Assessment of Mothers Awareness Regarding Early Childhood Obesity in Sohag Governorate

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Abstract

Background: One of the most significant global public health issues of the twenty-first century is childhood obesity, which affects all nations worldwide. The key to preventing obesity is mothers' awareness of their children's overweight and obesity. **Aim of the study:** This study aimed to assess the mothers' awareness regarding early childhood obesity. **Design:** A descriptive design was used in carrying out this study. **Setting & Sampling**: A multi-stage sample of 200 preschool children and their mothers were attending the governmental nurseries schools at Sohag Governorate. **Tool:** Interviewing questionnaire sheet composed of 3 parts; **part I:** Personal characteristics of children, **part II**: Personal characteristics of the studied mothers, **part III:** Mothers' awareness consists of two parts; a) Mothers' knowledge regarding nutritional habits, b) Mothers' knowledge regarding child's obesity. **Results:** The results of the current study reveals that, two-fifth (40.4%) of the studied mothers had fair knowledge levels and one-third (32%) of them had good level of knowledge, while more than one-quadrant (27.5%) of them had poor level of knowledge regarding obesity. **Conclusion**: A strong statistically significant relation was found between the mothers' knowledge and their residence, occupation, and levels of education with (P=0.000). There was no statistically significant relation between the total studied mothers' knowledge and their age. **Recommendation:** Conducting health educational programs at schools to raise the awareness of the children and mothers about obesity and its prevention.

Key words: awareness, childhood, knowledge, mothers, obesity.

Introduction

Globally, the prevalence of childhood overweight and obesity is rising, with low- and middle-income nations seeing the fastest rises. According to the World Health Organization (WHO) European Childhood Obesity Surveillance Initiative (COSI), the prevalence of overweight and obesity among 6 to 9 years old children in Europe ranged between 9 and 43% in boys and 5 and 43% in girls in 2015-2017 **(Marković et al., 2021).**

Excessive adiposity is the hallmark of obesity, a complex multifactorial condition that is associated with a higher risk of numerous non-communicable diseases (NCDs). It has been recognized as a significant global public health concern and a leading cause of death and disability in the WHO European Region. The risk of non-communicable diseases rises with obesity. The burden that obesity is placing on individuals and the population throughout the region has prompted member states to take action to stop the increase in obesity within and between population categories. **(WHO, 2022).**

Children are becoming more overweight and obese, primarily as a result of substantial changes in food and physical activity habits, which have led to a rise in sedentary lives and a decline in physical activity. Additionally, a lot of children are spending long times indoors, watching TV, and playing video games, which reduces their physical activity and causes them to gain weight because traditional healthy diets that are mostly made up of fruits and vegetables have given way to "junk" foods that are high in calories and fat. Evidence shows that genetic or family characteristics are also risk factors associated with overweight and obesity **(Akowuah and Kobia-acquah, 2020).**

Overweight has a substantial impact on children since it raises their chance of developing respiratory issues, musculoskeletal disorders, hypertension, diabetes mellitus, stroke, and obesity. This effect is exacerbated in adults by insulin resistance, some types of cancer, and obesity. Also, obesity in childhood is linked with a higher risk of mental health issues, impairment, and even death. Globally, there are about 41 million children under five years old reported to be either overweight or obese as of 2018 **(Schroeder et al., 2021).**

First societal evaluations of obesity should involve a thorough history (looking at family history, comorbidities, and possibly changeable behaviors) .The result of the history and physical examination, the body mass index (BMI), which is represented on a BMI-for-age chart, and the related risk factors in the family. Many expert groups have suggested that BMI (BMI is a weight (in kg) divided by height (in

m), squared) as the favorite routine clinical measure of overweight and obesity in children and adolescents over 2 years of age **(Jebeile et al., 2022).**

Parents play a significant role in the treatment and prevention of childhood obesity and family-based interventions to treat childhood obesity may be effective even though long-term effects stay unknown. However, Parents may not be able to appropriately assess their children's weight status, according to studies. The age of the child, the prevalence of obesity in the population, and the weight status of the parents are some variables that may affect parents' awareness of their child's weight. **(Cohen et al., 2019).**

Mothers are the primary caregivers, thus their knowledge of children's health has a significant impact on their diet and level of physical activity. They have a significant influence on how their children learn, behave, and think from an early age. (**Chavan and Ramesh, 2021).**

Nurses play several roles in management and prevention of obesity as a health educator, counselor, and referral. Nurses who work with children and young adults have the opportunity to address issues related to growth and development, biometric measurements, maintaining an average body mass index (BMI), and dietary habits. This would enable the nurses to provide guidance to the family and young children regarding the prevention of obesity and the promotion of healthy eating habits. **(Ali et al., 2019)**

Significance of the study

Since obesity is a chronic, complicated illness, it necessitates lifelong, comprehensive care. A lot of parents don't consider obesity to be a medical condition that requires care. The growing prevalence of overweight and obesity is prompting medical professionals to take immediate action to address this issue. (**Flores-Peña and Ávila-Alpirez 2021).**

Reports show a growing trend in childhood overweight and obesity in North Africa, mainly in Egypt, study among school-going children in Sohag, Egypt found approximately 17% of the participants were overweight and 15% were obese. Despite a number of community-based studies demonstrating a high prevalence of overweight and obesity in Egyptian children under five, little is known about childhood nutrition in Egypt, with the majority of research concentrating on adults and adolescents. **(Bonsu and Addo, 2022).**

Aim of the study

This study was aimed to assess mothers' awareness regarding early childhood obesity

Research Question

What is the mother's level of awareness regarding early child hood obesity?

Subjects and Method

The study was conducted under four categories as follows:

1. Technical design.
2. Operational design.
3. Administration design.
4. Statistical design.

1-Technical design

Research design

A descriptive research design was utilized for this study.

Setting

The study was conducted in the governmental nursery schools in Sohag Governorate. According to educational administration in Sohag governorate, there are 12 districts and each district include a number of nursery schools ranging from (30-40 nursery school). Sohag district was selected randomly. And, 20% of nursery schools affiliated to the selected district were selected. Namely (Taha Hussein nursery school, Mohamed Farid nursery school, Molhakat-Elmoalimen nursery school, Rodat El shohadaa primary school, Elrashad nursery school ,Abdalla wahby nursery school and Al-Sadat nursery school) . 20% of students in these classes were included to represent the study setting.

Subjects

A multi-stage sample of all obese and non-obese preschool children and their mothers at the previously mentioned settings. The average number of children in each class ranged from 30-40 children. A multi stage sample of 200 preschool children and their mothers were selected from the previously mentioned schools, however all children in the selected classes were included in the study sample regardless of their age, gender and educational level.

Inclusion criteria

1- Preschool children with both genders.
2- Preschool children at age (4-6) years.

Tool for data collection

A structured interview sheet was used to collect the data. It was written in simple Arabic language. Consisted of three parts:

It was adapted from **Abd El Magid, (2005)** and modified by the researcher based on scientific literature review. It was written in an Arabic language to gather data and consisted of three parts:

Part (1): Personal characteristics of children such as age, gender, weight, height, BMI, arrangement of

child in the family and family history of obesity.

Part (2): Personal characteristics of the studied mothers such as age, level of education, residence, and occupation.

Part (3): Mothers' knowledge consists of two parts

Mothers' knowledge regarding nutritional habits such as: Nutrition as the source of information about healthy food for children, her style with the child while eating, number of daily meals the child eats, if the child eats breakfast before going to nursery and, if the child eats meals from outside the home from restaurants. And if yes, the number of times the child eats from restaurants per week. **Sleep** as the child gets enough sleep daily. And the child sleeps immediately after eating. **Activity** as a child's favorite activities and the child eats while watching TV or any mobile device.

Mothers' knowledge regarding the child's obesity, such as meaning of obesity, causes, obesity is an indicator of good health, complications, and a child who suffers from obesity should follow up with a nutritionist, and mothers play a major role in preventing obesity in their children by following a healthy lifestyle and preventing measures to prevent obesity.

Scoring system: The correct answer was scored one grade and the incorrect was scored zero. These scores were summed up and converted into a percent score. Accordingly, the total levels of knowledge were scored as the following:

- Score 0 < 50 grade referred to an unsatisfactory level of knowledge.
- Score ≥ 50 grade referred to satisfactory level of knowledge.

2- Operational design

Preparatory phase

The current and internationally related literature using books, periodicals journals, magazines and internet was reviewed by the researcher to be more acquainted with the topic and with the process of tool designing.

Content validity

A tool of the study was assessed by 5 panel experts in the field of pediatric nursing to evaluate the content validity. As a result, a minor modification was done in the form of editing for some statements in the tools to be more understandable.

Reliability

Reliability of the tool was done to confirm the consistency of the study tool and was calculated statistically. Reliability of the study's tool was assessed by alpha Cronbach test (0.84).

Pilot study

A pilot study was carried out on 10 % (20 mothers and their children) of the total sample size to assess the clarity and applicability of the tools and also to determine the time needed for filling the structured questionnaire. According to the results of pilot study it was revealed that, the questions were clarified and applicable to complete this study. So, pilot subjects were later included in the study as there were no subsequent modifications in the study tools.

Fieldwork

The actual fieldwork was carried out from the 2nd week of October 2023 up to the end of April 2024. The researcher was available three days in each week, one day for each nursery. Setting from 8 Am to 12 Pm by scheduled rotation. The researcher met the mothers according to their suitable time for data collection in the morning when the mothers bring their children to the nursery school and at the afternoon when they come to take their children.

All children at previously mentioned settings were assessed for their weight and height to determine their BMI Body mass index for age (BMI-for-age) was used to evaluate the children's nutritional status. BMI-for-age is calculated as the child's weight in kilograms divided by the square of height in meters. It is a specific, inexpensive, and easy-to-perform method of screening for overweight and obesity. Weight was measured using a weighing scale with the child bare feet, wearing light clothes. Both feet in the center of the scale, weight was recorded to the nearest decimal fraction (for example, 25.1 kilograms). Height was measured using a measuring tape with the child bareheaded and barefooted together, heels and back in contact with an upright wall and the head in a horizontal position. Height was measured to within 0.1 centimeters. Data collection was done from mothers, who accepted to be included in the study after explaining the aim of the study. Mothers were asked to fulfill the study tools according to the availability of their free time in the nursery school and some of mothers were allowed to fulfill the study tools at home to be received by the researcher the next day. The average time required for data collection was 20 minutes.

Ethical considerations

All the ethical considerations for the mothers were secured. A full explanation about the purpose and benefits of the study was informed to them at the interview, they also were allowed knowing that their participation is voluntary and they have the right to withdraw from the study at any time without giving any reason. In addition, confidentiality and anonymity of the subjects were secured.

Administration design

The administrator of the study settings received formal approval to conduct the study from the dean of faculty of nursing Sohag University .To gain their participation and enable the researcher to make regular reports, a thorough explanation of the study's title, objectives, methodology, and tools was provided . Plans for the mothers' attendance based on a convenient time to gather the information required for the current research.

4- Statistical design

The Statistical Package for Social Sciences (SPSS) version 20 was used to do statistical analysis and computerized data entry. As needed, the collected data were arranged, examined, and shown in tables and graphs. Data were presented using descriptive statistics in the form of number, percentage, mean score, standard deviation (SD), chi-square (χ^2), were used to estimate the statistical significant which were considered at P-value < 0.05.

Results

Table (1) displays that, more than half (54.5%) of the studied children were male, less than three-fifths (59%) of them had age from 5 < 6 years with mean of weight 24.51 ± 7.93 and a mean of height 104.25 ± 7.05. Also, more than two-fifths (45.5%) of them had two children in their family, more than half of children (50.5%) were the first in the birth order and more than three quarters of children (77.5%) of them were living with mother and father.

Table (2) illustrates that more than half (54.5%) of the studied children had family history of obesity and more than half (51.4%) of them their mothers were obese.

Table (3) reveals that more than half (51.5%) of the studied mother had age from 20 - < 30 years old, half of them (50%) had high education, while less than two-thirds (59.5%) of the mothers in the study lived in rural areas, and more than half (56.5%) of them were unemployed.

Figure (1) shows that about three quarters (74.5%) of the studied mothers acquired their knowledge from radio and television and more than two third (61%) of them acquired their knowledge from relative while less than one third (19% & 14.5%) of them acquired their knowledge from neighbors and health center respectively.

Table (4) reveals that two third (60%) of the studied mothers answer that " they encourage their children to eat", 81.5% of them didn't use eating as a punishment for their child to control his unacceptable behavior , more than half (58%) of them their children eat three meals daily and the majority (90.5%) of them there the child eat between meals . Also, less than three quadrant (72.9%) of them their children eat fruits83% of them have their child eat breakfast before going to nursery and also all (100%) of them have their child take sandwiches with him to nursery and 70.5% of them their child eat fruit with meals Furthermore, 58.5% of them their children didn't eat meals from outside the home from restaurants and more than two fifth (42.2%) of them their children eat twice meals from outside the home from restaurants.

Table (5) demonstrates that less than half (46.5%) of the studied children sometimes favor eating ice-cream and the majority (98% & 90%) of them usually favor eating potato and rice and pasta respectively. While more than two third (70%) of the studied children didn't favor eating fat.

Table (6) demonstrates that more than half of the children in the study (55%) had a preference for playing video and computer games .Additionally more than half (54.9%) of the children in the study have increased their food intake while watching TV or using a mobile device and more than three quadrants (81%) of them eat while watching TV or using a mobile device.

Figure (2) reveals that two-fifth (40.5%) of the studied mothers had fair knowledge level and one-third (32%) of them had good levels of knowledge, while more than one-quadrant (27.5%) of them had poor levels of knowledge regarding obesity.

Table (7) shows that there was high statistically significant relationship between the total studied mothers knowledge and their education, occupation and residence with (P=0.000), while there was no statistically significant relationship between the total studied mothers knowledge and their age.

Results

Table (1): Frequency distribution of the studied child's demographic data (n=200)

Child's demographic data	No. (200)	%
Sex:		
Male	109	54.5%
Female	91	45.5%
Age: (years)		
4 - < 5	82	41.0%
5 - < 6	118	59.0%
Child's weight:		
Mean ± SD	24.51 ± 7.93	
Range	14.0-51.0	
Child's height in cm:		
Mean ± SD	104.25 ± 7.05	
Range	80.0-125.0	
Child's BMI:		
Mean ± SD	22.64 ± 6.39	
Range	15.0-42.9	
Number of children in the family:		
One	23	11.5%
Two	91	45.5%
Three	57	28.5%
Four or more	29	14.5%
Birth order:		
First	101	50.5%
Second	64	32.0%
Third	19	9.5%
Fourth	16	8.0%

Table (2): Frequency distribution of the studied children's family history of obesity (n=200)

Items	No. (200)	%
Family history of obesity:		
Yes	109	54.5%
No	91	45.5%
Relation:		
Father	36	33.0%
Mother	56	51.4%
One of the sisters and brothers	11	10.1%
Grandmother or grandfather	22	20.2%

Table (3): Frequency distribution of the mothers' socio-demographic data (n=200)

Socio-demographic	No. (200)	%
Mother's age: (years)		
20 - < 30	103	51.5%
30 – 40	97	48.5%
Mother's education:		
Illiterate	8	4.0%
Reads and writes	10	5.0%
Secondary	82	41.0%
High education	100	50.0%
Mother's occupation:		
Working	87	43.5%
Not working	113	56.5%
Residence:		
Rural	119	59.5%
Urban	81	40.5%

Figure (1) Frequency distribution of the studied mothers' Source of information about healthy food for children (n=200)

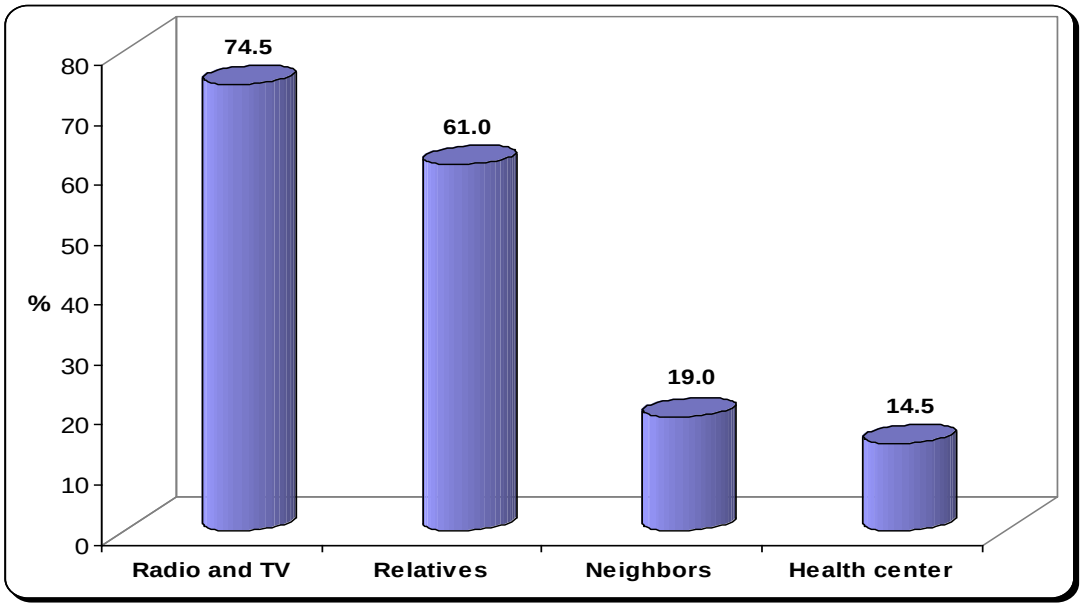

Table (4): Frequency distribution of the studied mothers' information regarding their children's eating habits (n=200)

Items	No. (200)	%
What is your style with the child while eating?		
I encourage him to eat	123	61.5%
I punish him if he does not eat	2	1.0%
I do not pay attention to him while eating	22	11.0%
I leave him as he likes	53	26.5%
Do you use eating as a punishment for your child to control his unacceptable behavior?		
Yes	37	18.5%
No	163	81.5%
How many daily meals does your child eat?		
Two	6	3.0%
Three	116	58.0%
Four	38	19.0%
As desired	40	20.0%
Does the child eat between meals?		
Yes	181	90.5%
No	19	9.5%
Type of food:		
Vegetables	28	15.5%
Fruits	132	72.9%
Drinks	47	26.0%
Desserts	123	68.0%
Does your child eat breakfast before going to nursery?		
Yes	166	83.0%
No	34	17.0%
Does your child take sandwiches with him to nursery?		
Yes	200	100.0%
No	0	0.0%
Does your child eat fruit with meals?		
Yes	141	70.5%
No	59	29.5%
Does he eat meals from outside the home from restaurants?		
Yes	83	41.5%
No	117	58.5%
How many times a week?		
Once	32	38.6%
Twice	35	42.2%
Three times or more	16	19.3%

Table (5): Frequency distribution of the studied children's favorite foods (n=200)

Foods	No		Usually		Sometimes	
	No.	%	No.	%	No.	%
Bread	12	6.0%	148	74.0%	40	20.0%
Rice and pasta	6	3.0%	180	90.0%	14	7.0%
Potato	2	1.0%	196	98.0%	2	1.0%
Cake	6	3.0%	152	76.0%	42	21.0%
Biscuits	10	5.0%	157	78.5%	33	16.5%
Chocolate	12	6.0%	133	66.5%	55	27.5%
Ice cream	55	27.5%	52	26.0%	93	46.5%
Jam and honey	66	33.0%	56	28.0%	78	39.0%
Soda	68	34.0%	61	30.5%	71	35.5%
Fats	140	70.0%	26	13.0%	34	17.0%

Table (6): Frequency distribution of the studied children activities (n=200)

Items	No. (200)	%
What are your child's favorite activities?		
Playing with the ball	68	34.0%
Video and computer games	110	55.0%
He doesn't like to play	22	11.0%
Does your child eat while watching TV or any mobile device?		
Yes	162	81.0%
No	38	19.0%
If yes, does the amount of food increase while watching? No. (162)		
Yes	89	54.9%
No	73	45.1%

Figure (2): Frequency distribution of the studied mother's level of knowledge regarding obesity (n=200)

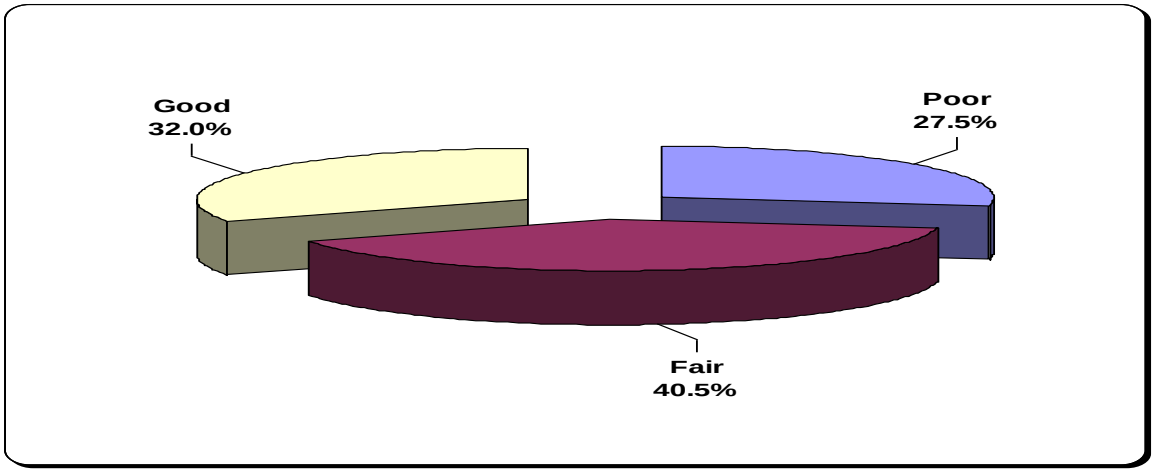

Table (7): Relation between levels of knowledge regarding obesity and personal data of the studied mothers

Personal data	Knowledge level						P-value
	Poor		Fair		Good		
	No.	%	No.	%	No.	%	
Mother's age: (years)							
20 - < 30	24	23.3%	41	39.8%	38	36.9%	0.226
30 – 40	31	32.0%	40	41.2%	26	26.8%	
Mother's education:							
Illiterate/ reads and writes	14	77.8%	3	16.7%	1	5.6%	
Secondary	33	40.2%	31	37.8%	18	22.0%	0.000*
High education	8	8.0%	47	47.0%	45	45.0%	
Mother's occupation:							
Working	10	11.5%	31	35.6%	46	52.9%	0.000*
Not working	45	39.8%	50	44.2%	18	15.9%	
Residence:							
Rural	46	38.7%	44	37.0%	29	24.4%	0.000*
Urban	9	11.1%	37	45.7%	35	43.2%	

Discussion

Obesity in children under five is becoming more common worldwide. Obesity has increased two to three times in the past 30 years. Many non-communicable diseases including diabetes mellitus and hypertension have obesity as an underlying cause. Egypt has the greatest obesity rates with more than two-thirds of its adults particularly women being obese, because mothers are the major caregivers and have a significant role in the prevention and treatment of childhood obesity. Their knowledge of child health has a significant impact on the diet and physical activity of their children. Additionally mothers are crucial in helping their children develop their attitudes and behaviors at a young age. **(Awaad etal., 2023).** Therefore, the current study aimed to assess mothers' awareness regarding early childhood obesity.

The current study revealed that regarding studied child's personal data more than half of the studied children were male less than three-fifth of them aged from 5 - < 6 years with a mean of weight 24.51 ± 7.93 and mean of height 104.25 ± 7.05. Also, more than two-fifth of them had two numbers of children in their family, and also more than half of them were the first in the birth order and more than three-quarters of them of them were living with mother and father.

These results were supported by **Santas & Santas, (2018),** who studied "Prevalence of pre-school children for overweight/obesity in Turkey" and revealed that more than half of the studied children were male and more than one quarter of them were the first in the birth order. Additionally, these results were approved by **(Ji et al., 2018),** who studied "The relationship between obesity, sleep and physical activity in Chinese preschool children" and showed that the majority of children were aged 4-5 years and they were the only child.

The current study demonstrated the frequency distribution of the child's family history of obesity, more than half of the studied children had family history of obesity and more than half of them their mothers were obese. This may be due to mothers' low awareness regarding healthy nutritional foods. These findings aligned with the research conducted by (**Armoon & Karimy., 2019).** "Epidemiology of childhood overweight, obesity and their related factors in a sample of preschool children from Central Iran" It showed that more than two thirds of mothers were obese.

The results of the present study concerning the frequency distribution of the mother's sociodemographic variables revealed that more than half (51.5%) of the studied mother were aged from 20 - < 30 years old, half of them (50%) had high education, while less than two-thirds (59.5%) of the mothers in the study lived in rural areas, and more than half (56.5%) of them were unemployed. This may be due to families' awareness of the importance of higher education for females which increases their marriage chances in age of twenty.

These results were supported by **(Hatefnia et al., 2024)** which is titled "The role of maternal health beliefs in the prevention of preschoolers' obesity". It showed that over half of mothers were housewives and lived in rural areas. These findings aligned with the research conducted by **(Onay et al., 2024)** which titled "Obesity in childhood: associations with parental neglect, nutritional habits, and obesity awareness". It showed that almost two-fifths of mothers had a university degree. These findings contradicted with

(Okapiec, et al., 2020), who studied "Evaluation of parental awareness of children's obesity-related health risk in Poland". and found that half of mothers between the ages of 31 and 40.

Based on the frequency distribution of the mothers' sources of knowledge regarding nutritious foods for children, the current study revealed that, around three-quarters of the mothers in the study got their information from television and radio. and more than two-third of them acquired their knowledge form relative while less than one-third of them acquired their knowledge form neighbors and health center. This may be due to the availability of mass media in every Egyptian house, besides the Egyptian Ministry of Health's interest in child health.

These results were contrasting with the study conducted by **(Belew et al., 2017),** which was entitled "Dietary diversity and meal frequency among infant and young children: a community-based study" and found that health care providers were the main information sources for mothers. Furthermore, these findings were inconsistent with **(Dukuzumuremyi et al., 2020),** who studied "Knowledge, attitude, and practice of exclusive breastfeeding among mothers in East Africa: a systematic review" .The study discovered that less than one-fifth of mothers' information came from the media, whereas more than two-thirds came from healthcare facilities.

The current study's findings about the frequency distribution of the mothers' information about their children's eating habits showed that approximately two-thirds of the studied mothers answered that "they encourage their children to eat", the majority of them didn't use eating as a punishment for their child to control his unacceptable behavior, more than half of their children eat three meals daily and most of their the child eat between meals. Also, less than three quarters of them their children eat fruits, the majority of them their child eat breakfast before going to nursery, and also, all of them their child take sandwiches with him to nursery and less than three quarters of them their child eat fruit with meals. Furthermore, more than half of them their children didn't eat meals from outside the home from restaurants and more than two fifth of their children eat twice meals from outside the home from restaurants. This may be due to mothers concern for their children's health and their awareness of the type of food and eating habits in their children's growth.

These findings were consistent with the research done by **(Ramanathan et al., 2022),** which was titled "Knowledge Attitude and Practice among Mothers towards Childhood Obesity". It found that almost three-quarters of mothers support children's daily consumption of vegetables and fruit. These findings were incompatible with **(Armoon & Karimy., 2019),** who disclosed that over two-thirds of children skipped breakfast (≥4 per week).

Regarding the frequency distribution of the studied children, they usually eat the following favorite foods: The current study demonstrated that less than half of the studied children sometimes favor eating ice cream, and most of them usually favor eating potatoes, rice, and pasta, respectively. While more than two-thirds of the studied children didn't favor eating fat. This may be due to the easy digestion and swallowing of rice and pasta and the deliciousness of ice cream.

These results were in the same line with the study performed by **(Abd-Elrahman et al., 2020),** which was titled "Eating Habits and their Associations with Obesity and Underweight in Preschool Children" and showed that more than two-thirds of the youngsters in the study consume potatoes every day, while the majority eat rice. Additionally, these results were supported by **(Arora et al., 2021),** who studied "Diet, Nutrition, and Oral Health: What Influences Mother's Decisions on What to Feed Their Young Children" and reported that regarding meal choices, it varied from rice and pasta.

The current study's frequency distribution of the practice activities for the children under study revealed that over half of them had favorite activities. as video and computer games, Also, the majority of them eat while watching TV or any mobile device and more than half of the studied children have their amount of food increase while watching TV or mobile device. This may be attributed to low children appetite therefore, they disturb themselves while eating through watching television to focus on having fun rather than eating.

These results were congruent with **(Karimy et al., 2019),** who reported that more than half of children eat while watching TV. These results were incompatible with by **(Ramanathan et al., 2022),** who revealed that the majority of them didn't allow children to eat while seeing television programs.

According to the frequency distribution of the mothers' level of obesity knowledge, the current study found that, two fifth of the studied mothers had fair knowledge level and one third of them had good level of knowledge, while more than one quadrant of them had poor level of knowledge regarding obesity. This may be due to mothers' dependence on mass media and the internet as their main source of knowledge which will be not enough to provide comprehensive information.

These findings were similar to the study conducted by **(Almalki et al., 2024),** entitled "Mothers' Awareness of Obesity and Its Complications among Children in the Western Region of Saudi Arabia" and revealed that merely more than one third of participants demonstrated a good understanding of obesity. Additionally, these results were supported by **(Hudaib et al., 2024),** who studied "Understanding Childhood

Obesity in Pakistan: Exploring the Knowledge, Attitudes, Practices of Mothers, and Influential Factors" which found that less than two thirds of mothers had moderate knowledge about childhood obesity.

According to the relation between level of knowledge regarding obesity and personal data of the studied mothers the current study showed that, there was high statistically significant relation between the total studied mothers knowledge and their education, occupation and residence with (P=0.000), while there was no statistically significant relation between the total studied mothers knowledge and their age. This may be due to the effect of high education on improving mothers' cognitive skills in arranging and processing different types of information irrespective of their age.

These results were in agreement with **(Almalki et al., 2024),** who reported that no statistically significant relationship was observed between awareness levels and mothers age (p>0.05). These results agreed with **Hudaib et al., (2024),** who showed a statistically significant relationship between the awareness level of mothers and their residence and educational attainment.

Concerning relation between level of knowledge regarding obesity and level of education the current study illustrated that, more than three quadrants of the illiterate/reads and writes studied mothers had poor knowledge regarding obesity. While less than half of the higher education-studied mothers had fair knowledge levels and less than half of them had good knowledge levels. This may be because education promotes mothers' critical thinking, communication, and other essential skills crucial in today's ever-changing world.

These findings were confirmed by the research conducted by **(Al Harthi & El-Araby, 2019),** which entitled "Assessment of Knowledge of Saudi Mothers Regarding Causes of Obesity Among Children, Riyadh, Saudi Arabia" and showed that Mothers with higher levels of education had greater awareness of childhood obesity... Additionally, these results were supported by **(Ahmadi & Karamitanha, 2023),** who studied "Health literacy and nutrition literacy among mother with preschool children" and found that mothers' poor level of knowledge is correlated with their low level of education.

According to the relationship between occupation and obesity knowledge, the recent study revealed that more than half of the working studied mothers had a good knowledge level. While more than two-fifths of the studied mothers didn't work, studied mothers had fair knowledge levels, and more than a third of them had poor knowledge levels regarding obesity. This may be attributed to the transfer and exchange of information and experiences between working mothers, which enhances their knowledge levels.

These results were supported by the study carried out by **(Al Harthi & El-Araby, 2019),** who showed that women who were employed knew more about childhood obesity. These results were inconsistent with **(Hatta et al., 2017),** who found no statistically significant difference between the occupation and knowledge of mothers.

Regarding relation between the level of knowledge regarding obesity and residence the current study demonstrated that, more than one third of the rural studied mothers had poor knowledge level, while more than two fifth of the urban studied mothers had fair and good knowledge level regarding obesity. This may be attributed to the availability of multiple child health centers in urban than rural areas. Beside, urban residents interest in high education and getting employed.

These findings were consistent with the research conducted by **(Moselhy et al., 2016),** which titled "A study on nutritional awareness of mothers about food additives". It demonstrated that over three-quarters of the mothers in the urban region had a high degree of awareness, whereas over half of them in the rural area did the same. These results were congruent with **(Okapiec et al., 2020)** who found that respondents' levels of awareness differed across urban and rural areas. Additionally, these results were supported by **(Ahmadi & Karamitanha, 2023),** who found a correlation between the low level of mothers' knowledge and living in the village and being the mothers' housewife. But, these results were different from **Dongmo et al., (2023),** who studied "Knowledge, Attitude, and Practices regarding Obesity among Population of Urban (Douala) and Rural (Manjo) Areas in Cameroon" and revealed that living in a rural area increase the knowledge levels.

Conclusion

From the current study's findings, it can be concluded that two-fifths of the studied mothers had a fair knowledge level, and one-third of them had a good level of knowledge, while more than one-quarter of them had a poor level of knowledge regarding obesity.

According to the relation between the level of knowledge regarding obesity and personal data of the studied mothers, the current study showed that a strong statistically significant relation was found between the mothers' knowledge and their residence, occupation, and level of education with (P=0.000). While there was no statistically significant relation between the total studied mothers knowledge and their age.

Recommendations

Based upon the results of the current study the following recommendations are suggested:

1. Conducting health education programs at schools to raise the awareness of the children and mothers about obesity and its prevention.
2. Raise school children's health literacy by creating posters and awareness campaigns about the advantages of eating a healthier diet and the negative consequences of eating an unhealthy diet.
3. In order to inform mothers, teachers, and children about obesity and methods for prevention, school administrators are advised to invite health specialists to speak as guest speakers.

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