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Nurse's Knowledge Regarding Risk Factors of Obesity in Sulaimani City Hospitals

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Abstract:
Obesity is characterized by the excessive or inappropriate buildup of adipose tissue or fat in the body, resulting in negative impacts on one's health. A reduction in body weight ranging from 5% to 10% has been shown to impact a person's health substantially, overall quality of life, and the economic burden experienced by both the individual and the nation. The study aims to assess nurses' knowledge regarding risk factors of obesity in Sulaimani city hospitals. A quantitative design (descriptive study) was carried out from 1st October 2022 1st of April 2023. A probability sample of 101 nurses was selected. The data were collected through a validated questionnaire in three parts: the first part was related to social and demographic data, the second part was about nurses' Knowledge regarding risk factors of Obesity, and the third part was about the prevention of obesity. The results show that the age group (22-29) observed the highest percentage and constituted (48.5%) of total samples. Most of the responses were males (61.4%), regarding marital status (58.4%), were married, and most had a college education. Around (60%) of nurses think Obesity is a disease (70%) of them know about body mass index indicators. The findings of the current study conclude that nurses have high knowledge regarding the risk factors of obesity.
Keywords: *Knowledge; Obesity; Risk factors; Health; Sulaimani hospitals.*

1. Introduction

Obesity is considered globally as a pandemic that can lead to serious health complications. It is estimated that more than 20% of adults in the UK and more than 30% in the US are obese (obesity means a BMI ≥ 30 kg/m2). In the last 20 years, B Diabetes mellitus is probably one of the oldest diseases known to human, it was first reported in Egyptian manuscripts about 3000 years ago(1).According to the World Health Organization (WHO), the risk factors of obesity has reached a critical public health issue requiring urgent attention to prevent obesity-related health outcomes, with an anticipated 57.8% of people worldwide projected to be categorized as obese by 2030. Obesity is considered as the condition by which an excessive formation of fat tissue in the body is produced, which resulting in significant comorbidities such as diabetes, hypertension, dyslipidemia, metabolic syndrome, stroke, infertility, cardiovascular disease, and many cancers [1]. Therefore, since the obesity epidemic has spread around the world, the objective of several research studies has been to ascertain the prevalence and determinants that linked to overweight and obesity. A comprehensive investigation including 31 nations, comprising 20 European countries, 8 Asian countries, Australia, Chile, and the

United States, yielded findings indicating that the rates of overweight and obesity were at 31.7% and 12.4%, respectively [2]. Obesity is a chronic and multifaceted condition that necessitates consideration of genetic and environmental variables, as shown by variations in prevalence across different populations and in certain racial groups with greater or lesser risk [3].

The primary factors contributing to increased obesity and overweight prevalence in the Middle East are lifestyle modifications, including detrimental dietary patterns, sedentary behaviors, and cultural and societal influences. Conversely, adopting a plant-based diet and incorporating regular physical exercise into daily routines helps mitigate the likelihood of obesity. In 2013, Kuwait, Qatar, and Libya, which are countries in the Eastern Mediterranean Regional Office (EMRO), were identified as three of the top ten nations globally with the highest rates of Obesity [4]. The body mass index (BMI) is a straightforward measure used to categorize overweight and Obesity in adults. It is calculated by dividing an individual's weight in kilograms by their height in square meters. The percentage of people who are overweight or obese varies from (25 to 81.9%) throughout the countries that are located in the Eastern Mediterranean area [4]. Research indicates that as individuals age, there is a tendency for BMI to rise, with a higher prevalence seen among women compared to males [5]. Furthermore, understanding the risk variables that may be linked to overweight and obesity may support the implementation of interventions that raise awareness among individuals about the significance of certain behaviors and preventive actions [6].

The term "knowledge" may be conceptualized as being cognizant of factual information or possessing practical expertise. Additionally, it might include a level of acquaintance with various entities or circumstances. Factual knowledge, sometimes called propositional knowledge, is often characterized as true beliefs that distinguish themselves from subjective opinions or speculative conjectures via the verification of obtained information. It is anticipated to faithfully correspond to the actual state of affairs and be assimilated and used to guide individuals' behaviors [8].

Obesity is now considered as a chronic or non-communicable ailment. Recent studies have provided a clearer understanding of the physiological mechanisms involved in weight regulation, the pathophysiological processes that contribute to undesired weight gain, and the persistence of obesity despite efforts to improve one's lifestyle. Additionally, these investigations have shed light on the negative health consequences associated with Obesity [9].

Nurses are a healthcare profession that focus on providing care to people, families, and communities intending to facilitate the attainment, preservation, or reestablishment of optimum wellness and a high standard of life [10].

Risk Factor: Several factors contribute to an individual's increased susceptibility to disease development. One illustrative instance is the association between smoking and increased susceptibility to lung cancer, as well as the correlation between obesity and the heightened risk of heart disease [11].

2. Significance of the Study

The research determines the risk factors of overweight and obesity among the knowledge of hospitals' nurses regarding the risk factors of obesity in Sulaimani city. The results of this research will be beneficial in promoting understanding among students and other stakeholders in the field of education and health about the consequences that overweight and obesity have on the physical well-being, social functioning, and academic performance of adults [7]. The research has the potential to enhance social interactions among those who are obese and those who are not, mitigating the negative consequences of social exclusion and victimization that may arise from their weight differences. The act of bullying

and mocking directed towards those who are fat has a detrimental impact on their social well-being, hindering their ability to reach their full potential. Therefore, gaining insight into the underlying factors contributing to overweight and obesity may facilitate the implementation of preventative strategies, thereby reducing the prevalence of teasing and bullying within society. The goal in obesity research is to understand the mechanisms of obesity and its relationship to disease and to use this Knowledge to develop effective interventions to prevent and treat these diseases at Sulaimani city hospitals.

3. Methodology

A quantitative descriptive study was carried out from the 1st October 2022 to 1st April 2023 to identify the knowledge of hospitals' nurses regarding the risk factors of obesity in Sulaimani city. The study was conducted in Sulaimani city. The study samples of 101 nurses were collected from the nurses in both Sulaimani Teaching Hospital and Soz Mental Hospital in Sulaimani city. The non-probability convenience sample consisted of 101 nurses from Sulaimani Teaching Hospital and Soz Mental Hospital who participated in answering the study questions.

3.1 Instrument Construction:

A comprehensive examination of relevant scholarly works was conducted to develop a questionnaire that would serve the research objectives. The questionnaire had a total of 19 items. The questionnaire is comprised of three distinct components: -

Part 1: Socio-Demographical Information Data of Nurses:

It is composed of nine items that represent the nurses demographic characteristics such as (age, gender, marital status, education level, residence, years of experience in hospital, training course regarding knowledge of obesity, do you think obesity is a disease, body mass index (BMI).

Part 2: Nurses' Knowledge Regarding Risk factors of Obesity:

The part was concerned with the nurses' workers regarding knowledge regarding the risk factors of obesity, and the questionnaire was comprised of thirteen items.

Part 3: Nurses' Knowledge Regarding Prevention of Obesity:

The part was concerned with the nurses' workers regarding knowledge regarding the prevention of obesity, and the questionnaire was comprised of six items.

3.2 Limitations of the Study:

Lack of respondents' understanding and cooperation in the study.

Insufficient sources and studies concerning the assessment of nurses regarding obesity.

3.3 Descriptive Statistical Data Analysis:

Data were analyzed through the application of the following statistical data analysis approaches: This approach was applied through the measurement of the following:

1. Frequencies. *(f)* 2. Percentage: $\% \equiv \frac{frequencies}{sample\ size} \times 100$ 3. Mean of score

The results of the present study were analyzed by the Special Package for Social Sciences (SPSS) program V.24.

4. Results of the Study

Regarding the socio-demographical characteristics of the participated nurses in the current study, the results reveal that the highest frequencies and percentages 49(48.5%) and 30(29.7%) are in the age groups (20-29) and (30-39) respectively and lower frequencies and percentages 49(48%) and 30(29.7%) are in the age groups (40-49) and (50-59) respectively. Regarding the gender of nurses, the results indicate that males have higher frequency and percentage 62(61.4%) and females show a lower frequency and percentage 39(38.6%). Regarding marital status, 59(58.4%) of participated nurses were married and 37(36.6%) were single. For educational level, most of them have 53(52.5%) and 36(35.6%) for Bachelor degree and technical Diploma in nursing respectively. Regarding residence, 81(80.2%) of nurses reside in the urban areas, and most of the nurses who have years of experience in the hospitals were between (0-3 years) and (≥1), which are 35(34.7%) and 25(24.8%) respectively. Furthermore, the results also showed that the nurses who did not have training courses regarding the knowledge on obesity had high in percentage 49(48.5%) and for (1-3) time 44(43.6%). Moreover, 61(60.4%) of nurses think obesity is a disease, whereas 40(39.6%) of nurses think obesity is not a disease and 71(70.3%) of them have a knowledge about BMI indicators and obesity (Table 1).

Table 1: Frequencies and Percentages of Socio-Demographical Characteristics (N=101).

Items	Groups	*f*	%
Age	20-29	49	48.5
	30-39	30	29.7
	40-49	14	13.9
	50-59	8	7.9
	Total	101	100%
Gender	Male	62	61.4
	Female	39	38.6
	Total	101	100%
Marital Status	Single	37	36.6
	Married	59	58.4
	Widow	4	4.0
	Separated	1	1.0
	Total	101	100%
Education Level	Secondary School	7	6.9
	Institution	36	35.6
	College	53	52.2
	Post-College	5	5.0
	Total	101	100%
Residence	Urban	81	80.2
	Rural	14	13.9
	Suburban	6	5.9
	Total	101	100%
Years of experience in hospital	None	3	3.0
	0-3	35	34.7
	4-6	20	19.8
	7-10	18	17.8
	11 and more	25	24.8

	Total	101	100%
Training Course regarding Knowledge of Obesity	None	49	48.5
	1-3	44	43.6
	4-6	5	5.0
	3-10	2	2.0
	11 and more	1	1.0
	Total	101	100.0
Do you think Obesity is a disease ?	No	40	39.6
	yes	61	60.4
	Total	101	100.0
Body Mass Index (BMI)	No	30	29.7
	Yes	71	70.3
	Total	101	100.0

Regarding the nurses' knowledge for obesity risk factors, the results appear that for the effects of age on obesity during life period, the answer of nearly all of them is yes 97(96%) with mean score of 0.960 (Table 2). Furthermore, for the effects of genetics, the higher frequency and percentage of nurses with yes answer are 97(96%) with mean score of 0.960. For medical problems, a higher percentage 91(90.1%) of nurses have a good knowledge regarding the association between obesity and medical problems. For quitting smoking, a moderate percentage 68(67.3%) of nurses have an intermediate knowledge regarding the association between obesity and quitting smoking. Regarding inactivity and sedentary lifestyle, nearly most of the nurses 87(86.1%) have a very good knowledge regarding the association between obesity and inactivity or sedentary lifestyle. Moreover, nearly three quarter of the nurses 70(69.3%) have a good knowledge regarding the association between obesity and certain medications. For social and economic factors, 73(72.3%) have a good knowledge regarding the association between obesity and social or economic factors with the community. For other risk factors such as lack of sleep, pregnancy, unhealthy diet, fast food, emotional factors and family lifestyle, in the general the nurses have a very high knowledge about their effects on the obesity within the community (Table 2).

Table 2: Nurse's Knowledge Regarding Risk Factors of Obesity (N=101).

No	**Knowledge regarding risk factors of Obesity**	**Yes**		**No**		**M.S.**
		F	**%**	**F**	**%**	
1	**Age:** Obesity has the potential to manifest across all age groups, but the quantity of muscle mass in the body tends to diminish as individuals get older. These modifications result in a decrease in caloric requirements, which might provide challenges in maintaining weight loss.	97	96.0	4	4.0	.960
2	**Genetic:** There is a strong familial predisposition towards Obesity. Obesity in one or both parents is associated with an increased likelihood of developing Obesity. Due to the potential influence of genetic factors, variations in the quantity of stored body fat and its distribution throughout different regions of the body may occur.	97	96.0	4	4.0	.960
3	**Medical problems:** Several medical conditions may contribute to the development of overweight and Obesity. For instance, individuals with underactive thyroid (hypothyroidism) or polycystic ovarian syndrome (PCOS) may be more prone to weight gain. Additionally, conditions such as Cushing's syndrome and arthritis can lead to reduced physical activity, potentially increasing weight.	91	90.1	10	9.9	.901
4	**Quitting Smoking:** There is a phenomenon observed wherein some individuals experience weight gain upon cessation of smoking. One factor to consider is that individuals often experience an enhancement in the flavor and aroma of meals after ceasing smoking. Another explanation is that nicotine increases the metabolic rate, decreasing calorie expenditure after individuals cease smoking.	68	67.3	33	32.7	.673
5	**Inactivity and sedentary lifestyle:** Individuals who exhibit low physical activity levels tend to expend fewer calories. Individuals with a sedentary lifestyle may consume a surplus of calories daily compared to the amount they expend	87	86.1	14	13.9	.861

	via physical activity and ordinary daily activities.					
6	**Certain medication**s, such as (antidepressants, anti-seizure medication, diabetes medications, antipsychotic medication, Corticosteroids, and beta (blockers.	70	69.3	31	30.7	.693
7	**Social and economic:** The challenge of preventing Obesity becomes more pronounced for those without access to secure environments conducive to physical activity. Likewise, individuals may have yet to receive instruction in nutritious cooking techniques or have financial constraints that limit their ability to get better food options. Furthermore, those who associate with friends or relatives who are fat are more susceptible to experiencing weight gain and are at a higher risk of becoming Obesity themselves.	73	72.3	28	27.7	.723
8	**Lack of sleep:** Excessive sleep has been shown to induce hormonal alterations that might lead to increased hunger. Individuals with a reduced sleep duration exhibit a propensity for consuming food items with elevated caloric and carbohydrate content. This inclination towards such dietary choices may result in excessive food intake, weight increase, and Obesity.	80	79.2	21	20.8	.792
9	**Pregnancy**: There is a growing body of research indicating that weight increase during pregnancy and the retention of weight after childbirth may serve as significant indicators for the eventual risk of Obesity and diabetes in mothers.	89	88.1	12	11.9	.881
10	**Unhealthy diet:** Increase intake of foods high in calories, such as total fats and sugars. Lacking in fruits and vegetables.	88	87.1	12	11.9	.970
11	**Fast food:** Individuals may also desire meals that are rich in calories and carbs, perhaps leading to an increase in body weight.	91	90.1	10	9.9	.901
12	**Stress and anxiety (Emotional Factors):** Some people may engage in excessive food consumption while experiencing emotions	69	68.3	32	31.7	.683

	such as boredom, anger, or stress, resulting in an intake that exceeds their usual amount.					
13	**Family lifestyle:** It is observed that individuals within a family unit often exhibit comparable patterns of dietary intake and physical activity.	90	89.1	11	10.9	.891

F = frequency, %= Percentage, M. S= Mean of Score

Regarding the nurses' knowledge for prevention obesity, for the effects of improving of sleep on obesity during life period, the answer of nearly all of them is yes 92(91.1%) with mean score of 0.911 (Table 3). Furthermore, for the effects of reducing stress, the higher frequency and percentage of nurses with yes answer 83(82.2%) with mean score of 0.822. For increasing medical activities, a higher percentage 84(83.2%) of nurses have a good knowledge regarding the association between obesity and increasing medical activities. For healthy eating, regular physical activities and lifestyle change the nurses have a very high knowledge about these tools to prevent or reduce the obesity within the community (Table 2).

Table 3: Nurse's knowledge regarding Prevention of Obesity (N=101).

No.	**Knowledge regarding Prevention of Obesity**	**Yes**		**No**		**M.S.**
		F	**%**	***F***	**%**	
1	Improving sleep	92	91.1	9	8.9	.911
2	Reducing Stress	83	82.2	18	17.8	.822
3	Increasing physical activities: Limiting television, Site time	84	83.2	17	16.8	.832
4	Healthy eating	96	95.0	5	5.0	.950
5	Exercise regularly (getting enough exercise): make regular physical activity	89	88.1	12	11.9	.881
6	Lifestyle change: individual responsibility can only have its full effect where people have access to a healthy lifestyle.	94	93.1	7	6.9	.931

F = frequency, %= Percentage, M. S= Mean of Score

5. Discussion of the Results

5.1 Distributions of Socio-Demographic Characteristic Regarding Obesity

Results shows that the age group ranged between (22-29) observed the highest percentage and constitute (52%) of total samples. The current finding agrees with (WHO. 2016). And Obesity is considered globally as a pandemic that can lead to serious health complications. It is estimated that more than 20% of adults in the UK and more than 30% in the US are obese (obesity means a BMI ≥ 30 kg/m2). In the last 20 years, [18] who indicate that (50%) of nurses ranged between (22-30) years. Regarding to the gender, the results indicated that males are high percentage (61.4%), whereas in another research achieved by [12] disagree with our finding who indicate that (65.3%) of nurses were females. Most of the nurses were married and they constitute (58.4%) of the total samples. Our finding disagrees with [14] who indication that (64.1%) of nurses were singles. The result shows that (52.2%) of the samples were graduated from colleges. Our finding agrees with [12] who indicate that (52.7%)

of nurses holds bachelor degree. In residence, (80.2%) of the nurses live in urban areas, our finding in line with who indicate that (82.8%) of students were living in urban areas.

Regarding year of experience the study shows (34.7%) of nurses were have 3 years of experience in hospital, our study agrees with [13]. He indicates that (34%) of nurses having 3 years of experience. the current study shows that nurses haven't participate in training courses and constitute of (48.5%). Our study disagrees with [15], who indicate that (55%) of nurses participated in training courses to increase their knowledge of the disease. (60.4%) of nurses think that Obesity is a disease, according to [13]. He demonstrates that (60.9%) of nurses think that the Obesity is a disease, his study in line with our finding lately. Regarding the body mass index, the study indicated (70.3%) of them recommend having a healthy weight; our finding is in line with [14], who indicated that (70%) of nurses have suggested that patients get a healthy weight.

5.2 Discussion of Nurses Knowledge Regarding Risk Factors Of Obesity.

The results of current study show that (96%) of nurses demonstrate that the age obesity can occur at any age. The decline in muscle mass is often seen as individual's age. These modifications result in a decrease in calorie requirements, which might provide challenges in maintaining weight loss. Additionally, a significant majority (96%) of nurses hold the belief that genetics play a significant role in the development of obesity, since it often exhibits familial patterns. The presence of obesity in one or both parents is associated with an increased likelihood of developing obesity. The influence of genetic factors on body fat accumulation and distribution is evident in the findings, which indicate that approximately 90.1% of cases of overweight and obesity may be attributed to medical conditions such as hypothyroidism, polycystic ovarian syndrome (PCOS), Cushing's syndrome, and arthritis. These conditions can potentially lead to reduced physical activity, thereby contributing to weight gain. Diabetes mellitus is probably one of the oldest diseases known to human, it was first reported in Egyptian manuscripts about 3000 years ago[19].The findings indicate that a majority of participants (67.3%) expressed a belief in the efficacy of stopping. Cessation of smoking has been associated with weight gain. One factor is that the sensory perception of taste and smell tends to improve after smoking cessation. Another explanation is that nicotine increases the metabolic rate, resulting in a reduction in calorie expenditure after individuals cease smoking.

According to a study, a significant majority (86.1%) of nurses have claimed that engaging in inactivity and leading a sedentary lifestyle may result in obesity, particularly when individuals are not sufficiently active and fail to burn an adequate number of calories. Individuals who have a sedentary lifestyle may consume a surplus of calories on a daily basis compared to the amount they expend via physical activity and ordinary daily activities. Approximately 69.3% of the replies focused on specific drugs, including antidepressants, anti-seizure medication, diabetic meds, antipsychotic medication, corticosteroids, and beta blockers. In relation to the social and economic aspects, a significant proportion of nurses 72.3% expressed the challenge of mitigating obesity while lacking access to secure environments for physical activity. Likewise, individuals may not have received instruction in nutritious cooking techniques or may have financial constraints that limit their ability to purchase better food options. Furthermore, those who associate with friends or relatives who are fat are more susceptible to experiencing weight gain and are at a higher risk of becoming Obesity themselves.

According to nurses, 79.2% reported that lack of sleep getting too much sleep can cause changes in hormones that increase the appetite. People who sleep fewer hours also seem to prefer eating foods that are higher in calories and carbohydrates, which can lead to overeating, weight gain, and obesity. The current study indicates that 88.1% of nurses reported there is a growing body of research

suggesting that the occurrence of weight increase during pregnancy, as well as the retention of weight after childbirth, may serve as significant indicators for the likelihood of women developing Obesity and diabetes in the future. The results of our study indicate that a significant proportion 87.1% of individuals consume an unhealthy diet characterized by an increased consumption of calorie-dense foods, including those rich in total fats and sugars. Deficient in the consumption of fruits and vegetables.

According to our research, the proliferation of restaurants in sulaymania has been shown to impact individuals' weight significantly. Specifically, our study reveals that a substantial majority 90.1% of individuals who often consume fast food experience weight gain. This may be attributed to consuming calorie-dense and carbohydrate-rich items in fast-food establishments. Furthermore, considerable proportions 68.3% of individuals consume more food while experiencing boredom, anger, or worry. Our research showed that a significant majority 89.1% of families exhibit an incorrect lifestyle characterized by shared food and exercise patterns. This research demonstrates that nurses possess considerable information about the risk factors associated with Obesity.

In contrast to the research conducted by Aryee et al., the incidence of obesity among nurses in the Kumasi metropolitan was found to be more significant. This study's results align with research which indicated that the rate of overweight/Obesity among nurses in Nigeria and the USA is of considerable importance to public health. The relationship between body fat distributions, as assessed by BMI, has been shown to have a more significant impact on the development of chronic illnesses than overall obesity [15].

Significant proportions, namely 40%, of individuals who are aware of their overweight status assert that they adhere to a nutritious dietary regimen and engage in regular physical activity. However, encounter difficulties in achieving weight loss. The view mentioned above has significant relevance due to its origin from a collective of healthcare practitioners. Although a few within this cohort may possess an inherent anomaly in physiological metabolism, it is likely that the vast majority either fail to accurately define a nutritious dietary regimen and exercise routine or do not adhere to one. The acquisition of professional education is of utmost significance for this particular demographic, as it contributes to their own well-being and enables nurses to provide valuable assistance and counseling to patients grappling with overweight and obesity. These data may be used to evaluate nursing educational requirements. According to the survey, a mere 26% of participants said they use BMI as the primary factor when making weight-related diagnoses. The use of subjective criteria by other participants lacks an empirical basis, as shown in the literature. Professional education programs targeting practicing nurses should start by providing comprehensive Knowledge on the classification of overweight and obesity.

Our findings align with previous research that identified many characteristics associated with obesity, including poor dietary habits, genetic susceptibility, alcohol intake, medication usage, sedentary lifestyle, inadequate physical activity, postpartum adiposity, high socioeconomic level, and adverse effects of contraceptive methods. [16] show that obesity arises from a multifaceted interplay of socioeconomic and biological variables, a finding corroborated by another research [17]. The findings of this study indicate that a significant proportion (71.2%) of the participants had knowledge about the association between poor dietary habits and the heightened risk of developing obesity.

5.3 Discussion of Nurses' Knowledge Regarding the Prevention of Obesity

The results of the current study indicated that (91.1%) of nurse’s responses were about improving sleep, (82.2%) were about reducing sleep, (83.2%) were about increasing physical activities or limiting

television shows or site times, the nurses indicated that (95%) of preventing program was healthy eating, and (88.1%) of responses were about exercise regularly and getting enough exercise, (93.1%) of responses is changing lifestyle. According to a survey, most nurses (93%) recognize overweight and obesity as medical conditions that need intervention. However, significant proportions (76%) of these nurses do not actively address the issue, even when they clinically determine that an individual is overweight or obese. This implies that providing education on patient communication and the introduction of potentially sensitive subjects might be beneficial. The ability and self-assurance to initiate a nonthreatening and nonjudgmental discourse might motivate nurses to proactively seize the chance for both primary and secondary prevention. The findings indicate that a significant proportion of the participants (87.1%) agreed that regular physical activity may effectively mitigate the risk of excessive weight gain. Additionally, a considerable percentage (65.5%) of the respondents concurred that maintaining a healthy dietary pattern does not necessarily lead to obesity. When queried about the correlation between one's lifestyle and the likelihood of becoming obesity, a majority of respondents (64.2%) responded positively.

6. Conclusion

The study's findings conclude that the majority of participated nurses in both Teaching Hospital and Soz Mental Hospital in Sulaimani city possess a very significant substantial degree of knowledge pertaining to the risk factors that associated with the obesity within the community and they have also a very good knowledge about the prevention tools for reducing and or preventing the obesity among the individuals with the population.

7. Authors' Contributions

"We confirm that the manuscript has been read and approved by all named authors. We also confirm that each author has the same contribution to the paper. We further confirm that the order of authors listed in the manuscript has been approved by all authors."

8. Conflict of Interest

The authors declare that there is no conflict of interest for this paper.

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