

**ORIGINAL ARTICLE**

## Development of Bathing Equipment for the Elderly

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**ABSTRACT** - The number of elderlies in Malaysia increases every year. The elderly care services necessitated by the nursing homes are in demand. Most of the nursing homes in Malaysia are lack of standard facilities that catered the care services for the elderly. This research aims to identify ways to cater dignity care of the elderly by caretakers and to propose a design of specified bathing equipment for daily bathing sessions. Hence, dignity care of the elderlies is the basic priority in providing care that promotes health to the elderly. Therefore, a case study using qualitative and quantitative data was conducted in two phases. Phase 1 aims to collect data from the caretakers and the admin of the nursing homes, whereas the target group in phase 2 are the users of the bathing equipment. Questionnaire instruments were developed using Google Form, open-structured interviews and field visit. Findings indicated that dignity care are the major concern by the caretakers. As for the elderlies' respondents, they strongly suggested that the development of the bathing equipment should provide privacy, covering up the body as a shield so as to safeguard their dignity. The spirit to explore new aids that can bring benefits in the elderly care service should be encouraged and further exploration are needed to consolidate the whole concept of the design.

**ARTICLE HISTORY**

Received: 17 Jan 2023

Revised: 06 Feb 2023

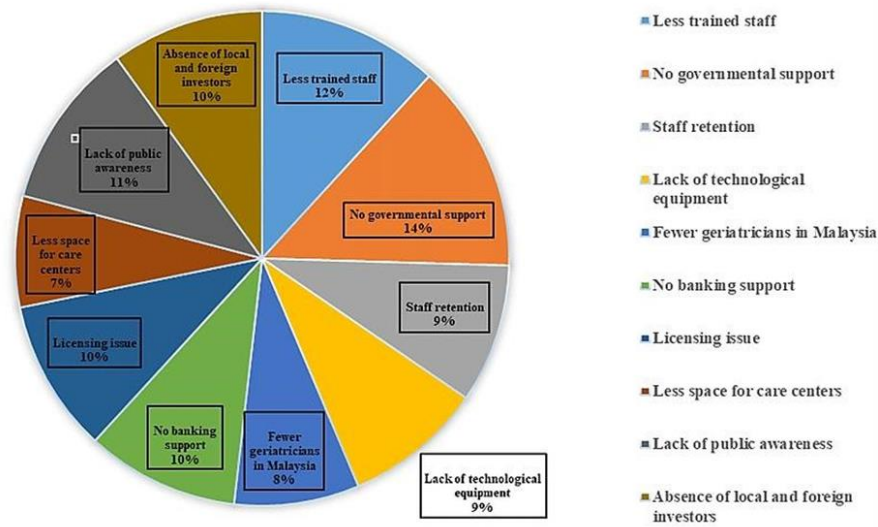
Accepted: 02 Apr 2023

**KEYWORDS***Bathing Equipment,  
Caretaker,  
Dignity,  
Elderly,  
Privacy.*

### INTRODUCTION

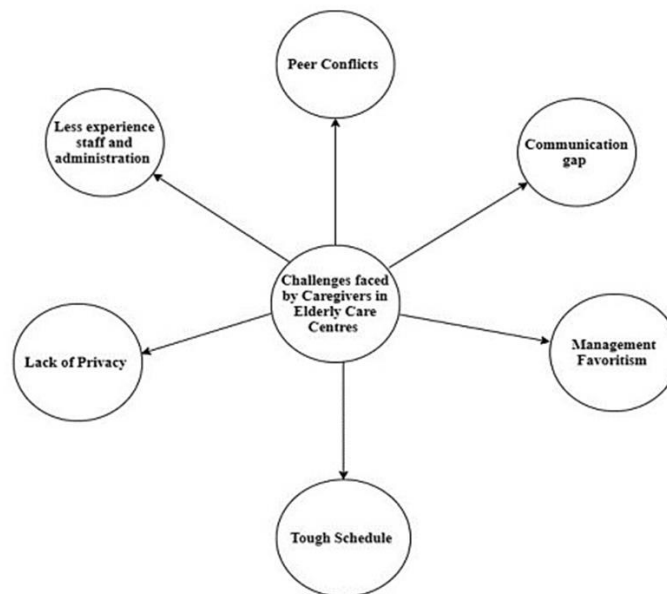
The numbers of elderly in Malaysia are increased every year. According to a researcher, the request towards elderly care services necessitated by the nursing home are in demand [1]. However, nursing homes in Malaysia is lack of standard of facilities in order to cater the care services for the elderly. Currently, Malaysia has no minimum standard facilities of Nursing Home. Corresponding to a researcher in the year 2019 determined that standard operating procedures, organisational structure, and emergency procedures all need to be altered in the operational policies [2]. Lots of improvements should be done to follow the minimum standard facilities guideline. In terms of facilities, not all of the centers cater to the needs of the elderly.

Based on Subramaniam and his research team, there is a lack of conducive facilities in most general-graded elderly care center in Malaysia especially the bathing equipment for the elderly group [3]. Moreover, equipment for elderly' people are mostly imported and expensive. Figure 1 shows the obstacles and issues faced by the ageing care center in Malaysia whereas the issue of lacking technological equipment holds 9% in the pie chart.



**Figure 1.** Obstacles and Issues Faced in the Ageing Care Centers in Malaysia [3]

There is a need to ensure a bathing environment with equipment especially for the elderly group in nursing home. Based on research entitled Exploring the Facet of Elderly Care Centre in Multiethnic Malaysia as shown in Figure 2, one of the challenges faced by caretakers in elderly care center is lacking of privacy [4]. Caretakers need special equipment or equipment that is able to protect the privacy of the elderly when handling bathing activities for the targeted group of people. These type of equipment are usually unavailable in the nursing home in Malaysia.



**Figure 2.** Challenges Faced by Caretakers in Elderly Care Centers [4]

The objectives of this study are to identify ways to cater dignity care of the elderly by caretakers during daily bathing sessions and to propose the design for specified bathing equipment for the elderly that are convenient and able to secure the dignity during bathing sessions.

## MATERIALS AND METHODOLOGY

The research design for this paper is a case study with survey instruments that were conducted in two phases, where phase 1 consists of 48 respondents and phase two consists of 58 respondents. Questionnaire instruments were developed using Google Forms, and open-structured interviews and field visits were carried out in one of the nursing homes in Kuching, Sarawak.

Google Form is used to create a group of questionnaires. The questionnaire was designed and given to nursing home caretakers in Sibul, Sarawak. Both authorised and unauthorised nursing homes receive the Google Form. A total of 48 replies have been collected. The questionnaire consists of 15 questions in total. The questions are set to collect information about how nursing homes use resident and family satisfaction surveys to improve quality. The data acquired through this inquiry could be utilised to establish programs and policies aimed at enhancing resident and family satisfaction, as well as how those results can be used to improve quality. Open-structured interviews were conducted to gain detail information on the findings from the questionnaires. Fields visit have been conducted to observe the bathing activities in the nursing home.

## RESULTS AND DISCUSSION

### Phase 1 Questionnaires

Data collected from Phase 1 questionnaires are illustrated in Table 1 and Table 2 below.

**Table 1.** Bathing Activities

Items	Subject	Percentage (%) N=48
Any challenges or problems faced while bathing the elderly	Yes	98%
	No	0%
State the obstacles faced	<b>Lacking of bathing equipment</b>	<b>100%</b>
	Not enough caretakers	25.5%
	Types of bathing method is not suitable for the elderly	6.4%
	The elderly attitude during bathing sessions	42.6%
	<b>Once a day</b>	<b>93.8%</b>
Frequency to bathe the patients	Twice per day	0%
	Alternately (2 days 1 time)	0%
	Depends on individual need	6.2%
	Others	0%

Based on Table 1, almost all of the nursing homes in Sibul face problems or challenges while bathing the elderly (98%). According to the respondents, 47 nursing homes (100%) are experiencing a scarcity of bathing equipment. There are 20 nursing homes that are having trouble coping with the elderly's attitude during bathing sessions. The elderly are bathed once a day in most care facilities, accounting for 93.8% of the total. Only a few nursing homes (6.2%) provide baths for the elderly, depending on their needs.

**Table 2.** Bathing Activities

<b>Items</b>	<b>Subject</b>	<b>Percentage (%) N=48</b>
Bathing facilities in the nursing homes	Bucket	16.7%
	<b>Shower</b>	<b>97.9%</b>
	Others	0%
Bathing process apply to the elderly	Bed bath	56.3%
	<b>Bath with help of caretakers</b>	<b>97.9%</b>
	Bath by themselves	31.3%
	Depend on individual need	22.9%
Challenges faced during bathing activities in the nursing homes	<b>Lack of tools</b>	<b>95.8%</b>
	Lack of helping hands	45.8%
	Dignity care	85.4%
	Others	2.1%

Table 2 shows the latest data from the Malaysian government's first phase of the pilot project aims to improve access to water and sanitation for elderly people. Showers are available in the majority of Sibu nursing homes (97.9%) but only 16 nursing homes provide buckets for bathing.

**Table 3.** Suggestion to Enhance Bathing Activities in Nursing Homes

<b>Recommendation Type</b>	<b>Suggestion</b>
Equipment	• Adding more bathing equipment and compartment
	• More bathing equipment
	• Personal equipment
	• Cover during bathing
	• Privacy during bathing
	• Covering up the elderly bodies so that they don't feel shy
Privacy	• Protect human rights
	• Unopened space
	• Gap to separate
	• Light
Caretaker	• More bigger cabinet
	• In needs of more well-train caretaker
User-friendly product	• Design a product to let the nurses feel more comfortable while bathing the elderly especially while bathing the elderly with opposite gender
Safety	• Improve the condition of the slippery bathroom floor
Others	• Improve the condition of hot nursing home in the afternoon
	• Convenient

The elderlies are bathed at the majority of nursing homes in Sibu with the assistance of caretakers. There are 27 nursing homes that provide bed baths to the elderly who are incapacitated. 15 nursing homes allow the elderly to bathe alone, accounting for 31.3% of the total.

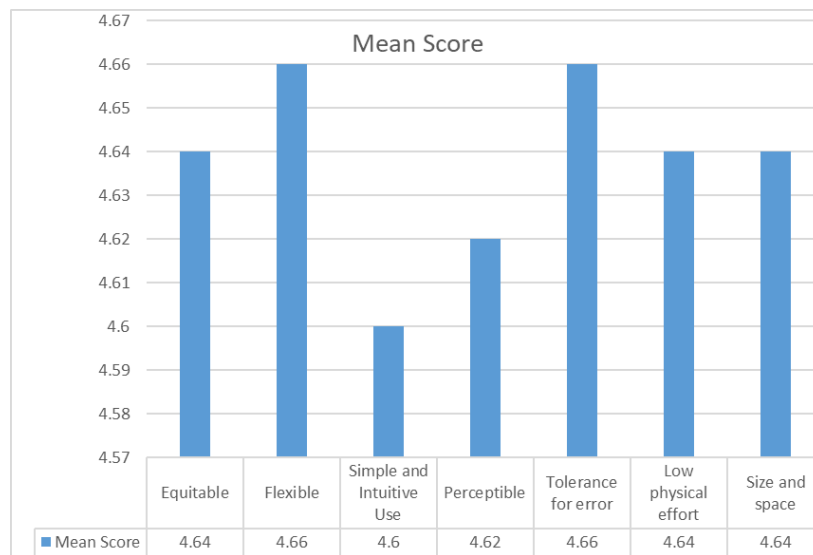
46 nursing homes in Sibul were affected by a shortage of appropriate bathing equipment for the elderly, accounting for 95.8% of the total. 41 nursing homes (85.4%) experienced a lack of dignity care when delivering baths to the elderly. Only one nursing home (2.1%) had other issues that were not mentioned in the questionnaire.

The final question is designed to entice respondents to offer recommendations or thoughts on how to enhance bathing activities in nursing homes while maintaining dignity. A total of 19 answers have been received. The suggestions are shown in Table 3.

In a nutshell, almost all nursing homes in Sibul provide full-time care, with only a few offering basic day and hourly care. The majority of nursing homes have showers available for bathing. Lack of appropriate bathing gear as well as the lack of dignity care during the bathing session are the primary issues faced by nursing homes.

### Phase 2 Questionnaires

Data collected from Phase 2 questionnaires are illustrated in Figure 4 below.



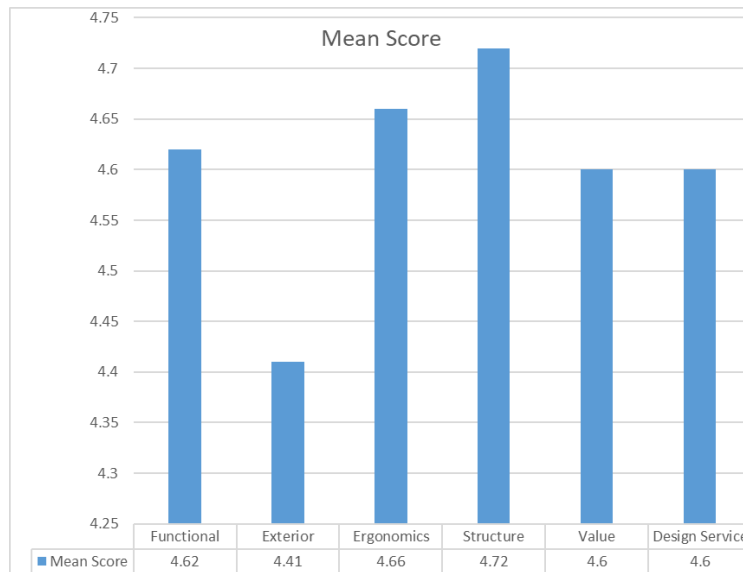
**Figure 3.** Mean Score of the Perception towards Specification of the Bathing Equipment

In phase 2, the perceptions towards specification of the bathing equipment based on 7 principles of Universal Design by a researcher Chartchay Junprateep was collected [5]. The respondents of phase 2 questionnaires are the users, caretakers and the nursing home admins.

Refer to Figure 3, majority of the respondents (67.2%) strongly agree on the statement that the bathing equipment should be able to correspond the need of the elderly. The majority of the respondents (72.4%) strongly agree on the statement that bathing equipment should be flexible and provide a wide range of change to suit every individual. There are a majority of 65.5% of respondents who strongly agree that bathing equipment should be simple to use without any complexity and complicated to cause difficulties. The majority of the respondents (63.8%) strongly agree to the statement that the usage of the bathing equipment should be clear to the users. The majority of the respondents (67.2%) strongly agree to the statement that the equipment should be tolerance to error to minimize accidental hazards and error in use. The majority of the respondents (67.2%) strongly disagree on the statement that bathing equipment should consist low physical effort to be used efficiently and comfortably and with minimum force. The majority of the respondents (69%) strongly agree to the statement that he bathing equipment should have appropriate size and space accessible by the user behavior.

Data collected from Phase 2 questionnaire are illustrated in Figure 4 below. In Phase 2, the perception towards usage of the bathing equipment based on theoretical model of special product design for the

elderly by a researcher and his team was collected [5]. The respondents of phase 2 questionnaires are the users, caretakers and nursing home admins.



**Figure 4.** Mean Score of the Perception towards Usage of the Bathing Equipment

A majority of the respondents strongly agree to the statement. The question is to identify the respondents' perception whether the bathing equipment should be functional. There are a total of 31% who agree to this statement. A majority of the respondents (50%) strongly agree to the statement that bathing equipment should be simple and aesthetic. There are a total of 65.5% of the respondents strongly agree to the statement that bathing equipment should consider the aspect of safety and comfort.

The question is to determine the respondents' perception of whether the structure of the bathing equipment should be firm and durable. The majority of the respondents (74.1%) strongly agree to the statement. A minority of 1.7% partially agree on the statement, and 0% disagree and strongly disagree to it. There are a majority of 63.8% of the respondents strongly agree to the statement. There are a minority of 3.4% who partially agree to it and 0% who disagree and strongly disagree.

The question is whether the bathing equipment should be sustainable and valued for money. The question is to identify the perception of the respondents whether the bathing equipment should be suitable for the elderly. The majority of the respondent (63.8%) strongly agree to the statement. There are a total of 32.8% who agree with the statement, and a minority of 3.4% partially agree to it.

### Open-structured Interviews

An open-structured interview was conducted during the visit to one of the government-run nursing homes in Kuching, Sarawak. Table 4 shows the transcript of the verbal interview with its analysis using thematic approach.

**Table 4.** Analysed Transcript Using Thematic Approach

<b>Speaker</b>	<b>Conversation / Response</b>	<b>Thematic Approach (keywords)</b>
Persona	Okay, this is our bathing area. We have three bathrooms. It's the same. They <b>sit on this commode</b> .	Basic bathing facilities are provided.
Visitor	They have <b>shower and heater</b> ?	Basic hardware bathing tools are provided.
Persona	Yes.	
Visitor	So, they bath by themselves?	
Persona	No. The <b>staffs will help</b> .	Elderlies are bathed with the help of the caretakers.
Visitor	So all staffs help?	
Persona	Yes. Unless those <b>independent ones they will do it themselves</b> . But most of them is with the staffs' assistance.	Elderlies that are independent can bath by themselves.
Visitor	Oh. So they will sit on this is it?	
Persona	Yeah. They will <b>sit on that commode</b> . Sometimes they just pass urine, you know.	
Persona	We have <b>the bell</b> to call the staff.	DIY bell is made for the elderlies to call the staff for emergency.
Visitor	Does here have any bed bathing?	
Persona	<b>Bed bath, yeah</b> . Bed bath is just they do it on the bed.	Bed bathing service is provided for the disabled elderlies.
Visitor	They take their bath every day is it?	
Persona	<b>Every day</b> .	Elderlies are bathed every day.
Visitor	Oh, okay.	
Persona	So this is the bell. In case so they can call the staffs.	
Visitor	It's <b>quite spacious</b> . There also have the handle for them.	Roomy bathrooms and toilets are provided.
Persona	Yeah. They can <b>hold it so that they can stand up</b> . You know most of them have leg problems.	Basic safety products are provided.
Persona	Yeah. Three, three. <b>Three bathrooms, three toilets</b> .	Sufficient amount of facilities provided.
Visitor	Oh, and so this is where they can come out to rest is it?	
Persona	Yes. Sometimes they come out to look around and some activities are held here.	



## CONCLUSION

Nursing homes lack bathing equipment and gadgets that can offer privacy and dignity care for the elderly. This project of developing a bathing equipment aims to help the elderly and disable group during bathing with dignity care as safety and physiological needs. The users' privacy and attending to the psychosocial well-being of users and caretakers is major focus of the product development. The bathing equipment was created with the needs of nursing homes in mind. It has eight elements that can provide privacy and respect to the elderly during bathing sessions.

The propose design of bathing equipment for the elderly should consists of 8 features which are to protect right of privacy care, provide cover while bathing, act as a protection, be user-friendly, portable, aesthetic, cost effectiveness and less space consuming. The findings show that a product that may give privacy care in nursing homes is indeed needed. The product should capable of covering the majority of the elderly's body parts. It creates a barrier between the elderly and those who care for them. This is to keep the elders' bodies from being completely exposed while being washed by the caretakers. The bathing equipment aims to provide users with a sense of safety and to ensure the elderly's privacy and dignity are protected. Throughout this investigation, the objectives were achieved.

## ACKNOWLEDGEMENT

I am deeply indebted to all the lecturers of UTS for all the guidance throughout the research. Words cannot express my gratitude to my supervisor, Miss Barbara Anak Dieo for her invaluable patience and feedback. Additionally, this endeavor would not have been possible without Dr. Ling Pik Kuong from IPGK Rajang for the enlightenment for the data collections and analysis. Thanks should also go to Lions Nursing Home, Kuching for the cooperation for allowing visitation. I's like to recognize all the respondents in the research. Lastly, I would be remiss in not mentioning my family, especially my parents. Their belief in me has kept my spirits and motivation high during this process.

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