

Designing Health Educational Booklet about Teeth Decay for mothers of Preschool Children



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1.ABSTRACT

Background: Oral health is an integral component of general health and well-being. Dental caries is one of the most widespread noncommunicable diseases in children which affect their oral health and remains a major public health problem worldwide. **Aim:** This study aimed to design health educational booklet about teeth decay for mothers of preschool children. **Method:** A Cross-sectional study design was used with a convenience sample of experts in health education in community health nursing and mothers. Data were collected using five tools: Socio-economic Scale tool; child characteristics assessment tool, structured interview tool to assess mothers' knowledge about teeth decay, structured interview to assess mothers' subjective practices related to dietary habits tool and oral care tool and structured interview attitude assessment questionnaire **Results:** The total score of the studied mothers' knowledge presented that about half of them had fair knowledge, most of them had unsatisfactory total subjective practice score and about half of them had positive attitude toward teeth decay with highly statistically significance between total knowledge, practice, and attitude score of the studied mothers toward teeth decay (0.001). **Conclusion and Recommendations:** Educational programs as a proper intervention proven that increase the awareness of mothers and promote oral health of their children. Further large-scale investigations are recommended to enrich the evidence related to effective pediatric oral health education for parents.

Keywords: Educational Programs, Oral Health, Dental Caries, Teeth Decay

2.Introduction:

Oral health is an integral component of good general health and plays a major role in the child's life (Vieira-Meyer et al., 2019). Oral diseases are common in many societies globally, dental Caries the most important global oral health problems among children. In most developing countries, the levels of dental caries were low but now tend to increase (Masumo, Ndekeru & Carneiro, 2020). Early Childhood Caries (ECC) is prevalent around the world, but in particular the disease is growing rapidly in low - and middle - income countries in parallel with changing diet and lifestyles. In many countries, ECC is often left untreated, a condition which leads to pain and adversely affects general health, growth and development, quality of life of children, their families, and their communities (Phantumvanit et al., 2018).

The consequences of ECC are numerous and significant on children's growth, function, and quality of life. It has been typical in the past to describe the consequences of pediatric dental caries from a temporal perspective, examining both the short - and long - term effects dental caries has on the individual child. However, describing its impact

within a series of levels beginning with the tooth, mouth, and child and then progressing to its impact on families, community, and society in general (Berg, 2015).

Parents and caregivers of young children can reduce children's caries risk by limiting their consumption of sugar-containing soft drinks and increasing their consumption of milk and other dairy products. Dairy products have properties that protect teeth against caries, and eating cheese after exposure to sugar rapidly neutralizes plaque acidity (Mathur & Dhillon, 2018).

Treatment of ECC can be accomplished through different types of intervention, depending on the progression of the disease, the child's age, as well as the social, behavioral, and medical history of the child. Examining a child by his or her first birthday is ideal in the prevention and intervention of ECC (Prathima et al., 2020). Education regarding oral hygiene can greatly affect a child's oral health; daily, at-home preventative dental routines are one of the most crucial elements in maintaining oral health. If patients do not know how to properly conduct these routines, their oral health can suffer as a result. This education can

either be given to parents/caregivers, primary care physicians (usually pediatricians), or to the children themselves (Kossioni et al., 2018).

Many education programs exist, with the ultimate goal of raising people's awareness of oral health problems and increasing their oral health (Hoef, Barker, Shiboski, Pantoja - Guzman & Hiatt, 2016). Such programs have been made by national entities, such as the CDC, ADA, and WHO; state organizations, such as the California Dental Association and the Texas Smiles Foundation; and many independent, local groups. These programs are designed to target different groups of people who play a role in children's oral health, including dentists, primary care physicians, parents and caregivers, and the children themselves (Arora, Poudel, Manohar, Bhole, & Baur, 2019).

Therefore, according to the importance of oral hygiene during pregnancy, the present study aimed to develop health education booklet to increase mother's awareness about preschool child dental caries, and caries dangerous effect on their health and healthy dietary habits

Aim of the study

This study aimed to design health educational booklet about teeth decay for mothers of preschool children.

Research hypothesis

To fulfill the aim of this study;

1. What is the mothers' level of knowledge about teeth decay of preschool children?
2. What are the mothers' subjective practices toward decreasing preschool child teeth decay?
3. What is the mothers' attitude toward decreasing her preschool child teeth decay?
4. What is the experts' evaluation regarding the designed he
5. altheducationalbooklet about teeth decay of preschool children?
6. What is the mothers' feedback regarding the designed health educational booklet about teeth decay of preschool child?

3. Method

Study Design

This study used a cross-sectional study design was utilized to accomplish this study.

Setting

This study was conducted at the primary healthcare center of Aga city which provides

services for children less than five year (Aga Health management center). The center provides dental care for children, in addition to compulsory vaccination; it provides family planning method for mothers.

Subjects

The study subjects was be including: Mothers sample was selected according to the following criteria: Attended mother with child less than five years had decayed teeth or tooth.with different education level of mother who agree to participate. Experts in the field of community health nursing and professional of dental filed.

Data Collection Tools

Five tools were used to collect data for the current study:

Tool (I): Socio-economic Scale:

It was adopted from Fahmy and El-Sherbini (1983) socio-economic scale, which was modified by El-Gilany, El-Wehady and El-Wasify (2012). This scale includes socio-economic characteristics of family such as:level of mother and father education, occupation, family income, and family size....,etc.

Tool (II): Child Characteristics Assessment Tool:

This tool was used to assess child age, gender, duration of tooth decay, number of tooth decay.

Tool(III): Structured Interview Tool to Assess Mothers' knowledge about Teeth Decay:

This tool was used to assess mothers knowledge about teeth decay,and its preventive measuresincludingcauses, signs and symptoms, preventive dietary habits, and child daily activities. Scores was estimated to assess mothers' knowledge was one mark awarded for each correct response. Scoring according to the researcher cut of point value the knowledge level was be categorized into three: Poor = scores less than 50% of total scores, Fair = scores 50% to less than 65% of total scores, Good = scores 65% and more of total scores.

Tool (IV):Structured Interview to Assess Mothers' Subjective Practices Related to Dietary Habits and Oral Care:

This tool was be used to assess mothers' subjective practices of dietary habits that minimize tooth decay such as; how to select healthy dietary habits, types of dietary intake, times per day,in addition to how to perform tooth cleaning, oral careand how to perform tooth brushing,...ect. Scores was estimated to assess mothers' subjective practices was beone mark awarded for each correct

response. Practices scoring was categorized according to the researcher cut of point value to two levels: Satisfactory = scores are 60% of total scores or more, Unsatisfactory = scores less than 60% of total scores.

Tool (V): Structured interview attitude assessment questionnaire:

This tool was used to assess mothers' attitude about teeth decay such as; importance of using tooth brush ,importance of oral care, ect...) by using 3 point Likert- rating scale (Agree, Disagree and Neutral). Scores was estimated to quantify the mothers' attitude in which two marks to agree, one mark to disagree and zero to neutral for positive attitude statements and vice versa for negative attitude statements.

Tool (VI): Mothers' Feedback Checklist to Evaluate the Designed Health Educational Booklet:

This tool was used to assess the mothers' feedback regarding health educational booklet.

Tool (VII): Experts' Evaluation Checklist to Evaluate Designed Health Educational Booklet:

This tool was used by the experts' to evaluate the designed health educational booklet by experts before formulation of final version.

Validity of the study tools was tested by:

Content validity by sublimity the tool to a jury of five experts in the field of community health nursing and dental experts and the required modification were carried out.

Pace validity by conducting a pilot study:

Carried out on (10%) of study sample (11 mothers) who were excluded from the study sample.

The reliability of tool I, tool II and tool III was 0.91, 0.94, and 0.91 respectively which indicates reliable tools.

Data Collection

Initial data collection was carried out by Arabic language to avoid misunderstanding and to assess mothers' knowledge, subjective practices, and attitude by using tools (I, II, III, IV, V).

Designing the Health Educational Booklet:

Designing the [health educational booklet](#) based up on the obtained data from initial assessment of mothers' of preschool children. It was included tooth decay definition, Causes, Signs and symptoms, and preventive measures (dietary habits, oral care,ect).

Evaluation of health educational booklet:

The health education booklet was evaluated for its validity by the following: Designed booklet was circulated to both a group of experts in the field of community health nursing and a group of preschool children's mothers who participate in the study by using (VI and VII) tools for evaluation. The results of the evaluation was documented and considered, and accordingly any modification were done before final formulation.

Data Analysis

Statistical analysis was done according to the most currently reliable and valid statistical methods. The collected data was coded, entered and analyzed by personal computer using stand for Statistical Product and Service Solutions (SPSS) program version.

Limitations of the current study

- Because of the Covid 19 pandemic, mothers were afraid to be in the dental clinic for fear of infection, and some mothers refused to participate and talk to me for fear of infection, also, number of children was limited.

4. Results

Table (1) shows distribution of mothers' preschool children according to their demographic and occupational characteristics it revealed that the studied mother age ranged from 28 to less than 48 years with mean age of 29.09(6.58). As well 59 of them categorized from 28 to less than 38 years. As regards to number of family members, 72 of the families are less than 5 members and 51 of them lived in rural places. Concerning, the educational level of the studied mother 57 had university education and 57 of them were housewife. Concerning, socioeconomic class 84 of children's lived in middle class and 89 had enough income.

Figure (1) shows the total score of the studied mothers' knowledge was fair knowledge toward teeth decay with highly statistically significance between total knowledge score of the studied mothers toward teeth decay (0.001).

Figure (2) shows a highly statistically significance was found between total subjective practice score of the studied mothers toward teeth decay (0.002).

Figure (3) shows the total score of the studied mothers' attitude toward teeth decay. It presents that 41.91% of the studied mothers had positive attitude with SD 41.6(SD=3.78). A highly statistically significance was found between Total attitude score of the studied mothers toward teeth decay (p= 0.001).

Table (2) showed that (100%) of the experts stated that the topic of the booklet is important and significant for the target group .As regards to the beginning of the booklet all experts(100%)represented that the names of auther,supervisors,and the target group is determined While (93.3%) of the experts reported that the topic of the health education booklet objectives is specific, measurable, achievable, reliable and time bounded (SMART).

Also the majority (93.3%) of experts revealed that the content is sufficient to achieve the objectives, important points are stated, majority of the vocabulary is composed of popular words, bullet points draw attention to specific points or key content and format of the material is appropriate.

Regarding to language of the booklet (86.7)of experts found it to be conversational, written in an active voice and material is friendly to reader, and language is suitable for readers, planning, and sequence of information made it easier for the readers to predict its flow d. While (96.7%)of experts viewed about the objectives to be reliable and time bound, with explanatory language.(93.3%)of experts stated that heading and subheading are identified.

Finally (93.3%) of experts stated that the content is matched to the native culture of the patients, concise and relevant to the objectives, and

(96.3%)of experts stated that content is written in a student-oriented style.

Table (3) showed that (96.7%) of the experts stated that illustration are simple appropriate, and present an easily understandable outline. While (93.3%) of the experts reported that illustrations are related to text and integrated with the text.

Also the majority (86.7%) of experts revealed that Size of the letters is suitable, Style of the letters is appropriate, the space between lines is suitable, length of the paragraphs is proper and format of the material is appropriate.

Finally (83.3%) of experts stated that the Use of bold characters and bullet points draw attention to specific points or key content , Subjective use of blank space reduces overcrowded appearance, Contrast between the printed content and the paper , Subheadings or the inner margins make reading and memorization easier ,and spacing between paragraphs is appropriate

Table 4 reveals that (86.9%) of experts reported that the media is appropriate to the content delivered and obvious and the majority of them (93.3%) stated that the used media facilitate retailing the content and receiving knowledge and practices . On the other hand, (86.9%) of experts mentioned that the used media is attractive, grasping attention and clear respectively.

Table 1. Distribution of mothers' pre-school children according to their demographic and occupational characteristics.

Demographic and occupational characteristics	N=(100)	%
Mothers age		
18-<28 years	35	35
28-<38years	59	59
38-<48years	5	5
≥48years	1	1
B (SD)	29.09(6.58)	
Number of family members		
< 5 members	72	72
≥ 5 members	28	28
Residence		
Rural	51	51
Urban	45	45
Urban slum	4	4
Mother's education		
Primary	10	10
Preparatory	5	5
Secondary	28	28
University	57	57
Mother's job		
Housewife	57	57
Hand worker	7	7

Employee	36	36
Father's education		
Primary	7	7
Preparatory	11	11
Secondary	21	21
University	61	61
Father's job		
Not working	1	1
Professional job	25	25
Worker	29	29
Employee	45	45
Socioeconomic class		
High	7	7
Middle	84	84
Low	9	9
Income		
Enough	89	89
Not enough	11	11

mean, SD: standard deviation

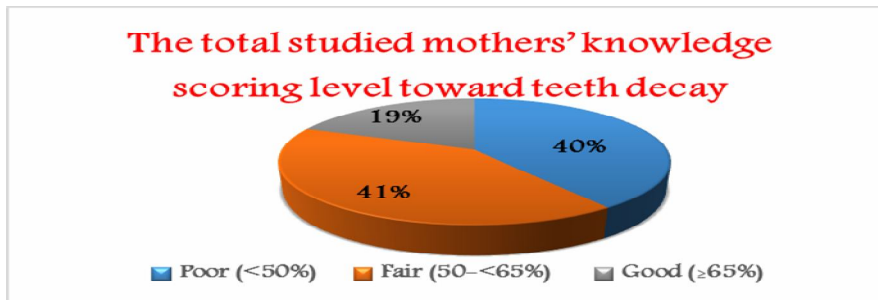


Figure 1. The total studied mothers' knowledge scoring level toward teeth decay

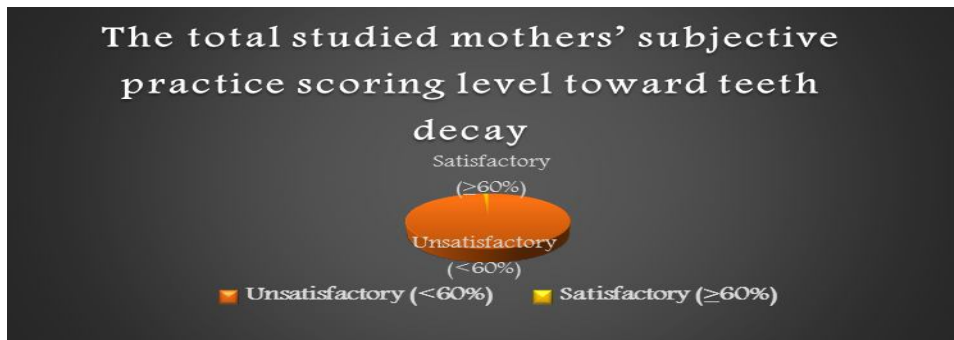


Figure 2. Total attitude score of the studied mothers toward teeth decay.

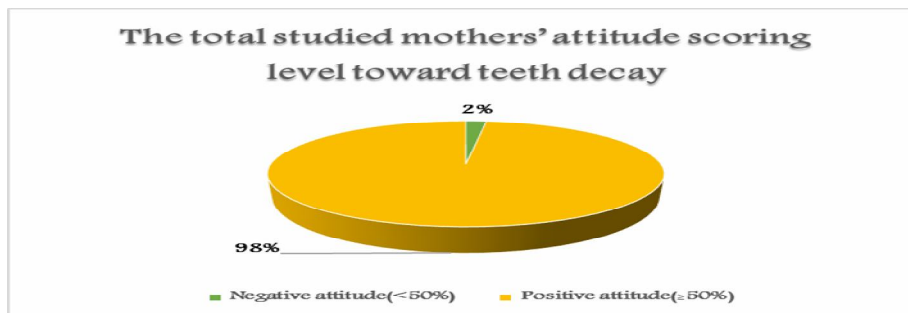


Figure 3. The total studied mothers' attitude scoring level toward teeth decay

Table 2. Distribution of the experts' evaluation regarding to the printed materials of the designed health educational booklet about teeth decay.

Item	N= (30)	%
Topic		
The topic of educational booklet is important	30	100
The topic of educational booklet is significant	30	100
Author and target group		
Names of the developers of the booklet are mentioned.	30	100
The target group is determined.	30	100
Objectives and contents		
The objectives are specific	28	93.3
The objectives are measurable	29	96.7
The objectives are achievable	26	86.7
The objectives are reliable	28	93.3
The objectives are time bound	28	93.3
Content is sufficient to achieve the objectives.	28	93.3
Content is understandable	28	93.3
Content is updated	30	100
Important points are stated	30	100
Content is matched to the native culture	28	93.3
Information is adapted to the native culture	28	93.3
Content is concise	28	93.3
Content is relevant to the objectives	28	93.3
Content is written in a student-oriented style	29	96.7
Literary Presentation		
Language is neutral (no comparative adjectives, promotion or false appeals)	30	100
Language is explanatory	29	96.7
Language is conversational and written in the active voice	28	93.3
Majority of the vocabulary is composed of popular words	29	96.7
Headings and subheadings are identified	28	93.3
Vocabulary is composed of simple words	26	86.7
Language is suitable for readers	26	86.7
Planning and sequence of information are consistent, making it easier for the readers to predict its flow.	26	86.7
Material is friendly to reader	26	86.7

Table 3. Distribution of the experts' evaluation regarding to the printed materials of the designed health educational booklet about teeth decay

Item	N= (30)	%
Illustrations		
Illustrations are simple	29	96.7
Illustrations are appropriate	29	96.7
Illustrations are present an easily understandable outline	29	96.7
Illustrations are related to the text (express the desired purpose).	28	93.3
Illustrations are integrated with the text (easily located).	28	93.3
Legibility and printing characteristics		
Size of the letters is suitable	26	86.7
Style of the letters is appropriate	26	86.7
The space between lines is suitable.	26	86.7
Length of the paragraphs is proper	26	86.7
Use of bold characters and bullet points draw attention to specific points or key content	25	83.3
Subjective use of blank space reduces overcrowded appearance	25	83.3
Contrast between the printed content and the paper.	25	83.3
Subheadings or the inner margins make reading and memorization easier	25	83.3
Spacing between paragraphs is appropriate	26	86.7
Format of the material is appropriate	26	86.7

Table (4). Distribution of the experts' evaluation regarding to the quality of media and total score of experts' evaluation

Item	N= (30)	%
The media is appropriate to the content delivered	26	86.9
The used media facilitate retailing the content	28	93.3
The used media facilitate receiving knowledge and practices	28	93.3
The used media is attractive	26	86.9
The used media is grasping attention	26	86.9
The used media is clear	26	86.9
The used media is obvious	26	86.9
Total score of experts' evaluation		
● Good		

5. Discussion

Discussion of the study results will cover three main parts as follow: The first part concerned with pre-school children's mother' demographic. The second part concerned with total scores of pre-school children's mothers' knowledge, subjective practice and attitude about teeth decay.

Mothers' pre-school children demographic and occupational characteristics; The current study showed that studied mother age ranged from 28 to less than 48years with mean age of 29.09(6.58). As well more than half of them categorized from 28 to less than 38 years. The finding is at same line with **Luz et al. (2020)** who conducted a study in Brazil about the role of mother's knowledge, attitudes, and practices in dental caries on vulnerably preschool children noted that most of the studied mother's age was dichotomized and < 32 or > 32. While, in Port Said **Ayed, Mohamed, Hegazy, Elsherbeny, Ahmed, and Farrag, (2021)** whose conducted a study on the effect of instructional guidelines on newly mothers' practices regarding children teeth problems. They revealed that mother' ages ranged from 18 to 35 years, and the mean age was 23.2±4.5 years.

As regards to number of family members, the current study showed that the most of the families were less than 5 members and half of them lived in rural places. In the same line with our results **Sogi et al., (2016)** noted that about two thirds of studied families were less than 5 members. This finding in disagreement with, **Luz et al. (2020)** whose reported that about two thirds of the families are more than 4 members.

In relation, the educational level of the studied mother about two thirds of them had university education. In the same line with our results **Al-Jaber, Al-Qatami, and Al Jawad, (2021)** who reported that about half of mothers had university education. While, **Rajanna, Khanagar, and Naganandini, (2019)** who mentioned that the

most of the mothers reported having only primary school education.

Concerning, mother's job more than half of them were housewife. In the same line with our results **Sogi et al. (2016)** who noted that more than third of studied mothers were unemployed. Conversely, **Luz et al. (2020)** who noted that more than half of mother was worked. Concerning, socioeconomic class most of children lived in middle class and had enough income. This may be due to that most of mother had a higher education, which is reflected in the standard of living. This is in disagreement with a study by **Salama et al., (2020)** who reported that about half of children lived in high class.

The total score of the studied mothers' knowledge toward teeth decay. The current study presented that less than half of the studied mothers had fair knowledge toward teeth decay. This may be due to the high educational level of our mothers. In the same line **Al-Jaber et al. (2021)** noted that the knowledge of mothers was considered to be fair. The similarity may be due to the previous studies whose populations share similar cultural and educational characteristics. This finding was in disagreement with **Salama et al., (2020)** who reported that mothers had knowledge prescribed as good about oral hygiene of their children. This difference in mothers' knowledge may be due to difference in education level of mothers in different studies.

The total score of the studied mothers' practice toward teeth decay. The present study noted that the majority of the studied mothers had unsatisfactory total subjective practice score with SD 3.04(SD=1.33). supporting our results **Rajanna et al., (2019)** noted that the total practice of oral hygiene among mothers was found to be very poor. On the other hand, **Mohandass, Chaudhary, Pal, and Kaur, (2021)** found that the majority of the mothers were following average practices and only 5% of the mothers had good practice. This contradiction may be due to the number of mothers

with higher education is greater in this study, and the age of the children is greater, which increases the mother's knowledge and facilitates practice with their children.

The total score of the studied mothers' attitude toward teeth decay Concerning the total score of the studied mothers' attitude toward teeth decay. The current study presented that less than half of the studied mothers had positive attitude with SD 41.6(SD=3.78). This result is in agreement with the study by **Babu, Doraikannan, Indiran, and Rathinavelu, (2018)** in India and **Mubeen and Nisar, (2015)** in Pakistan who reported that more than half of studied mothers had positive attitude regarding oral health of their children. This similarity may be attributed to those mothers having a good oral health knowledge tend to have a positive attitude that may lead to following recommended oral health behavior on behalf of their children to prevent tooth decay.

On the other hand, **Dhull et al. (2018)** found that overall attitude of mothers towards oral health care of children is poor. The different may be due to poor knowledge of mothers in the previous study which reflect on their attitude. Also, the countries with significant variations in culture and language affect health attitudes of their population.

Several studies also have considered Delphi technique as a strategy of choice to define competencies. Batt and his colleagues, have indicated in their systematic review that 26% of included studies have used Delphi technique to define competencies in medicine and nursing

As regards to experts' evaluation of the designed educational booklet, the majority of the experts reported that the topic of the booklet is important, significant for the target group, the topic of the health education booklet objectives is specific, measurable, achievable, reliable and time bounded. Also, the majority of experts revealed that the content is sufficient to achieve the objectives, important points are stated, majority of the vocabulary is composed of popular words, bullet points draw attention to specific points or key content and format of the material is appropriate. Regarding to language of the booklet most of the experts found it to be conversational, written in an active voice and material is friendly to reader, and language is suitable for readers, planning, and sequence of information made it easier for the readers to predict its flow. In the same context, booklet have to be prepared in the light of recent literature on the topic and they are key parts of modern health care (**Geng, Zhao, Wang, Jiang, Meng, & Zheng, 2018**).

6. Conclusion :

The main conclusion drawn from the present study is that, the majority of mothers had fair knowledge ,unsatisfactory practices and neutral attitude related to preschool children teeth decay. All experts and mothers mentioned that the designed health educational booklet is good material for mothers and providing this booklet to them will help in increasing their knowledge ,practice and attitude. The majority of experts reported that the topic of the booklet is important, significant for the target group, the topic of the health education booklet objectives is specific, measurable, achievable, reliable and time bounded and the total score of experts' evaluation was good.

7. Recommendation:

Based on the finding and conclusion drawn from the study, the following are recommended:

- Dental professionals provide mothers with more information about tooth decay.
- The mass media should be involved regarding to increase mothers awareness about preschool teeth decay.
- Using of developed booklet in conducting health education programs sessions for increase mothers awareness of preschool teeth decay.
- Provide mothers with subjective practices to improve oral health and prevent tooth decay for the children.
- **Further studies are needed to:**

Replication of the study on a larger sample should be done for generalization.

Further study about importance of oral health care

Implementation of evidence based practice guide line on preschool dental health care

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