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Study On Physical Distancing Compliance Towards Corona Virus Risk (COVID-19).

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Abstract

The coronavirus (COVID-19) pandemic is a great concern in the global health sector. This isdueto the large number of people infected within a wide area. The possibility of transmission from one person to anotherraises the need for isolation or restrictions in terms of physical and social interactions within the community. This study aims to determine the extent of community compliance in conducting Physical Distancing.

The research design was observational analytic, using cross sectional method,and was performed with 753 respondents. In addition, data was collected using internet-based questionnaire in the first Government Emergency Response period from March 23 to April 11, 2020. The information obtained includes demographics, physical social compliance variables and risk level. Therefore, qualitativeanalysis was performed to evaluate the frequency distribution, while the relationship between risk categories with Covid 19 cases was determined using chi square.

The results showed the majority of respondents performedoutdoor activities (60.4%), althoughwith good health protocol awareness. Also, mostparticipants wear masks (75.6%), conductgoodhand washing habit (86.6%), always use hand sanitizers (76.5) and maintain a distance from others (87%). Furthermore, the risk categories of respondents were low (95.2%),hence a relationship is established between Covid 19 cases and risk categories.This is reflectedin physical and social distancing compliance (p <0.00001),classified in the moderate category,with an odd ratio value of 9.42 (CI: 4.45-19.97).

In conclusion, moderate physical and social distancing compliance poses a greater risk for covid19 cases, thus the need to increase discipline with Large Scale Social Restrictions (PSBB) implementation.

Keyword : Covid-19, compliance , physical, social distancing, risk

1. INTRODUCTION

On December 31, 2019, Wuhan City Health Commission, Hubei province, China reported a pneumonia case with no known etiology, at Wuhan's Huanan Seafood Wholesale or fish and live animal markets. (1) On January 9, 2020, the Chinese CDC reported a novel coronavirus (2019-nCoV) as the cause, and the World Health Organization (WHO) announced the new name as Corona Virus Pandemic Disease (COVID-19) on February 11, 2020. To date, the statistics haveelevated by 2,995,758 positive cases and 204,987 people deaths, in more than

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213 countries, hence thedepiction as a global threat. (2) Based on a report in April 7, 2020, the pandemic prevalence increased in Indonesia, with 2,738positive, 204 recovered and 221 dead cases. (3) Furthermore, a report in April 29, 2020, indicated a further increase,to 9,771, 1,391 and 784, respectively. (3)

Coronavirus is a single positive, encapsulated, non-segmented RNA virus,and there are a total of four genera, including alpha, beta, delta and gamma forms (Huang *et al*. 2020; Fehr & Perlman 2015; Dawei Wang, *et al*. 2020). This pleimorphic microorganismpossesses capsules, and is characterized by round or elliptical particles, with a diameter of about 50-200m.In addition, the structure is cube-like with protein S located on the surface. (Huang *et al*. 2020; Fehr & Perlman 2015; Dawei Wang, *et al*. 2020). The virus is sensitive to heat and is effectively deactivated by disinfectants containing chlorine, lipid solvents at a temperature of 56 ℃ for 30 minutes, ether, alcohol, perioxysiacetic acid, non-ionic detergents, formalin, oxidizing agents and chloroform, while chlorhexidine is not effective. This infection dominantly occurs in winter,and under environmental conditions with relatively high humidity. (5,6)

This new Coronavirus pneumonia befalls mainly immunocompromise individuals.Despite the normal functioning of body's immune system,highexposure to the virus at a time causes diseases. These manifestations progress faster and more severely in people with weak immune systems,including the elderly, pregnant women, and other conditions. In addition, the infection weakensthe immune system against this virus,thus there is a tendency for re-infection. (5,6)

The main clinical symptoms of COVID-19 infection include fever (temperature> 38oC), cough and difficulty in breathing. This ispossibly accompanied by heavy tightness, fatigue, myalgia, gastrointestinal symptoms,e.g., diarrhea and other respiratory symptoms. Furthermore, some patients tend to experience mild symptoms unaccompanied by fever. (2,5,6)

The spread of coronavirus is realized through close contact, the environment or contaminated objects, airway droplets, and airborne particles. Specifically, a droplet is a water-filled particle with a diameter of > 5um,and is capable of passing certain distance (usually 1 meter) to a vulnerable mucosal surface. Theunits are large enough,leading topoor ability to fast or settle in air over a long period. These droplet originate from the airways,and are propagated by coughing, sneezing or talking, and alsothrough invasive acts of respiratory procedures,including sputum aspiration, bronchoscopy, and tracheal tube insertion. In addition, airborne particles with diameter less than 5um have a potential to spread over long distances and remain infectious. Also, pathogens of this size spread by direct contact, or via blood and fluid into the body through mucous membranes or damaged skin. (6)

There arecurrently no vaccinesavailable to ensure prevention,thus the best way to stop infection is by avoiding exposure to the virus. Thisisattainable through personal hygiene efforts on an individual level,by means ofregular hand washing with soap, closing the mouth while coughing and ensuring the use offace masks, as well as increasing self-immunity and controlling comorbidities. Meanwhile, prevention at the community level involves the implementation of Large Scale Social Restrictions (PSBB), through physical (Physical Distancing) and social (Social Distancing) restrictions. (8)

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The spread of COVID-19 isexpected to be more extensive and faster on instances where there is limited participation and commitment from all parties, includingthe government, community and other sectors.Therefore, this study aims to assess compliance with Large-Scale Social Restrictions (PSBB) implementation created by the government,comprisingthe act of limiting physical (Social Distancing) and social (Social Distancing) interactions in the community. This research results are projected to be applied in evaluating and determining countermeasures for the next COVID-19 outbreak in Indonesia.

2. METHOD

The study design was observational analytic, using the cross sectional method, with 753 respondents. In addition, data was collectedusing an internet-based questionnaire, through the google doc application distributed by telephone and chat app. The responses wereobtained according to the first Government Emergency Response Period, March 23 to April 11, 2020, including demographics, physical and social distancing compliance variables, as well as the risk level. Therefore, data analysis was performed qualitatively to evaluate the frequency distribution, while the relationship between risk categories and Covid 19 case was determined using chi square, with a significance level of 95%.

3. RESULTS

Research conducted using online media involved 753 respondents, with characteristic average age of 32 years,in a range between 15-75 years.

Based on the questionnaire, physical and social distancing compliance isshown in the following table:

Table. 1.1

Descriptive analysis of physical and social distancing compliance

Activity	**Compliance**			
	Yes (n)	**%**	**No (n)**	**%**
Out of the house	455	60.4	298	39.6
Online motorcycle (*ojek*)/ taxi users	83	11.0	670	89.0
City Transport Users	4	0.5	749	99.5
Bus Users	10	1.3	743	98.7
Bajaj User	0	0.0	753	100
Train Users	7	0.9	746	99.1
Using a mask to leave the house	569	75.6	184	24.4
Doing a handshake	85	11.3	668	88.7
Handwashing habits	652	86.6	101	13.4
The habit of using a hand sanitizer	576	76.5	177	23.5
Keep a distance from others when outside activities, study, work, worship, shopping	655	87.0	98	13.0
The washing hands habit after leaving the house	724	96.1	29	3.9
Located in a contagious region / province	470	62.4	283	37.6
Age 60 years and above	14	1.9	739	98.1

ISSN 2515-8260 Volume 7, Issue 3, 2020

History of heart disease, diabetes, chronic respiratory disorders	36	4.8	717	95.2
There are ODP (People Under Monitoring) and PDP (Patients Under Surveillance) of Covid 19 in the respondent area	207	27.5	546	72.5
When working or studying at home, whether have a fever, runny nose, cough, or shortness of breath	95	12.6	658	87.4
Travel history abroad or out of town (last 14-20 days)	103	13.7	650	86.3

Source: primary data

The results showed the participation of most respondents in outdoor activities (60.4%), withadequate awareness of health protocol. This is indicated by the majority wearing masks (75.6%), conductingregular hand washing habit (86.6%), always using hand sanitizers (76.5) and maintaining a distance from others (87%).

Based on the questionnaire,a high proportion of respondentswere in the low risk category (95.2%) for Covid 19 pandemic case (Table 1.2). Also, numerousparticipants live in the red zone area (62.4%), and are under 60 years old (98%). The presence of ODP (People Under Monitoring) and PDP (Patients Under Surveillance) was small (27%),withouta history of co-morbidity or concomitant diseases (95%). Therefore,a high proportion of respondents were indicated in the low risk category.

Table. 1.2

Descriptive analysis of Covid 19 transmission risk categories

Risk	n	%
Moderate	36	4.8
Low	717	95.2
Total	753	100.0

Source : primary data

The relationship between risk categories and Covid 19 cases isdepicted in the following table:

Table. 1.3

The relationship between Covid 19 cases with physical and social distancing compliance risk categories

Case	Risk			
	Moderate (n)	%	Low (n)	%
Covid_19	4	8,5	43	91,5
Suspect Covid_19	0	0	7	100
Patients Under Surveillance (PDP)	0	0	9	100
People Under Monitoring	12	25	36	75

(ODP)				
Do not know	10	14,3	60	85,7
Healthy	10	1,7	562	98,3

Source: Data processed

The analysis results showed p value <0.001, thus indicating the existenceof a relationship between Covid 19 cases and risk categories, as a reflection towards physical and social distancing compliance.

The relationship between risk categories and Covid 19 case risk can be seen in the following table:

Table. 1.4

Relationship between risk categories and Covid risk 19

Case	Risk				P value	OR
	Moderate (n)	%	Low (n)	%		
Covid_19 risk	26	18.4	155	85.6	0.00001	9.42
Healthy	10	1.7	562	98.3		

Source: Data processed

Table 1.4 is a cross table used to calculate the Covid 19 case risk, comparing positive respondents and thosewithout adiagonsis, to healthy individuals. The analysis results generated a p value <0.00001, thusindicatingthe presence of a relationship between Covid 19 andthe risk categories. The odd ratio value determined was 9.42 (CI: 4.45-19.97),implying a risk of 9.42 times in the moderate category respondents, compared tothose in the low risk category.

4. DISCUSSION

This study showeda relationship between Covid 19 case and the risk category of being exposed or the physical and social distancing implementation (p = 0.00001). In line with Mona's research, numerous opportunities for the spread of viruses are created in social networks without social and physical distancing practices, as well as vice versa (9). In addition, person-to-person transmission is reduciblethrough public health efforts. (10) The WHO recommends distance maintainance, in order to avoid close contact, especially with health care workers, and also the avoidance of red zoned countries or regions. Furthermore, individuals with respiratory infections symptoms are expected toperform cough etiquette, bymaintaining a distance, covering the cough and sneeze with tissue or disposable clothing, and practicing regular handwashing. Moreover, health care facilities are required to improve infection prevention standards and control practices, especially in emergency departments.(2) The Indonesian Health Ministry issued Regulation No. 9 of 2020 is based on Large-Scale Social Restriction (PSBB) Guidelines. Some limited activities include schooling, office work, religious activities, public facilities, social culture, public transportation as well as defense and security. This policy is, however,incomplete, as evidenced by the increasing case of Covid 19 in Indonesia based on the record of April 29, 2020, comprising 9,771 positive and 784 death incidents. (3) The upsurgewas attributedto several factors, especially the level of

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community compliance with the physical and social distancing implementation. The results showed the participation of most respondents inoutdoor activities (60.4%), because of certain reasons, includingthe performace ofdesignated tasks, working and others. The PSBB policy has not implemented a total lockdown, therefore allowing public freedom outdoors.

However, perpetrators have good awareness of health protocol,evidenced by wearing of face masks (75.6%), having the habit of handwashing (86.6%), regular useof hand sanitizers (76.5) and maintaining a distance from others (87 %). This results indicate the respondents tobe in low risk category (95.2%), although most participants were below 60 years old (98%), and the presence of ODP (People Under Monitoring) as well as PDP (Patients Under Surveillance) was small (27%).Also, a majority presented with no history of cormobidity or concomitant diseases (95%), indicating a low risk of transmission.

Despite the efforts towards controlling Covid-19 worldwide, numerous unclear problems including the possibility of vaccines, transmission from animals to humansand inanimate objects,as well as the survival duration. Therefore, strict supervision and monitoring is needed forcarriers without Symptoms (OTG), being a potential source of very dangerous infection to unsuspecting people. In addition, it is important for everyone to strictly implement health protocols, especially regular handwashing with disinfectants, maintaining a safe distance, and evadingirrelevant outdoor activities. Furthermore, empowerment towards transmission prevention is achievable by involving all components of the community and exploring the local potential in each region.

The Odd ratio results of 9.42 showed the important role of physical and social distancing compliance in Covid 19 prevention. Therefore, respondents inthe moderate category have a 9.42 times greater risk than the low group. Hence,greaterobservance of distancing rulesreduces the tendency for infection. In Contagion theory, Corona virus spreads contagiously,and the term “contagion” refers to infections with theability to spread rapidly in a network, including disastersand flu. This term was first used by Giralamo Fracastor in 1546. (9) Therefore, compliance to physical and social distancing are the most effective waysto control Covid 19 cases,although there are other protective efforts according to the WHO protocol.These includethe implementation of five personal protective measures, which involve avoiding the touching of eyes, nose and mouth, alongside maintaining hand hygiene and keeping a distance. (11)

5. Conclusion

Communities withadequate awareness towards physical and social distancing compliance in the moderate category have a greater spread risk of Covid 19 cases. Thisprompts the need to increase discipline in implementing physical and social distancing compliance policies, by educating the people, especially in red zone areas.

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