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DEVELOPMENT OF ORAL HEALTH CARE FOR COMPLETE DENTURES TREATMENT

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Abstract

Based on data from the Basic Health Research 2018, indicate a correlation between age and tooth loss, yet denture utilization remains comparatively low. Dental therapists are primarily responsible for enhancing oral health by preventing, treating, and managing dental problems. While authorized to collaborate with dental specialists in providing medical dental procedures. However, in many clinical settings, dental therapists are often relegated to the role of dental assistants. This limitation can be attributed to the lack of integrated dental care models for complete denture cases within specialized prosthodontic services. This study aimed to evaluate the effect of developed dental and oral health care model on patients with complete denture care on changes in the behavior of dental therapists in implementing the model. This study employs a quasi-experimental research design with a pretest-posttest design (non-equivalent control group). The research was conducted the entire population of 12 dental therapists at the prosthodontic clinic of the dental and oral hospital were randomly assigned to two groups. The intervention group received socialization on an oral health care model. Knowledge, attitude, and skills were assessed through questionnaires and observational methods both before and after the intervention. Data were analyzed statistically using paired t-test, and independent t-test. Its model is effective in behavior changes: improving knowledge (p-value 0.025; Δ 7.50), attitudes (p-value 0.012; Δ 7.33), skills (p-value 0.002; Δ 26.67). Development of a dental and oral health care model in patients with complete denture care is effective in changing the behavior of dental therapists.

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Introduction

Dental and oral healthcare services are designed to promote, maintain, prevent, treat, and restore oral health within the community. These services, provided by government, local authorities, and/or the community, focus on integrated and continuous prevention, treatment, and rehabilitation of oral diseases (Sekertariat Negara RI, 2023). By empowering individuals to take greater responsibility for their oral health, these services aim to deliver high-quality dental and oral healthcare (Pamunarsih et al., 2018).

Based on data from the Basic Health Research 2018 (Badan Penelitian dan Pengembangan Kesehatan, 2018), The prevalence of dentulism, edentulism, and denture use among individuals aged 12 and older increases with age. Within the 45 to 65+ age group, the proportion of edentulous individuals ranges from 0.5% to 9.0%, highlighting a strong association between age and tooth loss. Denture utilization remains notably low, with rates of 3.5% for partial dentures, 1.2% for complete dentures, and 0.8% for fixed dentures. This indicates that a substantial number of edentulous individuals do not pursue denture treatment. Factors such as economic status, fear, and lack of awareness regarding the benefits of dentures may influence denture adoption.

Dentures offer both functional and aesthetic advantages for the elderly. However, their use can be associated with certain risks. Improper fit, incorrect use, and inadequate oral hygiene may lead to gum and oral mucosal irritation, ulcerations, and denture stomatitis (Ganesh et al., 2021). As a dental hygienist collaborating with a prosthodontist, a dental therapist can provide oral healthcare services to maintain and care for patients' dentures, ensuring that the installed prostheses optimally replace missing teeth.

Dental prosthesis is a tool that serves to restore the biological function of teeth, maintain the shape of the jaw and face, and as aesthetics. Based on its use, there are two types of dental prostheses, namely fixed and removable dental prostheses

(Zameer et al., 2020). Dental prostheses are made based on the part of the tooth that needs to be replaced, which is partial or complete (Lee & Saponaro, 2019). Making prostheses cannot be done in one visit, but requires several stages of visits and controls to ensure the use of dental prostheses is appropriate as well as the expected function.

Regulation of the Minister of Health of the Republic of Indonesia Number 20 of 2016 regulates the main duties of dental and oral therapists (Kementerian Kesehatan Republik Indonesia, 2016). Dental services aim to improve oral health by preventing, treating, and managing dental problems. This includes basic care and dental assistance. Dental care involves assessment, diagnosis, planning, treatment, and evaluation.

According to Decree of the Minister of Health Number HK.01.07/MENKES/1513/2022 on dental therapy competency standards (Kementerian Kesehatan Republik Indonesia, 2022), dental therapists are authorized to collaborate with dental specialists in providing dental medical procedures within healthcare facilities. Dental therapists are responsible for patient assessment, equipment preparation, procedure execution, and post-procedure care, including infection control.

Based on the provisions outlined in the Decree of the Minister of Health, Dental therapists can work with specialists to make dentures. To ensure good care, there are specific steps to follow for treating denture patients. To ensure the delivery of high-quality care, standardized treatment guidelines are essential. These guidelines outline a step-by-step plan to improve patient oral health.

However, in many clinical settings, dental therapists are often relegated to the role of dental assistants. This limitation can be attributed to the lack of integrated dental care models for complete denture cases within specialized prosthodontic services.

Method

This study employs a *quasi-experimental research design with a pretest-posttest design* (*non-equivalent control group*). This study aimed to evaluate the effect of developed dental and oral health care model on patients with complete denture care on changes in the behavior of dental therapists in implementing the model.

A total population of 12 dental therapists employed at Unimus Dental and Oral Hospital participated in this study. All were included using a *total sampling* technique. Data collection occurred between March and May 2024. Participants were randomly assigned to two groups. The intervention group received training on an oral health care model.

Three validated questionnaires assessed knowledge, attitudes, and skills. Knowledge and attitude questionnaires had 15 items each, while the skill observation sheet had 12 indicators. Pearson correlations (0.341-0.641 and 0.354-0.93) and Cronbach's alpha values (0.662 and 0.925) confirmed the questionnaires' validity and reliability. The skill observation sheet was adapted from prior research. Assessments were conducted *pre-post*-intervention.

Prior to the intervention, participants' knowledge, attitudes, and skills in providing oral healthcare to patients with complete dentures were assessed. A socialization session was then conducted to introduce a model of oral healthcare for this patient population, incorporating handouts, demonstrations, and simulations. Post-intervention, participants were reassessed to evaluate any changes in their knowledge, attitudes, and skills in implementing the introduced model.

The study submitted an ethical clearance application to the Health Research Ethics Commission of Health Polytechnic Of The Ministry Of Health Semarang and then submitted an ethical clearance letter with number 0201/EA/KEPK/2024.

IBM SPSS Statistics 26 (IBM SPSS Corp., Armonk, NY, USA) was employed to conduct statistical analyses and test the research hypotheses. descriptive statistics, frequency analysis, *paired sample t-test*, and *independent sample t-test* were utilized to examine the differences in mean values between the groups.

Result

A. Characteristics Responden

The data was carried out a homogeneity test to determine whether the sample data group came from a population that had the same variance (homogeneous). The basis for decision-making is that the data is said to be homogeneous or has the same variance if the significance value (p-value) > 0.05.

Table 1. Characteristics of Respondents

Characteristics	Intervention		Control		P-value
	n	%	n	%	
Level of Education					
Diploma III	4	66,7	2	33,3	
Diploma IV	2	33,3	3	50,0	0,580*
Magister	0	0,0	1	16,7	

**Levene test*

Based on the table 1, it shows that the results of the homogeneity test of respondent characteristics are the significance value or sig. > 0.05. Therefore, it can be concluded that the data group of control samples and interventions in dental and oral therapist respondents and patients came from populations that had the same variance (homogeneous).

B. Effects of Model Intervention on Knowledge

Based on the table 2, it shows that the results of the paired sample t-test test are the value of sig. (2-tailed) by 0.004 and 0.007 (p-value < 0.05). Therefore, Ho was rejected and Ha was accepted, so it can be concluded that there is a significant difference between the average pre-test and post-test results of dental and oral therapist knowledge in the control and intervention groups.

The results of the independent sample t-test are the value of sig. (2-tailed) of 0.025 (p-value < 0.05). Therefore, Ho was rejected and Ha was accepted, so it can be concluded that there is a significant difference in the mean difference (Δ) of the knowledge value of the intervention group of 7.50 and the control group of 4.16.

From these results, it can be interpreted that there is an influence of the development of a dental and oral health care model on patients with complete denture care which is effective in increasing the knowledge of dental and oral therapists related to the implementation of the model with a lager difference in improvement.

C. Effects of Model Intervention on Attitudes

Based on the table 2, it shows that the results of the paired sample t-test test are the value of sig. (2-tailed) of 0.004 and 0.001 (p-value < 0.05). Therefore, Ho was rejected and Ha was accepted, so it can be concluded that there is a significant difference between the average pre-test and post-test results of dental and oral therapist attitudes in the control and intervention groups.

The results of the independent sample t-test are the value of sig. (2-tailed) of 0.012 (p-value < 0.05). Therefore, Ho was rejected and Ha was accepted, so it can be concluded that there was a significant difference in the mean difference (Δ) of the attitude value of the intervention group of 7.33 and the control group of 3.33.

From these results, it can be interpreted that there is an influence of the development of a dental and oral health care model on patients with complete denture care which effectively improves the attitude of dental and oral therapists related to the implementation of the model with a larger difference in improvement.

D. Effects of Model Intervention on Skills

Based on the table 2, it shows that the results of the paired sample t-test test are the value of sig. (2-tailed) by 0.025 and 0.001 (p-value < 0.05). Therefore, Ho was rejected and Ha was accepted, so it can be concluded that there is a significant difference between the average pre-test and post-test results of dental and oral therapist skills in the control and intervention groups.

The results of the independent sample t-test are the value of sig. (2-tailed) by 0.002 (p-value < 0.05). Therefore, Ho was rejected and Ha was accepted, so it can be concluded that there was a significant difference in the mean difference (Δ) of the skill value of the intervention group of 26.67 and the control group of 6.67.

From these results, it can be interpreted that there is an influence of the development of a dental and oral health care model on patients with complete denture care that effectively improves the skills of dental and oral therapists related to the implementation of the model with a larger difference in improvement.

Table 2 Comparison of Model Intervention on Knowledge, Attitudes, and Skills

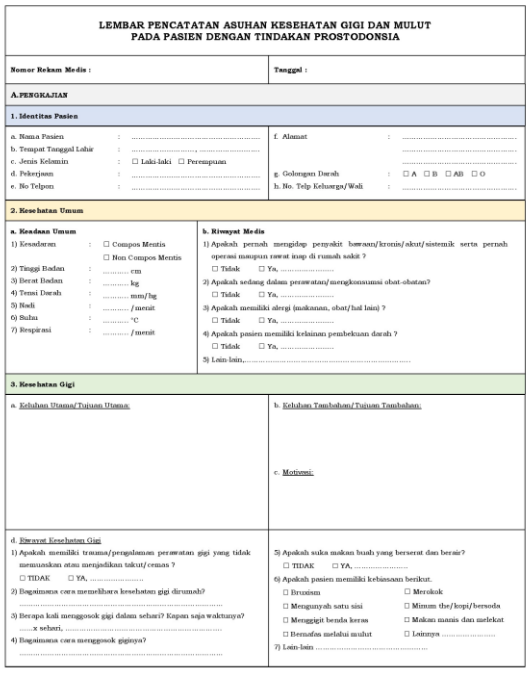
Variable	Group	*Mean±SD*		Delta mean±SD	P-value	
		Pre-Test	*Post-Test*	(Δ)		
Knowledge	Control	81.67±4.08	85.83±3.76	4.16±2.04	0.004*	0.025**
	Intervention	85.83±3.76	93.33±5.16	7.50±4.18	0.007*	

Attitudes	Control	77.00±8.64	80.33±7.20	3.33±1.63	0.004*	0.012
	Intervention	77.33±9.93	84.67±7.33	7.33±2.73	0.001*	
Skills	Control	66.67±12.11	73.33±12.11	6.67±5.16	0.025*	0.002**
	Intervention	65.00±10.48	91.67±7.52	26.67±10.32	0.001*	

** Paired sample t-test; ** Independent sample t-test*

E. Oral Health Care for Complete Dentures Treatment

The outcome of this research is oral health care model for patients undergoing complete denture treatment. Designed for dental therapists, this model provides a foundational framework for implementation, aiming to enhance the role of dental therapists and alleviate patient anxiety associated with complete denture treatment. The resulting deliverables include oral healthcare stages for denture patients, oral health care forms, standard operating procedures for chairside assistants, and pre-impression exercises. The oral health care model for patients with complete dentures can be accessed via the following hyperlink: https://t.ly/Oralcaremodels-completedenture.



LEMBAR PENCATATAN ASUHAN KESEHATAN GIGI DAN MULUT
PADA PASIEN DENGAN TINDAKAN PROSTODONSIA

Nomor Rekam Medis :
Tanggal :

A. PENGKAJIAN

1. Identitas Pasien

a. Nama Pasien :
b. Tempat Tanggal Lahir :
c. Jenis Kelamin : ☐ Laki-laki ☐ Perempuan
d. Pekerjaan :
e. No Telpon :
f. Alamat :
g. Golongan Darah : ☐ A ☐ B ☐ AB ☐ O
h. No. Telp Keluarga/Wali :

2. Kesehatan Umum

a. Keadaan Umum
1) Kesadaran : ☐ Compos Mentis ☐ Non Compos Mentis
2) Tinggi Badan : ..... cm
3) Berat Badan : ..... kg
4) Tensi Darah : ..... mm/hg
5) Nadi : ..... /menit
6) Suhu : ..... °C
7) Respirasi : ..... /menit

b. Riwayat Medis
1) Apakah pernah mengidap penyakit kanan/kronis/akut/sistemik serta pernah operasi maupun rawat inap di rumah sakit ?
☐ Tidak ☐ Ya, ...
2) Apakah sedang dalam perawatan/mengkonsumsi obat-obatan?
☐ Tidak ☐ Ya, ...
3) Apakah memiliki alergi (makanan, obat/hal lain) ?
☐ Tidak ☐ Ya, ...
4) Apakah pasien memiliki kelainan pembekuan darah ?
☐ Tidak ☐ Ya, ...
5) Lain-lain,.....

3. Kesehatan Gigi

a. Keluhan Utama/Tujuan Utama:
b. Keluhan Tambahan/Tujuan Tambahan:
c. Motivasi:
d. Riwayat Kesehatan Gigi
1) Apakah memiliki trauma/pengalaman perawatan gigi yang tidak menuaskan atau menjadikan takut/cemas ?
☐ TIDAK ☐ YA, ...
2) Bagaimana cara memelihara kesehatan gigi dirumah?
.....
3) Berapa kali menggosok gigi dalam sehari? Kapan saja waktunya?
.....x sehari, ...
4) Bagaimana cara menggosok giginya?
.....
5) Apakah suka makan buah yang berserat dan berair?
☐ TIDAK ☐ YA, ...
6) Apakah pasien memiliki kebiasaan berikut.
☐ Bruxism ☐ Merokok
☐ Mengunyah satu sisi ☐ Minum the/kopi/beroda
☐ Menggigit benda keras ☐ Makan manis dan melekat
☐ Bernafas melalui mulut ☐ Lainnya .....
7) Lain-lain .....

Figure 1. Oral health care model for patients with complete denture care

Discussion

Patients who will undergo treatment need to be given an overview of the implementation of treatment first. This can be done through counseling and education as an effort to increase patient understanding of the perception of care (Alidema & Halili, 2024). Dental and oral therapists who are in charge of assisting specialist dentists during treatment need to have skills in reading the patient's condition in order to control the patient's emotions and meet their needs during treatment, especially for patients with physical limitations. This is not spared from the meticulousness and precision of dental and oral therapists in making decisions.

Behavior occurs when individuals receive stimuli from the environment and respond to those stimuli. Behavior can be classified into three domains namely knowledge, attitudes, and actions or skills (Pakpahan et al., 2021). This aspect will later support the collaboration. In the implementation of collaboration, good and effective communication is needed. Basically, no communication is possible between dental and oral health professionals and the individuals who receive their services. Communication in this context is a process of mutual interaction that takes place continuously involving both parties. The speaker and receiver act as the transmitter and receiver of information. People make an effort to communicate with others (Mutia & Irma, 2018).

The results of the statistical test showed that there was an effect of the development of a dental and oral health care model on patients with complete denture care that effectively improved the knowledge, attitude, and skills of dental and oral therapists related to the implementation of the model. This happened after dental and oral therapists were given socialization followed by the practice of implementing the model.

The provision of materials and simulations through training has been proven effective in improving knowledge, attitudes, and skills (Aulia et al., 2023; Dewi et al., 2023; Sandeva et al., 2019). This is also followed by increased confidence, knowledge and technical performance which reduces the error rate.

Knowledge is associated with an individual's understanding obtained through experience of a phenomenon and involves the five senses. The increase in the knowledge of dental and oral therapists

increased due to the socialization provided regarding the understanding of the material for the implementation of the development of a dental and oral health care service model for patients with complete denture treatment.

The activity of providing material can be carried out through quizzes, discussions, demonstrations or, role-playing is an effort made to increase individual knowledge and has been proven to be effective (Khurana et al., 2020). Understanding can be interpreted as the ability to explain known objects precisely and accurately. After understanding the topic or material that has been studied, then the individual must be able to explain, use examples, and conclude.

Attitudes involve an individual's response to a stimulus or object, with components such as beliefs, emotional evaluation, and propensity to act. Knowledge, thinking, belief, and emotions are the three essential elements that make up attitudes. An increase in attitude occurs if given adequate information, then consider taking action according to the information provided (Abolfotouh et al., 2017).

An individual's actions or skills are influenced by knowledge and attitudes. Improvement of dental and oral therapist skills along with improvement of knowledge and attitudes obtained through socialization and practice provided (Tahani et al., 2022). The increase indicates that the socialization and practices provided are successful. Dental and oral therapists can carry out practices according to the information provided. If a person has good knowledge and attitude, then it will support good practice or skills. This is because actions or skills are a real manifestation of knowledge and attitude (Wiradona et al., 2016).

The training encourages individuals to improve their understanding of the subject being studied, improve critical thinking skills, and strengthen their confidence in their abilities and knowledge (Okada et al., 2021; Sadimin et al., 2020). Individuals have the opportunity to receive new information, broaden their horizons, and deepen their understanding of a particular topic. This can change their view of a subject or topic, as well as open their minds to diverse perspectives.

The provision of material in the training must be relevant to the topic being taught so that it has a clear meaning and is directly related to needs. Efforts to improve individual competence through training are carried out so that individuals are competent and have sufficient abilities to do their jobs well (Baskara et al., 2020). The training provided can also enrich individuals' thinking skills by teaching more detailed methods of analysis and broadening their perspective on complex problems.

Conclusions and Suggestions

Development of a dental and oral health care model in patients with complete denture care is effective in changing the behavior of dental therapists. Dental therapists are expected to apply this model thoroughly and can be adapted to the situation and conditions of the workplace.

Further research is warranted to developing research variables by looking at the influence in the long term, as well as developing a more modern recording model based on information and communication technology.

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