



Improving Teenage Awareness of Healthy Behavior by Mapping Adolescent Programming and Measurement (MAPM) Framework

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Abstract

The improvement of healthy behavior awareness of teenagers is still a serious concern. There are three major problems in teenage: sexuality, drugs, and addictive substance and sexually transmitted diseases, especially HIV and AIDS. Among steps that can be taken to build teenage awareness to have healthy behavior is by applying Mapping Adolescent Programming and Measurement (MAPM) Framework. The objective of the research is to build an MAPM Framework model and obtaining a description of its effectiveness as an effort to improve teenage awareness of healthy behavior. The research conducted at Walisongo Kedungwuni Islamic Junior High School. Samples are students that have problem as mapped and measured from MAPM. A non-randomized one group pre-test- post-test design was implemented in this study. The results indicate that attitude towards counseling, cigarette, juvenile delinquency, smoking attitude, attitude towards drugs, and premarital sex after the application of the MAPM positively changed (p -value $< 0,05$). The attitude and behavior of students were improved. Teenage awareness of healthy behavior significantly increases (p value= 0,000) after the application of the MAPM framework. Further discussion will be discussed in the article below.

Introduction

Nowadays, more than half of world populations are below 25 years old, and 29% are between 10-25 years old. In Indonesia, the population relatively dominated by a young age. The population of young age in Indonesia is above 63 million, while the teenage population is more than 41 million. This is the reason of the teenage group required quite much attention. WHO defines the teenage period as the development period from the occurrence of secondary sexual sign towards the mature fo sexual and reproduction function, an achievement process of adult's mental and identity, as well as the shifting from socioeconomic dependence to independence (Hoover, Tao, Berman, & Kent, 2010).

A large number of teenagers with

increasingly complex issues should be concerned, whether by government, community, religious organizations, social, private, and education institutions (Mbizvo & Zaidi, 2010). The main concern is related to teenage behavior that tends to risk one. To become a quality generation, teenagers must be able to avoid and overcome complex adolescence problems along with the transition period (Daniels Ugochi, 2007). Thus, the teenagers need to be educated with knowledge and skills regarding reproduction health, includes the basic of three risks in teenage period - Teenage Reproduction Health (sexuality, HIV & AIDS, drugs and addictive substance), so that the adolescent be more responsible both on reproduction and environment (Kennedy, Gray, Azzopardi, & Creati, 2011; Muadz et al., 2008; Williams,

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Mullen Stephanie, Karim Ali, & Jessica., 2007).

Awareness of healthy behavior in adolescents is still lacking, this is indicated by the many health problems caused by risk behaviors in adolescents. The high risk behavior in adolescents is shown because of the unstable nature of adolescents, who still want to try something new, their high curiosity, limited adolescents' health knowledge, low moral values, and negative environmental conditions. Previous studies shows that health problems that occur in adolescents include smoking, drinking alcoholic beverages, drug abuse, engaging in risky sexual relations, fighting, and other unhealthy behaviors. For this reason, adolescent awareness is really needed to be improved to improve healthy life behaviors in adolescents so that they can create young and healthy and quality generations (Pratiwi, 2013).

This research contributes to increasing adolescent awareness in healthy behavior. Increased awareness of adolescents is an increase in the recognition skills of the dangers / health effects that can be caused if they do not maintain healthy behavior, able to recognize the factors that can cause hazards/health impacts that occur, able to identify what they must do to improve health in accordance with the abilities of those who are helped by the school. So they can foster awareness of healthy behavior in their daily lives.

Based on data from the Directorate of Teenage and Protection on Reproduction Right (2010), a number of teenagers age 10-19 years old are 43 million or 19.6% of the population and age 10-24 years are 60 million. 30.9% of male teenage and 34.7% of female teenage (15-19 years old) said that has a friend who had sexual intercourse experience (SI). While 8% of males age 15-24 years old had used drugs. A number of premarital SI on Jabotabek (Jakarta, Bogor, Tangerang, and Bekasi) is 51%, Bandung is 54%, Surabaya is 47%, and Medan is 52%. As many as 2.5 million abortion cases are recorded annually, with 27% of those are teenagers. For HIV/AIDS cases of 8194 infected, 54.7% are age 20-29 years old.

Juvenile delinquency and issues regarding teenagers are increasing in Central Java (Azmiyati, Cahyati, & Handayani, 2014). The trend is not only in the main urban region but

also spreads to the districts. Based on interview with the school representative, the headmaster of Walisongo Islamic Junior High School at Subdistrict Kedungwuni, the juvenile/student delinquency related to the habit of truanting, brawling and smoking; its are have become a general case. The students make a habit of smoking and brawling outside of the school area. Besides, from the initial observation, the guidance and counseling program at Walisongo Islamic Junior High School has not to function maximally. There are guidance and counseling room, yet does not well organized and utilized as a warehouse, as so does not comfortable for the program.

To avoid and overcome teenage problems, support and assistance needed, whether from parents, environment, education institution, and government as well (Burnhams, Dada, & Myers, 2012). However, one thing that should be remembered is the awareness of the individual itself. To actualize those all, certainly there will be many problems and challenges to be faced by all stakeholders, thus strong cooperation is required (Kothari et al., 2011). Viewing from cases happened, an effort is required to build teenage awareness of healthy behavior. It is not only in terms of motivation or willingness to have healthy behavior but also to implement it in daily life (Burnhams, Dada, & Myers, 2012; Kothari et al., 2011; Montgomery, Sanning, Litvak, & Peters, 2014).

It has been a common consciousness that behavior is one health determinant that becomes a target of the promotion to change it. The change towards healthy behavior as the objective of health promotion or education, at least consists of three dimensions: (1) To alter negative behavior (unhealthy) to positive (aligned with health values), (2) To develop positive behavior (the building or developing of healthy behavior), (3) To conserve positive behavior or behavior that has been aligned with health values/norms (healthy behavior) by stating to conserve current healthy behavior. One behavior can be changed if there is a disproportion between the two power within oneself. It is obligated to take a strategic step to overcome the problem immediately; thus, the next generation of the nation can be saved. The step can be taken to develop the teenage

awareness to have healthy behavior, one of it is by implementing Mapping Adolescent Programming and Measurement (MAPM) Framework method.

Previous study of MAPM framework method implementation is still rare. emphasizes the identification of health effects that have been happened in a group of communities, like in a school. The elements of MAPM Framework consist of health outcomes, behaviors, determinants and interventions. The completion of health outcomes on this method is through the framework of behaviors mapping affecting health outcomes, factors that influence the behavior, affects, health outcomes, and then determine proper intervention to solve, control, or overcome the factors. As so, to improve teenage awareness of healthy behavior, then the implementation of the MAPM Framework is important to be done in order to solve the health problem that occurred. The improvement of teenage awareness of healthy behavior will be able to increase life quality as the nation next generation, high achievement, and healthy physically and spiritually as the avoidance of three risks in the teenage period - Teenage Reproduction Health (sexuality, HIV & AIDS, drugs, and addictive substance).

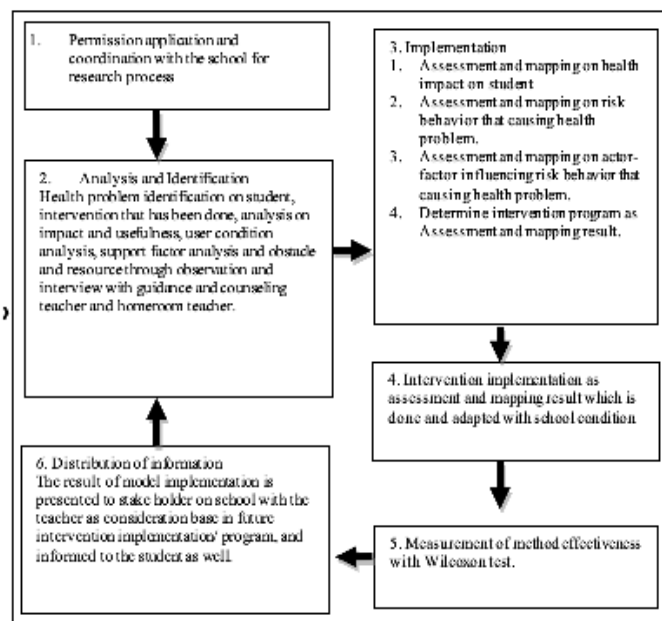
Method

The population in this research is 33

students in Walisongo Islamic Junior High School at Kedungwuni Subdistrict, District Pekalongan. The students who involved in this study are classes that have problem based on data from guidance and counselling teacher. Inform consent have been issued and sign in voluntariry. This research is *Quasi Experiment with Non Randomized One Group Pre-test-Post-test Design*. The measured variables are attitude to the importance of guidance and counselling, juvenile delinquency, attitude to smoke, smoking behavior, attitude to drugs, premarital sex.

The implementation of MAPM is conducted by a) assessment and mapping of health effect on students, b) assessment and mapping of risk behaviors resulting the health problems, c) assessment and mapping of factors influencing risk behaviors resulting the health problems, d) determine an intervention program aligned with the assessment and mapping result and school ability. The phases of MAPM Framework research can be viewed on Picture 1.

Research instruments are observation checklist, interview guide and questionnaire. The data is analyzed by univariate analysis (research result data is described in table, graphic and naration) and bivariate analysis is used to find out method effectiveness, which is before



Picture 1. Flow Chart of Research Implementation

and after the implementation of the method by Wilcoxon statistic test. The research was conducted with coordination and permission application to the school, then followed by the interview with the headmaster and three homeclass teacher of Walisongo Islamic Junior High School, Kedungwuni, regarding the problems and efforts have been done by the school in order to increase teenage awareness of healthy behavior. The research has approval status by the institutional review board of health research ethics commission in Semarang State University.

Result and Discussion

Walisongo Islamic Junior High School is one of the junior high schools in District Pekalongan that has values on religion. It was established by a foundation under the Republic of Indonesia Education and Cultural Office and lead by a headmaster. Walisongo Islamic Junior High School consists of 15 classes with a number of students around 525 students, 56 teachers, and two school security. The school has 2 canteens, classrooms that being functioned as multifunctional rooms, including as School Health Unit (SHU).

The interview results showed that several health problems experienced by the students are stress, less enthusiastic when follows the lesson, sometimes some students often faint in the class, and during the lesson, the students are often sleepy. According to teacher explanation, the fainted students usually caused by a lack of awareness to have breakfast and aligned with the student's nutrition and less fit condition. Material debriefing regarding students' ways to solve the problem, whether at school nor home, is insufficient.

The counseling teacher only serve when there is a students that have problems. The material shared in the counseling class is one that related with behavior in daily life and directing the interest and talent of the student. Regarding the solving of health problem occurred at school is handed over to homeclass teacher of each student, only then when the homeclass teacher is unable to overcome, it will be escalated to school stake holder.

The intervention that has been done at school-related with the improvement of teenage awareness of healthy behavior is still

on the basic phase, by carrying on Sunday clean program once a month and scheduled classroom cleaning picket. The material shared in the guidance and counseling class is one that related with behavior in daily life, directing the interest and talent, handling of problem student.

Noble values that implemented in the school is modesty, togetherness, and mutual assistance. Student activity after school hour helps the parent, hanging out with friends and extracurricular activity. When the school finds out that there is a problem student, it tries to assist the student; then the student will be coached and, if necessary, followed up by calling the parent. Some students actively consult with guidance and counseling teachers, while others may keep the problem themselves.

Obstacle factor in the effort to improve student awareness to have healthy behavior is the lack of student awareness of health, this is due to lack of teacher's understanding in health matter. As so, the students are rarely exposed with health material they need. Meanwhile, the factor that supports the effort to improve student awareness of healthy behavior is the existence of the MoU with region's community health service center (CHSC), CHSC Kedungwuni I. It should be a real opportunity for the school to improve and distribute health-related material to the students regularly. Unfortunately, cooperation has not adequately managed. It can be viewed by insufficient health socialization on the school, health information media, etc. When an activity being held, it was a curative type.

Information obtained from the questionnaire that there is not any health attendant/cadre, a room designed for consultation of a problem student, nor sick while at school. Some utility available, like weigh scaling, microtoa, first aid kit box, and sports facility. However, posters, leaflets, nor health information media are not available. There is a fund for activity, yet does not particularly for SHU. Guidance and counseling service is conducted on multifunction rooms, as well as SHU activity though the room is not feasible for it. SHU service does not make always available every day, and no dedicated teacher is assigned. The room is more likely an

unpreserved warehouse. As so, the activities are not maximal.

The research is conducted on 33 students; the selection on the student is based on recommendation from home class teachers, which are having criteria that the students had a problem-related to drugs and premarital sex. The students need to be motivated to overcome the problem, whether at school or home.

Table 1. Research Subject Characteristics

Gender	Person	%
Male	23	69.70
Female	10	30.30
Total	33	100

Source: Primary Data, 2020

Implementation of mapping adolescent programming and measurement (MAPM) framework Method.

Table 2. Health impact on Walisongo Islamic Junior High School students

Variable	Average Value
Attitude to the importance of guidance and counselling	79.7
Juvenile delinquency	75.2
Attitude to smoke	65.2
Smoking behavior	68.7
Attitude to drugs	90.2
Premarital sex	81.4
Teenage Awareness of Healthy Behavior	75.5

Source: Primary Data, 2020

Research result and mapping health impact occurred to the students can be viewed from Table 2, lowest score is at students attitude to smoke (65.2) and smoking behavior (68.7). Risk behavior generating health problem is poor awareness of the students to follow the guidance and counseling program and describe the problem they faced whether to the teacher or friends (another student), and the problem students are less selective in choosing friends, so they follow to smoke. Factors influencing risk behavior generating health problem is lack of information and motivation to students is due to inadequate information and motivation

to the students regarding the health to support the student to improve the teenage awareness of healthy life (Kothari et al., 2011).

Intervention give to the students to improve teenage awareness of healthy behavior is by giving information and motivation regarding healthy and quality teenage. The material of healthy teenage consists of "who is healthy and quality teenage," Teenage and problems (smoking, drugs). The media used is power point presentation and exciting video. The method used in giving the material is presentation and question and answer session and sharing and discussion that allows the students to express their opinion to provoke their awareness to behave healthier for better and quality future.

The intervention that will be implemented is discussed with the school representatives. After it is approved, then it can be implemented soon. The consideration used to determine the intervention are school ability and program sustainability. The role of outside school party, like a researcher, is to contribute to required ideas. Also, facilitation to assist the school in determining necessary policy and alignment with school ability, like providing facility so that health attendants could conduct proper system and performance (Siyam, 2013; Siyam & Cahyati, 2018). So, it is determined to intervene information sharing and motivation to be a health and quality teenage. Below is the table resulted from Wilcoxon for each research variables before and after to improve teenage awareness of healthy behavior.

The result of Wilcoxon analysis indicates that result of all variables, which are attitude to the importance of guidance and counselling, juvenile delinquency, attitude to smoke, smoking behavior, attitude to drugs and premarital sex after the implementation of MAPM framework, is improved significantly (p -value <0,05), the attitude and behavior of the students are better or positive. Teenage awareness of healthy behavior significantly increases (p value= 0,000). Highest delta values on Smoking behavior (22,60%), the lowest delta value on Attitude to drugs (8,30%).

Implementation of the MAPM Framework method in schools has contributed positively to raising awareness of students

Table 3. Data process result before and after MAPM method implementation at Walisongo Islamic Junior High School

Variable	Characteristics			
	Mean (%)			<i>p-value</i>
	Pre	Post	delta	
Attitude to the importance of guidance and counselling	79.7	88,4	8.70	0,000
Juvenile delinquency	75.2	89.1	13.90	0,000
Attitude to smoke	65.2	85.1	19.90	0,000
Smoking behavior	68.7	91.3	22.60	0,000
Attitude to drugs	90.2	98.5	8.30	0,014
Premarital sex	81.4	92.5	11.10	0,001
Teenage awareness of healthy behavior	75.5	87.2	11.70	0,000

Source: Primary Data, 2020

in healthy behavior. The elements of success in the implemented MAPM framework in schools were consisted of health outcomes, behaviors, determinants, and interventions. The implementation of the MAPM framework is essential to solve the health problems that occur, also to increase adolescent awareness of healthy behaviors. The increasing adolescents' awareness of healthy behaviors will improve their quality of life, high physically and spiritually health dimension.

Behavior is one of the health determinants targets to change (Shin & Rew, 2010). Changes in healthy behavior as a goal of promotion of health education in schools consists of three dimensions: (1) changing negative (unhealthy) behavior into positive, (2) developing positive/healthy behaviors, and (3) preserving positive behaviors that are in accordance with school norms. In accordance with the results of the study, steps that can be taken to develop adolescent awareness to have healthy behavior is to implement MAPM Mapping and Measurement methods (Naomi A, 2010).

The education regarding prevention of drugs misuse at school based, become important to avoid students from the jeopardy of drugs misuse. Not only from doctor or health attendant, but also from student and parent, in this case caregiver and teacher, as well as government should be together in fight against drugs. The health attendant is highly required in assisting education in school regarding

the jeopardy of drugs misuse (Mensink, Schwinghammer, & Smeets, 2012).

Proper health service such as consultation/counseling center is important to them having a problem in substance misuse (alcohol, drugs, and smoke) (Burnhams et al., 2012). Counseling can also be useful for them who willing to know how to prevent and avoid substance misuse (Wijaya, Agustini, & Tisna, 2014). Fast service is necessary for them who have followed to try prohibited substances. They must be counseled so that they do not furtherly involve and finally difficult to be controlled (McCarty et al., 2014).

Creating student's perception or for them who like to improve toward the service school given is highly important, since without believe and faith that they can be better will be very difficult to make them truly change (Montgomery et al., 2014). Health education particularly in avoiding prohibited substances misuse could be an option in developing sense of needing to the students regarding the jeopardy and risk in it (Kothari et al., 2011).

School role and proper method to overcome teenage problem is very required by the student to guard themselves from environment influence and improper friendship (Laski & Wong, 2010). Teenage period is a susceptible time due to high curiosity (Telfair, Alleman-Velez, Dickens, & Loosier, 2005). Drugs usage in school nowadays is beginning to increase, more often in big cities. Environment and mobility that supporting drugs distribution

lately, make school is a strategic target for drugs distribution. Assessment and mapping of health problem in school will facilitate the school to find alternative of solution as school ability. Proper intervention program with requirement dan ability of the school will make the program sustainable (van den Berg, Mikolajczak, & Bemelmans, 2013).

Conclusion

The results indicated that attitude towards counseling, cigarette, juvenile delinquency, smoking attitude, attitude towards drugs, and premarital sex after the application of the MAPM was positively changed (p -value <0,05). The attitude and behavior of students were improved. Teenage awareness of healthy behavior was significantly increased (p value= 0,000) after the application of the MAPM framework. Attitude and behavior of students are positively changed. Teenage awareness of healthy behavior significantly increase after the implementation of MAPM framework method.

References

- Azmiyati., Cahyati, W.H., & Handayani, O.W.K., 2014. Gambaran Penggunaan NAPZA pada Anak Jalanan di Kota Semarang. *Jurnal KEMAS*, 9(2),pp.137-143.
- Burnhams, N.H., Dada, S., & Myers, B., 2012. Social Service Offices as a Point of Entry Into Substance Abuse Treatment for Poor South Africans. [Comparative Study] Research Support, Non-U.S. Gov't. *Subst Abuse Treat Prev Policy*, 7(22).
- Daniels, U., 2007. Improving Health, Improving Lives: Impact of The African Youth Alliance and New Opportunities for Programmes. *African Journal of Reproductive Health*, 11(3), pp.234-248.
- Hoover, K.W., Tao, G., Berman, S., & Kent, C.K., 2010. Utilization of Health Services in Physician Offices and Outpatient Clinics by Adolescents and Young Women in the United States: Implications for Improving Access to Reproductive Health Services. *Journal of Adolescent Health*, 46(4),pp.324-330.
- Kennedy, E., Gray, N., Azzopardi, P., & Creati, M., 2011. Adolescent Fertility and Family Planning in East Asia and The Pacific: A Review of DHS Reports. *Reprod Health*, 8(11).
- Kothari, D., Gourevitch, M.N., Lee, J.D., Grossman, E., Truncali, A., Ark, T.K., & Kalet, A.L., 2011. Undergraduate Medical Education in Substance Abuse: A Review of the Quality of the Literature. *Acad Med*, 86(1), pp.98-112.
- Laski, L., & Wong, S., 2010. Addressing Diversity in Adolescent Sexual and Reproductive Health Services. *International Journal of Gynecology & Amp; Obstetrics*, 110, Supplement(0),pp. S10-S12.
- Mbizvo, M.T., & Zaidi, S., 2010. Addressing Critical Gaps in Achieving Universal Access to Sexual and Reproductive Health (SRH): The Case for Improving Adolescent SRH, Preventing Unsafe Abortion, and Enhancing Linkages between SRH and HIV Interventions. *International Journal of Gynecology & Amp; Obstetrics*, 110, Supplement(0),pp.S3-S6.
- McCarty, D., Braude, L., Lyman, D.R., Dougherty, R.H., Daniels, A.S., Ghose, S.S., & Delphin-Rittmon, M.E., 2014. Substance Abuse Intensive Outpatient Programs: Assessing the Evidence. *Psychiatr Serv*, 65(6),pp.718-726.
- Mensink, F., Schwinghammer, S.A., & Smeets, A., 2012. The Healthy School Canteen Programme: A Promising Intervention to Make The School Food Environment Healthier. *J Environ Public Health*, 2012, pp.415746.
- Montgomery, L., Sanning, B., Litvak, N., & Peters, E.N., 2014. Preliminary Findings on the Association Between Clients' Perceived Helpfulness of Substance Abuse Treatment and Outcomes: Does Race Matter? Multicenter Study Randomized Controlled Trial Study. *Drug Alcohol Depend*, 139, pp.152-158.
- Muadz, M.M., Fathonah, S., Syarbaini, Mardiana, N., Utomo, B., & Salamah, U., 2008. *Modul dan Kurikulum Pelatihan Pemberian Informasi Kesehatan Reproduksi Remaja Oleh Pendidik Sebaya*. Jakarta: BKKBN.
- Naomi A.S., 2010. Confidentiality and Access to Adolescent Health Care Services. *Journal of Pediatric Health Care*, 24(2),pp.133-136.
- Shin, Y., & Rew, L., 2010. A Mentoring Program for the Promotion of Sexual Health Among Korean Adolescents. *Journal of Pediatric Health Care*, 24(5),pp.292-299.
- Siyam, N., 2013. The Facilitation of KD-RS and W2 DHF Report to Improve DHF Surveillance Report. *KEMAS Journal*, 8(2).
- Siyam, N., & Cahyati, W.H., 2018. Implementation of School Based Vector Control (SBVC) for the Prevention and Control of Disease Vectors in Schools. *Media Kesehatan Masyarakat Indonesia (MKMI)*, 14(1).
- Telfair, J., Alleman-Velez, P.L., Dickens, P., & Loosier, P.S., 2005. Quality Health Care for

- Adolescents with Special Health-Care Needs: Issues and Clinical Implications. *Journal of Pediatric Nursing*, 20(1),pp.15-24.
- Van den Berg, S.W., Mikolajczak, J., & Bemelmans, W.J., 2013. Changes in School Environment, Awareness and Actions Regarding Overweight Prevention Among Dutch Secondary Schools Between 2006-2007 and 2010-2011. *BMC Public Health*, 13,pp.672.
- Wijaya, I.M.K., Agustini., & Tisna, G.D., 2014. Pengetahuan, Sikap, dan Aktivitas Remaja SMS dalam Kesehatan Reproduksi Di Kecamatan Buleleng. *Jurnal KEMAS*, 10(1),pp.33-42.
- Williams, M.S., Karim, A., & Jessica, P., 2007. *Evaluation of The African Youth Alliance Program in Ghana, Tanzania, and Uganda, Impact on Sexual and Reproductive Health Behavior Among Young People* (A. Devison, Trans.). New York: United Nations Population Fund, UNFPA.