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**PROMOTE HEALTHCARE QUALITY THROUGH JAPANESE
PEOPLE'S EMOTIONAL EXPERIENCES AND NEEDS**

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Abstract

The sustainable development goals are the blueprint to achieve a better sustainable future for all by 2030. One of these goals seeks to ensure healthy lives and promote well-being for all. Improving the health of the population means providing quality healthcare services for individuals. Recently, healthcare service focuses on patient medical care, and the physical environment's role in promoting health outcomes. Physical environment design directly impacts the patient experiences. Patient's journey in a hospital is more than moments of medical aid and treatment—it further includes the time they spend on moving between those moments. This research identified the issues which the patients face in such a transitional area where they wait for examinations. We selected the waiting area of the gastrointestinal endoscopy unit as a case study because the patients usually wait for a period of time there before their examinations. Furthermore, there is a lack of studies discussed the design of this unit. To carry out this study, Kansei sheet was used, as well as series of interviews were conducted with 4 Japanese people with different health conditions. The intention was to capture people's emotional experiences, and determine their demands. This study revealed that the main problems of people were related to physical space attractiveness and usability

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1. Introduction

In September 2015, world leaders from 193 countries came together at the United Nations to adopt a new 2030 Agenda for Sustainable Development. This ambitious agenda outlines 17 Sustainable Development Goals (SDGs) (Sustainable Development for Health 2015). This study focuses on SDG 3 which aims to ensure healthy lives and promote well-being for all (Figure 01). To provide all with healthy lives, we have to take action. Therefore, the healthcare sector is undergoing extensive reform, worldwide. Recently, healthcare organizations strongly place greater emphasis on the individual (Delaney, 2017). Studies pointed out that person-centred care (PCC) is a model of care that respects the patient's experience, values, needs and preferences in the planning, co-ordination and delivery of care. The implementation of PCC model has been shown to contribute to improved outcomes for patients, and increased satisfaction with care (Santana et al., 2018).



Figure 01. Sustainable Development Goals

2. Problem Statement

This study applies the PCC approach to create a healing environment which fosters people mental, emotional and physical health. The design of a waiting area of the gastrointestinal endoscopy unit is selected as a case study because the patients spend there an average from one hour to 4 hours before their examinations. Furthermore, there is a lack of studies discussed the design of this unit (Mulder et al., 2013). In the world, the needs of endoscopic exam are growing year by year due to increasing of the incidence of colorectal and gastric diseases (World Health Organization 2019).

3. Research Questions

In this study, onsite interviews were conducted with 4 Japanese people (see research methods part), so as to examine the waiting area design. The intention behind interviews was to provide us with complete views and richer source of information about the 4 people experiences, preferences, feelings and opinions on the present design. The questions were designed according to the three-levels model of emotional design; visceral design, behavioural design and reflective design (Norman, 2002).

A. Physical Attractiveness (Visceral Design)

In the initial stage, we asked the 4 individual case studies several questions, so as to assess the physical attractiveness of waiting area 'the look and feel of space'. In this phase, the interviews' questions focused on the interior design elements; including colour, form, art works, texture, line and pattern.

B. Design and Usability (Behavioural Design)

The second stage aimed to assess the space usability from the individuals' viewpoints. The questions considered several aspects; privacy, safety, user circulation, ventilations, lighting systems, and comfort (a state of physical ease and freedom from pain).

C. Design Value and its Notable Memories (Reflective Design)

In the last stage, our questions were mainly about the overall perceptions and experiences. In other words, we attempted to capture the individuals' feelings after immersing in that trial, and determine whether they want to do that experience again or not.

4. Purpose of the Study

The purposes of this study are to assess the design of waiting area of the gastrointestinal endoscopy unit, and determine the troubles and issues which the people encounter there. In addition, important design tips are recommended from the endoscopists' point of views. The intention is to build a waiting area patient-friendly.

5. Research Methods

To achieve our goals, one of the largest digestive disease endoscopy units in the Fukuoka city (Japan) was selected as a case study. This unit is divided into several functional areas, including a waiting area for patients and relatives, preparation area, consultation rooms, examination rooms (endoscopy rooms), recovery area, decontamination area and toilets (Figure 02). Within two stages, the unit design had been evaluated from the viewpoints of diverse groups of people, and with different experiences. In the first stage, the waiting area of this unit had been examined by the patients and 4 medical staff who are currently working there (Elokla & Kagawa, 2019). Regarding the second stage which is represented in this study, 4 Japanese people (first-time visitors, including 2 females and 2 males- in various ages) are selected to assess the same area. We tried to capture subjective experiences of all the participants, and determine their problems and demands by using; Kansei sheet, and in-person meetings. Kansei sheet is an evaluation method which presents 14 distinct emotional responses (Elokla & Hirai, 2015). Each person can select from it the image/s that best express his or her emotional responses to a design.

The authors tried to obtain from each participant 3 levels of experience. These experiences have been emerged through 3 various design levels; visceral design, behavioural design, and reflective design (Norman, 2002). The 4 participants were requested to use Kansei sheet in each design level. Next, in-person meetings were conducted with all in order to identify the main reasons behind their responses in which we got through the kansei sheet. All data we collected from the above methods were analysed by coding them and formulate categories. At the end, we established relationship between categories which were ultimate result of this study.

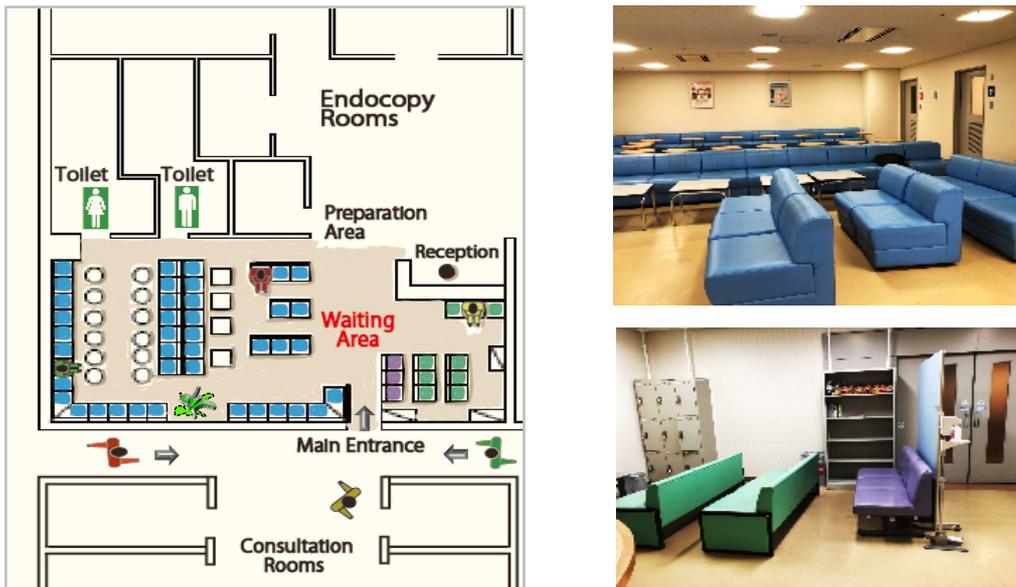


Figure 02. Plan of the Waiting Area, Japan

6. Findings

6.1. Patients' Types and Procedures

Based on the survey, this endoscopy unit receives about 100 patients in a day. However, the number of seats available for the patients is 53 chairs. About 40 people are working there, including 20 doctors, 12 nurses, 2 technical staff and 6 Lavage (endoscope) staff. This unit receives 2 categories of patients; inpatients and outpatients. Outpatients include the following: a colonoscopy, and an upper endoscopy, and a patient who needs a rapid diagnosis and receiving a medicine (Figure 03).

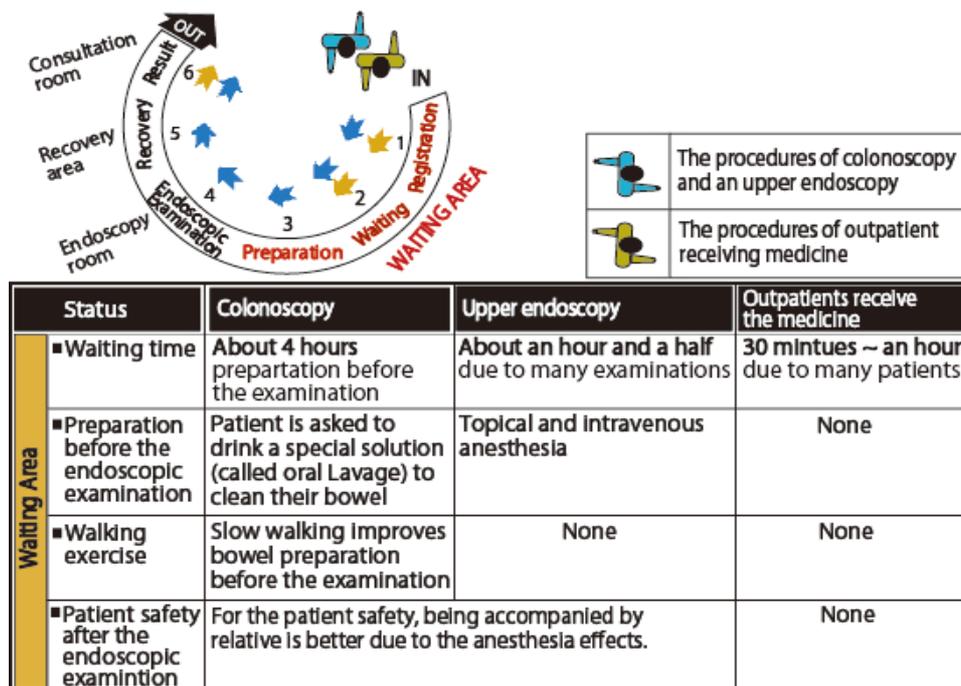


Figure 03. the Examination Rules and Procedures for the Outpatients

6.2. Space Design Evaluation from the Visitors' Points of Views

The results of kansei sheet and in-person meetings with 4 people (first-time visitors) indicated that their impressions about physical attraction of waiting area were not positive due to a lack of inviting elements, such as magazine, free Wi-Fi, music, art works, etc. (Figure 04). As for the space usability, they felt discomfort due to the following design problems; 1) the waiting space has a lack of natural ventilation, views, and absence of sunlight, in which can lead to physical and mental health problems. 2) There is a lack of privacy. For example, there is no an available space for the patient's relatives, or visitors. 3) The space is crowded by uncomfortable seats and many large pieces of furniture (such as using big size tables) (Figure 05). In addition, there is a difficulty to pass between the seats because the distance between the seat rows is tight. 4) The seats are put at random, and are not organized well. The couches should be arranged according to the patients' cases, such as; area for colonoscopy cases, area for an upper endoscopy cases, and the other area for the patients who need to receive a medicine only. This is better for easy movement. In addition, the medical staff can recognize their patients easily. 5) There is not an additional space for a wheelchair user, or people with special needs.

From the above design problems, we tried to determine the subjective experiences of individuals by using Kansei sheets. The intention was to see the influences of waiting area design on the people emotional state before, during and after their visits (Figure 06).

Figure 06 shows that two persons (a female and a male) had positive images about the waiting area design before their visits. But during and after their visits, they had negative feelings due to the above design problems. As for the other two persons (a female and a male), they generally do not like the hospitals' atmospheres and waiting rooms. So, they had negative impressions about the waiting area design before their visits. They believe that at many hospitals, the waiting room experience is not particularly pleasant. Their negative feelings increased after their visits.



Figure 04. First-Time Visitors used Kansei Sheet



Figure 05. Large Pieces of Furniture

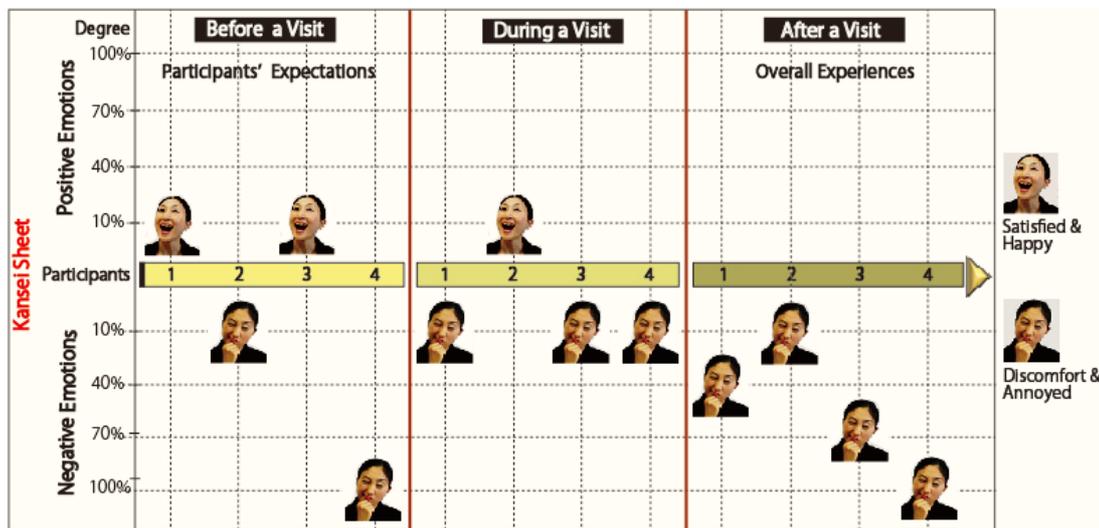


Figure 06. Emotional Journey of 4 individuals (first-time visitors) in the Endoscopy Unit

Generally, waiting is a fact of our life. To improve the healthcare experience, waiting spaces should be adaptable and productive environments. Attractive and cheerful waiting rooms reduce anxiety, create a better perception of the quality of care, and convince patients that they've waited a shorter amount of time (Citipage, 2019).

6.3. Recommendations for Designing a Waiting Area Patient-Friendly

Based on the interviews that were conducted with two endoscopists and our survey, it can be said that there are significant tips to design a better waiting area for the endoscopy unit as follows:

1) Use suitable ventilation systems. The design of proper, general ventilation systems can play an important role in preventing the spread of infections. When natural ventilation alone cannot satisfy the recommended ventilation requirements, alternative ventilation systems, such as a hybrid (mixed-mode) natural ventilation system, should be considered, and then if that is not enough, mechanical ventilation should be used (WHO Publication/Guidelines, 2009). 2) Use compact and lightweight furniture for moving without difficulty. This is important for easily changing the space layout according to different needs and

cases. About seating arrangement, the way receptionist seating is arranged in a waiting room can make a real difference for how comfortable waiting patients will be. Not just physically, but socially (Epprecht, 2019). 3) Regarding the chair design, comfort is a priority. The design of waiting room furniture should be comfortable, as inconvenient sitting posture helps to make the wait time appear longer. For example, using curved back seating could ensure maximum comfort for all users (Renray Healthcare, 2019). As for promoting privacy level, use seats with wider armrests to provide separation from others.

4) Provide patients and visitors enough personal space for their belongings. 5) Assign additional space for individual with special needs. 6) Create active waiting area that makes the wait time seem shorter. In other words, providing people with something to do will keep their minds less focused on the clock (Ama, 2018). Therefore, take into consideration both of aesthetics, furnishings, and technologies that are being put to use.

7. Conclusion

Patients' experiences of care are built with the moments of care, as well as the waiting time they often spend before those moments. Thus, it is important to design a waiting area that fulfils patients' needs and improves their overall experiences. The main purpose of this article is to assess the waiting area of gastrointestinal endoscopy unit through emotional experiences of users. To achieve our goal, one of the largest endoscopy units in Japan was selected as a case study. The evaluations of 4 individuals revealed that the waiting space is not well designed. The present design elicited negative emotional responses among the 4 individuals. The main problems are related to the space layout, lack of safety, privacy, and entertainment. Therefore, 6 design tips have been suggested with consulting two endoscopists to build a positive waiting experience. In the future, we would seek to develop the design of endoscopy waiting area by visiting more case studies and understanding the needs of different groups of people.

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