International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.2, pp 76-83, 2017

Peer Education : The Effect on Menstrual Knowledge in Early Reproductive Age Women in West Java Rural Area

Lulu Eva Rakhmilla[1]*, Ahsani Rahma Rudibianti[1],Vitriana Biben[1], Nur Amalia Rosyada[2]

[1]Study Center of Community Health and Wellness, Universitas Padjadjaran, Indonesia
[2]Faculty of Medicine, Universitas Padjajaran, Indonesia

Abstract : Female adolescent in West Java with alow level of knowledge regarding reproductive health is still considered as high as 83%. From all of them, 61.8% are unaware of menstrual matters. These facts portray the high number of female adolescent which were inadequately informed. Escalating the level of knowledge using the method of education is one of the possible ways to solve this matter. Peer education method and conventional method were known as successful methods for escalating level of knowledge, yet the most effective method between these two is still unknown. This study was conducted to find out the comparison of menstrual knowledge among groups with different educational methods.The targeted population was conducted in 2 different junior high schools in therural area from Jatinangor, West Java. 112 minimum sample size was needed ([alpha] = 5%, 2 ways; [beta] = 20%), randomly chosen with multistage sampling method. This study applied quasi-experimental design and the interventions were apeer and conventional education applied into two different group using pretest and posttest approach. Primary data was taken using validated questionnaire used for calculating themean score of menstrual knowledge in both groups. Demographic information with theproportion between thegroup was analyzed, and mean comparison between groups was computed using Mann-Whitney U test.Age and age of menarche in peer vs conventional education werehomogeneous. Most of the history regarding menstruation information was given by their mothers (63.3% vs 71.7%). Interest specified topic was about menstrual hygiene (76,7% vs 71.7%). Comparison of mean different regarding menstrual knowledge in peer educational method was 5.08 with 95% CI (4.34-5.83) and conventional method was 3.48 with 95% CI (2.73-4.24). This comparison was found as significant as the p-value was 0.004. Mean different of menstrual knowledge in peer education group is higher than conventional education group. A further implication of this finding towards ahigher quality of reproductive health in adolescent involving the authority and health care provider should be enacted.
Keyword : (Peer, Education, Menstruation).

Introduction:

One of the life stages that has to be experienced by a certain individual is anadolescent stage. Early adolescent, that is around 12-14 years old or highschool age is the phase where hormonal, physical, emotional, and social changes take place. These changes might not be favorable for an individual if this phase undergoes without preparations, as these changes might influence the psychosocial development of an individual.[1]

Social changes which areoccurring in present days has contributed highly toreproductive health problems. Low level of knowledge regarding reproductive health inflicts different kinds of problems, including confusion when dealing with changes occurring in their bodies, unable to understand menstruation cycle and disorders of menstruations such as dysmenorrhea which leads them to school absence, poor knowledge regarding reproductive hygiene, alienation in society caused by false myths, and depression.[2-4] A study of 177 female highschool student at Jatinangor conducted in 2015 reported that 53.1% of them were depressed during thepre-menstruation phase.[5] Later on, these conditions might cause antisocial behavior, and lead to negative impact in academical performance and reduction in daily activity.

Family Planning Coordinating Board of West Java Province had conducted a study which denotes that 83% of female adolescent had alow level of knowledge regarding reproductive health and 61.8% of them were unaware of menstrual problems.[6] Topics regarding reproduction are considered as ataboo, parents are unwilling to discuss matters concerning menstrual problems with their daughters, the feel of shame when asking teachers, and unaware of the existence of health facility in school.[3] The source of information for afemaleadolescent is essential and needs to be concerned since not all of the delivered and learned information are valid.[6]information regarding reproductive health obtained by the female adolescent could be acquired from various sources, such as mother, female siblings, teachers, friends, healthcare workers, printouts such as books and magazines or newspapers, or electronic media such as television and internet.[4] A study in 2012 regarding demographic and health surveillance in Indonesia reported that female adolescents mostly discuss about menstruation with their peers rather than mothers (53% and 41%).[7]

Since 2003 Ministry of Health Republic of Indonesia has formulated and enacts a specific program for adolescents in order to prepare them for undergoing a healthy and responsible reproductive life, such as Health Service for Adolescent (*Pelayanan Kesehatan Peduli Remaja - PKPR)* . However, a study conducted in 2014 reveals that PKPR has not been working properly because of the unfavorable condition of the practitioners, inadequate funding and time management within primary health care. These are reasons which hinder the PKPR for being optimally implemented in the level of primary health care. Recently, PKPR has just been implemented in 2999 primary health care from the total of 9731 primary health care in Indonesia. [8,9]

A one-way educational method such as conventional lecture is the most frequent educational method selected for academic purpose in school, and method is considered as the easiest method to be applied. Another method, such as peer education, has also started to rise and quite frequently used in promotion of reproductive health. In previous studies, both of these methods have been succeeded in escalating knowledge of theindividual. However, there has not been any study in Indonesia which compares the impact of these two different methods towards amean score of reproductive knowledge in female adolescent in anearly reproductive age which currently enrolling from junior high school.

Subjects and Method:

This study was conducted using a quasi-experimental research design with pre-test and post-test approach. The population of the study was second-year, junior high school female students reside in therural area of West Java. Inclusion criteria of this study are the subject already had menstruation and willing to enroll in this study. The exclusion criteria were theabsence of student during pre-test or post-test, the student who was not taking the intervention or the student who did not return after theintervention. Minimum sample size was 56 each group with alpha 10%, 2 ways; and beta 10%, computed using numeric comparison with unpaired groups. The sampling method was cluster random sampling so that 2 junior high schools was chosen from Jatinangor district (SMP DarulFatwa and SMP 2 Jatinangor). From each of the school, 60 students fulfilled the criterions (n = 120 students).

Guttmann scaled-questionnaire was used as aninstrument in this study. Informed consent and agreement letter, identity form and questions regarding menstrual knowledge was included. This questionnaire was made by the researcher and validated before the study was taken place, applied to 30 subjects with the same characteristic as the study sample, and validity result was quite high as 0.714. This questionnaire consists of 23 questions, 12 of them had the answer “True” and 11 had the answer “False”. Right answer valued as 1 score, while thewrong answer valued as 0. The maximum total score was 23 and theminimum total score was 0.

The dependent variable in this study was amean score of menstrual knowledge, while independent variable was peer education method and theconventional method. This study was also exploring characteristic of the subjects, including age, first menstruation age, education level of themother, information source, type of information, last time obtaining information, awareness of in-school health facility, and opinion of the students regarding appropriate information source.

This study underwent certain phases; preparation phase, data collection phase, and data analysis phase. Preparation phase consisted of: (1) Constructing tools for education such as poster, module, pamphlet and games, (2) Selecting population and sample subjects, (3) Requesting permission from junior high schools where the study will be taken place, (4) Choosing which school will be given peer education method and conventional method, (5) Especially for peer education method, 6 peer educators have to be chosen as facilitators for their peers, and one of them handles 10 students. Peer educators were selected with the help of teachers specializing in student affair. Criterions for peer educators was: (1) The student was thesecond year at junior highschool during this study, (2) The student was included in the top three rank in class, (3) The student was able to communicate properly and respected by peers.

Data collection was conducted on September 16th, 17th, and 19th 2016. Peer education was conducted in SMP Darul Fatwa. In this peer education method, researcher taught the peer educators directly in order for them to become facilitators, and also taught them regarding menstruation itself. This topic regarding menstruation would also be given to the study subjects. The following day, peer educators taught and underwent discussion with study subjects for one hour long. Questions which unable to be answered by educators was written and later on answered by theresearcher, and the answer was delivered back to their peers. On September 19th, conventional education method was conducted at SMP 2 Jatinangor, and the topic was delivered directly by the researcher, and the duration was one hour long. Both of these methods was preceded by pre-test for 10 minutes, delivery of the topic by both of the two methods for 40 minutes, and closed by a post-test for 10 minutes.

Data was analyzed to observe characteristic of the respondents and also the comparison of mean score regarding menstrual knowledge between peer education and theconventional method. Means of pre-test and post-test score were calculated, and then the mean of post-test was subtracted by the mean of pre-test, so the mean score was obtained using this way. This way of thecalculating mean score was conducted in both peer education group and conventional method group. Mean scores from both groups were tested for normality using Kolmogorov-Smirnov test. Since the result was both of the groups were not distributed normally, Mann-Whitney U non-parametrical test was conducted to compare the mean scores.The result was presented in a boxplot.

This study was approved by Health Ethics Research Committee, Faculty of Medicine, Universitas Padjadjaran, and request for primary data collection was permitted by the Head of Regional Development Agency of Sumedang Regency (*Badan Perencanaan Pembangunan Daerah – BPPD*) and headmasters of each school.

Results:

Data obtained from all the subjects were sorted and characteristic of the subjects was made based on the data.

Table 1. Characteristic of Subjects

Variable	Peer Group (n = 60)	Conventional Group (n = 60)	p value
Age (years), mean (SD)	13.27 (0.578)	13.43 (0.647)	0.105*
Age of menarche (years), mean(SD)	11.58 (2.309)	10.13 (4.612)	0.000*
Educational Background of Mother (%)			0.084**
Unknown	14 (23,3)	9 (15,0)	
Elementary graduate	18 (30,0)	9 (15,0)	

Junior High School Graduate	17 (28,3)	25 (41,7)	
Senior High School Graduate	11 (18,3)	15 (25,0)	
University Graduate	-	2 (3,3)	
Information Source (%)			
Mother	38 (63,3)	43 (71,7)	0.229**
Female Siblings	25 (41,7)	28 (46,7)	
Aunt	5 (8,3)	15 (25,0)	
Grandmother	28 (46,7)	39 (65,0)	
Teacher	41 (68,3)	23 (28,3)	
Friend	9 (15,0)	2 (3,3)	
Printouts	6 (10,0)	1 (1,7)	
Electronic media	3 (4,9)	5 (8,3)	
Topic / information received regarding menstruation (%)			
Anatomy of reproductive system	1 (1,7)	3 (5,0)	0.243**
Characteristics of menstruation	11 (18,3)	17 (28,3)	
Menstrual hygiene	46 (76,7)	43 (71,7)	
Menstrual disorder	21 (35,0)	22 (36,7)	
Infection of reproductive tract	1 (1,7)	1 (1,7)	
Myths regarding menstruation	12 (20,0)	19 (31,7)	
Last time receiving information regarding menstruation(%)			
≥ 6 month ago	35 (58,3)	12 (20,0)	0.000**
1-5 month ago	21 (35,0)	19 (31,7)	
Have not ever been receiving any kind of information regarding menstruation	4 (6,7)	29 (48,3)	
Students aware of in-school health facility (%)	51 (85,0)	48 (80,0	0.451**
Appropriate source of information according to the students (%)			
Mother	45 (75,0)	45 (75,0)	0.308**
Sister	14 (23,3)	24 (40,0)	
Aunt	10 (16,7)	29 (48,3)	
Grandmother	19 (31,7)	21 (35,3)	
Teacher	19 (31,7)	15 (25,0)	
Friend	0 (0)	0 (0,0)	
Printouts	6 (10,0)	0 (0,0)	
Electronic media	2 (3,3)	4 (6,7)	

**T-independent test **chi-square test.*

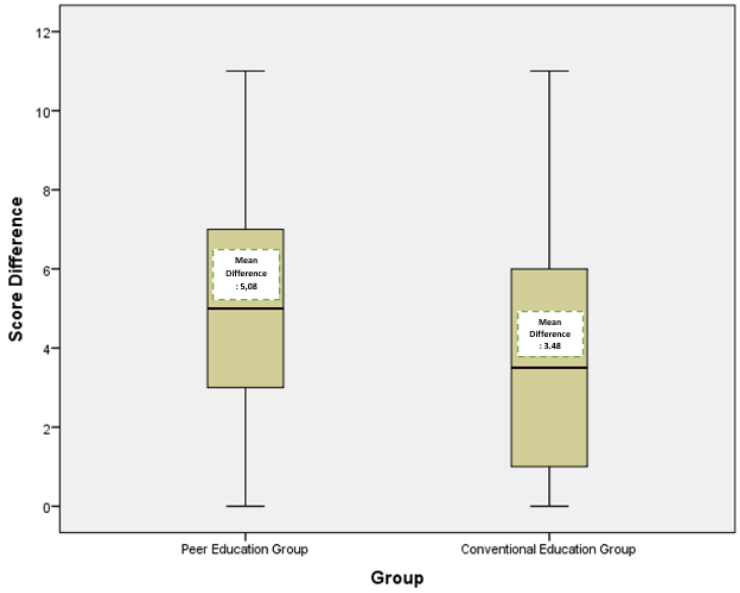
Table 1 explained that most of the subjects in both peer education group and theconventional group had homogenous characteristics, except for theage of menarche and last time receiving information regarding menstruation. Mothers of peer education group were mostly elementary graduated, while the mothers of theconventional group mostly graduated from junior high school. More than half of the peer education group state that their received information come from theirteacher, while more than 70% of the conventional group received information from their mothers, but each subject received information about menstruation more than one source. More than half of the subjects from both groups received topic regarding menstrual hygiene. In peer education group, 58.3% had not been receiving information regarding menstruation for at least 6 months or longer, while conventional group even had almost 50% of subjects who had not ever been receiving information at all until thepresent time, and the chi-square result showed that this characteristic was not homogenous. In-school health facility was present in both school, but half of the subjects were unaware of this facility. Both of the groups stated that appropriate source of information was their teacher, and none of them stated that friend is the appropriate source of information.

Table 2. Score Mean Provision of Education

Pre and Post Group	Mean each subgroup intervention	Min - Max	Standard Deviation subgroup	Mean different each intervention	Standard Deviation group	p-value
Peer group score						
Before intervension	10.30	6 - 15	2.011	4.917	3.169	0.000*
After intervension	15.22	9 - 21	2.578			
Conventional group score						
Before intervension	10.27	6 - 18	2.773	3.450	2.988	0.000*
After intervension	13.72	6 - 19	3.613			

**paired t-test*

Provision of education (table 2) either through conventional methods or peer methods increase knowledge in this population, equally. Differences each educational group showed a consistent increase before and after intervention ($p < 0.05$). The range of scores in the group after being given the peer, it is very surprising, present a picture score obtained in this group is better than the group given conventional methods (score range 9 – 21). The mean difference of score in the group given the peer is higher than conventional methods (4.917 vs 4.450).



Picture 1. Boxplot of peer education group and conventional group regarding the comparison

Picture 1 described the comparison of mean score between peer education group and conventional group. The maximum and theminimum value in both groups were 11 and 0. Mean score comparison showed that peer education group had ahigher score than conventional group. The median of peer education group was 5 and theconventional group was 3.5. Score difference which was counted by subtracting pre-test and thepost-test score was also compared, and the mean score was 5.08 for peer education group and 3.48 for conventional group. Mean score comparison was tested using Mann-Whitney U test, and the result was $p = 0.004$ ($p<0.05$). This result portrayed the significant relationship between the education method and mean score of menstruation knowledge, with 95% confidence interval (4.34-5.83) for peer education group, and 95% confidence interval (2.73-4.24) for conventional group.

Discussion:

Health education has a purpose to encourage and increasing awareness of the subject regarding the importance of behavioral change in society, school environment, and patients, in order to escalate health illiteracy in the future. The theory of Health Belief Model stated that behavioral change will occur if each individual receive detailed information regarding inappropriate behaviors and also detailed information about the benefits of appropriate health behavior[11].

A study of handwashing behavior in elementary students of Kelurahan Gunung Puyuh of Sukabumi stated that the group was given the intervention, which is health education with peer educational method had a significantly increasing level of health knowledge and behavior compared to control group.[12] On the opposite, a study conducted by Saroj Parwej from India found that a group of samples given the conventional education had ahigher mean score (2.783) rather than peer education group (2.077), and comparison of these two groups had no significant relationship. Nevertheless, comparison between both groups and control group were also conducted, and both groups had significant effect rather than control group in escalating knowledge regarding reproductive health.[12]

This study exploited that the peer education group had ahigher mean score of knowledge compared to conventional group and relationship between these two variables was considered as significant (p=0.004). From this finding, it can be concluded that peer education method has abetter outcome compared to conventional education method. This finding was similar to the theory of Edgar Dale, which elaborates that different education methods will produce different level of understanding in the subjects receiving the education. Passive educational methods such as lectures produce a relative low level of understanding, as much as 5% only. On the other hand, methods which actively involving the students in thelearningprocesses, such as discussion and role playing could assist thestudent in understanding the information and encouraging their curiosity to learn more. Peer education method, which emphasizes the active role of the students in thelearning process, might escalate the retention of learning outcome as much as 50% high. Topic explanation delivered by peers is easier to receive and process, since the uncomfortable feelings during discussion of sensitive topics are reduced, and the atmosphere feels more flexible and overt since the language used while communicating with peers is easier to understand.[14]

From the characteristics of subject study, it was found that age of menarche and last time receiving information were variables that were not homogenous. According to the theory, these inhomogeneous variables are factors which might influence the level of knowledge in a certain individual. The mean age of menarche in both groups was 12 years old, and the possible reason explaining this inhomogeneous finding might be the presence of 10 subjects in peer education group who had not had menarche yet, and 3 subjects in theconventional group as well. Female students who have undergone menarche are most possibly having better experience regarding menstruation. Experience is one of the methods used to gain information and knowledge, including personal experience.[10] Information source might be from parents, teachers, friends, siblings, health care workers, printouts and electronic medias, but it is important to evaluate the validity of the information since the information might be inaccurate or cut up halfway.[4,6] Received pieces of information from either formal or non-formal education may inflict short-term influence, and later on, this influence may improve the knowledge escalation. On the variable of "last time receiving information", it was found in peer education groups that the starting point of knowledge regarding menstruation was not zero point, but almost half of the subjects in conventional group had not ever heard about menstruation at all. It is also safe to conclude that on the variable of "age of menarche", theconventional group had obtained more personal experience regarding menstruation. Meanwhile on the variable of "last time receiving information", more than half of the peer education group had already received the information since approximately 6 months ago. Theoretically, both of these inhomogeneous characteristics of the subjects might have certain influence the level of knowledge, but in this study, these were found insignificant since the mean score comparison had significant meaning in peer education group.

Peer methods in the form of guidance, assistance, guidance, direction, and motivation so that students learn effectively and efficiently. Subjects who provide guidance in tutorial activities known as tutors. This method is done by empowering the ability of students who have a high absorption, these students for teaching / training to his friends who do not understand. Peer tutoring is done by the students who have the ability to learn more about the material, can help students who do not understand, so students do not feel embarrassed or

inferior to ask. With the peer tutor students who are less active to inactive because students are not embarrassed to ask questions and to express opinion freely, students can realize what is buried deep in his heart. This method is a lot of benefits both from the students who act as tutors and for students who are taught. The teacher's role is to oversee the smooth implementation of this method to give direction. [10,11]

Intelligence quotient (IQ) may also influence the level of knowledge, and these different individualshave adifferent level of thequotient. IQ is a blessing, enabling humans to receive, store, process, conclude, and analyze information from the environment. A study conducted to observe acorrelation between IQ level and understanding towards topics regarding accountancy exploits positive result.[15] Notoatmodjo stated that gender and occupation are factors that might influence thelevel of knowledge other than age and information source, but there was no significant effect of gender and occupation towards knowledge in this study since all the respondents werefemale students which are unemployed, so gender and occupation were not considered as avariable since the beginning.[10]The reason that can explain, why experience and information might escalate the level of knowledge is because these two stimulate dendrites inside the brain to multiply, enlarge and producing more synapses, and this process was known as neuroplasticity.[16]

Limitation of this study is the presence of adifferent level of willingness in the student which is inevitable to arrange, and also the confounders such as IQ level of the subjects which is not evaluated before the intervention was conducted.

Conclusion:

A significant difference in mean score between peer education group and theconventional group was found. Peer education method could be a potential substitute for convention education method used for escalating level of knowledge, especially knowledge about menstruation. Benefits of using peer education are flexibility and more open and overt atmosphere of discussion when discussing sensitive matters with peers, topics which are uncomfortable to talk about with parents are able to be discussed openly between peers, and also the flexibility of language used to communicate between peers made the education runs smoothly, and two-way communication are able to be conducted well.

References:

1. Batubara JR. Adolescent development (perkembanganremaja). Sari Pediatri. 2010, 12(1), 21-9.
2. Ali TS, Rizvi SN. Menstrual knowledge and practices of female adolescents in urban Karachi, Pakistan. Journal of adolescence. 2010, 33(4), 531-41.
3. Lestari H, Metusala J, Suryanto DY. Gambaran dismenorea pada remajaputrisekolahmenengahpertama di Manado. Sari Pediatri. 2010, 12(2), 99-102.
4. Ramathuba DU. Menstrual knowledge and practices of female adolescents in Vhembe district, Limpopo Province, South Africa. curationis. 2015, 38(1), 1-6.
5. Dewi Lutpiyah LER, VitrianaBiben. Depresi Pra-Menstruasi Pada Siswi SMP Jurnal Ilmiah Mahasiswa Kedokteran Indonesia. 2016,4 (1), 10-6.
6. Mahmuda INN. Peningkatan Pengetahuan tentang Reproduksi Sehat pada Siswi SMK Pertiwi Desa Ngabeyan, Mangkuyudan, Kartasura. Sukoharjo, 2009.
7. Health Mo. Indonesia Demographic and Health Survey Special Report on Adolescent Reproductive Health Preliminary Report. Indonesian Ministry of Health, Jakarta, 2012, 1-15.
8. Infodatin. Situasi Kesehatan Reproduksi Remaja.Indonesian Ministry of Health, Jakarta, 2015.
9. Kiswati K. Evaluasi Pelaksanaan Manajemen Program (PIK-KRR) Pusat Informasi dan Konseling Kesehatan Reproduksi Remaja oleh Penyuluh Keluarga Berencana di Kabupaten Jember Tahun 2011. IKESMA, 2012,8(1).
10. Notoatmodjo S. Promosi kesehatan dan ilmuperilaku. Rineka Cipta, Jakarta, 2007.
11. Skinner CS, Tiro J, Champion VL. The health belief model. Health Behavior: Theory, Research, and Practice.John Wiley & Sons, San Francisco, 2015, 75-94.
12. Hadiyanto H, Raksanagara AS, Susanti RD. Pengaruh Pendidikan Kesehatan Melalui Peer Edukasi Terhadap Pengetahuan, Sikap Dan Tindakan Cuci Tangan Pakai Sabun Pada Siswa-siswi SD Di Kelurahan Gunung Puyuh Kota Sukabumi. Abstrak. 2014.

13. Parwej S, Kumar R, Walia I, Aggarwal AK. Reproductive health education intervention trial. The Indian Journal of Pediatrics. 2005, 72(4), 287-91.
14. Davis B, Summers M. Applying Dale's Cone of Experience to increase learning and retention: A study of student learning in a foundational leadership course. QScience Proceedings. 2015, 6.
15. Artana MB, Herawati NT, AK S, Atmadja AT, SE A. Pengaruh Kecerdasan Intelektual (IQ), Kecerdasan Emosional (EQ), Kecerdasan Spiritual (SQ), dan Perilaku Belajar Terhadap Pemahaman Akuntansi. JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi S1). 2014, 2(1).
16. Willis J. How the Memory Works in Learning. TeachThought January. 2013, 1.

*****