The Potential Activity of COVID-19 Transmission and Its Relationship to the Demographic Characteristics

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Abstract— This research aims to identify the potential spread of COVID-19 from aspects of activities outside the home, inside the home and immunity factors that related to the risk of transmission based on age, education, residence and employment hopefully it can become an effective policy and action reference in handling COVID-19. The research design used a cross-sectional random sampling technique and the collection of data used Google forms media. Format questionsused in the form of 3 categories of self-report activities outside the home, inside the house, and immunity factors. The results showed that activities which have a high risk of transmission of COVID-19 are in the adult age group, residence: at village, education; at Junior High school, occupational groups: at company employees, laborers/freelancers. The implementation of health protocols (using masks, washing hands and keeping your distance) supported by comprehensive policy steps that pay attention to psychological, social and economic aspects and even security can strengthen efforts to control COVID-19 by paying attention to the above characteristics as well as supervision and control by the government and the private sector. and society.

Keywords: Potential, activities, Risk, Transmission, COVID-19.

Introduction

WHO officially stated there has been there an outbreak of a new coronavirus called COVID-19 in Hubei Province, China as the Public Health Emergency of International in January 2020[1]. COVID-19 as another named from Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [2]. This COVID-19 spread to other countries in the world and declared high risk by WHO[1] The main symptoms of this disease are coughing and fever[3] The COVID-19 pandemic has a wide impact, not only in China but also in other countries infected[4] On February 13, 2020, there were reported 60,412 cases of COVID-19 and 1,370 deaths worldwide[5], and last April 19, 2020, globally there were 3,018,681 confirmed positive and 207,973 deaths[6]. Transmission occurs through sputum when the patient coughs, then enters the respiratory tract and SARS-CoV-2 then enters the lung cells through ACE receptor endocytosis [7]. The Covid-19 pandemic is a global reality that afflicts the life of mankind from the international level to the household. Its appearance attacks anyone who can be infected, regardless of state, religion, ethnicity, or other social strata[8].

Various policies carried out by the central and regional governments have been issued, such as closing offices, schools, and campuses, then followed up with Work From Home (WFH), Learning from home, Worshiping at home, closing shopping areas, entertainment areas, restaurants, and other activity centers. Promoting the use of masks, washing hands with soap or hand sanitizers, keeping a distance, and avoiding crowds. Almost all countries impose lockdowns even in provincial areas as well as in Regency regions impose Large-Scale Social Restrictions. (LSSR) This is done to prevent the spread of COVID-19.

Behind the efforts and policies put in place by the government to prevent the spread of COVID-19, it is also necessary to pay attention to several issues relating to the characteristics of the community such as the location of residence, employment, age and community education concerning the understanding of the community in receiving information. These characteristics also determine where the risk of transmission occurs both when outside the home, inside the house, and because of immunity.

The purpose of this study is to explore the behavior patterns of activities outside the home, in the home, and immunity factors that have a relationship to the risk of COVID-19 transmission seen from the aspect of age.

Methods

The research design used was cross-sectional with an instrument consisting of 19 items of statements about activities that were at risk of Covid 19 transmission with areas outside the home (10 items), inside

the house (6 items), and immunity questions (3 items). Alternative categories and answer scores for each item include: never = 1, ever = 2, sometimes = 3, often = 4 and always = 5. The calculation results have a high, medium, and low-risk group for areas of activity outside the home, inside the house, and immunity factors.

Activities outside the home have a high risk of contracting if a score of 35-50, a moderate risk score of 17-34, and a low-risk score of 5-16. Activity in the home has a high risk of transmission if the score is 21-30, the moderate risk is 11-20, and the risk is low 5-10 and the immunity factor has a high risk if score 11-15, score 6-10 has moderate risk and score 3-5 has low risk.

To determine the sample size we used an open-source calculator, OpenEpi, Version 3 (OpenSource.org, USA) for sample size estimation. (https://www.openepi.com/SampleSize/SSPropor.htm) [9]. The calculation was based on the following: two-sided significance (1-alpha) of 95%, power of 80%, the population size of around 1000,000, expected frequency proportion of 88%. Based on calculations obtained a minimum sample size of 163 respondents.

Data were collected online from early April to the end of April 2020 used the format https://bit.ly/Self-Rist-Assesment-COVID-19[10]. Links are distributed to online social media groups (What's App) with a voluntary participatory approach in the population area.The number of respondents who filled out the format ware 234 samples. After editing and cleaning the data obtained 199 samples.We analyzed the data with SPSS for Windows, version 26.00 (IBM, Chicago, IL, USA)[11].

Result

Table 1. Distribution Characteristic of Age group, Level of Education, Location of Residence and Occupation (n = 199)

Variables	Total(n)	Persen (%)
1.Age group		
- Young	173	89
- Adult	26	11
2. Education		
- College	177	88,9
- SHS*	20	10
- JHS**	2	1,1
3. Location of Residence		
- Rular	109	54,7
- Urban	90	45,3
4. Proffesion		
- Students	161	80
- Self-employed	3	1,5
- Employees	13	7,5
- Freelance/Labor	5	2,5
- Government employees	17	8,5

*Senior High School, **Junior High School

Table 2: Potential for Risk of Transmission Based on the characteristics of Age, Level of Education, Location of Residence and Occupation (n = 199)

Variables	Total (n)	Risk of transmission outside the home (%)			Risk of transmission within the home (%)			Risk of transmission due to immunity		
		High risk risk (A)	Medium risk (B)	Low risk (C)	High risk (D)	Medium risk (E)	Low risk (F)	High risk (G)	Medium risk (H)	Low risk (I)
1.Age group										
- Young	17	1.2	41.6	57.2	5.8	34.7	59.5	11.6	49.1	39, 2
- Adult	32 6	11.5	61.5	26.9	23.1	50	26.9	38.5	46.2	15.4
		Statistical Significance (*P*): 0.001			Statistics Significance (*P*): 0.001			Statistics Significance (*P*): 0.001		
2. Level Of Education										
- College	17	1.7	45.8	52.5	7.3	40.1	52.5	14.7	49.7	35.6
- SHS*	72	5	30	65	10	10	80	15	40	45
- JHS**	0 2	50	50	0	50	0	50	50	50	0
		Statistic Significance (*P*): 0.001*			Statistic Significance (*P*): 0.016*			Statistic Significance (*P*): 0,532		
3. Location of Residence										
- Rular	10	3.7	45	51.4	10.1	31 , 2	58.7	16.5	48.6	34.9
- Urban	9 90	1.1	43.3	55.6	5.6	43.3	51.1	13.3	48.9	37.8
		Statistic Significance (*P*): 0,478			Statistic Significance (*P*): 0,153			Statistic Significance (*P*): 0,800		
4. Proffesion										
- Students	16	1.2	39.1	59.6	6.2	32.9	60.9	13.0	46	41
- Self-employed	1 3	0.0	100	0	0	100	0	33.3	66.7	0
- Employees	13 5	7.7 20	61.5 60	30.8 20	23.1 20	38.5 60	38.5 20	23.1 20	53.8 80	23.1 0
- Freelance/ laborers		5.9	64.7	29.4	11.8	52.9	35.3	23.5	58.8	17.6
- Government employees	17	Statistic Significance (*P*): 0.005*			Statistic Significance (*P*): 0.028*			Statistic Significance (*P*): 0,227		

*Statistically significant (P<0.05) , *Senior High School, **Junior High School

Sample characteristics include age group, education level, place of residence and employment status. Young age group 89%, college (student) 88, 9%, village 54.7% and 80% student work status (table 1).

The analysis shows that 26 samples from the adult age group have a high risk of COVID-19 transmission occurring outside the home (11.5%), and a high risk of transmitting COVID-19 indoors (23.1%) and because of immunity (38, 5%) (Table 2. Columns A, D, and G) with a significance level <0.005. At the level of education, Junior High School's education activities have a high risk of transmission occurring outside the home (50%), inside the home (50%), and due to immunity factors (50%).

Those whose location of residence in the village has a high-risk transmission of COVID-19 compared to those in urban dwellings. This occurred both a high risk of transmission outside the home (3.7%), inside the house (10.1%) and due to immunize (16, %%). In the workgroup, their activities have a risk of transmission of COVID-9 with a high risk both outside the home in laborers / casual workers (20%) (Table 2. Row 4 column A), inside the house has a high risk of workers in company employees or because of factors immunity has a high risk for self-employed workers (33.3%) (Table 2. Row 4 column E).

Discussion
Appropriate management strategies for patients with COVID19 are a rapidly evolving therapeutic challenge, and the optimal agents (if any) to treat an infection or prevent progression to critical illness

remain ill-defined[12]. The main intervention is controlling infection with the spread of COVID-19 and continuing to monitor the situation carefully[4].One effort to prevent spread is to conduct rapid detection of COVID-19. Early diagnosis and management are crucial for containing the outbreak[13]. This step can be done starting from patients with positive COVID-19 and then tracing the people who have been in contact with patients. Then there needs to be strategic, effective, synergic steps Community empowerment in COVID-19 prevention involves all components of the community by exploring the potential of the community so that it can play an active role in preventing Covid-19 transmission[14]. Communication, Information and Education without face to face, social media have a very important role[15]. In efforts to prevent the occurrence of transmission to affected groups of workers need attention. Some work within a certain period (14-16 days) stay at home can be done or done online, but work such as laborers/freelancers, self-employed, or company employees cannot keep for a long period. Work is part of activities that can not be avoided because it involves the fulfillment of clothing and food to meet biological needs.

Some things that make them at risk of transmission of COVID 19 are traveling (travel to work) and at work. Steps that need to be taken as WHO (2020) in releasing "getting your workplace ready for COVID-19" 1) ensure clean and hygienic workplaces by disinfecting the surfaces of tools or objects that are likely to be contaminated by COVID-19, 2) promoting regularly washing hands with employees, contractors and customers 3) creating a good ventilation system 4) taking consideration when going on a work trip at a company that is plaguing COVID-19 both before and after traveling.

The same thing is the risk of transmission is quite high in the labor hunt/freelance workers with the category of the area where the incident is outside the home. They cannot escape this behavior because it is their routine activity or profession. This group must be a priority because they have 2 problems as a result of the plague that must be dealt with simultaneously in their handling. One problem with the risk of being infected with COVID-19 and other problems in the economy. The impact of the spread of COVID-19 infections occurs on sociological, psychological, and economic aspects that are globally significant, so the cost of the epidemic is not only limited to the medical aspect[16]. Promotional measures to prevent the spread of COVID and policies carried out by the government or private sector and community empowerment, religious leaders, customs and non-governmental organizations to work together to assist such as hand sanitizers, masks, and some vitamins can be given free to those affected and not able to get these facilities, besides that also assist in the form of programs both in the form of food or cash and so on can be given to them. Because the involvement of all elements can help speed up the problem of the spread of COVID-19. As in the results of the study shows that the characteristics of the social environment can also function to provide a protective effect or increase health[17]

Conclusion

Activities outside the home cannot be avoided because of several factors related to economic needs, food needs, and transportation. Increased discipline using masks, maintaining distance, and washing hands or using hand sanitizer are the most important thing that must be strictly applied to all levels of society, both young and adult groups, groups of workers, both located in villages and urban areas. The level of implementation of the prevention of COVID-19 transmission will run well if it is supported by policies and supervision from various levels of both society and government who are members of the COVID-19 prevention team.

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