Recommendation of Seating Configuration at Pediatric Clinic in Jakarta During COVID-19 Pandemic

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Abstract

Covid-19 pandemic has been affected globally as it forced us to change our behavior and daily activities. Physical distancing and health protocols as recommended by the authority had become a new norm to prevent human-to human infection for over a year since the pandemic announced for the first time in early 2020. The protocols were applied in all public spaces, included health facilities such as hospital, clinic, and pharmacy. This research is discussing the possibility of seating configuration to help patients of pediatric clinic in Jakarta avoiding physical interaction in the waiting area. Visitor management in Pediatric clinic become more crucial during the Covid-19 pandemic as the clinics were attended by infants, kids and adults. Proxemics in literature review and field observation were used as basic method to analyze the possibilities and determine the recommendation. The result is explaining how the seating configurations are able to interfering the way people interact each other.

Keywords

Proxemics, Interior, Furniture, Pediatric, Health protocol

1. Introduction

COVID-19 pandemic has been existed for two years. It has pushed down the visitors of health facilities. In fact, number of visitors of the hospital and clinic (for the non-COVID-19 disease) seems decreases during the pandemic. Patients tend to be worried of the virus spread over the aerosol transmission. Preliminary survey to the 27 respondents of this research also shows that 92.6% patients are worried about the same issue when attending the clinic during the pandemic. Unfortunately, this trend only occurs in the beginning of pandemic wave in every period. Visitors tend to increase gradually along with the government loosening over the policy of the pandemic situation. Essential services, such as vaccination, immunization, pregnancy examination, and other chronic diseases are mandated to be fully open, referred to regulation of the Ministry of Health of the Republic of Indonesia, in responding the COVID-19 pandemic situation. Based on this instruction, the clinics, hospitals, or any of the health facilities in Indonesia have to maintain the implementation of COVID-19 health protocols.

One of the facilities which regularly open and serve the patient consultancy during the COVID- 19 pandemic is pediatrics clinic. Pediatric clinic is a medical facility dealing with infants, children, adolescents, and young adults. In many countries, range of ages for the pediatric patients was diverse. The age limit covers from the new-born baby until the age of 18, but in UK it covers older until 21. From this service type, we can find specific category of pediatric clinic visitors, who routinely become the outpatients of this clinic. Category of high risk exposed people is the most attended patient on the clinic. They are consisting of infants, kids, and pregnant/ breast-feed mother. Paner and Zelnik had defined this category within different spatial needs compared to the other ordinary users (1979). There is also a comfort factor needed to be fulfilled by considering psychological aspect of this category to implement the health protocols. Looking at this point, the health protocol has to be planned and communicated clearly and persuasively to guarantee the health protocols being conducted by this group of visitors. Focus of this research stands on the furniture lay outing on the waiting area in pediatric clinic which is organizing children behavior and the amount of the visitors. The research itself is also focusing on the implementation of the health protocols in the pediatric clinic.

Non-pharmacological strategy in "New Normal Living" concept has also run by the authority to push over the infection. The condition needs certain obedience to the mandatory regulation of COVID- 19 health protocols. The protocols itself consists of several guides of prevention during the pandemic such as maintain physical distancing,

using masks, and avoid the crowd. The authority commonly used abbreviation of 6M to deliver the health protocols in Bahasa Indonesia, consist of *Mengenakan masker* (using mask), *Mencuci tangan dengan sabun di air mengalir* (Handwashing), *Menjaga jarak* (social/physical distancing), *Menjauhi kerumunan* (avoid crowd), *Mengurangi mobilitas* (stay at home), and *Menghindari makan bersama* (avoid dining in). The health protocols are derivative protocols from the World Health Organization (WHO) and Center for Disease Control and Prevention (CDC) recommendation. Based on data providing by Chu et.al, hey had officially announced minimum physical distance between 1.5-2m to prevent the Covid-19 virus spreading from the first case of COVID-19 detected in Wuhan, China (2020). The protocol also needs to be obeyed along with the use of proper masks. This recommendation is claimed to decrease the infection as 38% as Caley et.al performed data analysis on their research (2020).

1.1 Problem Definition

Further discussion of the health protocols itself is needed to explain that the core of the health protocols is only telling us about 3 events: distance, limitation, and human interaction. From here we understood that COVID-19 interfere human interaction and behavior, which further discuss in design field as Proxemics. The list of the protocols had been changing over the time considering development of the knowledge in medical science (including SARS Cov-19/Covid-19 virus behavior, transmitting information, and mutation. Yet, the implementation finds obstacles while several aspects are not supported by the compatible data to fulfilling the required new standardization in social activities. The condition leads some part of the people still has no ability to stay on the health protocols. This situation also had brought the pandemic become harder.

This research will discuss about how COVID-19 pandemic has developing proxemics conception in our lives, where fixed limitation of space is used often more than the flexible one. Although, time and cost are considerably needed to implement fully fixed limitation of space. This research will construct a new configuration in public spaces which illustrates new interaction pattern and barriers between people in this new normal living era as a spatial recommendation. Furthermore, this spatial recommendation aims to acquire knowledge related with spatial pattern in a certain limitation of space. Result of this research can also immediately accommodate the needs of the health facilities.

2. Literature Review

As Edward Hall (1966) from anthropological view, there is proxemics dimension on those nonverbal aspects. He divided the proxemics itself into 4 smaller dimensions of individual spatial interpretation; Intimate distance, Personal distance, social distance, and public distance. According to Hall (1963), proxemics study is evaluating not only the way people behave in their everyday life, but included organizing space at home, in a building, and also to the city layout. Proxemics become a hidden component out of the personal communication, it is highly depended on the cultural aspect and possibly revealed through observations. In objective research of space semiotics (another name of proxemics), Sumartono (2007) has elaborated that observation and interview will produce primary data.



Figure 1. Interpersonal distancing. Hall illustrates radius by meter and feet (source Hall, 1966)

The Figure 1 shows the relation between people to the environment occurs horizontally and vertically. As one of the viruses transmitting factor, understanding of this basic proxemics can be interpreted into the spatial analysis, giving distance, and lay outing the seating position in the pediatric clinic.

3. Methods

Literature study and field observation were conducted to find relations between the health protocols and spatial analysis. For the first step, literature review in Proxemics theory has led this research into basic knowledge about human, distance, and how it possible to communicated to the public. In "*Health Communication: A Handbook for Health Professionals*", Northouse and Laurel (1985) explained about nonverbal aspects in communicating a message, included body language, spatial uses, sound uses, and tactical uses.

Field observation is conducted referred to visitor behavior in a pediatric clinic on Siloam Hospital, West Jakarta. Through field observation we could understand the pattern of users' activities, circulation of the visitor, existing space, and furniture used in the area. Preliminary survey to describe the visitor trend in a pediatric clinic also been conducted to enriching analytical data. The survey has involving 27 respondents of Pediatric clinics users from all over Jakarta and Tangerang Selatan area. Data of the survey has been retrieved on July 2021.

4. Data Collection

Study case of this research took place in paediatric clinic at Siloam Hospital Jakarta. The clinic has tried to implement the health protocols, among others are intervention on the seating limitation and barriers uses on the administration area by using transparent separator (made of acrylic based sheet). In this area there are couples of benches for visitor seating. The waiting bench has four seats in a row and each row has restricted seat that being marked by "X" sign (usually made with tape or stickers). This mark was described some parts of the bench are prohibited to be seated. It has usually been applied every two seats alternately. On the waiting area itself, there are five bench modules so the waiting bench only available for 20 persons. By applying this arrangement, ideally the health protocols should be able to be optimized on the clinic. (Figure 2)



Figure 2. Waiting area on Pediatric clinic, Siloam Hospital, Jakarta (source: Latif, 2021)



Figure 3. Barriers on administration area (source: Latif, 2021)

In contrary, there are limitations to implement the health protocols in this clinic mostly occur to the patients with infants and kids. Firstly, the visitors tend to attend the clinic along with their family, such as mother, father, and/or their siblings. Based on our field observation, the family tends to choose a module or bench to be used together with their own family members, rather than sharing spaces with another family or visitors. Another problem, the number of visitors is needed to be limited considering 2-3 family members were attended the clinic at a time.

Secondly, the parents are also having problems with handling their children's movement which usually move around. Their parents tend to seat closely to their children to handling those movement. In this case, there is a possibility of the children or their parent seating on the restricted area (seating area with the X sign). There is a problem with the space of a bench in front of another bench, which approximately only 50 cm. Referred to the Lewis et.al (2020), the suggested distance between persons is minimum 1 meter (in radius). Shown on the picture, the distance is adequately safe from side by side, but it still has a problem with the front to front-side in linear seating position. The survey on preliminary research also indicates that 96.3% of the respondents are worried about COVID-19 virus transmitting over the close contact with the person in less than 1 meter. (Figure 4)



Figure 4. Transmitting pattern and space between linear seating position, front to front (left) and side by side (right) (source: Chadijah, 2021)

Reflecting this situation, the seating positions are able to have another recommendation considering the proxemics principles. The use of existing furniture, visitor limitation, cost efficiency, and space flexibility become the main discussion in search of a new recommendation. Based on Brand (1998), social interaction can be supported by the use of barriers removal. This linear seating position can be distracted by using barriers or spacing mark to communicate certain distancing in the waiting area. Barriers in this discussion can be varied; physical barriers (as shown on the administration area Figure 3), combining interior products, to create intangible barrier such as transform the seating position from linear to circular seating position. Also, using bench as a module to be configured in the waiting area and by grouping parent with their infant/children in the module can be used as basic steps to arrange the recommendation for seating configuration.

5. Results and Discussion

5.1 Adding barriers on the modular seating

Existing furniture of the waiting area in paediatric clinic at Siloam Hospital mostly uses aluminium bench seating consist of four seats. The bench was marked by the X sign in ever two seats, so effectively a module of bench only can be seated for two persons. Rather than marking "X" sign, the module can be adjusted by adding barriers within the module or between modules to consider the needs of family visitors. Even though there are no distance or space between modules, barriers can make a separating function to prevent direct contact in virus transmission.

EXISTING CONDITION	PROPOSED	SHORT TERM: MODULAR SYSTEM	LONG TERM: ADJUST TO THE INTERIOR LAYOUT

Table 1. Configuration 1 based on the furniture type and module (source: Fanthi. 2021)

Configurations on the Table 1 illustrate the possibility of seating recommendation, using existing bench with additional barrier. The barriers can use any of non-porous materials for the cleaning easiness. For the further development, new furniture can be designed on the Long-Term column. In the Figure 5, the modular seating with the barriers' configuration is presented in 3-dimensional pediatric clinic layout.



Figure 5. Example of furniture configuration 1 on the clinic, isometric view (source: Latif and Fanthi .2021)

5.2 Circular seating position

According to the previous research ran by Chadijah (2014), circular configuration is possibly changing the way people interact in response of the linear seating position. It could be converging interaction (remove the barriers) or radiating interaction (strengthen the interaction). As seen in Figure 6, for the alternative recommendation, radiating interaction is the most possible option to break the direction of the visitor seating position. Table.2 below shows us the possibility of using circular seating position as a module in the waiting area. In a complete configuration, barriers are required to separate each seating module. Figure.7 describes the possibility of implementation of this module in the paediatric clinic of Siloam Hospital.



Figure 6. Converging interaction (right) and Radiating interaction (left) (Source: Chadijah, 2014)

The picture in Figure.7 below is an example of a chair configuration design in the paediatric waiting room. The paediatric waiting room must also look attractive in order to entertain waiting paediatric patients. This can be done by assembling several forms of chairs with various attractive colours, while still meeting the requirements of health protocols. So, the design of this paediatric waiting room makes it comfortable for paediatric patients and parents who are waiting, and also creates a pleasant atmosphere in the waiting room.

Table 2. Configuration 2 based on the furniture type and module (source: Fanthi. 2021)

EXISTING CONDITION	PROPOSED	SHORT TERM: MODULAR SYSTEM	LONG TERM: ADJUST TO THE INTERIOR LAYOUT



Figure 7. Example of furniture configuration 2 on the clinic lay out (source: Latif and Fanthi .2021)

5.3 Combining existing fixtures

The last recommendation is to have a combination of existing furniture or additional table to become a "functional barrier". This three-seater chair is the most suitable in the paediatric waiting area. (Table 3) In accordance with the analysis of patient's behaviour, one child patient tends to invite one to two companions. The number of visitors is the limited number of companions that is allowed by the clinic. If the patient is a child who is on the lap, then the table can be used as a separator table by swiping right or left to optimize the distance with other patients. In the other word, the table can be functioning as a table and a barrier as it makes distance between seating area. This kind of barrier is multifunction yet flexible to move and fit in any conditions.

EXISTING CONDITION	PROPOSED	SHORT TERM: MODULAR SYSTEM	LONG TERM: ADJUST TO THE INTERIOR LAYOUT
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 Table 3. Configuration based on the furniture type and module (Source: Fanthi. 2021)

Further development of this configuration is possible to arrange seating in back-to back position as shown on Longterm column in Table 3. The configuration layout on the pediatric clinic can be seen on the Figure 8 below. Advantage of this configuration is laid on the capacity of separating visitor by using existing furniture. By developing this configuration, the clinic will obtain cost efficiency and maintain physical distancing to conduct the health protocols in pediatric clinic area at the same time.



Figure 8. Example of furniture configuration 3 on the clinic lay out (source: Latif and Fanthi .2021)

6. Conclusion and Recommendation

In order to fit the new normal living condition, we need to create a new order with various adjustments. With our analysis, we finally came to the conclusion that the most appropriate waiting chairs organization in the lobby of the pediatric clinic. First, considering the waiting chairs which in one set have a straight shape and is a three-seater chair or four-seater chair, should be placed back-to-back. One set of chairs is equipped with a divider that can be shifted according to the needs of people. Second, rather than using converging circular configuration, waiting chairs which in one set have a circular shape and consist of three to four chairs, the seats should be placed in a radiating circular configuration to avoid facing each other. The last and the most recommended set of chairs is the three- seater chair in order to avoid excess seats, because in one patient's family, it is limited to a maximum of three people.

Moreover, this recommendation also becomes a new value in design science, especially furniture configuration design with the aim of responding to the new normal situation. This recommendation has several added values based on the idea that Covid-19 will be with us for a long time:

- 1. It is a solution if the clinic wants to keep using the old chair (existing furniture) without having to replace it with the new one, adjustment is the best recommendation.
- 2.
- Responding to the number of patients' families who are children and are accompanied by at least one to two parents. Aims to prioritize comfort among patients, since there are barriers to avoid the direct contact with other visitors.
- 4. Optimizing the number of existing patients.
- 5. Produces an optimal circulation area.

6. Contribute recommendations for new seat arrangements, based on alternative forms and other modules.

References

Brand, J. L., Physical space and Social Interaction. One Haworth Center Holland, Michigan. (1998),

- Caley, P. et.al. *Quantifying social distancing arising from pandemic influenza*. Journal of the Royal Society. doi: 10.1098/rsif.2007.1197(2020).
- Chadijah, S. Perancangan Furnitur dan aksesoris Interior Disscussion Lounge Komunitas Seni Budaya Interaktif Priangan. Bachelor thesis Binus University, Jakarta. 2014.
- Chu, D. K, et.al. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: A systematic review and meta-analysis. Lancet Journal. (2020). doi:10.1016/S0140-6736(20)31142-9
- Hall, E. (1966). The Hidden Dimension. Doubleday, NY USA
- Hall, E. A System for Notation of Proxemics Behavior. American Anthropologist.(1963). https://doi.org/10.1525/aa.1963.65.5.02a00020
- Lewis, P. et.al. Manual Physical Distancing: Space, Time, and Cities in the Era of Covid-19. LTL Architect. (2020).Retrieved from <u>http://ltlarchitects.com/blog/2020/6/8/manual-of-physical-distancing</u>. Accessed 14 Januari 2020

Northouse PG, Laurel L. Health communication: a handbook for health professionals. (1985)Prentice Hall, USA

- Panero, J. and Zelnik, M. Human Dimension and Interior Space: A Source Book of Design Reference Standards. (1979). Whitney Library of Design. USA
- Sumartono. Proksemika Semiotike Ruang sebagai Sebuah Pendekatan untuk Penelitian Desain Interior. Jurnal Lintas Ruang. Vol.1 edisi 1. (2007).

Biography

Siti Chadijah S.Sn. Experienced in social -related and participatory design field since graduated from Bina Nusantara University in 2014. She held her Bachelors' degree in Interior Design major, with a course stream of furniture and accessories design. She also studied Urban Arts in Jakarta Arts Institute for her Masters' degree. Now she currently working as a lecturer in Bina Nusantara University since 2019.

Fauzia Latif, S.T., M.Ds. has graduated from Catholic University of Parahyangan, Bandung majoring Architecture (2003). She held her master's degree in Interior Design from Institute Technology Bandung in 2006. She experienced as a professional at NuArt Sculpture Park from 2006-2008. She also been a lecturer at Parahyangan University and University of Indonesia from 2010-2012. She joined Bina Nusantara University since 2010 as a lecturer and a Sub Content Specialist in Interior Design Department since 2022.

Reno Fanthi, S.Sn., M.Sn. joined Bina Nusantara University in June 2016 as material laboratory coordinator & drawing studio. She served as a lecturer in the Interior Design Program in 2017. Since June 2018, she has served as a furniture workshop coordinator in the Interior Design Department. She conducted the furniture design discipline as the focus of her lectures.