

Development of an Instrument Model for Implementing Family Oral Health Care Services with a Holistic Approach

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Abstract

This research aims to develop a model instrument for implementing family oral health care services with a holistic approach. The study employs a qualitative approach with an explorative qualitative design. The research sample consists of 14 participants, including academic dental and oral therapists, namely dentists, dental therapists, and public health experts. Sample selection is done using purposive sampling technique. Data is collected through Focus Group Discussion (FGD) using a pre-designed set of questions. FGD is conducted in two sessions, each with 7 participants. The FGD results are recorded, transcribed, and analyzed using thematic analysis. An initial draft of the family oral health care service implementation instrument model is formulated based on the FGD results. Subsequently, this draft is validated by an expert panel consisting of academic dental professionals, dentists, dental therapists, and public health experts through a Zoom meeting. The research findings indicate that developing a model instrument for implementing family oral health care services with a holistic approach is a crucial step in enhancing the quality of dental health services. The instrument model should encompass aspects of prevention, treatment, and dental health education, illustrating the interaction among family members, dental health practitioners, and environmental factors influencing family dental health. The implementation of the family oral health care service instrument model with a holistic approach is expected to enhance the knowledge and skills of dental therapists in providing effective and optimal care to patients and their families, especially in a home environment. Commitment is required to ensure strict adherence to these guidelines, providing consistent and high-quality care to every family

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Introduction

According to the World Health Organization (WHO), approximately 2 billion people experience dental damage in permanent teeth, and 514 million children suffer from dental issues in their primary teeth¹. The prevalence of major dental diseases continues to rise globally, in tandem with urban growth and lifestyle changes^{2,3}. Around 60-90% of school-age children worldwide suffer from dental caries^{4,5}. Data from the Global Burden of Disease Study in

2017 indicates that dental caries is the most common disease among children worldwide⁵. Dental issues continue to pose a health problem for children in Indonesia. Recent data indicates that dental problems among Indonesian children persist as a serious health concern. According to the 2018 Indonesia Health Research, 93% of children aged 4-5 years have cavities. This implies that only 7% of young children have teeth without damage^{6,7}. Furthermore, only 2.8% of the Indonesian population brushes their teeth correctly and at least twice a day⁷. The problem is exacerbated by the low awareness among the public about the importance of regular dental check-ups, with 95.5% of Indonesians admitting to not visiting a dentist within a year⁸. These figures underscore the need for greater efforts to enhance awareness and understanding among the public regarding the importance of

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maintaining dental health for children in Indonesia. Based on the Basic Health Research Survey "Risikedas" in 2018, it was reported that 55% of the population in Aceh had encountered health issues related to dental caries within the preceding 12 months. Furthermore, a mere 2.8% of individuals aged 3 years and older were found to be brushing their teeth correctly⁶. An oral health examination conducted on the elderly population aged 3-5 years in Banda Aceh during Oral Health Check-Up (UKGS) activities revealed that 78% of children were afflicted with dental caries⁹. To enhance public awareness of the importance of regular dental check-ups, one initiative involves the provision of Family Dental Health Care services with a holistic approach. While Family Dental Health Care services with a holistic approach are crucial, practical implementation presents several underlying issues. Firstly, there is a lack of integration between dental health services and the overall health of family members. This is due to insufficient coordination between dental health practitioners and other health professionals, hindering holistic prevention and treatment efforts^{10,11}. Secondly, there is a low level of public awareness regarding the importance of dental health prevention. Public awareness of the family's role in preventing dental diseases remains low, necessitating a holistic approach in Family Dental Health Care services to provide optimal education and support¹²⁻¹⁴. Thirdly, there is a lack of holistic instruments in Family Dental Health Care services. The instruments or guidelines used in family dental health services do not fully reflect a holistic approach, calling for the development of instruments that can measure and guide the comprehensive implementation of Family Dental Health Care services^{15,16}. Lastly, there is an imbalance in access to dental health services. Not all families have equal access to dental health services, influenced by geographic, economic, and social factors. Strengthening Family Dental Health Care services with a holistic approach is essential to create equal access for all families^{17,18}. These various challenges make the development of a Holistic Approach Family Dental Health Care Service Instrument important to meet the needs of the community. The holistic instrument model includes prevention, treatment, and dental health education, taking into account family interactions, dental health practitioners, and environmental

factors^{19,20}. In its development, involving dental health practitioners and public health experts is crucial to meet the real needs of the community^{21,22}. This initiative responds to the changing paradigm in health services that emphasizes holism and evidence²³⁻²⁵, with the aim of measuring and guiding practitioners in integrated, comprehensive care²⁶⁻²⁸. Based on the aforementioned issues, this research is urgent to develop an effective instrument for family dental health care services. Subsequently, this instrument will be evaluated and validated for widespread use. The goal is to enhance the effectiveness of holistic family dental health care services, positively impact the improvement of family dental health status, and contribute to the development of family dental health science.

Materials and methods

Research Design

This study adopts a qualitative approach with an exploratory design. The primary objective is to develop a model instrument that can be used to measure and guide the implementation of family dental care services.

Sample and Selection

The research sample consists of 14 participants, involving academic dental and oral therapists (dentists, dental therapists, and others), as well as public health experts. The selection used purposive sampling technique, where participants were chosen based on their knowledge, experience, and roles in development to ensure obtaining in-depth insights.

Data Collection Primary data was obtained through focused group discussions (FGD) on the development of the model instrument for the implementation of family dental care services. Meanwhile, secondary data was acquired from relevant literature within the scope of this research. FGDs were conducted in two structured sessions with pre-validated question guides.

Data Analysis The FGD results were analyzed using thematic analysis methods. The initial draft of the model instrument was developed based on the findings from this analysis. This process involved organizing subcategories, categories, and themes emerging from the FGD results. The entire FGD process, including recording, transcription, and analysis,

was supervised by the research team.

Model Validation After the draft model of the family dental care services implementation instrument was developed, validation was conducted through additional FGD sessions with an expert panel. The expert panel comprised dental nursing academics, dentists, dental therapists, and public health experts. Validation was carried out through a Zoom meeting platform to ensure effective participation. Research Ethics This study adheres to ethical principles following the World Medical Association's Declaration of Helsinki. Written consent was obtained from each participant before engaging in group discussions and in-depth interviews. Participant data confidentiality was ensured by the research team, and all data was securely stored. The entire study posed no physical or psychological threats to participants. Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing, USK, with approval number 113001140423.

Results

This qualitative study summarizes the characteristics of participants involved in the Focus Group Discussions (FGD), with a specific focus on family members or family groups. The detailed distribution of respondents based on characteristics can be observed in Table 1 below.

Partisipant	gender	Age	Education	Occupation
P1	Female	48 Year	Magister	Lecturer
P2	Female	44 year	Magister	Lecturer
P3	Female	43 year	Magister	Lecturer
P4	Female	38 year	Magister	Lecturer
P5	Female	45 year	Magister	Lecturer
P6	Female	54 Year	Magister	Lecturer
P7	Female	42 year	Magister	Lecturer
P8	Female	43 year	Magister	Lecturer
P9	Female	46 year	Magister	Lecturer
P10	Female	42 year	Magister	Lecturer
P11	Female	42 year	Magister	Lecturer
P12	Female	43 year	Magister	Lecturer
P13	Male	48 Year	Magister	Lecturer
P14	Male	40 Year	PHD	Lecturer

Table 1. Participant Characteristics.

Participants in this study were mostly women, with the majority having a higher education background (Master's or Ph.D.) and working as lecturers. The age range of

participants was between 38 to 54 years, with dominance in the 40s age group. The presence of two male participants in the group added gender diversity. This condition indicates that the group mainly consists of academics with a high level of education and understanding. As lecturers, they have a professional background that may influence their perspectives and knowledge of family dental care services. Further analysis of the FGD can explore to what extent their experiences and knowledge contribute to the development of such service instruments.

Findings from Participant Observations in FGD

The table below includes findings observed during the Focus Group Discussion (FGD), involving participants in discussions related to family dental care services (table 2).

S	P	Minutes 1 - 15		Minutes 16 - 30		Minutes 31 - 45		Minutes 46 - 60		Comprehensive Response
		F	R	F	R	F	R	F	R	
1	P1	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Very active
	P2	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Very active
	P3	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Very active
	P4	No	No	Yes	Yes	No	No	Yes	Yes	Active
	P5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Very active
	P6	No	No	Yes	Yes	No	No	Yes	Yes	Active
	P7	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Very active
2	P8	No	No	No	Yes	Yes	Yes	No	Yes	Active
	P9	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Very active
	P10	No	No	Yes	Yes	No	No	Yes	Yes	Active
	P11	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Very active
	P12	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Very active
	P13	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Very active
	P14	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Very active

*S= Session, *P=Participant, * F=focus, *R= Responsive

Table 2. Findings from Participant Observations in FGD.

Analysis of the time segments in the FGD session highlights the dynamics of participant involvement and responsiveness throughout the focus group discussion. In minutes 1-15, there was variation in the level of engagement, with several participants (P1, P2, P3, P5, P7, P9, P11, P12, P13, and P14) showing a high level of engagement and positive responses. Meanwhile,

some other participants (P4, P6, P8, P10) seemed not fully engaged. Significant changes were observed in minutes 16-30, where the majority of participants, including those previously less active, began to show stronger engagement and positive responses to the discussion.

In this segment, participation appeared to be more evenly distributed among all participants. Minutes 31-45 marked the peak of active participation, where all participants, except one (P8), showed high engagement and positive responses to the discussion. This intensive involvement was then sustained in minutes 46-60, with most participants remaining active and responsive until the end of the session. Overall responses indicate that most participants can be categorized as "Very Active," indicating a high and intensive level of participation throughout the

FGD session. Although there were some differences in the level of engagement, these results illustrate that the majority of participants were positively involved in the focused group discussion on family dental care services.

The intensive involvement of several participants can significantly contribute to the development of these service instruments. Further analysis can be used to explore factors influencing the level of participation and how each participant contributes to the overall outcomes of the FGD session.

Information Collection

This research obtained several themes based on the FGD results and field notes. After analysis based on the discussion results, seven themes were identified. The themes found from the interview results with several research questions are described as follows (Table 3):

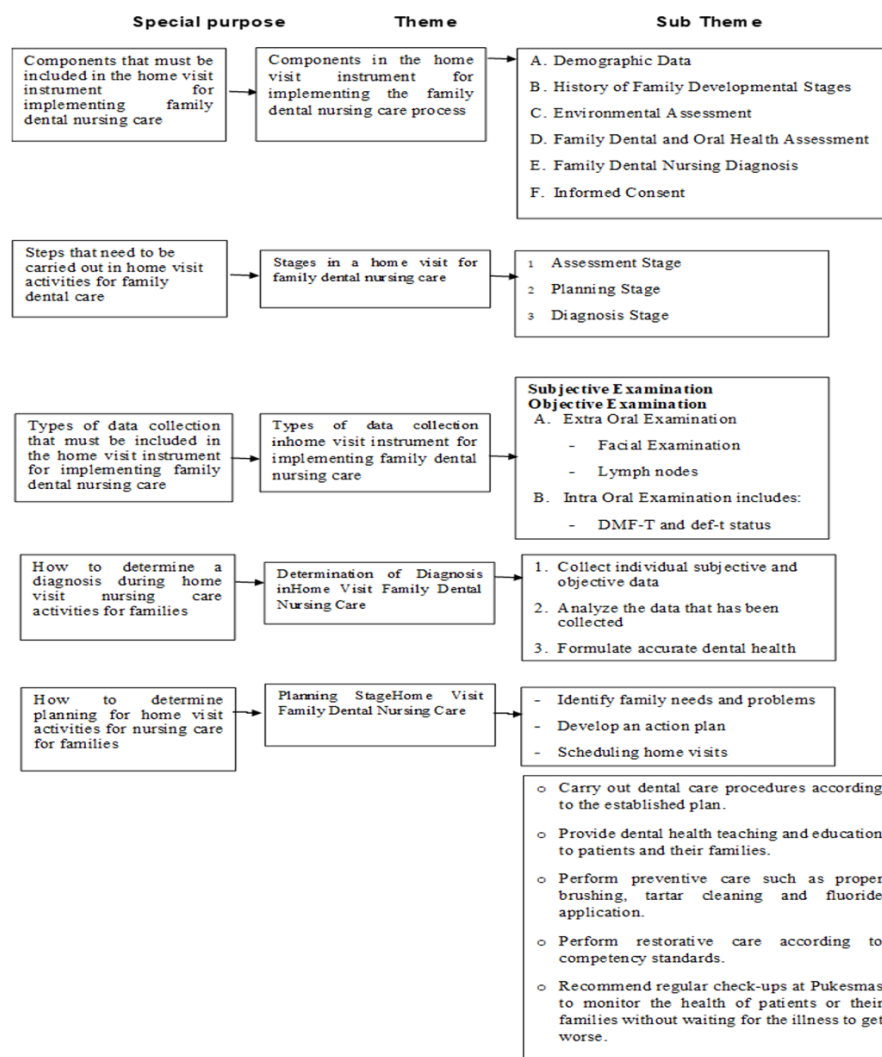


Table 3. Interview questions.

Components of the Home Visit Instrument in the Implementation of Family Dental Care

Nursing Process

The interview results indicate that the home visit instrument in the implementation of family dental care has holistic components. General data and dental health history become the main focus in understanding the family's overall needs. In the interview, Participant 1 Session 3 stated, "Data related to the family is divided into two aspects, first is general data and specific data on the dental and oral health of the family. General data includes patient and family identities, while specific data includes dental health history, demographics, and family developmental stage history, as well as environmental assessment. Both are crucial foundations for planning and implementing comprehensive dental care."

Stages in Home Visit Family Dental Care

The stages in home visit family dental care involve individual assessment, diagnosis determination, planning, implementation, and evaluation. Participant 2 Session 3 emphasized, "Conducting individual assessment, both subjective and objective examinations by the visiting dental nurse or therapist. Data obtained from family members are used to determine diagnosis, planning, implementation, and evaluation. These five stages are the core of the family dental care nursing concept."

Types of Data Collection in the Home Visit Instrument

The home visit instrument uses data collection methods through subjective and objective examinations. Participant 1 Session 3 explained, "Data collection in the implementation of dental care is done through subjective and objective examinations. Subjective examination involves interviews to gather information about dental care habits, complaints, and dental health conditions. Furthermore, objective examination involves physical examination, including extra-oral and intra-oral examinations."

Determination of Diagnoses in Home Visit Family Dental Care

Determining diagnoses during home visits requires comprehensive data collection and in-depth analysis. Participant 1 Session 3 stated, "Determining diagnoses in a home visit involves stages of collecting subjective and objective data, followed by careful data analysis. This process allows dental therapists to formulate accurate dental health problems and establish diagnoses that meet the specific needs of the family."

Planning Stage of Home Visit Family Dental Care

The planning stage of home visits involves identifying family needs and problems, formulating action plans, and scheduling visits. Participant 3 Session 3 emphasized, "The planning stage starts with an interview to identify family needs and problems. Based on the interview results, an action plan is formulated involving promotive, preventive, curative, and rehabilitative steps. Coordination with the family is crucial to ensure effective implementation."

Implementation Stage of Home Visit Family Dental Care

The implementation stage of home visits includes dental care actions, dental health education, preventive care, and restorative care. Participant 3 Session 3 stated, "Dental care actions involve dental examinations, plaque removal, and restorative actions if needed. Dental health education to patients and their families is also provided. This includes information on dental hygiene, healthy eating patterns, and proper tooth brushing techniques. Preventive actions, such as fluoride application, are the main focus of family dental care."

Implementing Home Visit for Family Dental Care

The implementation stage of home visits encompasses dental care procedures, dental health education, preventive measures, and restorative treatments. Participant 3 in Session 3 emphasized, "Dental care procedures involve dental examinations, plaque removal, and restorative actions if necessary. Providing dental health education to patients and their families is also essential. This includes information on dental hygiene, healthy eating habits, and proper tooth brushing techniques. Preventive measures, such as fluoride application, are the primary focus of family dental care."

Evaluation Stage of Home Visit for Family Dental Care Activities

The evaluation stage of home visit activities is crucial for assessing the effectiveness of interventions and meeting the dental health needs of the family. Participant 1 in Session 3 explained, "Evaluation is conducted by analyzing changes from initial data to final data. This helps measure the positive impact of home visit interventions and identify areas that need further attention. Evaluation is a powerful tool to identify desired changes in the family's dental

health condition." Participant 3 in Session 3 added, "Comparing initial and final data helps identify significant differences and whether the evaluation goals have been achieved."

Discussion

The components of the home visit instrument for implementing family dental care nursing processes include demographic data, family developmental stage history, environmental assessment, family dental and oral health assessment, family dental care nursing diagnosis, informed consent, family dental care treatment planning, implementation, and evaluation^{29,30}. Demographic data is necessary to understand the basic characteristics of families receiving dental care nursing, while the family developmental stage history provides information about past health conditions and risk factors influencing current dental health. Environmental assessment helps identify potential risks and changes in the environment that support dental health, while the family dental and oral health assessment provides a comprehensive overview of the family's dental and oral health status. Family dental care nursing diagnosis provides a framework for identifying dental health issues and formulating specific treatment goals. Informed consent involves the family in dental care decisions, while family dental care treatment planning determines specific steps to be taken. Implementation and evaluation ensure interventions are carried out correctly and assess the success of the treatment³¹.

The stages in Family Dental Care Nursing Home Visits include several important steps. Firstly, the nurse visits the family's home to observe the environmental conditions and dental care habits of the family³². Next, the nurse conducts interviews with family members to gather information about dental care habits, eating patterns, and the family's dental health history^{1,8}. Afterward, the nurse performs dental and oral examinations on family members to assess their dental and oral health conditions.

During the visit, the nurse also provides education on the importance of good dental care, proper tooth brushing techniques, and the significance of a healthy diet for dental health^{33,34}. Additionally, the nurse offers advice and recommendations for better dental care, such as

using fluoride-containing toothpaste and regular visits to the dentist [2]. By following these steps, the nurse can provide comprehensive dental care nursing and assist the family in maintaining dental health.

The data collection methods in the Family Dental Care Nursing Home Visit instrument include subjective and objective examinations. Subjective examination involves collecting information from the family or individual receiving care, such as dental health history, subjective complaints, and the family's perception of their dental health. This information helps understand the patient's perspective and needs^{35,36}. Meanwhile, objective examination provides concrete data about the physical conditions of teeth and mouth. Objective examination consists of extraoral examination and intraoral examination. Extraoral examination includes face and lymph node examinations, providing information about general physical conditions and potential swelling or issues around the face and lymph nodes. In contrast, intraoral examination includes DMF-T and def-t status (cavities and tooth loss), OHIS status (dental and oral hygiene), PHP-M status (overall oral hygiene), and gingivitis status (gingiva condition and signs of inflammation)^{7,37}.

The combination of subjective and objective information in family dental care nursing home visits creates a holistic approach in providing comprehensive and personalized dental care nursing³⁸. Data from subjective and objective examinations are used to formulate more accurate diagnoses and plan treatments tailored to the patient's or family's needs and conditions. Objective examination also helps in evaluating the effectiveness of the treatments performed and monitoring the development of dental health conditions.

The determination of diagnosis in home visit nursing care for family dental health involves the collection of subjective and objective data from individuals, analysis of the collected data, and formulation of accurate dental health problems. This process ensures that the diagnosis is supported by accurate and relevant data, enhancing precision in determining the dental and oral health conditions.

With careful data collection and analysis, dental therapists can make more informed diagnostic decisions, considering various factors that affect family dental health. Accurate

diagnosis helps formulate treatment plans that are appropriate for the specific needs and conditions of the family. This diagnostic stage ensures that the proposed care interventions are adequate and relevant. With a clear diagnosis, monitoring and evaluation of treatment outcomes can be done more effectively. This allows for assessing the success of interventions and making adjustments if necessary. A well-understood diagnosis by the patient or family can enhance their involvement in treatment planning and implementation, creating better collaboration. Overall, this stage is an integral part of the family dental care cycle, ensuring that dental therapists can provide focused and effective care in the context of home visits. The planning stage in home visit family dental care nursing involves essential steps such as identifying family needs and issues, developing action plans, and scheduling home visits. Identifying needs and issues helps prioritize providing nursing care tailored to the family's primary needs. The action plan involves formulating treatment strategies aligned with identified needs and issues, including necessary dental health interventions, education, and support³⁹.

Scheduling home visits ensures efficient and timely visits, allowing dental nurses to provide care without unnecessary disruptions. This planning process involves collaboration with the family to design focused care tailored to their unique needs. By following these planning steps, dental therapists can provide effective and coordinated nursing care in a home visit setting⁴⁰.

The implementation of Home Visit Family Dental Care Nursing is the stage where dental care actions are carried out at the patient's home by healthcare professionals, such as dental therapists. This stage involves various actions designed to provide holistic dental care and prevent dental diseases. Dental care actions include examinations, treatments, and specialized care according to the family's needs. Additionally, dental health education is crucial in implementing Home Visit Family Dental Care Nursing, where dental therapists provide teaching and dental health education to patients and their families

Preventive care such as tartar cleaning and fluoride application is also performed to prevent more serious dental issues. If there is dental damage, dental therapists will perform restorative care. Regular check-ups and referrals

are also crucial parts of this implementation, directing patients or their families for regular dental check-ups and referring them to healthcare professionals with specific expertise when needed.

Through implementing these steps, dental therapists can provide comprehensive dental care and enhance the quality of life for patients and their families²².

The evaluation stage of home visit family dental care nursing activities involves comparing initial and final data to analyze changes or differences and identify whether the evaluation goals have been achieved. In this stage, dental therapists can make a more holistic analysis of the impact of nursing care interventions on family health. This evaluation also supports evidence-based practice in providing more effective care tailored to the needs of patients or families.

By comparing initial and final data, dental therapists can measure the effectiveness of interventions conducted during home visits. This evaluation provides an overview of how well the actions taken have contributed to positive changes or improvements in the family's dental health conditions according to the care plan. Evaluation also helps dental therapists assess the performance and effectiveness of treatment, providing a basis for adjusting or improving nursing care plans in the future^{41 20}

Furthermore, comparing initial and final data allows dental therapists to identify changes or trends in the family's dental health conditions. This analysis aids in understanding the dynamics of health development and provides insight into factors that may influence these changes. With a solid foundation, dental therapists can make informed and contextual decisions, ensuring the continuity of quality nursing care.

Conclusions

As a whole, this research underscores the importance of a comprehensive instrument in the context of family dental care. The thorough identification of family dental health needs, establishment of specific goals, and the implementation of a holistic approach have proven crucial in the planning and evaluation of family dental care services. The findings emphasize integrating accurate education and prevention components into the instrument model, with a holistic approach considering

physical, psychological, social, and environmental aspects. Specific action planning, measuring the effectiveness of interventions through the comparison of initial and final data, and continuous instrument development emerge as crucial recommendations. Strong collaboration between dental therapists and families is deemed essential to reinforce service outcomes, while additional training and education for dental therapists are highlighted to enhance understanding and skills. Furthermore, the integration of technology, such as applications or online platforms, is identified as a potential solution to facilitate remote monitoring and improve engagement and more effective communication. By summarizing these findings, this research provides a deeper understanding of how a holistic instrument can serve as a foundation for continuous improvement and enhancement of the quality of family dental care services.

Declaration of Interest

The authors report no conflict of interest.

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