

A STUDY OF CUSTOMER SATISFACTION REGARDING THE CONVENIENCE OF DENTURE BOX PRODUCTS IN SELECTED DENTAL CLINICS IN MALAYSIA

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ABSTRACT. Denture box is an innovation made as an initiative to reduce aerosol dispersion produced from removable denture trimming procedure or other dental prosthetics. Trimming procedure, especially when done at the chairside, may generate particles and splatter that may contain microorganisms such as virus, bacteria and fungi. Hence, this product may reduce the risk of spreading infection via aerosol. Meeting the target of more effective use, this study aims to identify customer satisfactions of Denture Box. Using a quantitative approach through the distribution of questionnaires to 6 respondents from all users of Denture Box from dental clinics around the state of Pahang and Johor. The findings show that the level of satisfaction was at a moderate level but still met the specifications of user needs based on the findings of a mean score at 3.67. The objectives of the study have been achieved although the results are modest but improvements on the product will be carried out to achieve a higher level of satisfaction.

KEYWORDS: denture box; dental; covid19; user satisfaction.

1 INTRODUCTION

The outbreak of the 2019 coronavirus pandemic (COVID-19) that first appeared in Wuhan, China at the end of 2019 was transmitted through respiratory droplets and close contact. This pandemic has caused all efforts to be focused on curbing the spread of the virus in the community. However, the country still strives to provide the best health services for the community (Zhu, H et al. 2020). The dental profession is classified as a very high-risk occupation and involves the production of aerosols. Aerosols generated from mouth and denture materials can be dispersed through the air and water droplets have a high potential to harm the operator, dental staff, and other patients (Lu, M 2020). "Denture box" is a dental innovation that is categorized as a technical product. The creation of this product enables the continual production of dentures. When prosthesis trimming is done, this substance can also limit the distribution of aerosols and reduce the possibility of coming into contact with the COVID-19 virus.

2 PROBLEM STATEMENT

When the coronavirus pandemic hit the country, the main problem was how the dentists wanted to carry out treatment based on the cases of patients who visit the dental clinic. Dental services had to be limited to emergency cases only. This is due to the significant possibility of virus transmission by aerosols in dental facilities. This has led to the postponement of denture appointment cases in a high number and might make it challenging to carry out the treatment due to high possibility of movement of the tooth which makes the loss of space occur on the ridge of the patient in the oral cavity.

The COVID-19 virus has spread all over the world and is very easy to spread through respiratory droplets and close contact with a high risk that can cause death. The number of cases for treatment should be limited to reduce the risk of spreading the virus among staff and patients. Treatments such as fillings, scaling, root canal treatment, dental surgery, trimming dentures and others can cause the spread of aerosols between patients and dental staff, in dental facilities, on facility surfaces and through direct or indirect contact.

As far as the product produced is suitable for use, the price factor, cost savings and suitability for the dental clinic are the main problems in writing this study. According to Booth (2003), effectiveness studies are necessary to improve product quality and also to help dental operator to understand customer expectations and perceptions as well as continuous quality assessment.

3 STUDY OBJECTIVES

The goal of this study is to:

- 1) To identify the level of suitability, design and function of the product at the user's workplace.
- 2) To determine the cost savings and acceptability of the product prices.

4 STUDY QUESTIONS

Some questionnaires had been designed to achieve the objective of the study.

Objective 1:

- 1) Is the product suitable for use in the dental clinic?
- 2) Is the "Denture Box" design appropriate and easy to handle?

Objective 2:

- 3) Has the "Denture Box" saved time, cost and energy for users?
- 4) Is the price set appropriate for the quality and function of the product?

5 SIGNIFICANCE OF THE STUDY

The findings of the study from the identification of the level of suitability, design and functionality of the product will enable researchers to determine how much the "Denture Box" can facilitate and speed up the process of denture trimming during pandemic COVID-19.

The study of customer satisfaction regarding the convenience of denture box products in selected dental clinics in Malaysia is significant to upgrade the existing product and to ensure the dental clinics benefit from user friendly, economical, and facilitate the work of the dentist.

6 SCOPE OF THE STUDY

This study is focused on only the users in 6 dental clinics in the district of Rompin, Pahang and Mersing, Johor, Malaysia that have collaborated in several programs previously.

7 LITERATURE REVIEW

7.1 Difficulties in dental field

When fighting against COVID-19 that has now spread globally, our country's health system is experiencing a crisis in delivering the best health services to the community. Despite being recognized as one of the most high-risk careers (Lu, M 2020) in infecting and contacting diseases spread through water droplets such as COVID-19, dental health still strives to provide and improve the services.

A study stated that the saliva of patients whether symptomatic or asymptomatic can release the virus with just normal breathing (Mattos FF 2020). This has caused most dental treatments to be stopped or postponed to ensure universal safety. However, there are dental treatments such as removable denture fabrication, which cannot be delayed for a long period of time because it is feared that it will affect the process of treatment. Rehabilitation treatment for patients such as removable denture treatment becomes more complicated when the group of patients involved who are usually elderly because they are in the high-risk group for infectious disease (Connor C 1991)

Therefore, in order to deliver the safest health services, an aerosol box was created by a medical doctor from Taiwan while the epidemic was still raging throughout the country (Everington K 2020). "Aerosol box" is a cube-shaped transparent box that covers the patient's head and neck. There is space to insert the hand from the surface located on the top of the patient's head to facilitate the process of inserting the tube into the breathing chamber while at the same time preventing the spread of aerosols from the patient throughout the chamber (Canelli R et al. 2020)

7.2 Model of customer satisfaction

A study by A. Kahar (2008), customer satisfaction in business terms means that the services provided by an organization meet customer expectations or customer satisfaction and create customer loyalty to the services offered. As for Ramli et al. (2009), they stated that there are various measurement instruments to measure service quality to meet customer satisfaction. There are five dimensions that are most valued by customers in achieving satisfaction with a service, namely reliability, assurance, physical evidence, empathy and responsiveness. To help service providers to understand customer expectations and perceptions as well as continuous quality assessment according to Booth (2003). While according to Johari (2007), each evaluation dimension is physical facilities, equipment conditions and the ability to perform services correctly and accurately. Customer trust and confidence must be instilled.

7.3 Model of service quality

According to Gotzami and Tsiotras (2002) & Singles et al. (2001) An organization that emphasizes quality in service to help improve the company's internal operations, improving the quality of communication between internal and external parties due to clear work responsibilities, awareness of quality issues and increasing productivity, increasing customer satisfaction and their trust in the company's products. Perception of service quality as a customer's impression that they have received the expected quality and can be said to be the customer's external evaluation in the form of attitude, a study from Alias and Abdul Rahman (2001). Toh (2005) also stated that the extent to which the organization can achieve quality standards depends on the customer's perception of the service or recommended product.

8 STUDY METHODOLOGY

8.1 Design

This study is a quantitative study and uses a survey method to inquire customer satisfaction to "Denture Box" product conveniences and services

8.2 Sampling

The sample consists of dentists in Johor (Mersing district) and Pahang (Kuala Rompin district) who are currently using the product. Six responders are representatives of dental clinics and dentists who utilize Denture Box. This is due to the fact that just six Denture Boxes were supplied in the beginning to assess their effectiveness during the COVID-19 outbreak.

8.3 Study instrument

The research instrument consists of a set of questionnaires for customers of Denture Box products. The survey questions were developed with the guidance of Dr.Mohd Isa bin Jaafar as a lecturer at Kuching Polytechnic. Responses for the questionnaire used in this study use a 5-point Likert scale as shown in Table 1.

part A: Economics,
part B: Function & design,
part C: Maintenance & service,
part D: Improvements.

Table 1: Questionnaire Feedback

1	Very Dissatisfied
2	Dissatisfied
3	Not Sure
4	Satisfied
5	Very Satisfied

9 FINDINGS AND ANALYSIS OF THE STUDY

Data analysis using Statistical Package for the Social Sciences (SPSS) version 26.0 was done on the questionnaire set for this study and has 6 questions using 5 Likert scales. This study analyzed the data using a questionnaire

This customer satisfaction study focuses on three categories: part A (economics), part B (function & design), and part C (maintenance & service) for Denture Box users. It is measured by using the mean score interpretation table referring to Table 2. Table 2 uses the recommendations (Landell 1997) to measure the level of tendency of each aspect tested. If the mean score obtained from the data analysis is 1.00-2.33, this indicates that the level of consumer satisfaction is very low on Denture Box products. Whereas if the data shows a mean score between 2.34-3.67, the level of user satisfaction is at a moderate level. But if the mean score data analysis gives a value of more than 3.67 which is 3.68-5.00, this clearly shows that the Denture Box product is on the right track by providing the maximum level of satisfaction to its users.

Table 2: Mean score interpretation table for Likert scale

Mean Score	Interpretation
1.00-2.33	Low level
2.34-3.67	Moderate level
3.68-5.00	High level

9.1 Analysis of Study Findings in 6 Selected Clinics

There are several aspects that are explained in the questionnaire part A which is the economic part including the state, Denture Box products, the prices offered and the cost savings. The respondents who have answered this questionnaire are among dentists. Table 3 shows the distribution of the number of respondents who answered the questionnaire from dental clinics in Pahang and Johor. There are 4 dental clinics equivalent to 66.7% that use Denture Box in Pahang and the rest which is 33.3% or 2 in Johor.

Table 3: Part A (States)

States	Frequency	Percentage %
Johor	2	66.7
Pahang	4	33.3
Total	6	100.0

Table 4 shows that the price of Denture Box is reasonable with the price offered, 50.0% of respondents answered that the price of Denture Box is reasonable, 33.3% of respondents answered that the price is expensive and 16.7% of respondents answered that the price is very expensive.

Table 4: Part A (Offered Price)

Offered price	Frequency	Percentage %
Reasonable	3	50.0
Expensive	2	33.3
Very expensive	1	16.7
Total	6	100.0

Table 5 shows that this Denture Box can save in terms of time, maintenance and service costs that shows only half or 50.0% of respondents who answered agree that this product is economical and another 50.0% of respondents who answered that they are not economical.

Table 5: Part A (Cost Savings)

Cost Savings	Frequency	Percentage %
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Reasonable	3	50.0
expensive	3	50.0
Total	6	100.0

The research instrument consists of a set of questionnaires among respondents and feedback for the questionnaire used in this study based on 5 Likert Scales, there are 5 questions from part B and 2 questions from part C.

Table 6, respondents answered for the questionnaire part B which is customer satisfaction with the function and design at a relatively high mean score.

Table 6: Part B (Functionality & design)

Part B Questions	Denture products have functions that make it easier for the users.	Box have that level of suitability of this Denture Box to your organization	Please indicate the level of suitability of this Denture Box to your organization	Denture design is suitable and makes easier for users.	Box is and it for	Denture is easy to handle	Box is easy to handle	The Box has quality.	Denture supplied good quality.
No.	6	6	6	6	6	6	6	6	6
Mean	3.83	4.00	4.00	4.00	3.67	3.67	3.67	3.83	3.83

Table 7 respondents answered for the questionnaire part C which is customer satisfaction with Maintenance & service at a relatively low mean score is likely to have problems using Denture Box. This may be due to the relatively large and square design and the fragility of the glue adhesion on the Denture Box small door.

Table 7: Part C (Service & maintenance)

Part C questions	Have you ever experienced problems while using this Denture Box?	If YES. Did it take you a long time to get over it?
No.	6	6
Mean	1.33	2.50

10 CONCLUSIONS AND SUGGESTIONS

The findings of the study show that the level of satisfaction is at a satisfactory and moderately high level and meets the specifications of the customer's needs. There are several suggestions from customers to further improve the marketing of this Denture Box product, which is the addition of a feature that allows the containment of waste in the Denture Box until cleaning is done, reducing the size slightly and using materials that are resistant to disinfectant spray. The size of the Denture Box should be reduced to improve the ergonomic aspect. With the result of this study, the researcher hopes Denture Box suppliers can plan to improve the quality, convenience and service of Denture Box to be more customer friendly.

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