



Analysis of factors related to adolescent role and behavior in preventing transmission: Covid-19 viewed from predisposing, enabling, reinforcing and environmental factors

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ABSTRACT

Infectious diseases often result in increased morbidity and mortality, as well as during the Corona Virus Disease-19 (Covid-19) pandemic. Children and adolescents are one of the groups at risk for transmission. Transmission of covid-19 in children and adolescents is not too much. This is due to factors related to the behavior of adolescent to prevent the transmission of covid-19. This study aims to analyze factors related to the role and behavior of adolescents in preventing the transmission of covid-19 in terms of predisposing, enabling, reinforcing and environmental factors. The research method is observational with a cross sectional design. The population is adolescents aged 10 - 21 years in Bareng and Tanjungrejo Sub-Districts, Malang City with a total of 551 people. Samples were taken by simple random technique of 139 respondents. Data analysis used linear regression test. Results: role strengthening factors include predisposing, enabling, reinforcing and the environment significantly influence adolescent behavior in preventing transmission of Covid-19 with a value (P-value) $< \alpha = 0.05$. This shows that all the factors tested are related to the behavior of adolescents to comply in implementing health protocols. The role and behavior of adolescents in preventing infectious diseases needs to be continuously strengthened by various relevant factors so that they can actively participate in preventing its transmission and spread.

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ABSTRAK

Penyakit menular sering mengakibatkan meningkatnya angka kesakitan dan kematian, demikian juga pada masa pandemi Corona Virus Disease-19 (Covid-19). Anak dan Remaja adalah salah satu kelompok yang berisiko untuk terjadinya penularan. Penularan covid-19 pada anak dan remaja adalah sedikit. Hal ini disebabkan adanya faktor yang berhubungan dengan perilaku remaja untuk melakukan pencegahan penularan Covid 19. Tujuan penelitian melakukan analisis faktor yang berhubungan dengan peran dan perilaku remaja dalam pencegahan penularan covid-19 ditinjau dari faktor predisposing, enabling (pendukung), reinforcing (pendorong) dan Lingkungan. Metode penelitian adalah observasional dengan desain cross sectional. Populasi adalah remaja usia 10 - 21 tahun di Kelurahan Bareng dan Tanjungrejo Kota Malang sejumlah 551 orang. Sampel diambil dengan teknik acak sederhana sejumlah 139 responden. Analisis data menggunakan uji regresi linier. Hasil: faktor predisposing, pendukung, pendorong dan lingkungan berpengaruh secara signifikan terhadap perilaku remaja dalam pencegahan penularan Covid-19 dengan nilai (P-value) $< \alpha = 0,05$. Hal ini menunjukkan bahwa semua faktor yang diuji, berhubungan dengan perilaku remaja untuk patuh dalam

mengimplementasikan protokol kesehatan. Peran dan perilaku remaja dalam pencegahan penyakit menular perlu terus menerus dikuatkan dengan berbagai faktor yang relevan agar mereka dapat partisipasi aktif dalam mencegah penularan dan penyebarannya.

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INTRODUCTION

Children and Adolescent are national assets, they are central figures in the development of the nation in the future. Indonesian teenagers and young people aged 12-19 years and 19-25 years are the millennial generation and the golden generation towards Golden Indonesia 2045. They are the spearhead of leadership for Golden Indonesia 2045. Teenagers, now and in the future must be able to take an important role to healthy himself, others, society and the nation. In the hands of millennial youth, the future life of the nation will continue. In this regard, it is important to conduct research on factors related to adolescent behavior in preventing disease transmission during the Corona Virus Disease (Covid) 19 pandemic. The covid-19 pandemic is not over. Adolescents still need to comply with health protocols to be healthy and safe from illness or death from Covid-19.

Adolescents are one of the groups affected by the Covid-19 pandemic, although in particular this group is rarely referred to as a group that is vulnerable to the spread and transmission of Covid-19. Covid-19 can attack living things such as humans and animals, where in humans it causes infection of the respiratory tract which is characterized by general symptoms such as mild flu, cough, runny nose, and diarrhea (Rompas et al., 2020). Covid-19 can be transmitted through small droplets in the air, through respiratory droplets, and direct contact with contaminated surfaces (Morawska et al., 2020).

Data on world covid cases in 2022 according to WHO, confirmed cases were 640,395,651, deaths were 6,618,579 and the mortality rate was 1.0%. In Indonesia, as of December, there were 48,140 active cases (0.7%) of Covid sufferers, in the last 1 week there was an increase in cases of >2x (1,409 vs 3,028). This week, 21 provinces experienced an increase in cases, 3 provinces were stable, and 10 provinces experienced a decrease in cases (Covid-19 Hotline). Referring to this data, Covid-19 is not over, so the implementation of health protocols must continue. One of the important role holders in implementing health programs is teenagers

This is in accordance with what was described by UNICEF Indonesia that since the beginning of the Covid-19 pandemic, the health and non-health impacts on young people have proven significant (Compact for Young People in Humanitarian Action, 2020). The impact related to Covid 19 is important to understand because teenagers are the next generation of the nation. Besides understanding the impact of Covid 19, it is also important to know the role of youth in preventing the spread and transmission of Covid 19 because the future of the nation is in their hands. This is in accordance with what UNICEF stated that it is important for young people to create the right solutions in response to a pandemic, because Covid 19 will continue even after the pandemic ends (Compact for Young People in Humanitarian Action, 2020). This is also in line with Prawoto et al. (2020) that youth as leaders play an important role in preventing infectious disease, especially Covid-19.

The role and responsibility of adolescents in preventing the spread and transmission of Covid 19, which is important is how they comply with health protocols, including using masks, washing their hands regularly, keeping their distance, staying at home and others according to policies set by the government. This is in accordance with the guidelines that prevent the transmission and spread of Covid 19 by means of, among others, wearing masks, washing hands with soap and always maintaining personal hygiene by bathing, maintaining physical and social distancing, and increasing body immunity (Yurianto et al., 2020) and the Ministry of Health of the Republic of Indonesia; Healthy Living Community Movement (Germas), 2020)

The Precede-Proceed model is a road map model and a theory of behavior change as a specific direction to achieve a goal. The Road Map presents all possible roads. In the latest version of the model, Green and Kreuter apply theories and concepts systematically for the planning and evaluation of health behavior change programs (Green and Kreuter, 2005 in Glanz et al., 2008).

A role is a set of socially expected behavior patterns related to one's function in different social groups. Role is the expectation by other people towards someone according to their position in a particular system or social situation. Role is something that someone does in accordance with the expectations of society. This study takes the theme of strengthening the role of adolescents in preventing and transmitting Covid-19 in terms of predisposing, enabling, reinforcing and environmental factors.

METHODS

The research method is observational with a cross sectional design. The population were adolescents aged between 10 - 21 years in two neighborhood associations (RW) Bareng and Tanjungrejo sub-districts, Malang City with a total of 551 people. Samples were taken by simple random technique of 139 respondents. Data analysis was performed using a linear regression test. This study aims to analyze the factors that strengthen the role of youth in preventing the transmission and spread of Covid-19 in terms of predisposing, enabling, reinforcing and environmental factors. The instrument used the Google Form which was distributed to respondents after they agreed. Analysis of the influence of independent variables on the dependent variable using linear regression analysis. Research pays attention to research ethics including ethical clearance, informed consent, anonymity and confidentiality. The involvement of adolescents as research respondents must obtain parental approval. The research was carried out after obtaining ethical approval and being declared ethically feasible from the Health Research Ethics Commission (KEPK).

RESULTS

Table 1 Characteristics of Adolescents

Characteristics of Adolescents		Total	
		n (139)	Percentage (%)
Age	10 – 12 years	24	17.3
	13 – 15 years	34	24.5
	16 – 18 years	39	28.1
	> 18 years	42	30.2
		139	100 %
Gender	Male	57	41 %
	Woman	82	59 %
Religion	Islam	130	93.5 %
	Christian	8	5.8 %
	Trust	1	.7 %
		139	100 %
Education	Elementary school	17	12.2 %
	Middle school	36	25.9 %
	high school	44	31.7 %
	College	27	19.4 %
	Not in school/graduated	15	10.8
	TOTAL	139	100 %

Based on table 1 it is known that the most age is in the late adult group (> 18 years) (30.2%), the most sex is female (59%), the majority religion is Islam (93.5%), and the most education is high school (31.7%).

The results of the descriptive analysis related to the research variables were carried out with the aim of knowing the qualifications of the variables being measured. The

results of the analysis of independent variables include the factors of Predisposing, Reinforcing, Enabling and Environment, as well as the dependent variable Adolescent behavior which describes adolescent compliance in implementing health protocols as shown in Tables 2 and 3.

Table 2. Predisposing, Reinforcing, Enabling and Environmental Factors as Strengthening Factors Adolescent Role

Role Reinforcing Factors Category		n (139)	Percentage (%)
Predisposing Factor	Well	118	84,9 %
	Enough	20	14,4 %
	Not enough	1	0,7 %
		139	100 %
Reinforcing Factor	Well	117	84,2%
	Enough	21	15,1%
	Not enough	1	0,7 %
		139	100 %
Enabling Factor	Well	107	77%
	Enough	30	21,6%
	Not enough	2	1,4%
		139	100 %
Environment Factor	Well	107	77%
	Enough	31	22,3%
	Not enough	1	0,7 %
		139	100 %

Table 3 Descriptive Analysis of Adolescent Behavior in Preventing Transmission of Covid-19

Variable	Total (n =139)	
	Frequency	Percentage
Compliance related behavior (Y)	Bad behavior / disobedience	4 2.9 %
	Moderately good behavior / moderately obedient	42 30.2 %
		93 66.9 %
		139 100 %

Based on table 2 it is known that all predisposing, reinforcing, enabling and environmental factors are related to adolescent behavior in preventing covid-19, the majority are in the good category more than (75%) of respondents. Predisposing factors includes: values, knowledge, attitudes, and beliefs. Reinforcing factors includes: available health facilities, competence of health workers and attitudes of health workers. Enabling factors include: bring, teachers, parents, responsive, friends, community leaders. Environment factors includes: the environment outside the home, community and at home.

Based on table 3, it is known that the behavior of adolescents in RW 2 (Bareng) and RW 9 (Tanjungrejo) Subdistrict Malang City in implementing health protocols which describes the majority of their compliance (66.9%) is in the good/compliant category. Only a small proportion of teenagers whose behavior is bad or disobedient (2.9%). Adolescent compliance was measured based on 7 adolescent

behaviors (7-M) in implementing health programs including: always using masks properly, washing hands, maintaining physical distance, avoiding crowds, reducing physical mobility, increasing body immunity and vaccines.

For the purpose of answering the hypothesis, each independent variable including factors strengthening the role of youth was tested for its effect on adolescent behavior related to obedience or compliance in implementing health protocols in the framework of preventing Covid-19. For the purposes of analyzing the influence of independent and dependent variables, the type of data used is interval data. Test analysis used linear regression to determine the effect or relationship between the independent variables predisposing, enabling, reinforcing and Environment on the dependent variable of adolescent behavior which describes their compliance in implementing health protocols during a pandemic. The results of the analysis are as in table 4

Table 4 Results of Analysis of Predisposing, Reinforcing, Enabling and Environment Variables on Adolescent Behavior Variables Related to Compliance in the Implementation of Health Protocols

No	Variable	R	R Square	F	P-value
1.	Predisposing Factor	0.841	0.707	330.264	.000
2.	Enabling Factor	0.470	0.221	38.873	.000
3.	Reinforcing Factor	0.265	0.070	10.336	.002
4.	Environment Factor	0.299	0.090	13.469	.000

Based on Table 4 it is known that all the independent variables (Predisposing, Reinforcing, Enabling and Environment) have a significant effect on the dependent variable (Adolescent behavior related to adherence in the Implementation of Health Protocols with $p = 0.000 < \alpha = 0.05$). This shows that all the factors tested, can support or strengthen the behavior of adolescents to comply in implementing health protocols as a form of their role in preventing and spreading Covid-19.

DISCUSSION

1. Predisposing factors

Predisposing factors formed based on indicators of knowledge, values, attitudes, and beliefs are significant in determining adolescent behavior to comply with implementing health protocols with $Pv = 0.000 < \alpha = 0.05$. This relationship is positive (+) with a value of $r = 0.8411$. These results mean that the better the characteristics related to the background of adolescents which are predisposition factors, the better their behavior (more obedient) in implementing health protocols. The value of the relationship $r = 0.8411$ indicates that the relationship is very strong. Based on the calculation of the linear regression model coefficients, the determination coefficient value is $r^2 = 0.707$. This means that 70% of the variation in adolescent behavior related to adolescent adherence in implementing health protocols can be explained by variations in predisposing factors.

A good knowledge of adolescents about Covid 19 is very important for adolescents so that it does not lead to an increase in the number of cases of Covid 19. As many as 30.65% of sufferers of Covid 19 have poor knowledge about Covid 19. A survey conducted by UNICEF of 4000 youth related to Covid 19 shows there are still teenagers (25%) who have insufficient knowledge about Covid 19 (Habibie nur, 2020). Adolescent knowledge about Covid 19 has an important role in changing attitudes (Utami RA, Mose RE, Martini M. 2020). The attitude of adolescents in responding to every government decision to break the chain of transmission and transmission of Covid -19 is very important. The spread and transmission of Covid 19 can be prevented with good knowledge and attitudes in adolescents. Adolescents are considered almost adults because they are mentally, socially, emotionally and physically mature, as well as their thoughts. Maturity is of course not accompanied by his attitude. In the study it was found that as many as 29.3% of respondents still had a bad attitude towards implementing the Covid 19 health protocol and 17% still had poor knowledge. A UNICEF Indonesia study stated that in the midst of the Covid 19 pandemic as many as 40% of adolescents still lacked attitudes in implementing health protocols with adolescents still outside the home without implementing health protocols (CNN Indonesia, 2020). The attitude that is formed is related to individual

beliefs where a person will have an obedient attitude towards the policy if there is a sense of belief that the policy is effective in reducing the transmission of Covid -19 (Hale et al., 2020).

2. Enabling Factor

The Enabling factor which was formed based on indicators of the availability of health facilities, the competence of health workers and the attitude of health workers was significant in determining the behavior of adolescents to comply in implementing health protocols with $p=0.000 < \alpha=0.05$. This relationship is positive (+) with a value of $r = 0.470$. These results mean that the better the supporting factors (reinforcing), the better the behavior (more compliance) in implementing health protocols. The value of the relationship $r = 0.470$ indicates that the relationship is quite strong. Based on the calculation of the linear regression model coefficients, the determination coefficient value is $r^2 = 0.221$. This means that 22.1% of variations in adolescent behavior related to adolescent adherence in implementing health protocols can be explained by variations in enabling factors.

The results of this study are in line with the results of the research by Fitria, Jumaini, and Agrina (2021) in the Tampan District of Pekanbaru City which states that there is a relationship between infrastructure and community behavior in implementing the Covid -19 health protocol. The results of this study are also supported by the results of research by Nismawati & Marhtyni, (2020) that there is a significant relationship between the availability of infrastructure and the behavior of implementing health protocols. The role of youth in preventing the transmission of Covid-19 through the implementation of health protocols can be carried out well if supporting infrastructure is provided such as the provision of masks, a place to wash hands and running water, hand wash or hand sanitizer, and instructions for keeping a distance. The results of this study support the opinion that various health services including telemedicine, transfers between health facilities, including vaccinations are needed to prevent increased morbidity and mortality (World Health Organization, 2020). Other facility support related to the role and behavior of adolescents in preventing the transmission of Covid-19 is the use of digital technology as the latest approach. By utilizing technology, you can minimize contact with potential sources of transmission (Irwin, 2020).

3. Reinforcing factor

The reinforcing factor which was formed based on indicators of family, peers, teachers and community leaders is significant in determining adolescent behavior to comply in implementing health protocols with $Pv = 0.002 < \alpha = 0.05$. This relationship is positive (+) with a value of $r = 0.265$. These results mean that the better the supporting factors (reinforcing), the better the behavior (more compliance) in implementing health protocols. The value of the relationship

$r = 0.265$ indicates that the relationship is weak. Based on the calculation of the linear regression model coefficients, the determination coefficient value is $r^2 = 0.070$. This means that only 7% of variations in adolescent behavior related to adolescent adherence in implementing health protocols can be explained by variations in reinforcing factors.

Family is the best support system. From an early age, teenagers are always with their families and grow and develop with their families. The family is the place where adolescents develop. A good family is a good and important support for teenagers. This is in accordance with Anjaswarni et al., (2019) which explains that a good pattern of support will result in good development for adolescents. The results of this study are supported by research which explains that family religious coping supports the family's line of defense in dealing with the current Covid-19 pandemic (Prasetyo et al., 2023).

Peers are also an important factor for adolescents. Good friends will provide good support for teenagers. Conversely, friends who are not good will make support weak (Anjaswarni et al., 2019). Peers reinforce each other in their development, this is in accordance with the opinion which explains that early adolescents are characterized by a very dominant peer group role, they try to form groups, act the same, look the same, have the same language and the same codes or signals. In middle adolescents, their social development is trying to make new friends and paying close attention to other groups in a selective and competitive manner. Teachers and community leaders are also good supporting factors (Anjaswarni et al., 2019). Families, peers, teachers and community leaders who are committed to preventing the transmission and spread of Covid -19 will always pay attention to adolescents and remind them to always comply with health protocols.

4. Environmental Factors

Environmental factors formed based on environmental indicators in the home, outside the home and community environment are significant in determining adolescent behavior to comply with implementing health protocols with $Pv = 0.000 < \alpha = 0.05$. This relationship is positive (+) with a value of $r = 0.470$. These results mean that the better the supporting factors (reinforcing), the better the behavior (more compliance) in implementing health protocols. The value of the relationship $r = 0.299$ indicates that the relationship is weak. Based on the calculation of the linear regression model coefficients, the determination coefficient value is $r^2 = 0.090$. This means that 9% of variations in adolescent behavior related to adolescent adherence in implementing health protocols can be explained by variations in environmental factors.

Handayani (2018) in Wardana & Ghozali (2021) explains that the social environment is the daily activities that are carried out, within the scope of the family, school or community. The human social environment is usually associated with behavior and self-discipline. The social environment can affect individuals directly or indirectly. Based on this opinion, it can be explained that the environment within and outside the family, or the environment in the community can be a reinforcing factor for the role of adolescents in preventing the transmission and spread of Covid-19.

CONCLUSIONS AND SUGGESTIONS

The role of adolescents in preventing the transmission and spread of Covid-19 through their adherence to implementing health protocols needs to be continuously encouraged and strengthened. This is important because teenagers must be healthy and survive from the impact of the infectious disease Covid-19. Adolescents need to continuously improve their knowledge, especially related to infectious diseases which are currently a world problem, namely Covid 19 where until now the cases have increased again with various new variants. The active role of adolescents in preventing the spread and transmission of Covid 19 can also be carried out by educating peers or making youth a role model who obeys the implementation of health protocols.

ETHICAL CONSIDERATIONS

This study pays attention to research ethics including ethical clearance, Informed Consent, Anonymity and confidentiality. The research was carried out after obtaining ethical approval and being declared ethically feasible from the Health Research Ethics Commission (KEPK).

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Conflict of Interest Statement

The researcher states that the article submitted for publication does not contain a conflict of interest. This publication is made solely to provide information regarding factors related to the role and behavior of adolescents in preventing the infectious disease covid-19.

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