Space Requirements and Problems from Self-Isolation at Home

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Abstract. Since the Covid-19 Virus was declared as a pandemic in March 2020. Several countries in Southeast Asia, have been discussing the determination of the status of Covid-19 as endemic. This condition causes Covid-19 to be considered as an ordinary infectious disease. The lack of self-isolation facilities that have been provided by the government, makes people have to provide self-isolation rooms in their own homes. Self-isolation needs to be supported by an isolation room that could accommodate all user needs and activities. The purpose of this study was to determine the space requirements and problems during self-isolation at home. This study uses a qualitative method with a grounded theory approach. Data was collected using an open online questionnaire, which was filled out by respondents with the criteria of having self-isolated at home (non-random sampling). In this study, it was found that the community's preference for the criteria for the room used for self-isolation, and grouping problems during self-isolation based on duration. With this research, it is hoped that there will be knowledge about the criteria for the ideal room for users of self-isolation rooms, and knowing the problems during self-isolation.

Keywords: *Covid-19; self-isolation; home; space requirements; problems.*

1 Introduction

The spread of the Covid-19 virus which is difficult to control, has led to high cases of deaths due to Covid-19 in some countries, including Indonesia. This condition causes disruption of the routine pattern of people's activities. According to Riyanti Djalante, to slow the spread of Covid-19, it is necessary to change behaviour in the community in carrying out routines. People should stay at home for a longer period of time to prevent further spread of the virus. Daily activities such as work, study, and even worship should be done at home [1].

In his speech on September 10, 2021, Indonesian President Joko Widodo said that the government must start preparing for the transition from pandemic to endemic, and learn to live together with Covid-19. In addition, the President also appealed to the entire community to maintain health protocols, even though

Covid-19 has turned into an endemic [2]. Endemic is a condition where an area has a fairly stable, predictable infection rate, and the number of cases observed is approximately the same as the expected number so that people could carry out their daily routines [3]. In the transition to endemic, people will have more contact with each other, because health protocols are not strict. This condition causes everyone to have a high chance of being infected with the Covid-19 virus and returning to self-isolation, either at home or in isolation facilities provided by the government.

The lack of self-isolation facilities that have been provided by the government, makes people prefer alternative ways to self-isolate in their own homes. Self-isolation at home could be done by staying at home, monitoring condition of body, and keeping a distance from people around. The criteria of people who needs self-isolation are people who have symptoms such as fever, cough, or other symptoms of respiratory disease. Self-isolation is carried out if there is someone who has contact with a suspected Covid-19, someone who is not in direct contact with a suspected Covid-19 but has a history of travel to areas that have high positive cases of Covid-19, someone who has symptoms such as body temperature above 37°C and have respiratory problems [4]. Self-isolation at home needs to be supported by an isolation room that could accommodate the needs and activities of the users.

Studying space requirements could help architects to come up with an ideal design. In a design, dimensions and clearances must be considered to allow comfortable and safety accommodation [5]. This study aims to determine the space requirements and problems during self-isolation at home. This research is expected to be a reference to the public regarding a good self-isolation room based on the experience of people who have self-isolated at home, and to prepare themselves to face the problems that will be faced during self-isolation at home.

2 Methods

This study uses a grounded theory approach with qualitative methods [6]. An online questionnaire (open-ended) was chosen as a medium to collect data from respondents. Non-random sampling and snowball sampling methods were applied to get respondents in order to achieve the research objectives, respondents were taken from people who had self-isolated at home. The snowball sampling technique is a sample selection process by utilizing a network [7].

The data obtained through online questionnaires came from 101 respondents with details of 46 men and 55 women. The age of the respondents ranged from 17 years to 78 years. With the categories of students, employees, entrepreneurs, educators, housewives, and unemployed. The majority of respondents come from employees and students who are still in their productive age. Respondents who filled out the questionnaire came from 10 provinces in Indonesia with the majority coming from the provinces of Jawa Barat, DKI Jakarta, and Lampung.

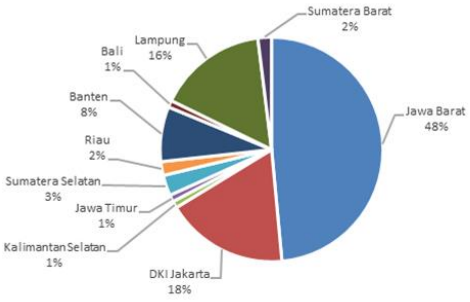

Figure 1 Respondents Location

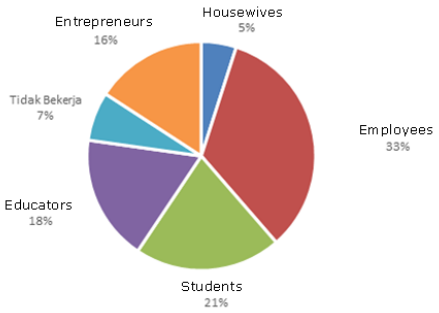

Figure 2 Respondents Profession

The data will be analyzed using three stages of content analysis methods (open coding, axial coding, and selective coding). The open coding stage is used to identify answers from respondents by determining the code and category of each respondent's answer. Then the stage of searching for correspondence between variables is called axial coding, the data used in axial coding is data generated by JMP data processing software. The next step is selective coding for the preparation of a hypothetical model based on the results of the correspondence between categories in axial coding.

3 Results of Analysis and Discussion

At the open coding stage, data on the criteria of space requirements for people who will self-isolate at home have been generated. This data is taken based on the experience of people who have self-isolated at home. The data shows that respondents prioritize using rooms that are not accessible to their families at home to avoid contact (21%), followed by comfort factors (19%), privacy (18%), thermal comfort (7%), and facilities (7%).

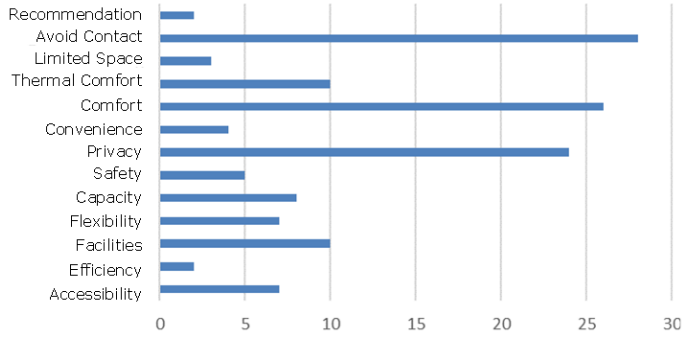

Figure 3 Requirements for Self-Isolation Room at Home

To limit contact with family at home, isolation room users want isolation rooms that have good accessibility. With a percentage level of 5%, it shows that accessibility is one of the factors that must be considered. Accessibility is defined as a measurable aspect of the environment that is expressed in norms or regulations [8]. In this case, the isolation room user wants a room that has direct access to the toilet, bathroom, courtyard, balcony, and circulation that does not have direct contact with the family at home.

The efficiency factor gets a percentage of 2%. The use of a bedroom for self-isolation is one of the efficiency efforts, because there is no need to spend a lot of money to decorate the self-isolation room. Users of this isolation room feel that they can save money by doing self-isolation in their own bedroom.

Have a room with many facilities at home is sounds like a dream for some people. In conditions of self-isolation, users want facilities that can support activities such as entertainment, work, health recovery, and even food supplies. With a percentage of 7%, this factor needs to be considered in providing space for self-isolation.

Multifunctional and free to use rooms are one of the reasons for choosing a room by isolation room users. Room users with mild symptoms want themselves to remain productive in isolation rooms. Usually the room can be used as a place for sports, work, worship, and even sunbathing to recover. The flexibility factor has a percentage of 5% as the reason someone chooses a room.

Isolation room users who choose capacity (6%) are users who use one house for self-isolation. Because the isolation room users are infected with Covid-19 along with their families, so they need more rooms for capacity. This means that the capacity factor greatly influences the selection of self-isolation room at home.

Every users who chooses convenience (3%), has a tendency not to want to process the administration that is difficult to get the self-isolation facility that provided by the government. Many users of self-isolation rooms choose the bedroom as a self-isolation room, because there is no need to have trouble moving items for self-isolation at home.

The comfort factor is quite a lot chosen by users of self-isolation rooms as the reason for choosing an isolation room, with a percentage of 19%. A comfortable room will greatly support the process of self-isolation, especially for those who experience severe symptoms. Many of the respondents chose to focus on recovery rather than other activities. Room users also don't want anyone to interfere with their self-isolation process at home.

Lighting and ventilation are very supportive for the self-isolation process. Good ventilation can produce good air circulation to reduce the spread of the virus. Indoor lighting is also important for indoor sunbathing activities. For this reason, 7% of respondents chose thermal comfort as the reason for choosing an isolation room. To achieve good thermal comfort, it can be done by paying attention to the passive system of the building, related to the orientation of the building and the direction of openings for sunlight and wind. Make sure that sunlight is reached in all rooms so that it is not damp, and clean air reaches all rooms. The use of air conditioner (AC) can be reduced and can open windows as natural ventilation. The location of the windows in the north and south is more effective for catching the wind, and is in a position facing each other so as to create a cross ventilation system. The existence of a stable air change can remove dirty air and replace it with clean air at home (Politala Press, 2020) [9].

Safety is one of the considerations in choosing an self-isolation room at home (4%), because users are worried about the spread of the virus in self-isolation facilities provided by the government. With self-isolation at home, users feel more secure because they don't have to carry personal items out of the house.

Voters with limited space (2%) have the issue of having no more options to get the ideal isolation room in their home. This is because the house with a limited area causes users to be forced to use their bedroom as self-isolation room.

Avoiding contact (21%) was the main reason most chosen as the reason for choosing self-isolation room. This is because users who are self-isolating at home with their families do not want their families to be infected with Covid-19. Room users usually choose a room that is protected from family access.

Privacy is one of the most chosen factors (18%), because isolation room users feel uncomfortable when they have to be with other people when doing self-isolation. So they prefer to isolate in their own room, because it is more comfortable to self-isolate alone.

The recommendation category (1%) contains people who choose a room based on seeing the procedures or habits of the community in self-isolation. They do not have a definite reason for choosing a self-isolation room, but users trust people's advice to choose their room as a self-isolation room.

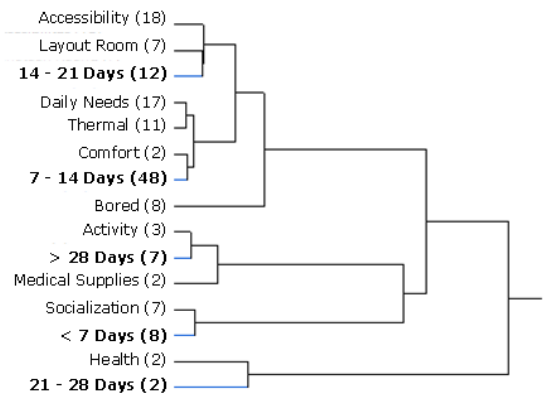

Figure 4 Dendogram of Correspondence Duration of Self-Isolation and Self-Isolation Problems

Based on the dendogram and software calculations, the results of the correspondence analysis between the duration of self-isolation and problems during self-isolation have a significance of p=<0.0001. This significance value indicates that the relationship between the two variables has a strong relationship. The relationship between the duration of self-isolation and the problem of self-isolation resulted in 4 groupings or clusters.

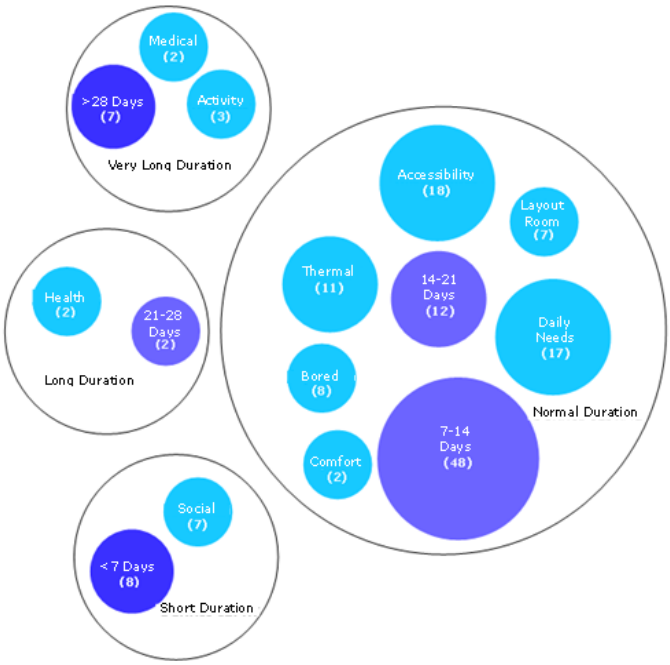

Figure 5 Correspondence Hypothesis Model of Self-Isolation Duration and Self-Isolation Problems

The short duration group is a group with a duration of self-isolation of less than 7 days, this group only has problems with socialization. The normal duration group is the group with the duration of self-isolation between 7 days to 21 days, at that time the problem of using the self-isolation room will increase to problems of accessibility, layout room, daily needs, thermal comfort, space comfort, and get bored. The long duration group is users who have self-isolation for 21 days to 28 days, at this duration the isolation room users may have experienced worse health problems due to Covid-19 or possible complications. The very long duration group is an isolation period that exceeds 28 days, the problem that may occur is the difficulty of activities and the supply of medical needs due to poor health conditions.

4 Conclusion

In this study, it can be seen that people have priority reasons to continue to protect their families during self-isolation by choosing rooms that are not accessible to their families. Then the isolation room users also need a space that is private and comfortable to use for rest. Respondents also stated that good lighting and ventilation are needed for the recovery process.

From this study, it can also be seen that the duration and problems during self-isolation are closely related. The longer the duration of self-isolation, the greater the obstacles experienced.

This study has a high authenticity value because it uses a grounded theory approach. This research will be even better if it gets more respondents. It is hoped that in the future there will be further research related to calculating the dimensions of the ideal self-isolation room to be applied to the design.

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