatigue, shortness of breath, headaches, and dizzy eyes. The risk of preterm increases during delivery. In a society whose daily diet is mostly derived from vegetable sources, the presence of infectious diseases and parasitic infections play a major role in iron anemia. The low levels of iron contained in vegetable sources are only part of the reason for the high prevalence of nutritional anemia in Indonesia.[11]

Compliance in consuming iron tablets is the obedience of pregnant women in carrying out the recommendations of health workers to consume iron tablets. Compliance with consuming iron tablets is measured by the accuracy of the number of iron tablets consumed, the accuracy of how to consume iron tablets, the frequency of consumption of iron tablets per day.[12] Apart from being needed for the needs of the fetus, iron is also needed in connection with an increase in maternal blood volume by 30 percent.[13] For this reason, the government recommends supplementing iron tablets needed during pregnancy, namely 90 tablets with a dosage content of 30-60 mg/tablet with daily drinking rules, it is consumed regularly, namely once a day, but often pregnant women do not comply with the instructions given.[5,13,14]

Non-compliance has become a serious problem faced by health workers, therefore it is important to know about the level of adherence. Accurate assessment of non-compliant individuals is a difficult task.[4,6] Kasl in Niven revealed that to measure non-compliance of pregnant women it can be seen from the iron tablets given that are not spent.[4] Compliance of pregnant women in consuming iron during pregnancy cannot be separated from the level of knowledge possessed by pregnant women. Extensive knowledge regarding the importance of consuming iron and even knowledge of pregnant women regarding the side effects that can be the cause of a lack of adherence to consuming iron tablets properly so that the purpose of giving these tablets is not achieved.

The percentage of pregnant women who have anemia is 48.9%. This means that about 5 out of 10 pregnant women in Indonesia suffer from anemia. Anemia in pregnant

women will have an impact on the optimal growth and development of the fetus in the womb and has the potential to cause complications of pregnancy and childbirth, and even cause death of mother and child. The Program for Giving Blood Supplement Tablets (TTD) to pregnant women began in 1990 which aims to prevent and treat iron deficiency anemia and to become one of the specific interventions in an effort to accelerate the reduction of stunting. During the Covid-19 pandemic, giving iron supplements to pregnant women must still be carried out with due regard to social and physical distancing.[15]

Based on an initial survey at the Pasir Jaya Health Center, Tangerang Regency, data were obtained in September 2022. The impact that often occurs due to anemia in the Working Area of the Pasir Jaya Health Center in 2021 is bleeding of 3 people (0.1%), LBW of 5 people and decreased which is very significant in 2022, that there are no pregnant women who experience bleeding (0%), and LBW 7 was people. In 2021, out of 2,134 pregnant women, 83 people (3.9%) will have anemia. In 2022 there will be 24 anemic pregnant women for the September 2022 period with a percentage of 1.9%. There has been a decrease in the prevalence of anemia in the work area of the Pasir Jaya Health Center in 2022 to 2%. It can be seen that there is still a problem of anemia in pregnant women who are in the work area of the Pasir Jaya Health Center even though Fe coverage has reached the target (90%).

The results of interviews with 7 pregnant women about the importance of pregnant women consuming Fe tablets regularly, it was found that 4 people knew the importance of taking Fe tablets regularly, while 3 people did not know that they had to consume them regularly. In terms of maternal adherence in consuming Fe tablets, it was found that 2 people consumed Fe tablets regularly, while 5 mothers consumed Fe tablets irregularly because the mother forgot to take them and no family members reminded her, let alone their husbands. Apart from that, pregnant women feel nauseous when they take Fe tablets. The low adherence of pregnant women in consuming iron supplements is one of the reasons why the prevalence rate of anemia is still high.

From the results of research conducted in 2019 it was found that there was a relationship between the adherence of pregnant women to consuming Fe tablets and the incidence of anemia.[16] There is a significant relationship between knowledge and adherence of pregnant women in consuming Fe tablets.

Method

1. Research design

The research design used is descriptive correlation using quantitative methods and using the Cross Sectional method.

2. Settings and samples

The research location was conducted at the Pasir Jaya Health Center, Tangerang Regency. The time of the research was carried out in October - December 2022. The population in this study were all third trimester pregnant women who made antenatal care visits at the Pasir Jaya Health Center in October - December 2022 which consisted of 330 people. Calculation of the sample size with the Slovin formula and results in 77 respondents. The sampling method uses Simple Random Sampling.

a. Inclusion Criteria

    1) Third trimester pregnant women who have received at least 90 tabs of Fe tablets

    2) Pregnant women who have a *KIA* book

    3) Willing to be a respondent

b. Exclusion Criteria

    1) Pregnant women who refuse to be respondents

    2) Pregnant women who are sick

    3) Pregnant women who were not present at the time the study was conducted.

3. Measurement and data collection

The instruments used in this study were questionnaires and data collection had been done by interviews.

4. Data analysis

Data analysis used the chi square statistical test.

Results

Univariat Analysis

Table 1.
Frequency Distributin Results

Variabe	Frecuency	Percentage (%)
Compliance		
Not comply	27	35.1
Comply	50	64.9
Total	77	100
Knowledge		
Low	16	20.8
High	61	79.2
Total	77	100
Perception		
Negative	31	40.3
Positve	46	59.7
Total	77	100
Husband/ Family Support		
Negatve	40	51.9
Positive	37	48.1
Total	77	100
Health Care Provider Support		
Negative	33	42.9
Positve	44	57.1
Total	77	100

Bivariat Analysis

Table 2.
The Relationship between Knowledge and Compliance

Knowledge		Compliance			P-Value
		Not comply	Comply	Total	
Low	n	9	7	16	
	Expected Count	5.6	10.4	16.0	
	%	11.7%	9.1%	20.8%	
High	n	18	43	61	
	Expected Count	21.4	39.6	61.0	0.046
	%	23.4%	55.8%	79.2%	
Total	n	27	50	77	
	Expected Count	27.0	50.0	77.0	
	%	35.1%	64.9%	100.0%	

Table 3.
The Relationship Between Perception and Compliance

Perception		Compliance			P-Value
		Not coomply	Comply	Total	
Negatve	N	6	25	31	
	Expected Count	10.9	20.1	31.0	
	%	7.8%	32.5%	40.3%	
Positive	N	21	25	46	
	Expected Count	16.1	29.9	46.0	0.018
	%	27.3%	32.5%	59.7%	
Total	N	27	50	77	
	Expected Count	27.0	50.0	77.0	
	%	35.1%	64.9%	100.0%	

Table 4
The Relationship Between Husband/ Family Support and Compliance

Husband/ family support		Compliance			P-Value
		Not comply	Comply	Total	
Negatif	N	9	31	40	
	Expected Count	14.0	26.0	40.0	
	%	11.7%	40.3%	51.9%	
Positif	N	18	19	37	
	Expected Count	13.0	24.0	37.0	0.016
	%	23.4%	24.7%	48.1%	
Total	N	27	50	77	
	Expected Count	27.0	50.0	77.0	
	%	35.1%	64.9%	100.0%	

Table 5
The Relationship Between Health Care Providers' Support and Compliance

Health Care Providers' Support		Compliance			P-Value
		Not comply	Comply	Total	
Negatif	N	12	21	33	
	Expected Count	11.6	21.4	33.0	
	%	15.6%	27.3%	42.9%	
Positif	N	15	29	44	
	Expected Count	15.4	28.6	44.0	0.836
	%	19.5%	37.7%	57.1%	
Total	N	27	50	77	
	Expected Count	27.0	50.0	77.0	
	%	35.1%	64.9%	100.0%	

Discussion

1. **The Relationship Between Knowledge of Pregnant Women and Adherence To Consumption of FE tablets in pregnant women in Tangerang district in 2022**

   The results of the analysis found that pregnant women who had low knowledge were 16 respondents with details of 9 respondents (11.7%) having non-compliant compliance and 7 respondents 9.1% having obedient compliance. Whereas in good

knowledge there were 61 respondents with details of 18 respondents (23.4%) having non-compliant compliance and 43 respondents (55.8%) having obedient compliance. In addition, the sig. of 0.046, the value is <0.05, which means that H0 is rejected and H1 is accepted, thus it can be concluded that there is a relationship between knowledge and compliance.

The results of Fajrin and Erisniwati's research that found the majority had insufficient knowledge about the importance of consuming iron tablets (47.6%). The majority of respondents were disobedient in consuming iron tablets (57.2%). The majority of respondents with less knowledge were disobedient (38.1%), the majority of respondents with sufficient knowledge were obedient (19.1%), while the majority of respondents with high knowledge were obedient (14.3%). There is a relationship between adherence to consumption of iron tablets and the level of knowledge of pregnant women with a p value <0.05.[5]

The results of Hamzah's research (2020) found that this showed that there was a relationship between knowledge, motivation, family support, and the role of health workers with the compliance of pregnant women in consuming Fe tablets with a p value <0.05.[17]

Knowledge is the result of knowing, and this occurs after people sense a certain object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most of human knowledge is obtained through the eyes and ears.[18]

2. The Relationship Between Perceptions of Pregnant Women and Adherence To Consumption of FE Tablets In Pregnant Women in Tangerang District in 2022

The results of the analysis show that there are 31 respondents with negative perceptions with details of 6 respondents (7.8%) having non-compliant compliance and 25 respondents (32.5%) having obedient compliance. While on the positive perception there were 46 respondents with details of 21 respondents (27.3%) having non-compliant compliance and 29 respondents (32.5%) having obedient compliance. In addition, the sig. of 0.018, the value is <0.05, which means that H0 is rejected and H1 is accepted, thus it can be concluded that there is a relationship between perception and compliance.

The results of Hastuti & Setianingsih's research found that the perception of pregnant women in consuming FE tablets found that the majority of pregnant women had a perception of agreed was 53 respondents (60.9%), had a perception that strongly agreed was (17.2%), had a 14 respondents (16.1%) disagreed with the perception, while 5 respondents (5.7%) had a strongly disagreed perception of consuming FE tablets.[19]

Perception is an experience produced through the senses of sight, hearing, smell, and so on. Everyone has a different perception, even though the object is the same.[20]

3. The Relationship Between Husband/ Family Support and Adherence To Consumption of FE Tablets In Pregnant Women in Tangerang District in 2022

The results of the analysis found that there were 40 respondents who had negative support with details of 9 respondents (11.7%) had non-compliant compliance and 31 respondents (40.3%) had obedient compliance. While on the positive perception there were 37 respondents with details of 18 respondents (23.4%) having non-compliant compliance and 19 respondents (24.7%) having obedient compliance. In addition, the sig. of 0.016, the value is <0.05, which means that H0 is rejected and H1 is accepted, thus it can be concluded that there is a relationship between husband support and compliance.

The results of the research by Khairunnisa found that 27 people (84.4%) were non-adherent in consuming Fe tablets. Based on the chi-square correlation test, the results between the relationship between husband's support and adherence to consumption of Fe tablets in pregnant women is P-value = 0.000 < α = 0.05. It can be concluded that there is a significant relationship between husband's support and adherence to consumption of Fe tablets in pregnant women.[22] The results of Hamzah's research showed that there is a relationship between family support and compliance of pregnant women in consuming Fe tablets (p value 0.000).[17]

Family support is defined by Gottlieb, verbal information, goals, real help or behavior provided by people who are familiar with the subject in their social environment or in the form of presence and things that can provide emotional benefits or influence on acceptance behavior. In this case, people who feel that they have social support feel emotionally relieved to be cared for, get suggestions or pleasant impressions on themselves.[21]

According to Sarason family support is objection, sadness, concern from people who can be relied upon, appreciate and love us, the same view was also expressed by Cobb defining family support as comfort, attention, appreciation or helping people with an attitude of accepting their condition, family support these were obtained from individuals and groups.[21]

4. The Relationship Between Health Care Providers' Support and Adherence To Consumption of FE Tablets in Pregnant Women in Tangerang District in 2022

Based on the results of the analysis that the support of health workers had negative results there were 33 respondents with details of 12 respondents (15.6%) had non-compliant compliance and 21 respondents (27.3%) had adherent compliance. While on the positive perception there were 44 respondents with details of 15 respondents (19.5%) having non-compliant compliance and 29 respondents (37.7%) having obedient compliance. In addition, the sig. of 0.836, the value is > 0.05, which means that H0 is accepted and H1 is rejected, thus it can be concluded that there is no relationship between support and compliance.

The results of Hamzah's research (2021) showed that there was a relationship between the role of health workers and the compliance of pregnant women in consuming Fe tablets (p value 0.002).

Health professional support is needed to improve adherence, the simplest example of this support is the existence of communication techniques. Communication plays an important role for good communication given by health professionals both doctors/nurses can instill words for patients.[21]

Conclusion

There is a relationship between knowledge, perception, family/husband support and compliance and there is no relationship between the support of health care provider and adherence.

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Effect of Birth Balls on Reducing Labor Pain During First Stage of Active Phase in Primigravida Maternity

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Abstract

Background: Pain in labor is a manifestation of shortening contractions of the uterine muscles. Data on maternity of primigravida in Indonesia, as many as 54% felt severe pain, as many as 46% experienced moderate pain and mild pain. It is important for health services to always use non-pharmacological measures to relieve labor pain.

Purpose: The purpose of this study was to assess effect of use of birth balls on reducing of labor pain during first stage of active phase in primigravida maternity at the Public Health Center of Sawah Besar Subdistric.

Methods: This research used Pre-Experimental Design with one group pretest – posttest design type. The samples used the minimum requirement of experimental samples, namely 30 maternity mothers. Instrument in this research used questionnaires. Bivariate analysis used *paired t-test*.

Results: After analysis, the average value for reduction of pain before used *birth ball* was 84.33. The average reduction of pain after used *birth ball* was 65.67. There is an effect of use of birthball on reducing of labor pain during first stage of active phase in primigravida maternity at the Public Health Center Sawah Besar Subdistric in 2019 (p value 0.000).

Conclusion: The conclusion was that there was an effect of the use of birthball on reducing of labor pain during first stage of active phase in primigravida maternity. The results suggest Using *birth balls* can be used as an alternative to non-pharmacological therapy in management of labor pain during the active phase. This effort can be applied in practice and as material for further research.

Keywords: Birth Ball, First Stage of Active Phase, Labor Pain, Maternity

Introduction

According to World Health Organization (WHO) data in 2015 the Maternal Mortality Rate (MMR) in the world is 210 per 100,000 live births, MMR in developing countries is 230 per 100,000 live births and MMR in developed countries is 16 per 100,000 live births. MMR in East Asia 33 per 100,000 live births, South Asia 190 per 100,000 live births, Southeast Asia 140 per 100,000 live births and West Asia 74 per 100,000 live births.[1]

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According to the Indonesian Health Profile in 2016, it shows a significant increase in MMR to 359 per 100,000 live births. Based on records from the DKI Jakarta Health Office, the maternal mortality rate in DKI Jakarta in 2017 was 53.2/100,0000 live births, an increase from 2016, which was 41.56/100,000 births.[2]

Efforts to accelerate the reduction of MMR can be done by ensuring that every mother is able to access quality maternal health services, such as pregnant women's health services, childbirth assistance by trained health workers in health care facilities.

Childbirth is also defined as stretching and dilation of the cervix as a result of contraction of the uterine muscles, to push the results of conception (fetus and uri) out. Pain in labor is a manifestation of contractions of the shortening of the uterine muscles. Data on primigravida maternity mothers in Indonesia, as many as 54% felt severe pain, as many as 46% experienced moderate pain and mild pain. Labor pain and pain management are major concerns for women, families and health care providers.[2]

The causes of pain are physiological and psychological, physiological includes a person's physical state, while psychological is a person's psychiatric factors or someone's feelings. Labor pain is a feeling of discomfort due to physical feelings related to the condition of uterine contractions accompanied by thinning and opening until reaching the peak of labor.[3]

Based on the results of a preliminary study obtained from the delivery room of the puskesmas in Sawah Besar District, the number of primigravida maternity mothers in January – February 2019 was 50 maternity mothers. 32 mothers had severe pain, 23 mothers had moderate pain. But to cope with labor pain, midwives only recommend mothers good relaxation techniques. The results of interviews with midwives in the delivery room as many as 12 midwives from 15 people, in the delivery room did not know the method of managing labor pain in a non-pharmacological manner.

Method

1. Research design

The type of research used in this study is quantitative with research design *Pra-Experiment Design.* This design is used to reveal cause-and-effect relationships only by involving one group of subjects, so there is no strict control over variables. The design in this study is *one group pre-test – post test design.*

2. Settings and samples

This study conducted at Public Health Center of Sawah Besar Subdistric. In this study the sample to be taken according to the sum minimum sample of experimental research is as many as 30 people on first stage of active phase in primigravida maternity.

3. Measurement and data collection

Data collection techniques using questionnaire sheets.

4. Data analysis

Analysis in this study used paired sample t-test with a meaning level of 0.05

Result

Table 1.
Frequency Distribution of Labor Pain Levels

Labor Pain Level	Before the Intervention		After the Intervention	
	Frequency	%	Frequency	%
Moderate pain 40-70mm	2	6,7	23	76,7
Severe Pain 75-90mm	28	93,3	7	23,3
Total	30	100	30	100

Based on table 1, it can be seen that out of 30 respondents, there were 2 respondents (6.7%) who felt moderate pain on a pain scale of 40-70mm and 28 respondents (93.3%) experienced severe pain on a pain scale of 75-90mm and after intervention from 30 respondents there were 23 respondents (76.7%) who felt moderate pain on a pain scale of 40-70mm and 7 respondents (23.3%) experienced severe pain on a pain scale of 75-90mm.

Table 2.
Average decrease in labor pain

Birthball	N	Mean	Median	SD	Min	Max
Before Using *the Birth Ball*	30	84.33	85.00	7.160	70	95
After Using *the Birth Ball*	30	65.67	65.00	8.880	45	80

Table 2 shows that the decrease in pain in primigravida maternity mothers before the use of birth ball averaged 84.33 with the lowest pain value of 70 mm and the highest 95 mm and the decrease in pain in primigravida maternity after the use of birth ball averaged 65.67 mm, with the lowest pain value of 45 mm and the highest 80 mm.

Table 3.
Normality Test Results Against Reducing Labor Pain

Variable	Frequency	Shapiro-Wilk	
	(n)	Df	Sig.
Decreased labor pain before birth ball use	30	30	0,067
Decreased labor pain after birth ball use	30	30	0,329

Based on table 3, it can be seen that the normality test for reducing labor pain before the use of the birth ball is 0.067 and the normality test result after the use of the birth ball is 0.329, which means that both data are normally distributed (p-value>0.05).

Table 4.

The effect of the use of *birth balls* on reducing labor pain during the active phase

Variable	Frequency	Mean	SD	p-value
	(n)			
Decreased labor pain before birth ball use	30	84.33	7.160	0.000
Decreased labor pain after birth ball use	30	65.67	8.880	

Based on the table above, it is known that the average decrease in labor pain before the use of birth ball is 84.33 while the average decrease in labor pain after the use of birth ball is 65.67 This result shows that there is a decrease in the level of labor pain before and after the use of birthball and obtained a significance value of 0.000 smaller than the significance level of 5% (p value = 0.000 < 0.05), then the conclusion is that Ha is accepted.

Discussion

Based on the results of research conducted before the use of *birthball*, it was found that from 30 respondents there were 28 respondents (93.3%) felt severe pain levels on a scale of 75-90 mm. In line with Judha's (2012) theory, labor pain is individual and highly subjective. Each individual will perceive pain differently to the same stimulus depending on the pain threshold he or she has. Pain in labor is different from other pains in general. Pain in labor is a manifestation of contractions (shortening) of the uterine muscles. This

contraction causes pain in the waist, abdominal area and radiates towards the thighs. These contractions cause the opening of the cervix (cervix). With the opening of this cervix, labor will occur.[4]

This is in line with Ade K's research (2017), entitled the effectiveness of *birth* ball exercises on reducing labor pain, showing that the pain score before using the birthing ball most respondents experienced a bit more pain, namely as many as 11 people (64.7%) from 17 respondents.[5] The results of Yurizki's research (2022, there was a decrease in the level of maternity pain before and after being given counterpressure treatment with birthball, namely, from a scale of 7-9 or moderate pain as many as 15 respondents (93.75%) decreased to a scale of 1-3 or mild pain 14 respondents (87.5%), and while from severe pain 1 respondent (6.25) when given the intervention to 0%.[6]

Tri M research (2016) states that it is known that respondents with moderate pain are more (76.7%) felt by respondents who do *birthball* therapy than before therapy. While respondents with severe pain scale were more (46.7%) felt by respondents before starting therapy than those who had birthball therapy.[7]

The results of research conducted after the use of *birthball* found that from 30 respondents there were 23 respondents (76.7%) who felt moderate pain on a pain scale of 40-70 mm. There was a decrease in pain levels after using the birth ball. In line with Aprillia's theory (2011), exercise with a birth ball is useful for controlling, reducing and eliminating pain in labor, especially when I because it can be used in various positions. One of the movements is to kneel and chest leaning forward, leaning and hugging the *birthball*, then shaking the hips clockwise or left and right. It can bring comfort and reduce labor pain, aiding labor progress by using gravity while increasing the release of endorphins because the elasticity and curvature of the ball stimulate receptors in the pelvis responsible for secreting endorphins.[8]

According to Series P (2014), that the technique of using birth ball can close the gate of pain messages that will be sent to the spinal cord and brain besides that the strong pressure exerted when doing *birth ball* techniques can activate endorpin compounds so that the transmission of pain messages can be inhibited which can cause a decrease in pain intensity.[9]

This is in line with the results of Tri M research (2016) stated that it was known that in the control group initially more than half (53.3%) of respondents experienced pain

with a severe scale. After relaxation of breath with the use of *birthball* in all (100%) becomes moderate. [7] Hani's research (2017), entitled The Relationship Between the Use of Birthball Techniques and the Level of Pain in Maternity Women Kala I at BPM Umu Hani Yogyakarta in 2015 stated that after the birthball technique, the average study subjects had a pain scale of 6 (moderate pain) as many as 7 respondents or 46.7%, pain scale 7 (moderate pain) as many as 2 people (13.3%) and pain scale 5 (moderate pain) as many as 6 people or 40.0%.[10]

The average difference in the decrease in labor pain before the use of birth ball was 84.33 mm while the average decrease in labor pain after the use of birth ball was 23.3 mm. This result showed that there was a decrease in labor pain levels before and after the use of birthball and obtained a significance value of 0.000 smaller than the significance level of 5% (P Value = 0.000 < 0.05), then the conclusion was Ha accepted which means there is an effect of using birthball on reducing labor pain during first stage of active phase.

Gate Control Theory explains that complex modulation in the spinal cord and in the brain is an important factor in pain perception. This theory explains that there is a gateway that can facilitate the transmission of pain. This theory also states the endogenous ability to reduce and increase the degree of pain through modulation of impulses that enter the dorsalis cornea through the gate. The nerve mechanism in the spinal cord can function like a gate that can be opened and closed, there is an increase in pain when the flow of nerve impulses is opened and there is a decrease in pain when the nerve impulses are closed. With the gate open causes the conduction of nerve impulses through the spinal cord to the brain, then the message of new pain reaches the brain causing a pain response. With the gate closed, the transmission of nerve impulses from the bone marrow to the brain is blocked so that a person does not respond to pain.[11]

Exercises with labor balls are useful for controlling, reducing and eliminating pain in labor, especially when I because it can be used in various positions. One of the movements is to kneel and chest leaning forward, leaning and hugging the *birthball*, then shaking the hips clockwise. or left and right. This can make you feel comfortable and reduce labor pain, help labor progress by using gravity while increasing the release of endorphins because the elasticity and curvature of the ball stimulate receptors in the pelvis responsible for secreting endorphins, accelerate the process of cervical dilation, support

an upright posture position will facilitate the birth process and help the fetal position in an optimal position so as to facilitate normal delivery.[7]

The results of this study are in line with Ferinawati's research (2021) entitled The Effect of Using Birthing Balls on Reducing Pain Levels in Maternity Women at BPM Yulia Fonna, A.Md.Keb, SKM Lipah Rayeuk Village, Jeumpa District, Bireuen Regency, so there are several results found, among others, the level of pain in maternity mothers in the Mild category, which is as many as 4 people (10%), medium category 20 people (50%), and in weight category 12 people (30%) in very heavy category as many as 4 people (10%). So it can clearly be seen that the majority of Pain Levels are in the Medium category. Decreased pain levels in maternity mothers because with the help of using a birthing ball makes mothers more comfortable during labor, and helps the progress of maternal labor. The movement of swaying over the ball creates a sense of comfort and helps labor progress. The majority of respondents experienced moderate pain levels because the mother used the birthing ball in accordance with the guidance of midwives, researchers and supported by the patient's family at the time of delivery.[12]

Based on the description above, researchers assume that the use of birth balls and assessment through direct observation methods to respondents and the use of the VAS scale, overall all respondents on average said that they felt more relaxed, calm, comfortable and labor pain that they felt reduced even though the pain response shown was different for each respondent. The position of labor, changing position and proper movement will help increase comfort / decrease pain, increase satisfaction with freedom of movement, and improve maternal self-control. In addition, the position of the mother can also affect the position of the fetus and the progress of labor. If the pain is mainly in the back, many mothers feel happy to keep moving during the first time and some prefer to lift the pelvis and move the pelvis in the direction of the *birth ball* rotation during contractions. Emphasis in the form of strong pressure stimulation on the sacrum used during labor can cause a relaxing effect so as to reduce pain due to uterine contraction that mothers feel.

Limitations

Limitations when collecting data, namely in the use of birthballs are new for respondents so researchers must explain well to respondents until they understand the

benefits of using *birthballs*, some maternity mothers prefer to lie down. Complicating childbirth which is an exclusion factor, is also one of the limitations of researchers, namely maternity mothers who come some have experienced premature rupture of membranes and contractions didn't adequate.

Conclusion

Results were obtained before the use of birthball from 30 respondents, there were 93.3% of maternity mothers felt severe pain on a scale of 75-90 mm, while after the use of birthball, 76.7% felt moderate pain on a pain scale of 40-70 mm. The results of the paired t test analysis were p value = 0.000 (p value < 0.05), so the conclusion is that there is an effect of using birthball on reducing of labor pain during first stage of active phase in primigravida maternity. So it is expected that health workers in dealing with labor pain in mothers can use birthballs to reduce labor pain for non-pharmacologically, so that was expected to increase maternal care.

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The Effect of Bibliotherapy in Teeth-brushing Behavior to Prevent Dental Caries Among Pre-School Children

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Abstract

Background: Dental caries is a dental disease caused by the presence of food residue and bacteria for a long time, where the bacteria produce acid which can cause tooth decay. In order for preschool-aged children to prevent tooth decay, bibliotherapy is needed which can provide insight and change the behavior of preschoolers. Bibliotherapy is using a story to start a discussion about a problem and it should be used as an alternative to problem solving.
Purpose: To determine the effect of bibliotherapy on tooth brushing behavior for the prevention of dental caries in preschool children at one of kindergarten in South Jakarta, Indonesia.
Method: This study used quasi-experimental design with pre-test and post-test design, where the intervention group is measured or observed before and after the intervention. The research sample consisted of 30 respondents.
The sampling technique uses total sampling. The research instrument is a tooth-brushing behavior questionnaire. Data analysis used the Wilcoxon test to determine the effect of bibliotherapy on tooth-brushing behavior.
Results: The behavior of the respondents before the intervention showed that the behavioral variable with good category was 13.3% and after the intervention showed that the variable with good behavior increased to 96.7%. The results of the study obtained a p value of 0.000 <0.05 which indicates that bibliotherapy has an effect on tooth-brushing behavior.
Conclusion: There is an effect of bibliotherapy on tooth-brushing behavior to prevent dental caries in preschool children in one of kindergarten in South Jakarta.

Keywords: Bibliotherapy, Dental caries, Teeth-brushing behavior

Introduction

Preschool age (3-6 years old), are in the developmental phase between school language and the initial phase of official language, as well as the time of active play, often neglect to eat random food and often forget about health. The concept of health refers to the perception, experience of illness, attitude of parents and children. Preschool children realize that they want to choose food according to their preferences, for example sweet foods that they like easily cause tooth damage or dental caries.[1]

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Caries is the most common oral and dental disease in children worldwide. According to the World Health Organization (WHO), in 2016, 60-90% of children worldwide suffer from dental caries. According to the Basic Health Research Survey (2018) the prevalence increased from 23% to 29.1% in 2018. The high prevalence of caries in DKI Jakarta is the 15th highest among the 34 provinces in Indonesia. DKI Jakarta is one of the provinces that experienced an increase in caries prevalence between 2007 and 2013. Preliminary observational data of researchers at one of kindergarten in South Jakarta obtained data found 30 children with dental caries. Based on the results of the observation, it shows that the incidence of dental caries in preschool children in those kindergarten is quite high.[2]

Dental caries is a dental disease caused by leftover food and bacteria over a long period of time, where the bacteria form acid that can cause damage to the teeth. The main factor causing tooth damage is due to several processes that interact from time to time, namely the host (condition of teeth and saliva), residual microorganisms and longer time.[3] Factors that cause caries in preschool children are the frequency of tooth brushing, the distance to dental care facilities, the lack of knowledge of parents about the health of children's teeth and mouths, as well as parents' ignorance of how to guide children.

Caries that are not treated properly will have a negative impact on other healthy teeth. Preschool age children's teeth are more prone to experience tooth damage, this is because the structure of children's teeth is thinner and smaller than the structure of adults' teeth. Often parents leave dental caries because they think the tooth will replace a new one, but this is not the case because the child's dental care also affects the health of the child's teeth and mouth in the future.[4] Several studies have discussed the impact of dental damage on preschool children, where children experience pain in the cavity of the tooth that reduces their appetite. Another impact that occurs is that the teeth become porous and even broken, causing the child to lose the ability to chew and their digestion is disturbed.[5]

Prevention of caries in preschool children can be done when the child's milk teeth have erupted for optimal handling with parents, paying special attention to the child's eating pattern, as the condition of the teeth affects the development of dental health in adulthood. It is necessary to have health education that arouses the interest of children, which is with the method of bibliotherapy to facilitate the work of children to understand the prevention of dental caries. The use of books as a learning therapy is

called bibliotherapy. Bibliotherapy is reading books, magazines, cartoons or newspapers, which can be a good way to communicate with children.[6]

Method

1. Research design

This study used quasi-experimental design with pre-test and post-test design, where the intervention group in the measurement or observation before and after the intervention.[10] There is one group with the same treatment. The researcher measured the behavior before and after the intervention using a valid and reliable questionnaire.

2. Setting and samples

This research was conducted in January 2023 at PAUD Al Awalia in South Jakarta. The sample in this research is a total of 30 students who had met the inclusion and exclusion criteria with the total sampling technique.

3. Measurement and data collection

Questionnaire with checklist method functions as a measuring tool in this research. The research instrument used to measure the respondent behavior before and after the intervention. The questionnaire used in this research is a questionnaire designed by the researcher himself. This validity test was conducted on 20 respondents of pre-school children in the Tanjung Barat area of Jakarta Selatan. Based on results the validity and reliability test in this research, all valid statements are proven by significance values greater than 0.468 and reliability value was 0.952. The researcher conducted a pre and post–test to find out the ability to prevent dental caries in preschool children by filling questionnaire about children's ability to brush their teeth which contains 11 items statement. If the respondent answers "yes" and "true" gets a score of 1, if the respondent answers "no" and "false" gets a score of 0.

4. Data analysis;

The techniques used for data analysis, including the computer software used, SPSS (Statistical Package for the Social Sciences). Bivariate analysis in this research was used to see the behavior before and after the intervention by using the Wilcoxon test. The test results are said to be influential if the p value is < 0.05 and not influential if the p value is > 0.05.

Results

Table 1.
Characteristics of Respondents

Variables	Frequency	Percentage (%)
Female	18	60
Male	12	40
4 y.o.	0	0
5 y.o.	7	23.3
6 y.o.	23	76.7

Notes. y.o. = years old.

Based on Table 1, characteristic of respondents based on gender in shows that most of the respondents are female, namely 18 respondents (60.0%) and most of the respondents are 6 years old as many as 23 respondents (76.7%).

Table 2.
Characteristics of Behavior Respondents Before and After the Intervention

Behavior	Before		After	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Good category	4	13.3	29	96.7
Poor category	26	86.7	1	3.3

Based on Table 2, before the intervention was given to the respondents showed that the behavioral variables with the poor category were represented by 26 respondents (86.7%). After the intervention was given to the respondents showed that the behavioral variables with the good category were represented by 29 respondents (96.7%).

Table 3.
Effectiveness of the Intervention

Behavior	Wilcoxon Signed Ranks Test				
	Negative Ranks	Positive Ranks	Ties	Z	P value
Before	0	28	2	-4.663	0.000
After					

Based on Table 3, the results of the analysis showed an increase of 28 respondents (positive ranks). Wilcoxon test results obtained p value (0.000) < (0.05) then Ho is rejected and Ha is accepted, which means that there is an effect of bibliotherapy on tooth brushing behavior to prevent dental caries in preschool children.

Discussion

In order to achieve behavioral change, a method is needed to convey information or messages in such a way as to make people want to change their behavior for the better. One of the melting models that can be used is bibliotherapy.

Bibliotherapy is one of the forms of literature that uses literary sources (books). Books can be a means of therapy or healing for people who suffer from mental disorders, anxiety, trauma and stress.[7] Bibliotherapy had a significant pooled medium to large effect on reducing depression.[11] Bbibliotherapy was also significantly more effective than the control conditions in reducing the symptoms of depression or anxiety.[14] Bibliotherapy can also be used as a means to provide psychotherapeutic support through reading materials to help with personal problems.

Basically, preschool age children care about their dental health and do not fully understand dental health. That's why it's so important provide information to preschool children in the form of library therapy models, so that they have knowledge and information about how to prevent the occurrence of caries depends on the time of gargling, the way and time of brushing teeth, eat food that can prevent dental caries, and have regular dental check-ups every 6 months at the dentist, until the child has the ability and knowledge to prevent dental caries that can be applied in everyday life and can become a daily habit. The knowledge that has been learned can be applied every day to maintain dental health and avoid dental caries.

The results of the analysis between the influence of bibliotherapy on the behavior of brushing teeth for the prevention of dental caries in pre-school children, which was done by using the Wilcoxon test, obtained a P value of 0.000 < 0.05, which means that Ho is rejected and Ha is accepted, so it can be concluded that there is an influence of bibliotherapy towards the behavior of brushing teeth for prevention dental caries in pre-school children. This research is in line with the research done by someone in his research that health education with the bibliotherapy method has an effect on the prevention of caries in preschool children in Jember, East Java.[8]

The research results show that in the behavior of students regarding bibliotherapy is in the good category. The research results show an increase in behavior after was given bibliotherapy in a good category, before intervention 13.3% and after being given the intervention increase to 96.7%. It is influenced by bibliotherapy. A

person's behavior can be influenced by many factors such as knowledge. The better one's knowledge, the better one's behavior will be.

Bibliotherapy, as a method of guided learning and adjunctive therapy, is based on accurate identification of the needs and behavior of children with mental retardation, providing them with additional educational materials, empathy and cooperation among experts from various fields.[13] The results of other studies also show that Bibliotherapy affects the behavior of the respondents.[12]

Limitation

During conducting this research, the researcher realizes that there are limitations of the researcher such as: many children experienced difficulties in adapting themselves, so that they do their own activities and disturb other friends because of children's ability to concentrate is still relatively low.

Conclusion

Before being given bibliotherapy through story books, the results of behavioral variables with poor category as many as 26 respondents (86.7%) and respondents with good category as many as 4 respondents (13.3%) were obtained. After being given bibliotherapy through story books, the results of behavioral variables with poor category as many as 1 respondent (3.3%) and respondents with good category as many as 29 respondents (96.7%). There is an effect of bibliotherapy on tooth brushing behavior to prevent dental caries in preschool children in one of kindergarten in South Jakarta with p value (0.000).

Ethical Considerations

This research had an approval from the health research ethics committee.

Acknowledgment

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Conflict of Interest

There is no conflict of interest among authors.

Author Contribution

We encourage authors to provide statements outlining their individual contributions or roles to the manuscript.

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Increase Noise Hazard on Incident of Occupational Diseases in Agroindustrial Area

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Abstract

Background: The sound generated by a tractor engine is one of the causes of ear disorders. This is usually experienced by people who live in agro-industrial areas, especially those who work as farm laborers, especially when planting and harvesting. Most people spend their free time in the fields, so they indirectly listen to the sound produced by the tool.

Purpose: The literature review study aims to discover the increase of noise hazards on incidents of occupational diseases in agro-industrial areas.

Methods: The method used in the preparation of this Literature Review was obtained from 3 database sources, namely Google Scholar, ScienceDirect, and Pubmed, which was published from 2018 to 2021 using Indonesian keywords, namely "Noise" OR "Agro-industry" OR "Hearing Impaired" OR "Occupational Health Risks". After searching for journal articles using the Google Scholar search engine, according to the keywords that have been determined. Literature analysis took ten journal articles published in 2018-2023, 5 articles discussing noise, two articles discussing hearing loss, two articles discussing occupational health risks, and 1 article discussing agro-industry.

Results: From this study, it can be concluded that the presence of noise intensity that has exceeded the threshold value (85 dB) can increase the risk of increased blood pressure of workers, leading to workplace hypertension. In addition, noise can also cause stress because it is one type of stressor in the workplace.

Conclusion: It is crucial to plan various ear plug measures to reduce noise exposure in the workplace. The nurse's suggestion is to build public awareness regarding the importance of protecting the ears from noise, one of which is using ear plugs. The purpose of the earplug is to protect and reduce the level of noise that enters the ear.

Keywords: Agronursing, Noise, Occupational diseases

Introduction

Agronursing is a holistic and comprehensive client-focused management of nursing care and nursing services in the agricultural area (agriculture, fishery, animal

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husbandry, plantation, and agro-industry)[1]. Diseases that can attack farmers come from the environmental sector (UV rays, chemicals, the sound of agricultural machinery), the psychological sector, work safety, infectious agents, and dangerous animals (snakes, wild animals). Agronursing has a crucial role in overcoming health problems and maintaining the health of farmers[2].

Noise is a form of unwanted sound or sound forms that don't fit the place and the time. The sound is not desired because it interferes with the speech and ears of humans, which can damage hearing or human comfort[3]. While, noise, according to (WHO 2001), is to the human hearing system in the form of reduced one's hearing power and even loss of individual hearing ability, which is indirectly progressive. In addition to auditory effects, attention should also be paid to non-auditory effects, which are the impact of noise on humans and the auditory system[4].

Occupational diseases are diseases caused by work and Working Environment. PAK risk factors between other: Physical, chemical, biological, or psychosocial at work. These factors in the work environment are Underlying and Decisive Causes of occupational diseases. Factor Others like individual vulnerabilities as well as Role in the development of the disease among exposed workers[5].

Personal protective equipment (PPE) is a tool used to protect the body from injury or illness caused by a lot of contact with hazards in the work area in the form of physical, biological, chemical, radiation, and others[6]. According to the Regulation of the Minister of Manpower and Transmigration Number PER.08/MEN/VII/2010, Personal Protective Equipment is a tool that can protect someone whose function is to isolate part or all of the body from potential hazards in the workplace. Employers or workplace owners must provide personal protective equipment for all employees in the workplace. Furthermore, workers or laborers who enter the workplace must wear or use personal protective equipment according to standards made by analyzing the potential hazards and risks that may occur in the work area, especially industry.

Ear plugs and ear muffs are a form of personal protective equipment mentioned in the Minister of Manpower Regulation, meaning that these tools must be used by all employees and workers in industrial areas associated with prolonged exposure to engine noise (noise). The sound of machines and other devices that cause noise and the condition of workers without wearing ear protection will cause a person to experience hearing

organ damage. Hearing loss that occurs repeatedly will cause permanent deafness. Apart from hearing loss, noise can also cause a person to experience emotional disturbances, headaches, increased blood pressure, and decreased work performance[7]. Because of this, in the Regulation of the Minister of Manpower and Transmigration Number PER.13/MEN/X/2011 it is explained in more detail regarding assessing the sound threshold that the body can tolerate as a preventive measure against noise. These rules stipulate that the Threshold Limit Value on the noise factor is 85 dB for 8 hours per day or 40 hours in one week.

Agro-industry is a workplace with a high risk and potential for noise exposure. Noise sources can come from various activities such as milling machines, power generators, heavy equipment, and electrical equipment such as saws and cutters[8]. Exposure to noise in the agro-industrial work area is continuous every day because it is workers' primary job and main livelihood. In the research conducted, it was found that grinding meat raw materials produced an average noise level of 88.5 dB, coffee 88.5 db, rice 88.9 db, sticky rice 87.3 db, and coconut 80.7 db. The duration of exposure to noise among meat, coffee, rice, and glutinous mill workers ranges from 9-12 hours a day. At the same time, the length of exposure to noise in coconut mill workers varies from 6-19 hours[9].

The World Health Organization (WHO, 2012) states that as many as 156 million people, or 27% of the total population, experience hearing loss in Southeast Asia, as many as 49 million individuals and 9.3% of people under the age of 65 experience hearing loss caused by sound that is strong enough to be produced from work location. Meanwhile, in Indonesia, hearing loss is the highest category in Southeast Asia, with around 6 million individuals or approximately 16.8% of the total population[10].

With this high prevalence, the researcher intends to conduct an analytical study regarding the effect of using ear protection devices (ear plugs and ear muffs) on the incidence of occupational diseases. Apart from aiming to prevent hearing loss and its complications, the use of ear protection devices will also affect work productivity in industrial work areas.

Method

1. Research design

The method used is Literature Review, namely by re-explaining information that has been published and then reviewed without reducing the essence of the topic discussion.

2. Measurement and data collection

The journal used in the preparation of this Literature Review was obtained from 3 database source, namely Google Scholar search engine, PubMed, and ScienceDirect, which was published from 2018 to 2021 using Indonesian keywords, namely "Noise" OR "Agro-industry" OR "Hearing Impaired" OR "Occupational Diseases".

Results

After searching for journal articles using the Google Scholar search engine, PubMed and ScienceDirect, according to the keywords that have been determined. Literature analysis took ten journal articles published in 2018-2023, 5 articles discussing noise, two articles discussing hearing loss, two articles discussing occupational health risks, and 1 article discussing agro-industry.

Table 1.
Literature Review Noise Hazard and Occupational Diseases In Agroindustrial Area

ID Number	Author and Journal Identity	Journal Titles	Objective	Population and Sample	Method	Summary of Results
1	Author : Choochouy N, et al Journal Identity : Annals of Work Exposures and Health, 2019, Vol. 63, No. 7, 707–718	Hearing Impaired In Agricultural Workers Exposed To Pesticides And Noise[11]	Analyze Public health education programs on hearing protection in pesticide-exposed farms, including Thai farm workers.	The population of this study recruited 163 Thai conventional farmers and 172 organic farmers.	In this study, we used the conventional method (pesticide use) and years of farm noise exposure to estimate semiquantitative metrics for pesticide exposure (years-cumulative intensity score) and cumulative noise exposure	This study found a relationship in the high-frequency band between pesticide exposure (years of use and year-exposure score use of pesticides or organophosphates) and exposure to noise (years of use or dB(A)-years) and threshold increments hearing among Thai agricultural workers while taking into account

					(dB(A)-years) for each conventional farmer.	age, industrial noise, and smoking status.
2	Author : saputra, et al Journal Identity : Journal of Health and Science, September 2020, 4(1):40-48	Rice milling factory noise level In moyo utara district[12]	Analyzing the noise level at the rice mill in North Moyo District.	The sample in this study was rice mill workers, namely 17 samples.	The type of research used in this research is descriptive research with a cross-sectional approach. The cross-sectional approach is a study to study the dynamics of the correlation between factors and risks with effects by way of approach, observation, or data collection all at once	The average yield of workers in rice mills aged 15-25 years is seven people (41.2%) with a high school education level of 7 people (64.7%) and a working period of 1-3 years is 13 people (76, 5%) with noise levels in 5 rice mills in Moyo Utara District with an average indoor NAV of 92.01 dB and an average outdoor NAV of 78.76 dB.
3	Author: Putri, et al Identity Journal : Journal of Environment and Natural Resources (JURNALIS)	The efficiency of reducing noise levels by red levels (Syzygium paniculatum) and asoka (Sarasa Asoka)[13]	Analyzing the efficiency of reducing noise levels by damping media of red shoots and Asoka plants.	Population and samples can be taken from data collection every 5 seconds for 10 minutes to produce 120 data.	The research method used is an experiment using two plant types to determine the noise level decrease.	The results of the noise level measurement show that the red shoot dampening medium can reduce noise with an initial intensity of 89.9 dB to 84.45 dB (transmission loss 5.45 dB), while the Asoka plant dampening medium can reduce the noise level to 84.9 dB (transmission loss of 5 dB).
4	Author : Haidina A, et al Identity Journal : Journal of Nursing and Public Health Vol. 8 No. April 1, 2020	Analysis of stone crusher machine noise levels and work stress complaints at workers at PT. Wheel teknindo purajaya north bengkulu 2018[8]	It is known that the noise level is at PT Roda Teknindo Purajaya Bengkulu Utara, and there are known complaints of work stress among workers at PT Roda Teknindo Purajaya Bengkulu Utara	Population and sample were taken from 35 responde nts.	This study used an analytic survey research method with a descriptive research design; namely, the research method was carried out to look at the noise level analysis of the stone crusher machine and complaints of work stress on workers at PT. Wheel of Teknindo PuraJaya North Bengkulu 2018.	Stress can be interpreted as psychological pressure that can cause physical and mental illness. Before stress occurs, each individual needs a significant and specific stressor (stressor). Psychosocial stressors are any circumstances or events that cause individual reactions in physiological, psychological, and behavioral reactions. The work environment has the potential to be a work stressor. Work stressors are all work conditions that

						employees perceive as demand and can cause work stress.
5	Author : Safiu, et al

Identity Journal : MPPKI (February, 2023) Vol. 6. No. 2 | The effect of noise exposure on stress levels and sleep quality of workers Agricultural products processing industry in gowa regency[14] | This study aims to determine the relationship between environmental noise exposure, work stress levels, and sleep quality. | Sampling using total sampling with the number of respondents is 50 people who work in rice mills | This type of research is analytic observational with a cross-sectional approach. This research carried out from June to September 2022. The number of rice mills used as a sample location as many as 25 mills spread across Pallangga District, Gowa Regency. | The results showed a significant relationship between the intensity of noise in the work environment and the level of stress and quality of sleep (results of p-value = 0.021; r = 0.325 and p-value = 0.020; r = 0.3328. So it can be concluded that noise based on statistical tests significantly affects stress levels and sleep quality, so control is needed for both noise sources and workers. |
| 6 | Author : Safitri

Identity Journal : Journal of Ruwa Jurai Volume 15, Number 2, 2021 (page 77-84) | The effect of noise on work stress in Labor in the rice milling industry[15] | The research aims to find out impact of noise on stress on workers | The population comes from all over workers in the rice milling industry totaling 35 people divided into 2 group of 10 people working inside room, and another 25 people were working outside. | This research is an evaluation study with a quantitative approach to Get information about risks the safety of workers working on tools in the rice mill production section Anugrah Mulya, Pringsewu. The research was conducted in February-May 2019 at the Anugrah Mulya rice mill in Wates Village, Gadingrejo District, Pringsewu Regency, Lampung province. | Research result obtained that the noise intensity in the rice mill room has exceeded the NAV , equal to 87 dB(A), and causes work stress to 51.4% of workers. Age, gender , and noise also affect work stress. Measures to reduce noise exposure in the workplace and shared recreation for all workers can avoid labor work from work-related stress. |
| 7 | Author : Firdaus

Identity Journal : | Potential Hearing Nerve Damage in Milling Industry | This study aims to determine the level noise generated by | This research carried out by measuring noise at | This type of research is an observational analytic with a cross-sectional | In this study, it was found that the milling of materials raw meat produces an average noise level of 88.5 dB, coffee 88.5 |

	Vol. 6 No. 1 (2020) Journal of Agromedicine and Medical Sciences	Workers in the District Jember[16]	the grinding industry as well as analyzing the potential for damage to the auditory nerve on mill workers in Jember district	five mill locations in Jember district which randomly determined. The mill types studied were meat, coffee, rice, sticky rice, and coconut milling.	approach	db, rice 88.9 db, sticky rice at 87.3 db, and coconut at 80.7 db. Duration of exposure to noise in mill workers meat, coffee, rice, and sticky rice for around 9-12 hours daily. While the length of exposure to noise on workers Coconut grinding ranges from 6-9 hours. Therefore it can be concluded that meat grinding, coffee, Rice and sticky rice have the potential to cause hearing loss for workers.
8	Author : Leli Hesti Indriyanti, et al Identity Journal : Journal of Medicine and Health, Vol. 15, No. 1, July 2019 ISSN : 0216 – 3942 Website : https://jurnal .umj.ac.id/in dex.php/JK K e-ISSN : 2549 – 6883	Relationship of Noise Exposure to Increased Pressure Blood on Workers[17]	This study was conducted to identify the relationship between noise and several factors at work with the prevalence of hypertension	The sample consists of 104 workers taken from the company database, namely, workers in X worksho p coming from the departme nt different and meet the criteria inclusion and exclusion .	The type of research conducted is analytic observational with a cross-approach sectional. P	Results Respondents exposed to noise of more than ≥85 dB had a 19.8 greater risk of hypertension than those exposed to noise < 85 dB. A significant (P = 0.001) exposure-response pattern existed between hypertension risk and intensity noise exposure. This study shows that exposure to workplace noise can increase the risk of developing high blood pressure.
9	Author : Romansyah, et al Identity Journal : Scientific Journal of Agricultural and Biosystem Engineering, Vol. 6, No.	Ergonomic analysis of mechanical noise and vibration levels Peanut peeling machine Against operator security[18]	The purpose of this study is to determine the level of engine noise; for vibrations machine mechanics, and To find out the operator's security level.	This method uses a random sample so that the exact number of responde nts is unknown .	The method used in a study is method experimental, consisting of three spin treatments, namely P1 = 800 rpm, P2 = 1000 rpm, and P3 = 1200 rpm.	The noise level of the peanut peeler machine at 1200 rpm (P3) was 69.8 dB, which was 69.8 dB better than the P1 800 rpm treatment, which was 75.8 dB, and the P2 treatment at 1000 rpm, which was 72.8 dB, below the noise threshold value of 85 dB(A) with a maximum exposure of

| | | | | | | 8 hours/day. And the mechanical vibration of the peeler peanuts at 1200 rpm (P3), which is 11.4 Hz, is better than treatment P1 (800 rpm), which is 13.3 Hz, and treatment P2 (1000 rpm), which is 12.4 Hz. So it can be concluded that the safety level of the machine operator Peanut peelers are classed in the low category. |
| 10 | Auditors : Setyaningsih, et al Identity Journal : JOURNAL OF PUBLIC HEALTH (e-Journal) Volume 7, Number 4, October 2019 (ISSN: 2356-3346) | Analysis of the usage of rice husk and straw as Diesel engine noise absorbing Rice milling work environment[19] | The purpose of this research that is, analyzing the use of rice husk and straw as a silencer in diesel engines to reduce noise and influence pressure blood of workers before and after treatment | This method uses a random sample so that the exact number of respondents is not known | The method in this research i.e., a quasi-experiment with using one group pre-test post-test design. 10 | The results of the paired t-test analysis with a 95% confidence level obtained p systolic = 0.014 and p diastolic = 0.009 (p <0.05) prove a significant difference in blood pressure. In this study, it can be concluded that giving silencers from rice husks and straw can reduce noise intensity and blood pressure in rice mill workers. |

Discussion

From the results of the study, it was found that the use of ear protection equipment is an essential component in preventing occupational disease. Workers in the agricultural sphere get many risk factors related to noise. Noise is a hazard from work that can cause interference or discomfort, both physical disorders and psychological disorders. Noise-induced diseases can be chronic and permanent. Therefore, it is highly recommended to use ear protection equipment.

Research by Saputra, et al (2020) states that the average result of workers in rice milling mills is 15-25 years old with a length of work between 1-3 years[12]. The study also explained that the noise level in five rice milling factories in North Moyo District was fantastic: indoor 92.01 dB and outdoor 78.76 dB. The length of exposure and the amount of noise exposure certainly have a significant impact on the body. This is in line with

research conducted by Firdaus (2019), namely that workers in the food raw material processing industry area have the potential to experience nerve damage due to noise. In his research, it was also explained that most meat, coffee, rice, and glutinous rice mill workers in the Jember district have the potential to experience hearing loss due to noise intensity that exceeds the predetermined Threshold Value (NAB) of > 85 dB and due to noise exposure that is too long 9-12 hours[16].

The strict implementation of administrative principles regarding the maximum time limit allowed for workers without hearing protective equipment, for example, using formula standards set by NIOSH, is complicated to implement in the field. It is almost impossible for a worker to leave his workplace when the deadline to deal with the noise is almost overwhelming, and the work has not yet been completed. Therefore, for the benefit of workers and work, it is appropriate if the application of the fifth hazard control principle, namely Personal Protective Equipment for hearing, is used in places that contain noise hazards. This is a possible preventive measure to prevent noise.

The study published by Setyaningsih & Kurniawan (2019) provides other interventions and solutions related to noise exposure in agroindustrial areas. According to his research, husks, and straw can help lighten the sound of rice milling machines. This result is undoubtedly an alternative and workable problem-solving. According to him, the company needs to consider using engine dampers to make the atmosphere in the work environment more comfortable and conducive. The study's results proved that rice husks and straws can reduce noise intensity in rice milling business workers[19].

In addition to using rice husks and straw, research conducted by Putri & Natalina (2020) explained that Red Shoot Plants (Syzygium paniculatum) and Asoka (Sarasa Asoka) were able to reduce noise significantly. The results of noise level measurement show that the red shoot plant damper media can reduce noise with an initial intensity of 89.9 dB to 84.45 dB (transmission loss 5.45 dB). At the same time, the Asoka plant (Sarasa Asoka) can reduce the noise level to 84.9 dB (transmission loss 5 dB)[13].

Long-term noise exposure can cause hypo and hyper reactions, which can indicate regulatory abnormalities in the axis. In addition, research conducted by Pickering states that acute and chronic stress can cause increased cytokine release, not only as a marker but also as an inflammatory mediator that causes vascular endothelial dysfunction and atherosclerosis processes. So that in the end, there is an increase in blood pressure which

can chronically cause hypertension[17]. In addition to causing imbalances in physical conditions, noise can also cause psychological disorders.

Stress can be interpreted as psychological pressure that can cause physical and mental illness. Before stress occurs, there needs to be a stressor (stressor) that is entirely meaningful and specific to each individual. A psychosocial stressor is any circumstance or event that causes an individual's reaction through physiological, psychological, and behavioral responses. Work environments with noise exposure have the potential to be work stressors. Work stressors are all work conditions that employees perceive as demanding and can cause work stress. Workers experience stress due to heavy work demands coupled with the presence of bothersome noise. This can also certainly reduce the workability of employees. According to research conducted by Safiu et al. (2023), it was found that there is a significant relationship between noise intensity in the work environment and stress levels[14].

Conclusion

From this study, it can be concluded that the presence of noise intensity that has exceeded the threshold value (85 dB) can increase the risk of increased blood pressure of workers, leading to workplace hypertension. In addition, noise can also cause stress because it is one type of stressor in the workplace. It is, therefore, important to plan various preventive measures to reduce noise exposure in the workplace. One of the methods discussed in this study is according to the recommendation of the Minister of Manpower regarding the use of Ear Protective Equipment (Earplug and ear) properly and correctly.

Acknowledgment

Conflict of Interest

There is no conflict of interest.

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Factors Influencing the Level of Knowledge of Reproductive Age Women about Visual Inspection with Acetic Acid (VIA Test) at PMB S. April - May Period in 2023

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Abstract

Background: Cervical cancer is a disease caused by sexually acquired infection with Human Papiloma Virus (HPV) sub-types, especially sub-types 16 and 18 (WHO, 2016). IVA is an examination of the cervix (cervix) by looking directly (naked) at the cervix after wiping the cervix with a 3-5% acetic acid solution. Based on data from the Indonesian cancer foundation, in Indonesia 1 hour 1 person dies from cervical cancer and 34.4 per cent of cancers in women. The number of new cases of cervical cancer is 40 to 45 per day.

Purpose: To find out what factors influence the level of knowledge of WUS on knowledge about VIA test in PMB S period April-May 2023?

Methods: The design used was a survey with a "Cross Sectional" approach, namely research on several populations observed at the same time, The population taken in this study were all Women of Fertile Age (WUS) who conducted family planning at PMB S on 18 April - 08 May Tangerang Banten Year 2023

Results: Based on statistical tests, it was found that there was no significant relationship between age and the level of knowledge of women of childbearing age about visual inspection of acetic acid (VIA) test where the p value = 0.171 (p> 0.050), there was no significant relationship between education and the level of knowledge of women of childbearing age about visual inspection of acetic acid (VIA) where the p value = 0.196 (p> 0.050), it was found that there was no significant relationship between education and the level of knowledge of women of childbearing age about visual inspection of acetic acid (VIA) where the p value = 0.196 (p> 0.050).0.050), it was found that there was a significant relationship between work and the level of knowledge of women of childbearing age about visual inspection of acetic acid (VIA) test at PMB Siti Rahayu Kreo Tangerang Banten in 2023where the p value = 0.012 (p> 0.050).

Conclusion: There is no significant relationship between the level of knowledge of WUS and work, level of knowledge, age of WUS about visual inspection of acetic acid (VIA).

Keywords: Cervical cancer, IVA test, WUS.

Introduction

Cervical cancer is a disease caused by sexually acquired infection with Human Papiloma Virus (HPV) subtypes, especially subtypes 16 and 18.[1] Cervical cancer is the

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4th most common cancer in women. In 2018, an estimated 570,000 women were diagnosed with cervical cancer worldwide and approximately 311,000 women died from the disease. Persistent infection with high-risk human papillomavirus (HPV) types is the main cause of cervical cancer.[2]

Based on data from the Indonesian Cancer Foundation, in Indonesia 1 hour 1 person dies worldwide because of cervical cancer and 34.4 per cent of cancers in women. The number of new cases of cervical cancer is 40 to 45 per day. While the death rate is 20 to 25 per day. The number of cervical cancer cases in Indonesia reported in 2016 reached 348,809 cases.

Meanwhile, according to the Global Cancer Observatory report in 2018, it is estimated that there are 32,469 cases per year ofcervical cancer in Indonesia, with a death rate of 18,279 people. In 2019, cervical cancerpatients in Indonesia increased, amounting to 21 thousand new cases each year. Human Papilloma Virus (HPV) as the cause of cervical cancer has claimed 21,003 lives, and there are 36,633 new cases against women. This means that 50 women in Indonesia die every day, and this makes cervical cancer the second in line in Indonesia.[3] In Banten Province in 2016, the number of women of childbearing age who had early detection of cervical cancer and breast cancer reported was 11,302. This percentage of WUS is still very far from the target set at 10%.

From11,302 women who underwent VIA test were found to be positive in 11,302 women or 0.65 per cent, this figure is lower than that set by the Ministry of Health, which is 3 per cent. South Tangerang City is the district/city with the highest percentage of positive VIA at 12.20 per cent, the high percentage of positive VIA indicates a high-risk factor for cervical cancer in the region.

Based on preliminary studies conducted by Sakinah 2017 in the Working Area of Puskesmas Kampung Bali Pontianak City, in 10 women of childbearing age, 6 women of childbearing age did not know about VIA (60%) and 4 (40%) fertile women knew about VIA. From the data above, it shows the lack of knowledge of WUS in the UPT Kesmas Payang area in the Kampung Puskesmas Working Area.

Method

1. Research design

The research method is the method that will be used in research. The research

method used is descriptive research method, namely a study conducted to describe or describe phenomena that occur in society. The design used in this study is a survey with a "CrossSectional" approach, namely research on several populations observed at the same time.

2. Settings and samples

This research was conducted on 18 April - 08 May at PMB S Year 2023. The populationtaken in this study were all Women of Fertile Age (WUS) who took family planning at PMB S. In this study the sampling technique used was accidental sampling technique. Accidental Sampling is a sampling technique based on chance, that is, consumers who accidentally / incidentally meet the researcher can be used as a sample, if it is considered that the person who happened to be met is suitable as a data source.[4] So that in the sampling technique here the researcher took respondents of women of childbearing age who were taking family planning and were married, at that time also at PMB S as many as 30 respondents.

Result

Table 1.

Frequency distribution of knowledge level of women of childbearing age about VIA test at PMB S from April to May 2023

No.	Knowledge	Frequency(N)	Presentation(%)
1	Good (76-100%)	13	43.3
2	Fair (56-75%)	10	33.3
3	Less (40-55%)	7	23.3
	Total	30	100.0

Table 1 above shows that out of 30 women of childbearing age, the majority had good knowledge as many as 13 respondents (43.3%), and the minority had poor knowledge asmany as 7 respondents (23.3%).

Table 2.

Frequency distribution of knowledge Level of knowledge of women of childbearing age about VIA test based on age at PMB S April - May period in 2023

No	Age	Frequency(N)	Presentation (%)
1	Young reproduction (15-19)	3	10.0
2	Healthy reproduction (20-35)	18	60.0
3	Old reproduction (36-45)	9	30.0
	Total	30	100.0

Table 2 above shows that of the 30 women of childbearing age, the majority were reproductively healthy (20-35) as many as 18 respondents (60.0%), and the minority were aged (15-19 years) as many as 3 respondents (10.0%)

Table 3.

Frequency distribution of knowledge of women of childbearing age about VIA test based on education at PMB S from April to May 2023

No	Education	Frequency	Presentation
1	Higher (College)	8	26.7%
2	Secondary (Senior High School)	15	50.0%
3	Low (Elementary-Middle School)	7	23.3%
	Total	30	100.0%

Table 3 above shows that out of 30 women of childbearing age, the majority are those with secondary education (SMA), namely 15 respondents (50.0%), and the minoritywith low education (SD, SMP), namely 7 respondents (23.3%).

Table 4.

Frequency distribution of knowledge of women of childbearing age about VIAtest based on occupation at PMB S from April to May 2023

No	Jobs	Frequency(N)	Presentation(%)
1	Work	14	46.7%
2	Not working	16	53.3%
	Total	30	100.0%

Table 4 above shows that out of 30 women of childbearing age, the majority are not working, namely 16 respondents (53.3%), and the minority are working as many as 14 respondents (46.7%).

Table 5.

Frequency distribution of knowledge of women of childbearing age about VIA test basedon parity at PMB S from April to May 2023

No	Parity	Frequency(N)	Presentation (%)
1	Primiparous	20	66.7
2	Multiparous	9	30.0
3	Grandemultipara	1	3.3
	Total	30	100.0

Table 5 above shows that of the 30 women of childbearing age, the majority were primiparous, namely 20 respondents (66.7%), and the minority were grandemultiparous as many as 1 respondent (3.3).

Table 6.
Relationship between Age and Knowledge of WUS about VIA Test in PMB SPeriod April - May Year 2023

No.	Age	Knowledge						Total		P-value
		Good (76-100%)		Fair (56-75%)		Less (40-55%)				
1	Reproduction young (15-19)Years	0	0.0%	2	6.7%	1	3.3%	3	10.0%	
2	Healthy reproduction (20-35) Years	11	36.7%	4	13.3%	3	10.0%	18	60.0%	0.171
3	Reproduction Older (36-45) Years	2	6.7%	4	13.3%	3	10.0%	9	30.0%	
	Total	13	43.3%	10	33.3%	7	23.3%	30	100.0%	

Based on Table 6, it can be said that out of 30 respondents, the majority of healthy reproductive respondents (20-35 years) as many as 11 people (36.7%) have good knowledge, 4 p e o p l e (13.3%) have sufficient knowledge, 3 people (10.0%) have less knowledge and the minority of young reproductive respondents (15-19 years) as many as 2 people (6.7%) have less knowledge, no young reproductive respondents (15-19) have good knowledge, and 1 person (3.3%) has less knowledge. Based on the data above, it

can be said that the percentage of good knowledge level in the WUS group tends to be higher in the group of respondents who are of healthy reproductive age (20- 35 years). From the results of statistical tests obtained p value = 0.171 (p> 0.050), it can be concluded that there is no significant relationship between age and the level of knowledge of WUS.

Table 7.

The relationship between education and knowledge of women of childbearing ageabout VIA tests at PMB S during April - May 2023

| No. | Education | Knowledge | | | | | | Total | | P-value |
		Good (76-100%)		Fair (56-75%)		Less (40-55%)				
1	High (PT)	6	20.0%	1	3.3%	1	3.3%	8	26.7%	
2	Secondary(SMA)	6	20.0%	5	16.7%	4	13.3%	15	50.0%	0.196
3	Low (Elementary-MiddleSchool)	1	3.3%	4	13.3%	2	6.7%	7	23.3%	
Total		13	43.3%	10	33.3%	7	23.3%	30	100.0%	

Based on Table 7, it can be said that out of 30 respondents, the majority of respondents have secondary education (SMA), 6 people (20.0%) have good knowledge, 5 people (16.7%) have sufficient knowledge, 4 people (13.3%) have insufficient knowledge and the minority of respondents have low education (SD-SMP), 1 person (3.3%) has good knowledge, 4 people (13.3%) have sufficient knowledge, and 2 people (2.7%) have insufficient knowledge. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher among respondents with secondary education (SMA). From the results of statistical tests obtained p value = 0.196 (p> 0.050), it can be concluded that there is no significant relationship between occupation and the level of knowledge of WUS.

Table 8.

The relationship between occupation and knowledge of women of childbearingage about VIA tests at PMB S during April - May 2023

No.	Jobs	Knowledge						Total		P-value
		Good (76-100%)		Fair (56-75%)		Less (40-55%)				
1	Work	10	33.3%	3	10.0%	1	3.3%	14	46.0%	
2	Not Working	3	10.0%	7	23.3%	6	20.0%	16	53.3%	0.012
	Total	13	43.3%	10	33.3%	7	23.3%	30	100.0%	

Based on Table 8, it can be said that out of 30 respondents, the majority of respondents worked as many as 10 people (33.3%) had good knowledge, 3 people (10.0%) had sufficient knowledge, 1 person (3.3%) had less knowledge and the minority of respondents did not work, as many as 3 people (10.0%) had good knowledge, 7 people (23.3%) had sufficient knowledge, and 6 people (20.0%) had less knowledge. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher among respondents who do not work. From the results of statistical tests obtained p value = 0.012 (p> 0.050), it can be concluded that there is a significant relationship between work and the level of knowledge of WUS.

Table 9.
The relationship between parity and knowledge of women of childbearing age aboutVIA tests at PMB S during April - May 2023

No.	Parity	Knowledge						Total		P-value
		Good (76-100%)		Fair (56-75%)		Less (40-55%)				
1	Primiparous	10	33.3%	6	20.0%	4	13.3%	20	66.7%	
2	Multiparous	3	10.0%	3	10.0%	3	10.0%	9	30.0%	
3	Grandemultipara	0	0.0%	1	3.3%	0	0.0%	1	3.3%	0.564
	Total	13	43.3%	10	33.3%	7	23.3%	30	100.0%	

Based on Table 9, it can be said that of the 30 respondents, the majority of primipara parity respondents as many as 10 people (50.0%) were well informed, 6 people (20.0%) were moderately knowledgeable, 4 people (13.3%) were less knowledgeable and

the minority of grandemultipara parity respondents as many as 1 person (3.3%) were moderately knowledgeable, there were no grandemultipara parity respondents with good and poor knowledge. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher in the Multiparous respondent group. From the results of statistical tests obtained p value = 0.564 (p> 0.050), it can be concluded that there is no significant relationship between parity and the level of knowledge of WUS.

Discussion
1. Relationship between age and level of knowledge of WUS about VIA testing

Age is the age of the individual calculated from the time of birth to repeated years. In accordance with the theory that states that the more age, the level of maturity and strength of a person will be more mature in thinking and working, this is as a result of experience and maturity of his soul, the older a person is, the more conducive he is to using coping with problems faced.[6]

The female reproductive period is divided into 3 periods, namely: Young reproduction (15-19 years) is the stage of delaying pregnancy, healthy reproduction (20-35 years) is the stage of spacing pregnancies, and old reproduction (36-45 years) is the stage of ending pregnancy.[5]

In this study of 30 respondents, the majority of healthy reproductive respondents (20-35 years) as many as 11 people (36.7%) had good knowledge, 4 people (13.3%) had sufficient knowledge, 3 people (10.0%) had insufficient knowledge and the minority of young reproductive respondents (15-19 years) as many as 2 people (6.7%) had insufficient knowledge, no young reproductive respondents (15-19) had good knowledge, and 1 person (3.3%) had insufficient knowledge. Based on the data above, it can be said that the percentage of good knowledge level in the WUS group tends to be higher in the group of respondents who are of healthy reproductive age (20-35 years). From the results of statistical tests obtained p value = 0.171 (p> 0.050), it can be concluded that there is no significant relationship between age and the level of knowledge of WUS.

This is not in line with the theory that states if age is related to the knowledge of women of childbearing age about the VIA test, then the older the age, the more

experience the woman of childbearing age has, the more information the woman of childbearing age gets and the more she understands what the use of the VIAtest is for health in an effort to prevent early cervical cancer.[4]

This is also in line with Gina's research (2019) which shows that of the 30 respondents who had a good level of knowledge about the VIA test, the majority were in the 20-35year age group, namely 7 respondents (43.8%) who had good knowledge, 7 respondents (43.8%) who had sufficient knowledge and 2 respondents (12.5%) who had poor knowledge. And the minority is in the age group 15-19 years, namely as many as 1 respondent (50.0%) who is knowledgeable, as many as 1 respondent (50.0%) who is knowledgeable enough and there are no respondents who are knowledgeable less.[7]Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher owned by the WUS group.

The group of respondents who were reproductively healthy (20-35 years old). From the results of statistical tests obtained p value = 0.453 (p> 0.050), it can be concluded that there is no significant relationship between age and the level of knowledge of WUS.

With this, the author assumes that the results of the study are different from the theoretical basis which states that the higher a person's age, the more experience and knowledge. This can happen because to increase a person's knowledge, in addition to age, it turns out that it is also influenced by several other factors as well, such as education level, occupation and exposure to mass media both print and electronic, various information can be received by mothers, so that mothers who are more often exposed to mass media will get more information and affect the level of knowledge they have.[4]

2. The relationship between occupation and the level of knowledge of WUS about VIA tests

Work is a daily activity carried out by respondents in producing material in the form of money. Work is a necessity that must be done mainly to support their lives and family life. People who are busy with daily activities or work will have less time to obtain information.[5]

In this study, out of 30 respondents, the majority of respondents worked as many as 10 people (33.3%) with good knowledge, 3 people (10.0%) with sufficient knowledge, 1 person (3.3%) with less knowledge and the minority of respondents did not work, as

many as 3 people (10.0%) with good knowledge, 7 people(23.3%) with sufficient knowledge, and 6 people (20.0%) with less knowledge. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher among respondents who do not work. From the results of statistical tests obtained p value = 0.012 (p> 0.050), it can be concluded that there is a significant relationship between work and the level of knowledge of WUS.

This is in line with the theory that work is generally a time-consuming activity andcan provide experience and knowledge both directly and indirectly.[4] This is not in line with Gina's research (2019) which shows that of the 30 respondents who had a good level of knowledge about the VIA test, the highest number of respondents in the non-working group were 13 respondents (50.0%) who had sufficient knowledge, as many as 8 respondents (30.8%) who had good knowledge and 5 respondents (19.0%) who had poor knowledge. And the minority is in the workinggroup, namely as many as 2 respondents (50.0%) who are well informed, as many as 1 respondent (25.0%) who are moderately knowledgeable and as many as 1 respondent (25.0%) who are less knowledgeable.Based on the data above, it canbe said that the percentage of good knowledge levels in the WUS group tends tobe higher for respondents who do not work. From the statistical test resultsobtained p value= 0.636 (p > 0.050), it can be concluded that there is no significant relationship between occupation and the level of knowledge of WUS.[7]

The author assumes that work can affect a person's knowledge because a person who works can get information from electronic media, people around, and from health workers. The work environment can shape knowledge because of the exchange of information between friends in the work environment.[8]

3. The relationship between education and the level of knowledge of WUS about VIA testing

Education is a formal education that a person has successfully passed which is legitimised by a diploma. Formal and non-formal education can have an immediate impact, resulting in a change or increase in knowledge. [4]

In this study the majority of respondents had secondary education (SMA) as many as 6 people (20.0%) had good knowledge, 5 people (16.7%) had sufficient knowledge, 4 people (13.3%) had less knowledge and the minority of respondents had low education (SD-SMP), as many as 1 person (3.3%) had good knowledge, 4 people (13.3%) were

moderately knowledgeable, and 2 people (2.7%) were knowledgeable less.

Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher among respondents with secondary education (SMA). From the results of statistical tests obtained p value=0.196 (p> 0.050), it can be concluded that there is no significant relationship between occupation and the level of knowledge of WUS.

This is not in line with the theory that states education is guidance given by someone to others so that they can understand something. It is undeniable that the higher a person's education, the easier it is for them to obtain information, and in the end the more knowledge they have. Education is needed to get information such as things that support health so that it can improve the quality of life. Education can affect a person, including a person's behaviour, especially in motivating attitudes towards development. The higher the education, the easier it is to receive information.[8]

This is also not in accordance with the theory that the higher a person's education, it is expected that it will increase the ability to develop self-potential, the higher the education, the human life will produce good knowledge that makes a quality life. [4]
This is in line with Gina's research (2019) which shows that of the 30 respondents who had a good level of knowledge about the VIA test, the highest number of respondents in the secondary education group (SMA) were 7 respondents (31.8%) who were well informed, 9 respondents (40.9%) who were moderately informed and 6 respondents (27.3%) who were less informed. And the minority is in the less educated group (SD-SMP), namely 1 respondent (33.3%) who is well informed, as many as 2 respondents (66.7%) who are moderately knowledgeable and no respondents who are less knowledgeable. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher among respondents with secondary education (SMA). From the results of statistical tests obtained p value = 0.580 (p> 0.050), it can be concluded that there is no significant relationship between occupation and the level of knowledge of WUS.[7]

The author assumes that a person's formal education is not the main factor affecting the level of knowledge of an individual because information can be obtained from various sources, especially technology which is very rapidly developing in the

modernisation era. Sources of information can be obtainedfreely ranging from peers, books, films, videos, and even easily open sites via the internet so that even WUS who are not highly educated can get information easily,therefore their level of knowledge is good.[9]

4. The relationship between parity and the level of knowledge of WUS about VIA test examination

Parity is the number of live births a woman has had.[10]Parity is when a woman has given birth to a baby with a gestation period between 38 and 42 weeks.[11] In this study the majority of primipara parity respondents as many as 10 people (50.0%) had good knowledge, 6 people (20.0%) had sufficient knowledge, 4 people (13.3%) had less knowledge and the minority of grandemultipara parity respondents as many as 1 person (3.3%) had sufficient knowledge, there were no grandemultipara parity respondents with good and less knowledge. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher in the Multiparous respondent group. From the results of statistical tests obtained p value = 0.564 (p> 0.050), it can be concluded that there is no significant relationship between parity and the level of knowledge of WUS.

This is not in accordance with the theory of Notoatmodjo (2016), namely knowledge is closely related to parity because more personal experience is obtained and can lead a person to draw conclusions. This is not in line with Gina's research (2019) which shows that of the 30 respondents who had a good level of knowledge about the VIA test, the highest number of respondents in the multiparous parity group were 6 respondents (27.3%) who were well informed, 11 respondents (50.0%) who were moderately informed and 5 respondents (22.7%) who were less knowledgeable. And the minority is in the grandemultiparous parity group, 1 respondent (50.0%) had good knowledge, 1 respondent (50.0%) had sufficient knowledge and no respondents had poor knowledge. Based on the data above, it can be said that the percentage of good knowledge levels in the WUS group tends to be higher in the Multiparous respondent group. From the results of statistical tests obtained p value = 0.789 (p> 0.050), it can be concluded that there is no significant relationship between parity and the level of knowledge of WUS.

The author assumes that parity is not the main factor influencing a person's

levelof knowledge, because knowledge can be obtained from various sources, especially technology which is very rapidly developing in the era of modernisation. Sources of information can be obtained freely from peers, books, films, videos, and even easily open sites via the internet.[12]

Conclusions

Based on statistical tests, it can be concluded that there was no significant relationship between age and education with the level of knowledge of women of childbearing age about visual inspection of acetic acid (VIA). There was a significant relationship between working status, and the level of knowledge of women of childbearing age about visual inspection of acetic acid (VIA) test at PMB Siti Rahayu Kreo Tangerang Banten in 2023.

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