

Virtual Learning Education about Adolescent Growth and Development

Greiny Arisani*, Seri Wahyuni

Prodi D.III Kebidanan, Jurusan Kebidanan Poltekkes Kemenkes Palangkaraya, Palangkaraya, Indonesia

*Corresponding Author: arysanie@gmail.com

ABSTRACT

Growth and development have an important role in forming a healthy human being where a adolescent with good physical growth will have good psychomotor development as well. Usage of the distinctive features of adolescent development is the stage where adolescents experience a crisis due to physical and psychosocial changes. The growth of primary sex organs has implications for the emergence of sexual desire and attraction to the opposite sex. The growth of secondary sex characteristics such as breast protrusion in adolescent girls, testicular enlargement in adolescent boys, growth of armpit hair or pubic hair that is too late or too early often causes feelings of shame, inferiority and lack of confidence because they feel different from their peers. The implementation method is in the form of health education in the form of youth education about the growth and development of adolescents which is carried out virtually/online through the application zoom Meeting. The average result of adolescent knowledge before being given education about adolescent growth and development was at an average knowledge score of 43.3 and the average score after being given education about adolescent growth and development was a significant increase, namely knowledge score of 71. Educational activities through virtual learning Educational conducted online is an alternative to effective health education activities in increasing adolescent knowledge.

Keywords: Virtual Learning, education, knowledge

INTRODUCTION

The World Health Organization (WHO) defines adolescents as individuals in the age group of 10-19 years who are characterized by the appearance of secondary sex characteristics (puberty) to sexual maturity and reproductive activity. Adolescence is divided into an early period with an age group of 10-14 years, a middle period with an age range of 15-17 years, and a late period with an 18-19 year age group (WHO, 2018). In line with the changes that occur in adolescents, adolescents are also faced with tasks that are different from the tasks in childhood. As is known, in every phase of development, including in adolescence, individuals have developmental tasks that must be fulfilled. If these tasks are successfully completed, satisfaction, happiness and acceptance from the environment will be achieved. The success of individuals in fulfilling these tasks will also determine the success of individuals in fulfilling developmental tasks in the next phase (Direktorat Bina Kesehatan Anak, 2016).

Growth and development have an important role in forming healthy humans. A teenager whose physical growth is good will have good psychomotor development so that during adolescence there is a rapid growth (growth spurt) both physically and psychologically (Kemenkes RI, 2019). Adolescence is also called puberty, in the form of rapid growth in the reproductive organs which is influenced by sexual hormones so that the reproductive organs in adolescence have functioned (Kemenkes RI, 2018a). The uniqueness in its rapid growth and development physically, psychologically and socially where adolescents enter a period full of storm and stress caused by physical and psychosocial changes (Wulandari, 2014).

Based on the Survey Demografi dan Kesehatan (SDKI) in 2017 that the percentage of physical changes during puberty in women most commonly known by women is menstruation at 89% while what is known by men is breast growth (60%). Then the percentage of physical

changes during puberty that most women and men know about is a change in voice, which are 77% and 53%, respectively. Percentage of age at first menstruation and wet dreams, as many as 28% of women get their first period when they are 13 years old and 27% of men experience wet dreams for the first time at the age of 14 years. Knowledge of fertile period where the percentage of women and men who know women's fertile period correctly is 33% and 37%, respectively. Sources of reproductive health information where only 12% of women and 6% of men know the place of discussion/reproductive health information and among adolescents who know the place of discussion on reproductive health by 34% of women and 33% of men mention Puskesmas PKPR, 16% of women and 11% of men mention PIK R/M (Kemenkes RI, 2018b).

The maturation of the reproductive organs which is called the transition period is a rapid physical change, sometimes not balanced with psychological/mental changes. The imbalance in psychosocial development during the transition period can lead to confusion among adolescents, which is feared to lead adolescents to irresponsible sexual behavior and the impact of this behavior includes the occurrence of teenage pregnancies, unwanted pregnancies and attempts to carry out unsafe abortions. sexually transmitted infections (STDs) and dealing with social impacts such as dropping out of school, community stigma and other social sanctions (Kemenkes RI, 2018b). Based on this background, this community service activity aims to describe the characteristics of adolescents based on age, gender, exposure to information, sources of information, primary sex growth age, body mass index (BMI) and psychosocial development and then increase adolescent knowledge about falling (growth and development). adolescents so that adolescents are provided with correct information in overcoming problems, especially those related to reproductive health.

METHOD

The method of implementing community service activities is to provide health education in the form of youth education about adolescent growth and development which is carried out virtually/ online using the application Zoom Meeting with the target of community service activities being early adolescence with an age range of 12 -14 years and middle adolescence with an age range of 15-17 years and are willing to take part in a whole series of community service activities. The theme of youth education delivered at this community service activity was virtual learning education about adolescent growth and development with material on adolescent growth and development, adolescent nutritional needs during growth and development (falling) and how to calculate body mass index (BMI). Educational activities for adolescents were carried out 3 times face-to-face meetings which were conducted online/virtually through the application Zoom Meeting with a duration of 100 minutes.

The initial stage of implementing the activity begins with selecting youth according to the criteria and youth who meet the criteria who are included in community service activities are included in the group *WhatsApp* to explain the purpose and mechanism of implementing community service activities. Adolescents register early by filling out a registration form in the form of filling out participant identities and filling out a *pre-test* via a link *form google form* to find out the extent of adolescents understanding of adolescent growth and development. Then it was continued with the delivery of material according to the topic of online/growth and development of adolescents *virtual* through the application, *Zoom Meeting* then at the end of the activity, the youth filled out the *posttest* via the link *google form* to evaluate the youth after being given education. The evaluation was carried out to see the outputs and impacts, both positive and negative, of the implementation of education with an assessment in the form of increasing knowledge before (*pretest*) to determine the extent to which the teenager mastered the material to be given and then a final assessment after being given education in the form of a *posttest*.

RESULTS

Educational activities for adolescents were carried out 3 times face-to-face meetings which were conducted online/virtually through the Zoom Meeting application with a duration of 100 minutes. The characteristics of adolescents in this community service activity based on age, gender, information exposure, sources of information, primary sex growth age, body mass index (BMI), psychosocial development and knowledge can be seen in the table below :

Table 1 Descriptive Statistics of Adolescent Characteristics by Age

Characteristics	n	Mean	Median	Min	Max
Age	20	16,45	16,5	15	18

Based on table 1, it can be concluded that the average age of adolescents who becomes adolescents in community service activities is at average age of 16.45 years with a maximum age of 18 years and a minimum age of 15 years.

Table 2 Distribution Frequency of Adolescent Characteristics by Gender, Information Exposure and Sources of Information

Characteristics	n	Criteria	Frequency	Percentage
Gender	20	Male	4	80%
		Female	16	20%
Information Exposure	20	Exposed	15	75%
		Not exposed	5	25%
Sources of Information	15	Internet	6	40%
		Social media	4	26,6%
		Parent	1	6,7%
		Teacher	3	20%
		Electronic Media	1	6,7%

Table 2 shows that most of the adolescents who participated in community service activities were adolescents with female sex as many as 16 adolescents (80%). On the characteristics of adolescents on exposure to information related to adolescent growth and development where most of the adolescents were exposed to information related to adolescent growth and development as many as 15 adolescents (75%) and as many as 5 adolescents (25%) admitted that they had never been exposed to information related to growth. and adolescent development. Sources of information related to the growth and development (fallen) of adolescents were mostly obtained through the internet as many as 6 adolescents (50%).

Table 3 Descriptive Statistics of Adolescent Characteristics by Age Primary Sex Growth Firstby Adolescents

Characteristics	n	Mean	Median	Min	Max
Age of menarche (adolescent girls)	16	12,50	13	10	15
Age of Mimp Basah (adolescent boys)	4	13,50	14	11	16

Based on table 3, it can be concluded that the average age of adolescent girls who experience menstruation for the first time (menarche) is 12.50 years with a minimum age of 10 years and a maximum age of 15 years. Then the average age for boys who first experienced a mimpi basah was 13.50 years old with a minimum age of 11 years and a maximum age of 16 years.

Table 4 Frequency Distribution of Adolescent Characteristics based on Body Mass Index (BMI)

Characteristics	N	Criteria	Frequency	Percentage
-----------------	---	----------	-----------	------------

Body Mass Index (BMI)	20	Underweight (<18,5 kg/m ²)	6	30%
		Normal (18,5-22,9 kg/m ²)	9	45%
		Overweight (23-24,9 kg/m ²)	5	25%

Based on table 4 it can be concluded that most of the adolescents are in the normal/ideal body mass index (BMI) range (18.5-22.9 kg/m²), as many as 9 adolescents (45%), as many as 6 adolescents are in the index range. body mass with the criteria of underweight/thin (<18.5 kg/m²) as many as 6 adolescents (30%) and as many as 5 adolescents (25%) was in the body mass index criteria of overweight/fat (23-24.9 kg/m²).

Table 5 Frequency Distribution of Adolescent Characteristics based on Psychosocial Development

Characteristics	n	Criteria	Frequency	Percentage
Psychosocial Development	20	Normal	18	90%
		Abnormal	2	10%

Based on table 5 it can be concluded that as many as 18 adolescents (90%) adolescent psychosocial development in the normal category and as many as 2 respondents (10%) adolescent psychosocial development in the abnormal category.

Table 6 Average Adolescent Knowledge Before and After being given Education about Falling (Growth and Development) Adolescents

Characteristics	n	Mean	Median	Min	Max
Knowledge before education	20	43,3	33,5	20	73
Knowledge after education	20	71	70	53	87

In table 6 the average knowledge of adolescents before being given education about falling (growth and development) is at an average knowledge score of 43.3 with a minimum score of 20 and a maximum score of 73. Then the average score after being given education about falling (there was a significant increase in adolescent growth and development, namely a knowledge score of 71 with a minimum score of 53 and a maximum score of 87 so that it can be concluded that the service activities carried out in the form of virtual learning through the zoom meeting application increase adolescent knowledge about the growth and development of adolescents.

DISCUSSION

Adolescence is a period of significant development starting from the onset of puberty and ending in the middle age of 20 years, involving changes in all domains of biological, cognitive, psychosocial and emotional development (Bonnie & Backes, 2019). Based on the age characteristics of adolescents in this community activity, they are at an average age of 16.45 years with a maximum age of 18 years and a minimum age of 15 years where adolescents who take part in community service activities are in their middle and late teens. adolescence). Based on gender, most of the youth who take part in community service activities are female adolescents and most of the adolescents are exposed to information related to the growth and development of adolescents where most of the information sources obtained by adolescents are through the internet so that education related to growth and development (fall). This program aims to increase adolescent knowledge about adolescent growth and development so that adolescents are provided with correct information in overcoming problems, especially those related to reproductive health and forming behavior so that they can carry out their reproductive functions responsibly and healthily and build commitments so that abuse does not occur. physical and reproductive organ function caused by physical and psychosocial changes that will have an impact on risky sexual behavior in adolescents.

Growth is defined as the occurrence of cell changes that occur in 2 (two) forms, namely an increase in cell size and or an increase in the number of cells. The accumulation of these cell changes will result in changes in body size as indicated by an increase in physical size, either in

the form of weight, height or physical appearance (Thamaria, 2017). Adolescence begins with a phase known as Puberty and puberty usually takes place at the age of 8-13 years in girls and 9-14 years in boys (Kemenkes RI, 2019). The World Health Organization (WHO) defines adolescents as individuals in the age group 10-19 years which are characterized by the appearance of secondary sex characteristics (puberty) to sexual maturity and reproductive activity (WHO, 2018). The characteristics of adolescents who participate in community service activities based on primary sex growth are that the average age of female adolescents who experience menstruation for the first time (menarche) is 12.50 years with a minimum age of 10 years and a maximum age of 15 years. Then the average age for boys who first experienced a wet dream was 13.50 years old with a minimum age of 11 years and a maximum age of 16 years. This is in line with the theory which states that girls begin to grow rapidly physically at the age of 10 years and occur the fastest at the age of 12 years. Males are 2 years slower but after that they grow 12-15 cm tall within 1 year at the age of 13 years until near 14 years old and physical growth and girls and boys are not in line with their emotional development (Kemenkes RI, 2018a).

Growth and development have an important role in forming healthy humans. A teenager whose physical growth is good will have good psychomotor development as well. Adolescence is a period of rapid growth (growth spurt) both physically and psychologically. At this time growth mainly occurs in height growth. Therefore, the nutritional intake of adolescents must be more than other ages, because their body needs increase. Often, teenage girls limit their food for fear of being fat, even though their needs are increasing (Kemenkes RI, 2019). In adolescent girls, body mass index (BMI) which is in the underweight and overweight categories can affect adolescent reproductive function and body mass index (BMI) is a risk factor that is considered to have a relationship with dysmenorrhea (Arisani, 2019). To measure the nutritional status of adolescents is used in various ways, one of which is by using the body mass index (BMI).

In this community service activity, adolescents are helped to calculate body mass index (BMI) to find out that a teenager is said to be thin, normal or overweight. Body mass index (BMI) is a simple tool or way to monitor nutritional status, especially those related to being underweight and overweight. The results of calculation of body mass index (BMI) in adolescents who take part in community service as much 9 results that teens are at a body mass index (BMI) normal (18.5 to 22.9 kg/m²) and 6 adolescents were in the range of underweight criteria (<18.5 kg/m²) and 5 adolescents were in the overweight criteria (23-24.9 kg/m²). In this community service activity, adolescents whose body mass index (BMI) is in the underweight/thin and overweight/obese ranges are given education about the nutritional needs of adolescents during their growth and development period. Adolescent diets are directly related to concerns about inadequate diet in adolescence and obesity. Therefore, adolescence is a good stage in changing diet patterns and healthy lifestyles that adolescents will maintain into adulthood (Gutiérrez-Pliego et al., 2016). Adolescence is not only a critical period for initiating and correcting many risky behaviors but can provide important opportunities for health promotion through nutrition education, especially daily eating patterns (Normayanti et al., 2020).

Risky behavior is the beginning of adolescent health problems with the characteristics of adolescent development that are seen in early adolescence in the form of a crisis due to rapid changes that cause something new and different in the physical and psychosocial aspects of adolescents. Psychosocial is a form of change from emotional, social and intellectual factors. Adolescent psychosocial development starts from the search for identity. The search for identity means the search for identity where adolescents want to know about who, what is their position and role in the environment and at the age of 12-15 years the search for self-identity is still at an early stage (Direktorat Bina Kesehatan Anak, 2016). Based on the characteristics of adolescent psychosocial development, most the adolescents psychosocial development is in the normal category. The form of impingement on the development of psychosocial behavior during puberty is irritability, difficulty following the way of thinking or feeling, a tendency to withdraw

from family or friends, prefer to be alone, oppose authority, highly expect independence, very critical of others, do not like to do housework. or school and looked very unhappy. The main task in personality development is the stage of identity formation which is expected to be achieved at the end of adolescence and if the development can be managed properly, it will have a good effect on psychosocial strength (Nurhayati, 2013).

This community service activity has been carried out for 3 (three) face-to-face meetings conducted online/virtually through the zoom meeting application with a duration of 100 minutes with the material presented during virtual learning activities including material on the growth and development (fallen) of adolescents. The nutritional needs of adolescents during growth and development and how to monitor the nutritional status of adolescents through the calculation of body mass index (BMI). During the activity, there were no significant obstacles and the adolescent was very enthusiastic about participating, discussing and asking questions about things that were not known to the adolescent regarding the material presented. The average result of adolescent knowledge before being given education about falling (growth and development) of adolescents was at an average knowledge score of 43.3 with a minimum score of 20 and a maximum score of 73. Then the average score after being given education about falling (growth and development) of adolescents there was a significant increase, namely a knowledge score of 71 with a minimum score of 53 and a maximum score of 87.

The zoom application in online learning is considered effective because learning is more flexible when using it and makes it more independent and encourages activeness and the many features in zoom make learning more interesting (Monica & Fitriawati, 2020). Zoom Cloud Meeting is the latest learning technology known as application-based electronic learning and this zoom application is very effective in the learning process (Suardi, 2020). The zoom application offers the ability to offer the ability to communicate in real time with geographically dispersed individuals via computers, tablets or mobile devices besides the zoom application has the advantage of recording and storing securely (Archibald et al., 2019). Based on the results of the evaluation of adolescent knowledge assessment in this community service activity, it can be concluded that virtual learning education about the growth and development (falling) of adolescents through the zoom meeting application can increase the score of adolescent knowledge about the growth and development of adolescents at SMA Isen Mulang, Palangka Raya City. the zoom application can be used as an alternative to education for adolescents in addition to direct or face-to-face education.

Media is important in conducting counseling for adolescents because good and interesting media will facilitate the delivery of information. Based on the results of other community services concluded that multimedia-based counseling techniques are effective in increasing knowledge about preventing sexual behavior because of the delivery of multimedia-based materials that can provide information that can be seen, heard and done (Erianti & Adila, 2019). Then the use of online media using the zoom meeting application in monitoring the consumption of blood-added tablets in adolescents shows that monitoring the consumption of blood-added tablets can be done online using the zoom meeting application (Nuriyah; et al., 2020).

CONCLUSIONS And RECOMMENDATIONS

This community service activity is carried out virtual/online through a zoom meeting application with material, including the growth and development (falling) of adolescents, adolescent nutritional needs for growth and development as well as facilitating adolescents to monitor nutritional status through calculating body mass index (BMI). The characteristics of adolescents who participate in community service activities are mostly in middle and late adolescence, female, exposed to information related to adolescent growth and development, sources of information obtained from the internet, age of menarche in adolescent girls aged 12.50 years and wet dreams in male adolescents aged 13.50 years, body mass index (BMI) was in the normal range and adolescent psychosocial development was in the normal category. Then, in adolescent knowledge, there was an increase in the average score after being given an

education which was carried out virtual/online through the Zoom meeting application. Educational activities carried out virtually/online are one of the alternative health education activities that are effective in increasing knowledge. Ongoing educational activities related to the theme of adolescent health, especially adolescent reproductive health, need to be improved regularly, considering that virtual/online education can be carried out regularly and on a scheduled basis.

ACKNOWLEDGMENTS

Thank you to the Kepala Dinas Pendidikan Provinsi Kalimantan Tengah for giving permission and recommendations for implementing community service at SMU Isen Mulang Palangka Raya. Kepala Sekolah SMU Isen Mulang Palangka Raya who has directly facilitated community service activities as well as students of SMU Isen Mulang who are participants in community service activities. Kepala Badan Pengembangan Sumber Daya Manusia Kesehatan RI through the Pusat Penelitian dan Pengabdian Kepada Masyarakat Poltekkes Kemenkes Palangka Raya which has provided the opportunity to carry out community service activities.

REFERENCES

- Archibald, M. M., Ambagtsheer, R. C., Casey, M. G., & Lawless, M. (2019). Using Zoom Videoconferencing for Qualitative Data Collection: Perceptions and Experiences of Researchers and Participants. *International Journal of Qualitative Methods*, 18, 1–8. <https://doi.org/10.1177/1609406919874596>
- Arisani, G. (2019). Hubungan Indeks Massa Tubuh (IMT), Kadar Hemoglobin dan Paparan Asap Rokok dengan Kejadian Dismenore. *Jurnal Kebidanan Midwiferia*, 5(1), 1. <https://doi.org/10.21070/mid.v5i1.2213>
- Bonnie, R. J., & Backes, E. P. (2019). The Promise of Adolescence. In *The Promise of Adolescence*. National Academies Press. <https://doi.org/10.17226/25388>
- Direktorat Bina Kesehatan Anak. (2016). *Modul Pelatihan PKPR Bagi Konselor Sebaya*.
- Erianti, S., & Adila, D. R. (2019). *Penyuluhan Berbasis Multimedia dalam Mencegah Perilaku Seks pada Remaja di SMU Negeri 11 Pekanbaru*. 3(2), 139–145.
- Gutiérrez-Pliego, L. E., Del Socorro Camarillo-Romero, E., Montenegro-Morales, L. P., & De Jesus Garduño-García, J. (2016). Dietary patterns associated with body mass index (BMI) and lifestyle in Mexican adolescents. *BMC Public Health*, 16(1), 1–7. <https://doi.org/10.1186/s12889-016-3527-6>
- Kemenkes RI. (2018a). *Petunjuk Teknis: Penggunaan Buku Rapor Kesehatanku*. Kementerian Kesehatan.
- Kemenkes RI. (2018b). *Survei Demografi dan Kesehatan Indonesia: Kesehatan Reproduksi Remaja*.
- Kemenkes RI. (2019). *Bacaan wajib untuk jadi # GenerasiAnti Lowbatt*. https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Remaja-Sehat-Penuh-Gizi_1520.pdf
- Monica, J., & Fitriawati, D. (2020). Efektivitas Penggunaan Aplikasi Zoom Sebagai Media Pembelajaran Online Pada Mahasiswa Saat Pandemi Covid-19. *Jurnal Communio: Jurnal Jurusan Ilmu Komunikasi*, 9(2), 1630–1640. <https://doi.org/10.35508/jikom.v9i2.2416>
- Normayanti, Suparyatmo, J. B., & Prayitno, A. (2020). The effect of nutrition education on body mass index, waist circumference, mid-upper arm circumference and blood pressure in obese adolescents. *Electronic Journal of General Medicine*, 17(5). <https://doi.org/10.29333/ejgm/7884>
- Nurhayati, T. (2013). Perkembangan Perilaku Psikososial Pada Masa Pubertas. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.
- Nuriyah, Asyikin, A., & Wardani, H. A.; (2020). *Pemberdayaan Siswa dalam Upaya Peningkatan Prestasi Belajar melalui Edukasi Pentingnya Tablet Tambah Darah pada Remaja Putri di SMP Negeri 3 Kota Makasar*. 1(2), 12–14.
- Suardi. (2020). The Effectiveness of Using the ZOOM Cloud Meetings Application in the

- Learning Process. *Proceeding of The International Conference on Science and Advanced Technology (ICSAT)*, 590–602.
- Thamaria, N. (2017). *Bahan Ajar Penilaian Status Gizi*. Pusat Pendidikan Sumber Daya Manusia Kesehatan Badan Pengembangan dan Pemberdayaan SDM Kesehatan Kemenkes RI.
- WHO. (2018). Handout for Module A Introduction. In *Department of Child and Adolescent Health and Development*.
- Wulandari, A. (2014). Karakteristik Pertumbuhan Perkembangan Remaja dan Implikasinya terhadap Masalah Kesehatan dan Keperawatannya. *Jurnal Keperawatan Anak*, 2(1), 39–43.

APPENDIX



Figure 1. Adolescent Growth and Development Educational Activities

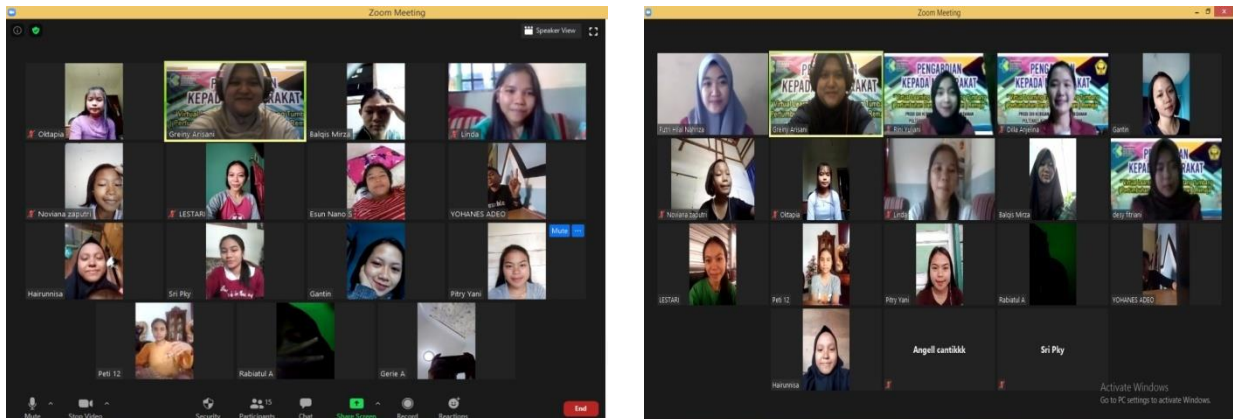


Figure 2. Adolescent Growth and Development Educational Discussion Activities