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Poster

Biopsychosocial Assessment and Ergonomics Intervention for Sustainable Living: A Case Study on Flats

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Abstract - **This study proposes an ergonomics-based approach for those who are living in small housings (known as flats) in Indonesia. With regard to human capability and limitation, this research shows how the basic needs of human beings are captured and analyzed, followed by proposed designs of facilities and standard living in small housings. Ninety samples were involved during the study through in-depth interview and face-to-face questionnaire. The results show that there were some proposed of modification of critical facilities (such as multifunction ironing work station, bed furniture, and clothesline) and validated through usability testing. Overall, it is hoped that the proposed designs will support biopsychosocial needs and sustainability.**

Keywords – **ergonomics, small housing, biopsychosocial, sustainability**

I. INTRODUCTION

The quality of human life (also known as qualify of life) is defined as a condition when an individual provides perception of his/her life in the particular context and value. It is ranged from the person's physical health, psychological state, personal beliefs and social relationship to important attributes of environment [1]. The quality of life for those who are living in high rise vertical buildings with small dimensions is quite challenging. It may refer to flats, which have dimensions of 3 m x 6 m to 4.5 m x 5.4 m. This small housing may influence the adaptation to the daily activities and movements inside the room, which affects the satisfaction and quality of life [2].

Small housing is considered to be interesting due to the growth of city urban area and the attractiveness of a large public/common area. The attractiveness of living in a smaller dimension is increasing significantly. It is due to price issue, and also the common facility provided in a small space complex, known as flat. In Surabaya, the well-known small housing/flat is located in Penjaringan Sari, also known as Rusun Penjaringan Sari (RPS). Surely, the trend of people shifting into small housing may potentially create the quality of family life.

However, living in small housing should not leave a burden for quality of family life. An ergonomics approach is proposed to address this issue. This ergonomics principle has two main characteristics, namely, human capability and human limitation. Human capability considers the ability of human living in a very stressful environment, however, they can survive. On the other hand, human limitation discusses a condition where human cannot survive since a lot of constraints exceed the human ability. According to IEA [3], ergonomics or human factors is defined as a discipline focusing on the understanding of interactions between humans and components of a particular system and some relevant methods and disciplines to optimize human well-being and system performance. Clearly, human is the center of particular human-environment system. Living in a small room of flat is quite related to the ergonomics issues, such as physical, cognitive, and organizational ergonomics. In addition, other aspects such as social, psychological and biological will influence the way inhabitants live in small space. It is known as the biopsychosocial aspect, as it is addressed by Engel [2009]. Social aspect refers to cultural, familial and socioeconomic dimensions; biological aspect is related to genetic and biochemical dimensions; and lastly, psychological aspect refers to mood, personality and behavior. Thus, all dimensions of ergonomics and biopsychosocial aspects are critical to human well-beings. However, how these two aspects have been fulfilled by those who are living in small room/flat has not been explored yet.

This study has two objectives. First, it proposes a theoretical framework of how ergonomics and biopsychosocial approach address the quality of life for people living in a flat. Second, the case study of RPS is conducted by assessing the quality of life through biopsychosocial approach and proposing a modification of critical facilities (such as ironing work station, bed furniture, and clothesline) in achieving good quality of life.

II. BRIEF LITERATURE REVIEW

There are two major concepts used for this study, namely ergonomics and biopsychosocial. Biopsychosocial deals with biology, psychology and socio-environmental factors. These factors are unified as a single model called biopsychosocial model. It assesses the health, wealth and happiness of human being. With regard to its scope and application, this model covers the various fields of psychology, health, and human development [1]. This model is proposed towards the quality of life, which is referring to human's subjective evaluation embedded in cultural, social, and environmental contexts.

Ergonomics deals with providing the right product or system at the right time to the right user. Product should consider the ability and limitation of user. Related to biopsychosocial aspects, ergonomics is mostly related to anthropometry [3]. Anthropometry deals with human body size and shape taken from various populations. This anthropometric dimension is influenced by different ethnic group, gender, nutrition, and intensive exercise. The objective of anthropometry is to ensure that a design fits to user's physical limitation and capabilities. When it fits to human's physical characteristics, then it promotes better quality of life [2].

III. METHODOLOGY

It starts with the model development by taking into account case study on small housing/flat located at RPS, followed by the inhabitant's daily activities. RPS is a small public housing/flat complex in Surabaya, owned and managed by city government of Surabaya. Afterwards, the measurement of biopsychosocial aspect is conducted, by measuring inhabitant's expectation, importance and satisfaction of stay in the small housing. The gap measured between what is expected and what is available in the current condition is calculated and analyzed. It is considering the user/inhabitant needs and necessities and the standard of life for small housings, as well. It will be then focused on what facilities to be refined and designed related to the low scores of customer satisfaction. Afterwards, considering the Indonesian anthropometric data and ergonomics approaches, the proposed designs of facilities for living standard are provided. The step by step as the representative of research methodology is provided in Fig. 1.

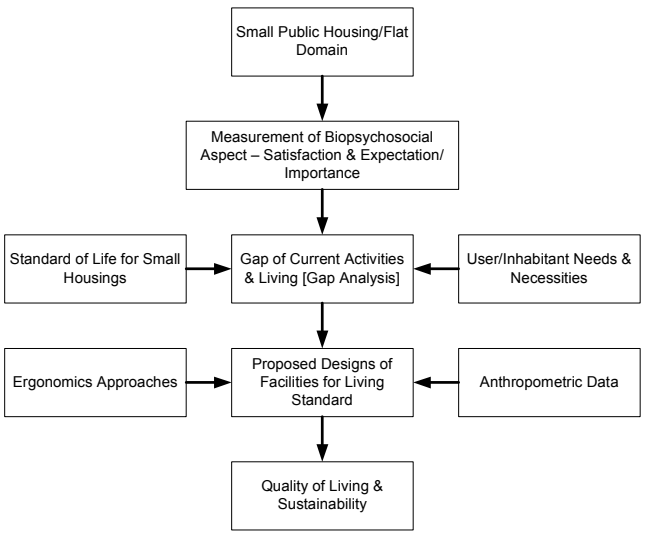

Fig. 1. Research framework of biopsychosocial assessment and ergonomics intervention for sustainability in small housing/flat

Those who were staying in the RPS at least in the last 6 months targeted. Mostly, they have stayed there more than 2 years. A survey of 90 respondents (56 females [62.2%] and 34 males [37.8%]) has been conducted to measure the quality of life through WHOQOL-BREF (*World Health Organization Quality of Life-BREF*) consisting 26 items. Those items comprise dimensions of physical health, psychological, social relationship and environmental dimensions. All variables were valid and reliable. Through in-depth interview and observation, multifunctional designed furniture sets in each housing unit are required. The use of public facilities is considered low due to their privacy expectation.

IV. RESULT AND DISCUSSION

The quality of life has been measured using an instrument called WHOQOL-BREF. It's a generic instrument to measure cross-cultural based quality of life. It measures the perception of culture and value systems and personal goals, concerns and standards.

The distribution of quality of life scores for RPS inhabitants is shown in the Table I. It shows that the mean score is 94.37 and standard deviation of 10.75. The majority said that the inhabitants had relatively high quality of life (57 out of 90 respondents [63.3%]).

TABLE I
DISTRIBUTION OF QUALITY OF LIFE FOR RPS INHABITANTS

Category	Range of score (X)	Frequency	Percentage (%)
Very high	$X \geq 109$	9	10
High	$88 \leq X \leq 108$	57	63.3
Medium	$68 \leq X \leq 87$	23	25.6
Low	$47 \leq X \leq 67$	1	1.1
Very low	$X \leq 46$	-	-
Total		90	100

The quality of life norms show that the psychological aspect had the highest rate of quality of life (with an average scale of 3.77 out of 5) as shown in the Table II. Psychological aspect is related to negative/positive feelings, self-esteem, spirituality/religion/personal beliefs. Physical health deals with activities of daily living, energy and fatigue, mobility, pain and discomfort, sleep and rest. Social relationship is related to personal relationships, social support and sexual activity. Lastly, environmental aspect covers financial resources, freedom, physical safety and security, health and social care, participation in and opportunities for recreation, and physical environment. Overall, all aspects were regarded as important and considered high.

TABLE II
NORMS OF QUALITY OF LIFE

Aspect	Mean	Standard Deviation	Category
Physical health	3.7	0.46	High
Psychological	3.77	0.45	High
Social Relationship	**3.48***	0.52	High

Environmental	3.49	0.45	High

note: some efforts need to done for the aspect "social relationship**"*

In terms of social life and relationship aspect, they have known that RPS is not sufficient to all of their needs especially for the activities of all group members (children, parents and grandparents) done together. It may influence the personal relationship, social support or even a very personal need such as sexual activity.

According to interview with the respondents, there was a common concern on the availability of public facilities such as public kitchen and service, playground, library/reading area, and multipurpose hall. It was due to the limited space available so that these facilities cannot accommodate the entire inhabitants. Moreover, a problem occurred inside the resident's room due to the limited area available. Some residents also complained about washing and ironing facility. Thus, multi-functional equipment for housing are needed. Through ergonomics approach, some basic multi-functional equipment were proposed and designed, such as, ironing, bed furniture and clothesline.

In designing such ergonomic facilities, the Indonesian adult anthropometric data have been utilized (see [5], [6]). For instance, the 5th to 95th stature is 162 cm and 183 cm for male, and 150 cm and 169 cm for female. It started with the identification of user needs. For all proposed equipment, there were some basic problems and needs, i.e., multifunctional, comfortable, light weight, easy to assembly, and safe.

Related to ironing activities, there were some problems identified such as back and waist pain, leg cramps when ironing on a mattress or floor. According to the survey to some residents, what are required for ironing table set are simple, neat, practical, efficient, fit to a very limited space, strong, can be folded, cheap, safe for children, a place to store some stuffs and the height can be adjusted. The proposed concept designs followed by dimension and prototype are shown in Figs. 2 to 4.

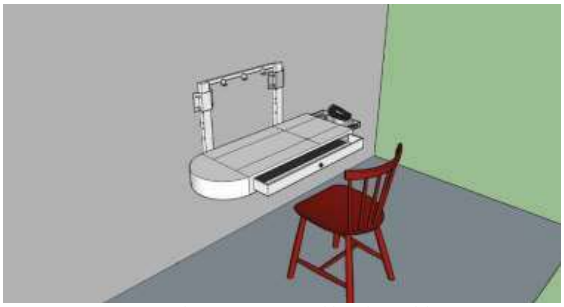

Fig. 2. Concept of ironing table

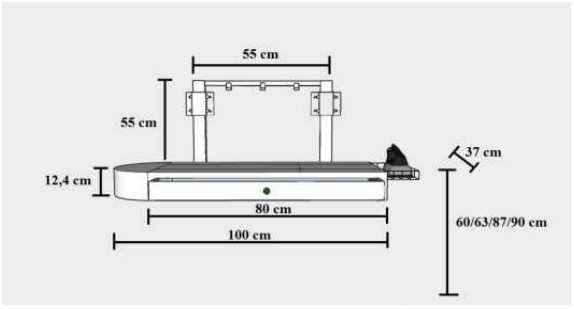

Fig. 3. Dimension of ironing table concept

Fig. 4. Prototype of ironing table

For bed furniture, it starts with the rationales of why this study should be conducted. It may be driven by a large number of family members who have a very limited living space and functionality of bed furniture so that they have difficulty to sleep well. For details, the identification of problems and research direction for bed furniture case study, followed by concept and its dimension for bed furniture are provided in Figs. 5 to 7.

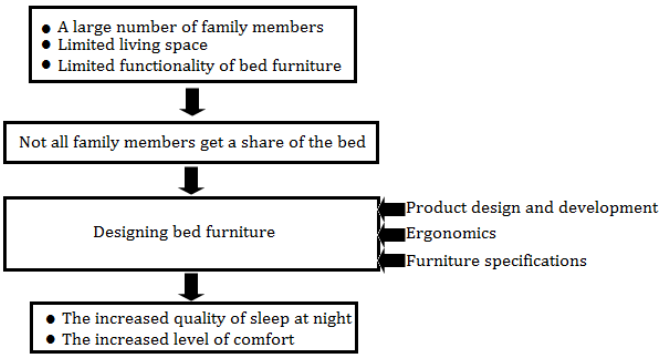

Fig. 5. Identification of problems and research direction for bed furniture case

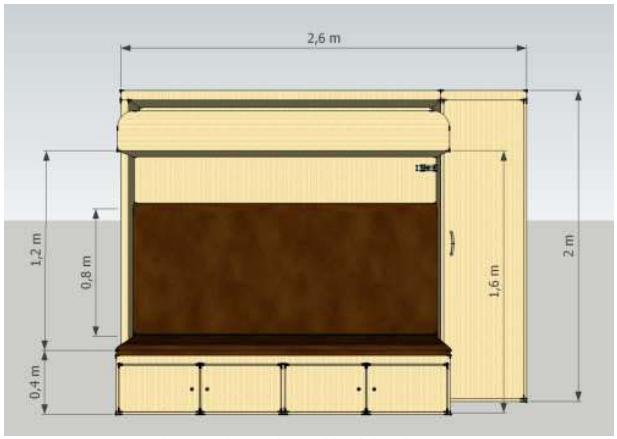

Fig. 6. Dimension of bed furniture concept

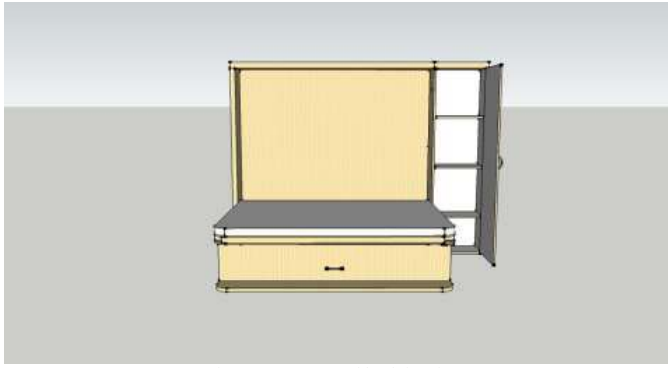
Fig. 7. Concept of bed furniture

For clothesline facility, the problems identified were a very limited space at the outdoor area, there is no storage and drying place that suit the needs of residents, residents are not allowed to hang out outside the unit, and the accumulated stuffs make the room become dirty. Hence, the user requirements formulated were attractive appearance (e.g., neat, attractive color, simple), large capacity (e.g., multiple partitions, large capacity, small size), durable, flexible/foldable, easy to use, and affordable. The concept and its dimension of clothesline are available in Figs. 8 and 9.

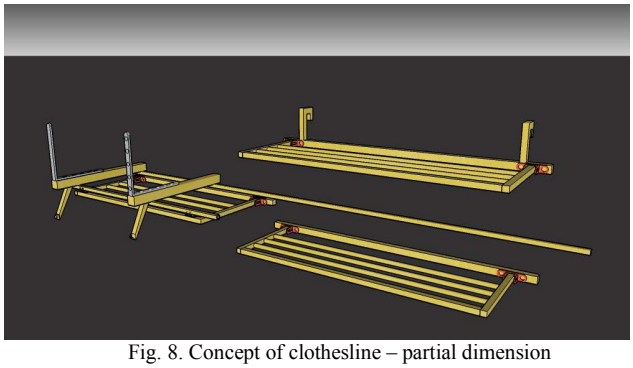
Fig. 8. Concept of clothesline – partial dimension

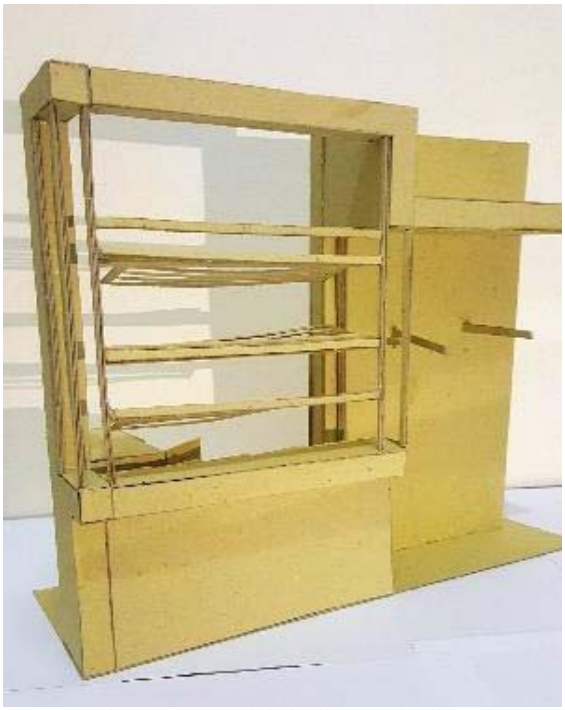
Fig. 9. Concept of clothesline – entire dimension

In order to see whether the proposed design fits to the user needs, a usability testing has been conducted. Usability testing has been done through the Nielsen Attributes of Usability (NAU) questionnaire [7]. It comprises five dimensions, such as learnability, efficiency, memorability, error and satisfaction. Learnability discusses the level of ease of learning from the proposed product; it has been through the interview with users. Efficiency is about the completion time of doing certain task. Memorability deals with the measurement of repeated same tasks without prior instruction; it is to see how easy the procedures/works have been done. Error is monitored by evaluating how the respondents complete their tasks. More specifically, the respondents were given instructions about the types of tasks to be carried out, and then the respondents were asked to do an experiment according to what was previously instructed. The error rate was counted when the activities carried out by the respondents are not in accordance with the instructions that have been given previously. Lastly, the satisfaction is measured by interview with the respondents about the overall impression/satisfaction once they have already tested and used the product.

The usability test has been done for ironing facilities, and its results are shown in Tables III and IV. The maximum score is 7, with a range of 1 (the lowest) and 7 (the highest). A purposive sampling plan has been selected. Women who have stayed in RPS for at least 2 years were targeted. There were 12 respondents participated.

TABLE III
RESULT OF USABILITY TEST FOR IRONING EQUIPMENT

Usability Measure	Average Score	Level*
Memorability	5.83	Excellent
Errors	5.71	Excellent
Efficiency	5.44	Good
Learnability	6.00	Excellent
Satisfaction	5.77	Excellent
Grand Mean	**5.77**	**Excellent**

**Level is defined by the average score against the total score of 7.*

TABLE IV
COMPLETION TIME FOR IRONING EQUIPMENT

Task	Completion Time (seconds)
Open the table and place the iron	7.25
Table settings for standing iron	12.78
Table settings for sitting iron	12.26
Close the table and return the table to its initial position	13.58

According to the result of usability testing, it was found that efficiency aspect is considered as the main concern since it has the lowest average score. Based on the interview with the respondents, there were some causes identified as follow: (i) respondents had difficulty lifting a table because of a heavy table; (2) respondents find it difficult to adjust the height of the table; (3) it is hard to remove table from the locking hinge; and (4) the locked mechanism attached on the wall sways, not static. With regard to these user feedbacks, a continuous effort and improvement has been followed up. Usability testing for another two products is on the go.

V. CONCLUSION

Based on a psychological perspective, the results of previous studies show that there is a relationship between the crowding of the physical environment and the psychological dimensions of its inhabitants, such as the quality of life, well-being, and social relations of its inhabitants. The current study shows that one of the factors which affect the individual quality of life is the quality of housing associated with crowding, which is directly related to density. This research is in line with previous research, showing that distress affects the health of individuals and well-being; a bad home condition will affect positive health and relationships and eventually it leads to stress and fatigue.

Ergonomics-based approach for product design in small housings (here it is called RPS as a case study) has been proposed. Through the usability testing, it was found that majority of residents regarded the new multifunctional product fitted to their needs, even though some improvements need to be done. Eventually, this study needs to be further extended to explore more how sustainable quality of life for small housing residents can be achieved.

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REFERENCES

[1] World Health Organization (2004) *"WHOQOL-BREF: Introduction, administration, scoring, and generic version of the assessment",* Geneva: WHO.

[2] R. C. Oliveira and G. A. Elali (2012) *"Minimum housing spaces, flexibility and sustainability: a reflection on the basis of ergonomics intervention",* Work, 41, pp. 1409 – 1416.

[3] IEA (2018) International Ergonomics Association, available online at: https://www.iea.cc/

[4] G. L. Engel (2009) *"The need for a new medical model: a challenge for biomedicine",* Holistic Medicine, 4 (1), pp. 37 – 53.

[5] K. C. Tan, M. Hartono, and N. Kumar (2010) *"Anthropometry of the Singaporean and Indonesian Populations",* International Journal of Industrial Ergonomics, 40 (6), pp. 757 – 766.

[6] M. Hartono (2018) *"Indonesian Anthropometry Update for Special Populations Incorporating Drillis and Contini Revisited",* International Journal of Industrial Ergonomics, 64, pp. 89 – 101.

[7] J. Nielsen (1993) *"Usability Engineering",* Mountainview, California: SunSoft.

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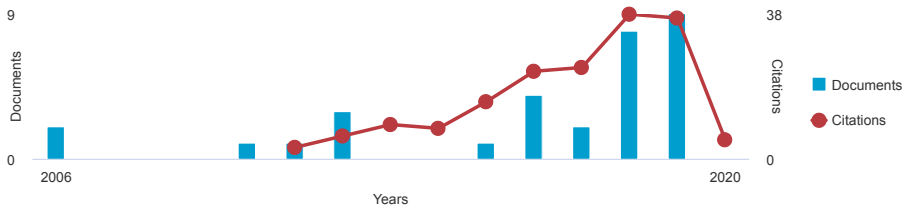

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Cultural differences in applying Kansei Engineering to services View abstract ⌄ View at Publisher Related documents	Hartono, M., Chuan, T.K., Peacock, J.B.	2012	2012 Southeast Asian Network of Ergonomics Societies Conference: Ergonomics Innovations Leveraging User Experience and Sustainability, SEANES 2012 6299580	1
Incorporating Kano's model and Markov chain into Kansei engineering in services (Book Chapter) View abstract ⌄ View at Publisher Related documents	Hartono, M., Chuan, T.K., Peacock, J.B.	2012	*Advances in the Human Side of Service Engineering* pp. 399-409	0
Drillis and contini revisited (Book Chapter) View abstract ⌄ Related documents	Peacock, J.B., Aravindakshan, M., Xin, T., (...), Hartono, M., Stella, N.Y.	2012	*Advances in Usability Evaluation Part II* pp. 76-85	3
How the Kano model contributes to Kansei engineering in services View abstract ⌄ View at Publisher Related documents	Hartono, M., Chuan, T.K.	2011	Ergonomics 54(11), pp. 987-1004	36
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Designing and improvement work facility at operational department in CV. Abadi Jaya View abstract ⌄ Related documents	Hartono, M., Rosita, M.S., Hongky, P.	2006	Proceedings - Ergo Future 2006, International Symposium on Past, Present and Future Ergonomics, Occupational Safety and Health pp. 74-76	0
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