



Cadre independence related to dental health as a form of empowerment development on dental and oral health maintenance (In mothers before and during pregnancy)

I G A Kusuma Astuti*, Ida Chairanna Mahirawatie, Isnanto

Department of Dental Health, Poltekkes Kemenkes Surabaya, Indonesia

Abstract

Background: Maternal health issues need to be considered, especially during pregnancy. Maternal mortality in Indonesia is still quite high. Many factors cause maternal mortality, one of which is infection. This infection can come from dental and oral diseases. Based on data in the field, there are no dental health cadres, so the knowledge and skills of Posyandu cadres in the field of dental health are still far from expectations. For this reason, it is necessary to form independent dental health cadres. The problems currently faced by cadres are lack of self-confidence and low levels of knowledge and understanding about the dental health of pregnant women.

Aim: The aim of the study is to make dental health cadres independent as a form of developing empowerment of dental and oral health efforts in mothers before and during pregnancy.

Methods: The design of this study is a quasi-experimental analysis. The population taken was 70 people. The sampling method used the purposive sampling technique. The research sample was divided into 2 groups: the control group and the treatment group. Both groups were given a pre-test. For the treatment group, cadre training was given after the pre-test. Both groups were asked to complete the post-test. Data were collected using a questionnaire.

Results: Self-efficacy obtained a value of $p = 0.038 < 0.05$, meaning that there is a significant influence on maternal dental health efforts before and during pregnancy. Health Literacy has a significant influence on maternal dental health maintenance before and during pregnancy ($p=0.031$).

Conclusion: There is an influence of self-efficacy and health literacy of dental health cadres on maternal dental health maintenance before and during pregnancy.

Keywords: Independence, dental and oral health maintenance, dental health cadres

Introduction

Pregnancy is closely related to oral health. If the oral cavity is not clean, it is easy to cause disease. This is caused by maternal hormonal imbalance and the presence of local irritation factors in the oral cavity, which ultimately leads to poor oral [1]. Periodontal infections have the potential to be intervened considering the unique physiological changes that occur in the oral cavity during pregnancy. The most common forms of periodontal infection are gingivitis and periodontitis. Both forms of infection are quite common in pregnant women, namely around 30% for gingivitis and 5-20% for periodontitis [2].

The premature birth rate in East Java is 23.3%, while in 2018, 885 babies born in Surabaya had low birth weight (LBW). One of the risk factors for premature birth and LBW (low birth weight) is the presence of oral cavity tissue abnormalities, namely periodontal abnormalities. Periodontal abnormalities commonly found in pregnant women include gingivitis and periodontitis. In Surabaya City, a study conducted at eight health centers showed that 73% of pregnant women experienced gingivitis and 36% of pregnant women experienced periodontitis [3].

Community Dental Health Efforts (UKGM) are dental health service activities organized by the community with guidance from the Health Center so that the community is willing and able to take appropriate action in dental and oral health problems. In addition, UKGM activities are one way to help Accelerate the Millennium Development Goals (MDGS), one of which is to improve the health of pregnant women. Poor oral health in pregnant women can affect the dental and oral health of the baby later. The role of cadres in

UKGM activities is to guide and accompany the community in dental and oral health activities [4].

Considering the conditions above, the approach that will be used in this study is to improve the ability of mothers to carry out pregnancy care independently by empowering cadres as potential in the community. The independence of health cadres related to dental health can be seen from cadres' ability to identify problems, plan and implement problem solving which of course utilizes their potential without depending on the help of other parties. According to theory, empowerment efforts are a series of efforts to develop people's ability to help themselves (self-efficacy) and be health literate/aware (health literacy) [5]. According to the background above, the objective of this study is to find out the Influence of Cadre Independence related to Dental Health as a form of developing empowerment of dental and oral health efforts for mothers before and during pregnancy.

Material and methods

The study design of this study was a quasi-experimental analysis. The study was conducted in Gunung Anyar Village, Surabaya, East Java, Indonesia. The study was planned as a multiyear for 2 years, starting from April 2021 to September 2023. The population taken in this study were all posyandu cadres with the total of 70 people divided into 14 posyandu. The sampling method in this study used a purposive sampling technique. The research sample was divided into 2 groups: the control group and the treatment group. Both groups were given a pre-test. For the treatment group, cadre training will be given after the pre-test. Both

groups were asked to complete the post-test at the end. Data analysis in this study used a different T-test to determine the difference in cadre independence as an effort to improve maternal dental and oral health before and during pregnancy.

Results

Data were collected using a questionnaire form and checklist created by the researcher which had been tested for validity and reliability before use, below is characteristics of Dental Health Cadres in 2022.

Table 1: Characteristics of Dental Health Cadres in 2022

	N	%
Sex		
Male	0	0%
Female	35	100%
Age		
30-39	2	6%
40-49	9	26%
50-59	18	51%
60-69	6	17%
Educational Level		
Elementary	2	6%
Junior High School	7	20%
Senior High School	15	43%
Diploma	6	17%
Bachelor	5	14%
Occupational		
Housewife	22	73%
Salesman	2	7%
Civil servant	0	0%
Self-employed	0	0%

Table 1 presents data on the characteristics of respondents with a description based on gender, 100% are women, for the most age is 50-59 (51%), the most education is high school (43%), while the most jobs are housewives (73%), the number of respondents is 35 people.

Table 2: The Influence of Self Efficacy of Dental Health Cadres on Dental and Oral Health Efforts for Mothers before and during Pregnancy in Gunung Anyar Village, Surabaya in 2023

Variable	Mean	Coefficient Regression	P-value	F
Self Efficacy	92	-0.046	0.038*	13.91

*p-value<0.05 (significant)

A simple linear regression test showed that a self-efficacy variable has a significant correlation with influence on the Self Efficacy value of Dental Health Efforts for Mothers before and during Pregnancy.

Table 3: The Influence of Health Literacy of Dental Health Cadres on Dental Health Efforts for Mothers before and during Pregnancy in Gunung Anyar Village, Surabaya in 2023

Variable	Mean	Coefficient Regression	P-Value	F
Health Literacy	90	0.38	0.024*	5.584

*p-value<0.05 (significant)

Using a simple linear regression test, the Health Literacy variable obtained a p-value = 0.024 <0.05, meaning that there is a significant influence on the Health Literacy value on Dental Health Efforts for Mothers before and during Pregnancy. The regression coefficient of 0.38 indicates that the influence of Health Literacy on Dental Health Efforts is 38%.

Table 4: The Influence of Dental Health Cadre Independence on Dental and Oral Health Efforts for Mothers before and during Pregnancy in Gunung Anyar Village, Surabaya in 2023

Cadre Independence	Mean	Coefficient Regression	P-Value	F
Self Efficacy	92	0.607	0.038	16.245
Health Literacy	90	0.284	0.031	

*p-value<0.05 (significant)

According to the table 4, health literacy showed a significant influences on Dental Health Efforts for Mothers before and during pregnancy. Self-efficacy showed significant influences on Dental Health Efforts for Mothers before and during pregnancy

Discussion

The results of the study show that Self-efficacy has a significant influence on dental health efforts for mothers before and during pregnancy. This happens because changes in self-efficacy encourage dental health cadres to make dental health efforts for mothers before and during pregnancy. High self-efficacy enables cadres to absorb information from training materials provided by resource persons, thus increasing their self-confidence to complete tasks given during training. Dental health cadres who are confident in their abilities tend to succeed, while cadres who always feel like failures tend to fail. This is in line with Bandura's statement which states that people who have self-efficacy include self-confidence in their own abilities in setting predetermined goals, and trying to find solutions if problems arise in the process of achieving goals [6].

Self-efficacy plays an important role in the process of goal setting, planning, and behavior. In other words, self-efficacy is not only a determining factor in the motivation phase, but also in the action implementation phase [7] so self-efficacy plays an important role in the process of goal setting, planning, and behavior.

The provision of knowledge provided to Posyandu cadres in the form of training will be able to increase the self-confidence of Posyandu cadres. It is hoped that later Posyandu cadres will have confidence in their ability to mobilize motivation, cognitive resources and the responses needed, so that they can carry out dental health efforts for mothers before and during pregnancy optimally. Cadres' confidence in their abilities can affect how much stress and depression they can face, these emotional reactions can affect their way of thinking both directly and indirectly when taking action. The higher the self-efficacy of health cadres, the more positive effects it will have on improving dental and oral health efforts for mothers before and during pregnancy. And most of the cadres who have high self-efficacy are cadres who have a high school education level, and are mature, so that these cadres have high self-efficacy [8].

This is in accordance with research before, that there is a significant relationship between factors of education level, work, knowledge, experience of breastfeeding mothers with self-efficacy. Based on research by Mahirawatie [6], cadres are said to have high self-efficacy if the cadre has a great desire to complete their tasks well so that satisfactory results are obtained and feels challenged to be able to do tasks quickly, accurately and well. On the other hand, a dental health cadre has low self-efficacy if the cadre tries to avoid existing tasks by delaying time in doing tasks, especially challenging tasks. In line with Bandura theory, self-efficacy is an individual's belief or belief in their ability to organize,

carry out a task, achieve a goal, produce something and implement actions to display certain skills. The Influence of Oral Health Literacy of Health Cadres on Dental and Oral Health Efforts of Mothers before and during Pregnancy^[4].

The results of the study show that Oral Health Literacy has a significant influence on dental health efforts of mothers before and during pregnancy. This is because most health cadres have a high school education, so it influences the way health cadres receive and understand the information received. In line with the research of Dieng SN *et al*, 2022 that there is an influence of oral health literacy on education and oral health^[9, 10].

The level of oral health literacy in health cadres is related to the quality of oral health of pregnant women. Because the high level of education of health cadres has a positive impact on the high oral health literacy of cadres. Increasing the oral health literacy of cadres can influence the health behavior of dental health cadres in efforts to improve dental health in mothers before and during pregnancy, so that other factors can be estimated for the prevention of dental disease. In accordance with the results before that Oral health literacy can predict the emergence of dental health behavior and is considered an innovative effort to find other determinants that determine the emergence of maternal dental and oral health behavior in making efforts to prevent dental caries in their children in the future^[10].

The components of Health literacy consist of cognitive communication, understandings of health and disease, decision making skills, ability to communicate. There is a change in the level of Health Literacy of health cadres to understand the information, then applied to posyandu activities with the aim of improving maternal dental and oral health before and during pregnancy. Health literacy becomes the cognitive ability and social skills of cadres, where it will determine the motivation and ability of cadres to obtain, understand, and use health information to maintain dental and oral health and increase public access to health information and be able to use it effectively^[11].

This study proves that health literacy is not only based on high education, low education backgrounds are also able to have adequate health literacy, and old age can also be slowed down with a continuous learning process. Even though someone is elderly, if they are involved in the learning process day by day and have the habit of accessing information, especially by reading or visiting health facilities and interacting directly with health workers, then it is impossible for them not to have adequate health literacy^[12]. This is in line with Amalia L, *et al*, 2023 that increasing the capacity of posyandu cadres is very important to provide knowledge about the duties and roles of posyandu cadres, so that in the future posyandu services will be better, because posyandu cadres are an extension of the Puskesmas in monitoring the health of pregnant women^[8].

Self-efficacy has a significant influence on maternal dental health efforts before and during pregnancy. The most important measurement of self-efficacy in dental health cadres is the Affective/cognitive instrument component, High self-esteem, Feeling of power and control, Confidence to take action, Belief about ability to change situation. Because these components reflect the behavior and experience of cadres in carrying out dental health efforts in mothers and during pregnancy. In accordance with Bandura theory, that to measure self-efficacy, the most important thing is the specific characteristics of the domain, and therefore, items in the self-report instrument need to reflect

specific behavior and experiences in the domain of the activity^[13].

Dental health cadres who have high self-efficacy will achieve good performance because the cadres have strong motivation and clear goals so that they have the ability to behave well in carrying out dental and oral health efforts in mothers and during pregnancy. In accordance with Bandura's theory, Self-Efficacy is an individual's belief that can take the steps needed to achieve goals and to make long-term behavioral changes^[14].

The higher the level of self-efficacy of dental health cadres in dental health efforts for mothers before and during pregnancy, the higher the level of independence of the cadres. In accordance with the research in 2021 that the higher the level of self-efficacy of students, the higher the level of learning independence they show^[15].

Oral Health Literacy has a significant influence on dental health efforts for mothers before and during pregnancy. The most important measurement of Health Literacy in dental health cadres is the component of the cognitive communication instrument, understandings of health and disease, decision making skills, ability to communicate, which has an influence on dental and oral health efforts for mothers before and during pregnancy^[7].

Health literacy or health literacy is defined as a person's skills and abilities in using their cognitive functions (reading, assessing, understanding) and social skills (seeking information, interacting and communicating) as a basis for making the right decisions related to health conditions and reflecting their knowledge in preventing disease and improving health^[16].

Oral Health literacy of dental health cadres as one of the important and determining factors for dental and oral health efforts for mothers before and during pregnancy. Oral Health literacy of dental health cadres shows an understanding of information to make a decision in carrying out an action for dental and oral health efforts, so that it can influence mothers before and during pregnancy to make dental and oral health efforts. In line with the results of the study Das *et al*, 2020 that oral health literacy (OHL) is considered an important factor and the main determinant of oral health status to have the capacity to obtain, process, and understand basic oral health information and services needed to make the right health decisions^[10].

Adequate levels of oral health literacy enable dental and oral health cadres to convey information about dental and oral health efforts to mothers before and during pregnancy with good communication methods, so that they can improve their skills in maintaining dental and oral health. In accordance with previous research, that knowledge of oral health results in people implementing correct practices, such as tooth brushing skills and maintaining personal oral hygiene^[16].

Oral health literacy and skills in maintaining dental health in mothers before and during pregnancy are important factors in improving dental and oral health behavior efforts. In accordance with research by Sowmya KR, *et al*, 2021, that increasing dental and oral health behavior and literacy in mothers is the key to influencing children's dental and oral health. Oral health literacy of dental health cadres in mothers before and during pregnancy shows the ability to understand dental health information and apply it. By carrying out health literacy activities without coercion and without encouragement from other parties, dental health cadres will become independent^[17]. In line with the research of before that independence is something that plays

an important role in carrying out learning activities with self-motivation and without coercion ^[18].

The core of the Health Literacy conceptual model shows the ability of cadres to access, the capacity to search for, obtain and understand dental health information, and evaluate and describe the ability to interpret, filter, and evaluate the health information obtained, and apply the ability to communicate and use health information to make decisions to maintain and improve health. Health Literacy is the cognitive ability and social skills of cadres, where it will determine the motivation and ability of cadres to obtain, understand, and use health information to maintain dental and oral health and increase public access to health information and be able to use it effectively ^[19].

Cadres who have high self-efficacy and oral health literacy will be able to search for and absorb dental and oral health information on mothers before and during pregnancy, then communicate it, so that cadres will have independence because they are able to identify problems, make plans and implement problem-solving. This is in accordance with the opinion of another article that Independence refers to the ability of individuals or groups to act, make decisions, or meet their own needs without depending significantly on external assistance or intervention that covers various aspects of life, such as economic, social and personal ^[20].

Health Empowerment according to Hubley theory said that health empowerment, and health literacy are placed in a comprehensive approach framework. Empowerment is discussed in the framework of how to develop the ability of the population to help themselves (self-efficacy) from social learning theory. The independence of dental health cadres can be seen from cadres' ability to identify problems, plan and implement problem-solving which of course utilizes their potential without depending on the help of other parties. So, the independence of dental health cadres can be seen from the ability of cadres in high Self Efficacy and Health Literacy towards dental and oral health efforts in mothers before and during pregnancy ^[5].

Conclusion

There is an influence of self-efficacy of dental health cadres on the efforts for mother's dental health before and during pregnancy. There is an influence of health literacy of dental health cadres on efforts for mother's dental health before and during pregnancy. There is an influence of independence of dental health cadres on the maintenance for mother's dental health before and during pregnancy.

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