Relation between Oral Health Care for the Elderly and Their Quality of Life

Sabah Fathey Nassar [1], Entisar Abo Elghite Alhossiny Elkazeh[2], Amaal Mohamed El Zeftawy[3], Hend Reda Ali El-kest[4]

[1]Nursing Specialist, Tanta University Hospital,
[2,3] Professor, Community Health Nursing, Faculty of Nursing, Tanta University, Egypt.
[4]Lecturer, Community Health Nursing, Faculty of Nursing, Tanta University, Egypt.

Abstract

Background: Oral health care has a significant effect on the quality of life (QoL) of elderly wellbeing. **The aim of present study**: was to assess relation between oral health care of elderly and their quality of life. **Subjects and method: Design:** This research used descriptive cross sectional research design. **Setting:** It was conducted in Ali Ebn Abi Talib Health Insurance Outpatient Clinics, Tanta city. **Subjects:** Convenience sample of 500 aged who attended the previous settings were participate in this study. **Tools of study:** Two tools were used to collect data **Tool I:** A structure interview schedule that consisted of three parts, Part (1): Socio demographic characteristics, medical history, and lifestyle of elderly, Part (2): Knowledge of aged person about oral health care and Part (3): Self-reported practices of elderly about oral care. **Tool II:** Oral health related quality of life scale (OHRQoL). **Results:** Less than two-thirds (62.4%) of studied participants had high levels of knowledge, more than half (58.2 %) of the participants had unsatisfactory practices and the majority of them (84.8%) had poor levels of quality of life regarding oral health**. Conclusion:** There was highly significant positive correlation between total score of knowledge and practices of studies elderly, and total score of quality of life at $P < 0.01$. **Recommendations:** present study recommended that, health promotion instructions should be designed for improving the elderly's oral health practices and oral health related quality of life.

Keywords: Relation, Oral health Care, Elderly, Quality of Life

Introduction

Aging is a complex biological phenomenon that results from an interaction between genetic and environmental factors. This process may directly or indirectly increase the risk of developing diseases. Aging may develop many pathological and/or physiological changes that could influence dental health [(1)].

By 2030, 1 in 6 people in the world will be aged 60 years or over. At this time the share of the population aged 60 years and over will increase from 1 billion in 2020 to 1.4 billion. By 2050, the world's population of people aged 60 years and older wills double (2.1 billion). The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426

million. In Egypt 2021, population aged 65 years and above has increased from 4.3 % in 1972 to 5.4 % in 2021 with an average annual rate of 0.50% [2, 3].

With global changes in life expectancy, there has been a growth in the population aged over 65 years, particularly in developed countries. The World Health Organization has identified that this will bring new challenges in maintaining the dentition and oral health of those aged over 65 years. However, little is known about these trends impact upon the lived experience of older people [4, 5]. As people get older, more local and/or systemic diseases are diagnosed, which require the use of medication; about 75% of adults over 60 uses at least one medication [1].

Oral health is defined as a state of being free from mouth and facial pain, oral diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking and psychosocial well-being. It is essential to general health and well-being and greatly influences quality of life [6]. Oral health too denotes not merely the absence of disease but the general well-being so that the person can perform functions like eating, talking, and smiling and can contribute creatively to the society [7, 8].

World Health Organization defined Quality of life (QOL) as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns the recognition of health-related quality of life [8,9]. The relationship between oral health and general health has been the focus of research interests for decades. While the impact, and oral manifestations of certain systemic conditions have been identified very early. Later research examined the potential impact of oral diseases on chronic systemic conditions. Periodontal diseases have been linked to cardiovascular diseases, high blood pressure, stroke, diabetes, dementia, respiratory diseases, and mortality, where an inflammatory pathway was depicted [10].

Periodontal complications are caused as result of instability of daily patterns and changing lifestyle. Over 90% of the human population is suffering from it and more than 50 % are wasted due to the complexities of periodontal diseases. Changes in the dental health status of elderly individuals affect the nutritional requirements, food intake patterns, and ultimately physical conditions. On the other hand, it can influence one individual's appearance, self-esteem, and psychological-social functions and the quality-of-life in. elderly people. Therefore, the quality of life in this age group is of paramount importance [11].

Significance of the study: Oral health and dental care have a significant impact on the quality of life (QoL) of older adults, overall health, and wellbeing. Tooth loss, tooth decay, gum disease, dry mouth and oral cancers are

commonly experienced by older people. Understanding the effect of oral health care among elderly on their quality of life is the important step toward being aware of what moves the elderly to achieve oral health [12].

The aim of the study was to assess relationship between oral health care for the elderly and their quality of life.

Subjects and method

Research design:

This study was a descriptive study.

Setting:

The study conducted in all Ali Ebn Abi Talib Health Insurance Outpatient Clinics that affiliated to Health Insurance Hospital at Tanta city, Gharbia Governorate.

Subjects:

A convenience sampling was utilized in this study. A number of 500 elderly who were attending the previous settings was included in the study.

Tools of Data Collection:

Two tools were used according to literature review. **Tool I: A structured interview schedule:** This tool was developed by the researcher after reviewing related literatures. It consisted of three parts for assessing the sociodemographic characteristic, medical history and lifestyle, elderly knowledge, and their practices regarding oral health care.

Part (1): Socio demographic characteristics.

Socio demographic characteristics of the elderly: It included data about age, sex, religion, residence, marital status, level of education, income, number of children, previous job, and with whom live .

Part (2): Knowledge of the studied elderly regarding oral health care. [13, 14]

This part was developed by the researcher to assess the studied elderly knowledge regarding oral health related to causes of oral problem, importance of oral health as tooth brushing, interval of change of tooth brush, influence of oral health on general health, meaning of plaque and its effect on dentition, gum bleeding and its reasons, methods to prevent gum bleeding, effect of soft fizzy drinks on teeth, sweet retention, prevention of tooth decay and causes of oral cancer, barriers in visiting dentists, and sources of information about oral care.

The items of the questionnaire were checked with a model key answer, which was prepared by the researcher. Complete and correct answer scored two, incomplete correct answers scored one and incorrect don't know answer scored zero. The questionnaire of knowledge consisted of 22 items.

- These scores summed up and the total score was converted into a percent score.

-Knowledge score was classified as follows:

- High knowledge: >60%.
- Moderate knowledge: 50%≤ 60%.
- Low knowledge: <50 %.

Part (3): Self-reported practices of the elderly regarding oral healthcare [15, 16].

It included 16 items that asked about use a good toothbrush to brush teeth,

choose a toothbrush with soft nylon bristles, brushed teeth at least twice a day, replaced toothbrush regularly by buying a new toothbrush every three to four months or once the hairs begin to dissipate and loss their shape, used toothpaste containing fluoride for plaque removing, flossed between teeth once a day, used an appropriate amount of toothpaste. Always clean dentures, visited dentist at least once a year, even if did not have one natural tooth or had dentures and go to the dentist as soon as possible when noticed signs of tooth decay or gum disease.

The scoring system:

The score for each practice will calculate as follows: Done correctly practices were scored "one" and not done practice was scored "zero."

The total practice scored ranged from (0-16) point and scores for all practices were summed up.

The total practices scores will be classified as follows:

- Satisfactory practices :≥ 60 %
- Unsatisfactory practices: < 60 %

Tool II: Oral Health Related Quality of Life Scale (OHRQoL): [17]

OHRQoL was measured using the 14-item Oral Health Impact Profile (OHIP-14). Oral Health Impact Profile (OHIP) was developed by Slade and Spencer (1994) as a self-rating patient-centered instrument designed to assess the priorities of care by documenting social impact among individuals and groups, understand oral health behaviors, evaluate dental treatment, and provide information for planning for oral health The OHIP-14 is a multidimensional questionnaire, composed of 14 items, and it covered seven domains of health; two questions for each dimension as: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap.

The scoring system:

The statements were measured using a five-point Likert scale from (0) to (4) points. Positive statements were given score of never (0), hardly ever (1), occasionally (2), fairly often (3), very often / everyday (4). The score ranges from (0-56) points. In which zero corresponds to the worst health status and 56 to the best

Oral health related quality of life will be categorized as follows:

-Poor quality of life: < 50% from total score.

-Good quality of life: ≥ 50% from total score

Method

1. **Obtaining approvals:** Official permission obtained from the Dean of Faculty of Nursing, Tanta University to the directors of in Ali Ebn Abi Talib Health Insurance Outpatient Clinics in Tanta city to obtain permission to collect the required data.

2. **Ethical and legal considerations:** Consent of the ethical committee of the Faculty of Nursing was obtained. Every elderly was informed about the purpose, nature, and benefits of the study at the beginning of the interview, and they have the right to withdraw at any time. Nature of the study was not caused any harm and/ or pain for the entire sample. Confidentiality and privacy were put into consideration

regarding the data collected. Informed consent was obtained from the study subjects.

3. Development of data collecting tools: The researcher designed tool (I) based on literature review. Tool (II) was adapted by the researcher then translated into Arabic**.**

4-The study tools were tested for face and content validity by a jury of five experts in the field of community health nursing and public health and preventive medicine**.**

5. A pilot study: A pilot study was carried out on 10 % of subjects (50 elderly) to test the tool for its clarity and applicability and to determine the length of time needed to collect the data from each elderly. No modifications were done so; this pilot sample was included in the study.

6. Reliability of the study tools: The study tools were reliable according to the result of Cronbach's alpha, which stood at 0.811 for the structured interview schedule, 0.923 for oral health related quality of life (OHRQOL), and 0.944 for the sheet in total.

7. The actual study: The researcher met elderly in waiting areas in outpatient clinics**.** Each elderly was individually quested by using previous tools. The purpose of the study was explained by the researcher to each elderly included in this study. The researcher collected data two days per week. The average number of the elderly was ranged from (10-12) per day. The time needed for each interview to complete the data collection sheet ranged from (30--45) minutes. Collection of data was continued during a period of six months starting in October 2021 and ended in March 2022.

Results

Table (I): Represents distribution of the studied elderly according to their socio demographic characteristics. The table shows that, 89.4% of the studied elderly their age ranged from 60 years to less than 70 years, with the Mean± SD of age was 64.56±3.803 years. The majority (82.4%) of the studied elderly were Muslim, and nearly about two thirds (64.6% and 61.0 %) of them were male and lived in urban area respectively. Regarding the marital status and educational level of the studied elderly more than one third (39.0% and 34.6%) of them were married and just read and write and about three quarters (76.4%,76.0 % and 74.0%) of them had enough income, had less than or equal three children, and were lived with their family, respectively. And more than two fifths the studied elderly had previous professional work.

Table (II): Shows distribution of the studied elderly according to their knowledge regarding oral health problems and care. The table displays that, more than half (55.2%, 60.6% and 64.2 %) of the studied elderly had complete and correct knowledge about the causes of teeth problems, the causes of tooth decay and ways of protection from tooth decay, respectively While, about one third (30.8% and 34.0%) had incorrect knowledge about disadvantages of manual toothbrushes and advantages of an electric toothbrush respectively. As regards to complication of plaque accumulation on the teeth, recommended time to brush teeth and characteristic of a healthy tooth brush the table illustrates that, more than half

(63.2%,62.2% and 63,8%) of the studied elderly had incomplete correct knowledge, respectively. Also, 68.8% of them had incomplete correct knowledge about the effect of dental health on the rest of the body.

Figure (1): Presents distribution of the studied elderly according to their knowledge levels about oral health problems and care. The figure shows that about two thirds (62.4%) of the studied elderly had a high level of knowledge regarding their oral health care while only less than one quarter (22%) of them had low level of knowledge.

Table (III): Presents distribution of the studied elderly according to their self-reported practices regarding oral health care. The table shows that nearly about three quarters of the studied elderly used a good toothbrush to brush their teeth, used toothpaste containing fluoride for black removing and went to dentist for any sigh of tooth decay or gum disease and hold tooth brush under running water to remove any bacteria from the brush after brushing teeth. On the other hand, about two thirds (63.0%, 64.8 % and 68.8%) of them use an appropriate amount of toothpaste, gently brush their tongue after brushing their teeth and spit out the whole toothpaste after brushing teeth, respectively. Also, more than half (53.2% & 56.6%) reported that they brush their teeth at least twice a day and replace their toothbrush regularly by buying a new toothbrush every three to four months or once the hairs begin to dissipate and loss their shape, respectively. Also, the table illustrates that more than two thirds (76.2 % and 70.4%) did not visit a doctor at least once a year, even if they did not have one natural tooth or a denture and did not always clean their denture, respectively. Also, more than half (55.6 %,57.2 % and 53.8%) did not floss between their teeth once a day , did not spent from two to three minutes in brushing their teeth with a technology of up, down and sides and choose a toothbrush with soft nylon bristles, respectively. Furthermore, the table shows that the range of the elderly self-reported practices of oral health care was (1-16) grade with M ± SD8.83±3.786.

Figure (2): Presents distribution of the studied elderly according to their self-reported practices levels regarding oral health care. The figure shows that more than half (58.2%) of the studied elderly were reported unsatisfactory practices levels and 41.8% of them were reported satisfactory practices levels regarding oral health care.

Table (IV): Shows the distribution of the studied elderly according to their quality of life (OHRQOL) regarding oral health care. The table reveals that, more than half (54.2%, 55.4 % and 53.4 %) of the studied elderly were rarely had a trouble of words, had painful aching in mouth and felt tense, respectively. Likewise, 49.2% and 50.0% of them were sometimes uncomfortable to eat any foods and less satisfied in their general life because a problem in their teeth, mouth, or dentures, respectively. This table shows that, 6.6%, 22.6%, and 27.8 % of the studied elderly were every day bitted embarrassed, often had self-conscious, and never pronouncing awards because a problem with their teeth, mouth, or denture, respectively. The range of oral health related quality of

life score were 10- 38 with Mean ± SD 21.20±7.123.

Figure (3): Shows distribution of the studied elderly according to their levels of quality of life (OHRQOL) regarding oral health. The figure illustrates that the majority (84.8 %) of the studied elderly had a poor level of quality of life regarding oral health care.

Table (V): Reveals the relation between knowledge levels, practices levels of the studied elderly, and relation between knowledge levels, practices levels of the studied elderly and their levels of oral health related quality of life scale (OHRQOL). The table illustrates that, more than half (55.8%) of the studied elderly who had a high level of knowledge, had poor quality of life and nearly half (48.0%) of them had unsatisfactory practices and poor quality of life. More than one third of studied elderly with a high level of knowledge had unsatisfactory practices.

Table (VI): Shows correlation between both total score of knowledge, practices of the studied elderly and their total score of oral health related quality of life scale (OHRQOL). The table shows that there was statistically significant positive correlation between total score of knowledge and practices of the studied elderly r=0.694 and p=0.000. Also, there is a highly statistically significant positive correlation between total score of knowledge, practices of the studied elderly and total score of OHRQOL at r=0.315 , r=0.377, respectively and P = 0.000.

Table (I): Distribution of the studied elderly according to their socio–demographic characteristics

Socio-demographic characteristics	The studied elderly (n=500)	
	No	%
Age (in years)		
(60-<70)	447	89.4
(70-80)	53	10.6
Range	**(60-80)**	
Mean ± SD	**64.56±3.803**	
Sex		
Male	323	64.6
Female	177	35.4
Religion		
Muslim	412	82.4
Christian	88	17.6
Residence		
Rural	195	39.0
Urban	305	61.0
Marital status		
Married	195	39.0
Single	93	18.6
Widowed	181	36.2
Divorced	31	6.2
Educational level		
Illiterate	104	20.8
Read and write.	173	34.6
Elementary education	45	9.0
Technical/secondary education	135	27.0
University/Postgraduate	43	8.6
Income		
Not enough	85	17.0
Enough	382	76.4
Enough and save	33	6.6
Number of children		
≤3	380	76.0
>3	120	24.0
Previous job		
Professional work	211	42.2
Craft work	68	13.6
Farmer	63	12.6
Private work	79	15.8
Not working	79	15.8

With whom live		
Alone	121	24.2
With family	370	74.0
A nursing home	9	1.8

Table (II): Distribution of the studied elderly according to their knowledge regarding oral health problems and care

The studied elderly knowledge about oral health problems	The studied elderly (n=500)					
	Incorrect (0)		Incomplete Correct (1)		Complete Correct (2)	
	No	%	No	%	No	%
Definition of oral health	35	7.0	308	61.6	157	31.4
Causes of teeth problems	12	2.4	212	42.4	276	55.2
Causes of oral and dental problems	7	1.4	282	56.4	211	42.2
Causes for the formation of plaque on the teeth	64	12.8	241	48.2	195	39.0
Causes of gums bleeding	44	8.8	206	41.2	250	50.0
Complications of plaque accumulation on the teeth	72	14.4	316	63.2	112	22.4
Causes of teeth decay	0	0.0	197	39.4	303	60.6
Factors that increase the risk of oral cancer	70	14.0	284	56.8	146	29.2
Effect of soft drinks on the mouth and teeth	75	15.0	248	49.6	177	35.4
Effect of foods that contain sugar on the mouth	9	1.8	266	53.2	225	45.0
The studied elderly knowledge about oral health care						
Definition of oral health care	70	14.0	284	56.8	146	29.2
Recommended time to brush teeth	162	32.4	311	62.2	27	5.4
Types of toothbrushes in the local market	30	6.0	244	48.8	226	45.2
Advantages of manual toothbrushes	27	5.4	275	55.0	198	39.6
Disadvantages of manual toothbrushes	154	30.8	212	42.4	134	26.8
Advantages of an electric toothbrush	170	34.0	188	37.6	142	28.4
Disadvantages of an electric toothbrush	116	23.2	258	51.6	126	25.2
Characteristics of healthy toothbrush	87	17.4	319	63.8	94	18.8
Time of toothbrush to be changed	111	22.2	244	48.8	145	29.0
ways to prevent gums bleeding	49	9.8	205	41.0	246	49.2
ways to protect against tooth decay	9	1.8	170	34.0	321	64.2
Prevention of oral cancer	45	9.0	270	54.0	185	37.0
Effect of dental health on the rest of the body.	22	4.4	340	68.0	138	27.6
Range	**(12-37)**					
Mean ± SD	**27.33±6.583**					

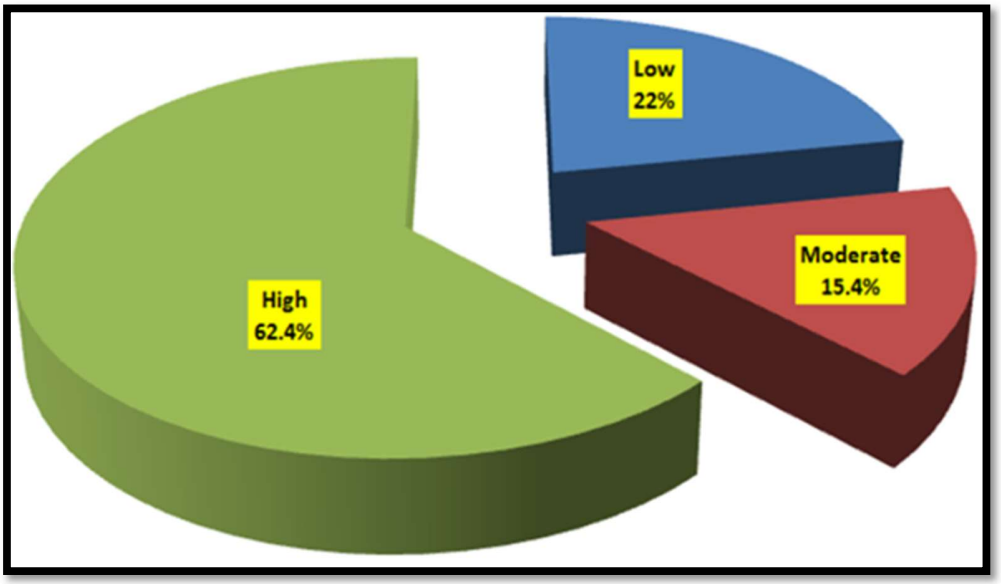

Figure (1): Distribution of the studied elderly according to their knowledge levels about oral health problems and care

Table (III): Distribution of the studied elderly according to their self-reported practices regarding oral health care

Self-reported practices of the studied elderly regarding oral health care	The studied elderly (n=500)			
	Not done		Done	
	No	%	No	%
1- Use a good toothbrush to brush teeth.	101	20.2	399	79.8
2-Choose a toothbrush with soft nylon bristles	269	53.8	231	46.2
3-Brush teeth at least twice a day	234	46.8	266	53.2
4- Replace toothbrush regularly by buying a new toothbrush every three to four months or once the hairs begin to dissipate and loss their shape	217	43.4	283	56.6
5- Using toothpaste containing fluoride for plaque removing	141	28.2	359	71.8
6-Floss between your teeth once a day	278	55.6	222	44.4
7-Use an appropriate amount of toothpaste.	185	37.0	315	63.0
8-Spend two to three minutes brushing your teeth with technology up, down and side	286	57.2	214	42.8
9-Use a gentle back and forth motion on the chewing surfaces	267	53.4	233	46.6
10-Gently brush tongue after brushing teeth	176	35.2	324	64.8
11-Spit out the whole toothpaste after brushing teeth	156	31.2	344	68.8
12- Hold toothbrush under running water to remove any bacteria from the brush after brushing teeth	149	29.8	351	70.2
13- Always clean artificial teeth	262	52.4	238	47.6
14 - Always clean dentures	350	70.0	150	30.0
15- Visit dentist at least once a year, even if don't have one natural tooth or you have dentures	381	76.2	119	23.8
16- Go to the dentist as soon as possible when notice signs of tooth decay or gum disease	135	27.0	365	73.0
Range	**(1-16)**			
Mean ± SD	**8.83±3.786**			

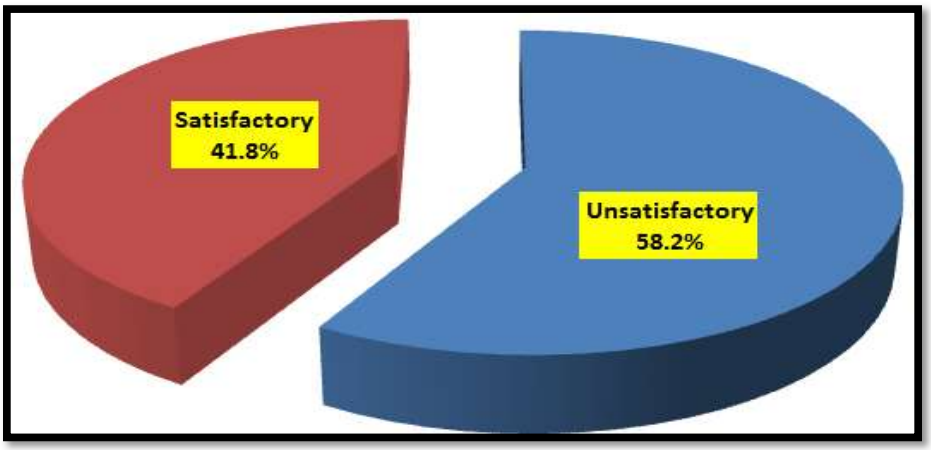

Figure (2): Distribution of the studied elderly according to their self-reported practices levels regarding oral health care

Table (IV): Distribution of the studied elderly according to their quality of life (OHRQOL) regarding oral health care

OHRQOL items	The studied elderly (n=500)									
	Never(0)		Rarely(1)		Sometimes(2)		Often(3)		Every Day(4)	
Because a problem in teeth, mouth &denture the studied elderly had	No	%	No	%	No	%	No	%	No	%
Felt trouble of words.	139	27.8	271	54.2	82	16.4	8	1.6	-	-
Taste is getting worse.	45	9.0	257	51.4	181	36.2	17	3.4	-	-
Painful aching in mouth	22	4.4	277	55.4	184	36.8	17	3.4	-	-
Uncomfortable to eat any foods.	10	2.0	191	38.2	246	49.2	53	10.6	-	-
Self-conscious.	31	6.2	154	30.8	202	40.4	113	22.6	-	-
Felt tense.	32	6.4	266	53.2	141	28.2	56	11.2	5	1.0
Diet been unsatisfactory.	21	4.2	200	40.0	204	40.8	59	11.8	16	3.2
Interrupt meals.	57	11.4	181	36.2	162	32.4	73	14.6	27	5.4
Difficult to relax.	25	5.0	240	48.0	167	33.4	41	8.2	27	5.4
Bit embarrassed.	46	9.2	232	46.4	140	28.0	49	9.8	33	6.6
Pit irritable.	80	16.0	214	42.8	166	33.2	40	8.0	-	-
Difficulty on doing usual jobs.	31	6.2	230	46.0	171	34.2	68	13.6	-	-
In general life is less satisfied.	27	5.4	193	38.6	250	50.0	30	6.0	-	-
Totally unable to work in a good manner.	30	6.0	222	44.4	168	33.6	80	16.0	-	-
Range	**(10-38)**									
Mean ± SD	**21.20±7.123**									

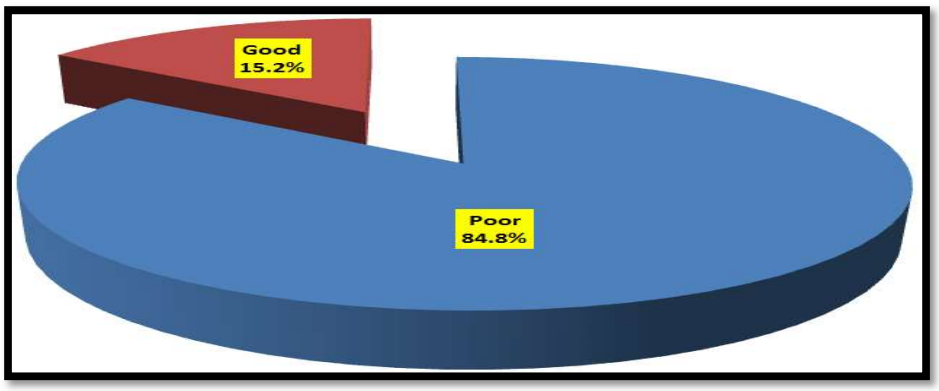

Figure (3): Distribution of the studied elderly according to their levels of oral health related quality of life (OHRQOL) regarding oral health

Table (V): Relation between both of knowledge, practices levels and levels of oral health related quality of life scale (OHRQOL), and relation between knowledge levels and practices levels of the studied elderly

	The studied elderly (n=500) OHRQOL levels				χ^2 P
	Poor quality of life (n=424)		Good quality of life (n=76)		
	No	%	No	%	
Knowledge levels					
Low	68	13.6	42	8.4	**63.444**
Moderate	77	15.4	0	0.0	**0.000***
High	279	55.8	34	6.8	
Practices levels					
Unsatisfactory	240	48.0	51	10.2	FE
Satisfactory	184	36.8	25	5.0	0.031*
Knowledge levels	**The studied elderly (n=500) Total practice levels**				χ^2 P
	Unsatisfactory (n=291)		Satisfactory (n=209)		
	N	%	N	%	
Low	110	22.0	0	0.0	**123.475**
Moderate	54	10.8	23	4.6	**0.000***
High	127	25.4	186	37.2	

FE: Fisher's Exact test. r: Pearson's correlation' coefficient

(*) Significant at level P < 0.05. (**) Highly significant at level P < 0.01

Table (VI): Correlation between the total score of knowledge, practices of the studied elderly and their total score of oral health related quality of life scale (OHRQOL).

	The studied elderly (n=500) Total score of OHRQOL	
	R	**P**
Total knowledge score	**0.315**	**0.001****
Total practices	**0.377**	**0.001****
Total knowledge score	**The studied elderly (n=500) Total practice score**	
	R	**P**
	0.694	**0.001****

Discussion

In the last decades, life expectancy in developed countries has sharply risen and the proportion of people over 60 years of age is increasing. The health problems arising because of the aging process which require special attention, considering that as people get older; they suffer from several chronic diseases that could influence their quality of life (18). The oral cavity may inflict damage on distant tissues and organs. Maintenance of good oral health is critical for the sustenance of general health and vice versa. Poor oral health causes disability and is significantly associated with major chronic diseases [19].

Dental health is often neglected among the elderly because of the numerous comorbidities. Dental health influences quality of life by impacting the general health and the psychological state of the elderly [20]. There is wide evidence that periodontitis is a risk factor for certain systemic diseases and impaired oral health has been associated with mastication and nutritional problems, especially among the elderly with highly negative effects on their quality of life [21]. So, the present study aimed to assess the relation between oral health care for the elderly and their quality of life.

The result of the present study shows that more than half of the studied elderly had complete and correct knowledge about the causes of teeth problems, the causes of tooth decay, and ways to protect against tooth decay. While more than one - quarter of them had incorrect knowledge about disadvantages of manual toothbrushes and advantages of an electric toothbrush. From the researcher point of view this result was due to the effective role of the internet and social media in improving their community knowledge about health and its problems (Table II).

As regarded to complications of plaque accumulation on the teeth, the recommended time to brush their teeth and characteristics of a healthy toothbrush the results of the present study illustrated that more than half of the studied elderly had incomplete correct knowledge; also, they had incomplete correct knowledge about the effect of dental health on the rest of the body (Table II). About two thirds of the studied elderly had a high level of knowledge regarding their oral health care while only less than one quarter of them had low and moderate level of knowledge (Figure 1).

The results of the present study are in agreement with **Delfin et al. (2018)** [22] whose study entitled" Knowledge about causes and prevention of oral diseases among higher secondary school students in Vellore district "who reported that nearly three-fourths (73%) of the students had adequate knowledge on causes and prevention of dental caries and more than half (66.7 %) of the students had adequate knowledge on causes and prevention of periodontal disease. Also, this result of the present study supported by the result of **Peter et al. (2016)** [23] who reported that majority of the subjects in their study had a good knowledge on the prevention of dental caries. On the other hand, the results of the present study disagreed with **Bashiru et al. (2017)** [24] who reported that the most of their studied participants had a poor knowledge about oral health.

Poor oral hygiene is the key to optimal oral health. Brushing, flossing and routine dental visits help keep teeth and gums in tip-top condition. Regular dental visits also help dentist detect and treat problems early before they worsen [25]. The result of the present

study reveals that more than three-quarters of the studied elderly did not visit a doctor at least once a year. Also, more than half of them did not floss between their teeth once a day, did not spend from two to three minutes brushing their teeth with the technology of up, down, and sides, and choose a toothbrush with soft nylon bristles. This result may be attributed to the studied elderly belief that extraction was the simplest solution irrespective of the age of a patient and took topical analgesic when experienced toothache (Table III).

The result of the present study is in agreement with **Michelle et al. (2015)** [26], reported that more than a third of their respondents had poor oral hygiene. The results of the present study disagree with **Gondivkar et al**. **(2018)** [27] who reported that more than two thirds of the subjects brush their teeth in horizontal direction, which is the most dangerous method of brushing.

Regarding the elderly levels of self-reported practices regarding oral health care the current study revealed that more than half of the studied elderly were reported unsatisfactory practices regarding oral health care. (Figure 2). The results of the present study agree with **Bianco et al. (2015)** [28] whose study entitled "Oral health status and the impact on oral health-related quality of life among the Institutionalized elderly population" and stated that more than half (53.2%) of their participants had poor self-perceived oral state. Also, **Shokery et al. (2020)** [29] reported that more than two- thirds of their studied elderly had poor oral self-care practices.

Oral health is a significant factor affecting older people's quality of life, overall health, and well-being. Tooth loss, tooth decay (dental caries), gum disease (periodontitis), dry mouth (xerostomia), and oral cancers are commonly experienced by older people [30]. The present study reveals that sometimes more than one-third of the studied elderly reported that their taste was getting worse, had painful aching in the mouth and felt tense, Likewise, uncomfortable to eat any foods and less satisfied in their general life due to a problem in their teeth, mouth, or dentures. (Table IV). These results agreed with **Koistinen and Olai (2020)** [31], whose study entitled" Oral health-related quality of life and associated factors among older people in short-term care" and found that fully or partially dentate Indian residents had more discomfort in eating in front of people and more limits in the variety and amount of food as more problems in swallowing and speaking. And the result of the present study is also consistent with **Porter et al. (2015)** [32] whose study entitled" The impact of oral health on the quality of life of nursing home residents "who found that their complaints of eating difficulty were the most prevalent oral impact, followed by difficulty speaking. Also, more than half of the studied elderly patients had difficulty biting or chewing food, while the overall scores for the entries of difficulty completing daily tasks and poor taste sensation were low. On the other hand, the results of the present study are disagreed with **Miranda and Alcocer-Nunez (2021)** [33], whose study entitled" Oral health-related quality of life of elderly people and associated socio-demographic factors", and reported that regarding the oral health impact profile (OHIP-14), that the older adults perceived that psychological discomfort and functional limitation had a more significant negative impact on their

OHRQoL, while physical and social disability had the least negative impact.

Regarding the distribution of the studied elderly according to their levels of oral health related quality of life (OHRQOL) regarding oral health. Most of the studied elderly had a poor level of oral health related quality of life. From the researcher point of view, these results may attribute to nearly two-thirds of them done unsatisfactory oral health care practices. (Figure 4). The results of the present study agree with **Aghdash et al. (2021)** [34] whose study entitled "Oral Health and Related Quality of Life in Older People" and reported that the majority(80.2%) of the studied elderly participants in Canada and the United States indicated the low quality of life associated with oral and dental hygiene in older people. The result of the present study disagreed with **Miranda and Alcocer-Nunez (2021)** [33], who found that nearly half of the studied participants had an excellent oral health-related quality of life (OHRQoL), and less than one-third of them had a moderate oral health-related quality of life.

The result of the present study illustrates that, more than half of the studied elderly who had a high total score of knowledge had poor quality of life, and about half of them who had unsatisfactory practices had poor quality of life. More than one third of studied elderly with a high total score of knowledge had unsatisfactory practices. This may be attributed to the studied elderly their age ranged from 60 years to less than 70 years and they were unable to do their usual hygiene and most of them had chronic diseases such as diabetes mellitus, hypertension, and liver diseases. Also, the result of the present study reveals that more than one third of the studied elderly with a high level of knowledge had satisfactory practices and there was significant positive correlation between knowledge and practices levels of the studied elderly r=0.694 and p=0.000.

Also, there is a highly significant positive correlation between knowledge level, practices levels of the studied elderly and levels of OHRQOL at r = 0.315 , r = 0.37, respectively .and P = 0.000 . (Table V and VI)**.** The result of the present study agrees with **An et al. (2022)** [35] whose study entitled " Oral health behaviors and oral health-related quality of Life among dental Patients in China" the majority of patients reported practicing poor oral health behaviors, among which the retired population and whose with poor self-rated oral health showed poor OHRQoL**.** Also, the results of the present study agree with. the study conducted in Sharqia Governorate, Egypt by **Abdullah et al. (2018)** [36] found that there was a significant positive correlation between the total knowledge about oral health and oral self-care practice of the studied elderly. **Aryal et al. (2017)** [37] whose study entitled" Knowledge, attitude, and practices regarding periodontal health in patients visiting a dental teaching hospital "who reported that there were positive linear correlations between knowledge, attitude and practices level of the studied participants.

The results of the present study are disagreement with **Miranda and Alcocer-Nunez (2021)** [33] who found that about half of the studied participants have excellent oral health-related quality of life (OHRQoL), and about one third of have reported moderate oral health-related quality of life. This indicates that the majority (80.0%) of the population over 60 years of age perceived that their oral health did not negatively

impact their quality of life. The result of the present study reveals that two thirds of the studied elderly had a high level of knowledge regarding their oral health care while more than half of them were unsatisfactory practices toward oral health care and more than three-quarters of them had a poor level of their quality of life regarding oral health From the researcher point of view these results due to the studied elderly in present study their age ranged from 60 years to less than 70 years and they were unable to do their usual hygiene and more liable to chronic diseases according to the results of the other studies. So, enhancing an educational and training program in this area is highly necessary to improve oral care performance among the elderly.

Conclusion

Based on the findings of the present study, it can be concluded that nearly about two thirds of the studied elderly had a high level of knowledge regarding their oral health care while, more than half of them were unsatisfactory practices toward oral health care and more than three-quarters of them had a poor level of their quality of life regarding oral health. There was a highly significant positive correlation between knowledge and practices levels of the studied elderly regarding oral health and their levels of quality of life at P = 0.001.

Recommendations

- Design oral health educational program for community dwelling older adults about the importance of oral health routine checkup and the available community dental health services.
- Health promotion instructions should be designed for improving the elderly's oral health practices and oral health related quality of life

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