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Social Competence and Body Weight among Primary Schools pupils at Assiut City-Egypt

Rabaa Hamed Hassanen, & Soad Abd-El Hamed Sharkawy.

Assistant Professor in Family and Community Health Nursing Department, Faculty of Nursing, Assiut University

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Abstract: Background: Social competence is essential for social, cognitive, and emotional development and for encompasses skills and behaviors of a child that lead to positive social outcomes. Although overweight or underweight may lead to lower social competence, it is also possible that low social competence increases the chances of becoming overweight or underweight.The current study **aimed to** examine the relationship between pupils' body mass index and social competence in primary schools at Assiut City. This study was conducted in 25% of the primary schools (13 schools) at Assiut City. A descriptive cross-sectional study and multistage, stratifiedsampling were used. In the first stage, schools were selected randomly from a sampling frame that included all Assiut City governmental primary schools ordered according to the region, seven schools were chosen from the west region and six schools from the east region of the city. Also,one class from each of the 5th and 6th grades in the selected schools was randomly chosen.The total sample of this study was 1119 pupils. Two tools were used:The first toolincludes socioeconomic data, measuring weight and height for calculating body mass index. The second tool includesthe social competence questioners. **The mean results** show that 31.4% of the studied pupils had overweightand 41.6% of them had low social competence. Also, there is a significant difference between body mass index and total mean score of social competence with P=0.018. Also, shows significantdifference between socio economiccharacteristics and social competence at age, academic years, mother and father education and father occupation. **The present study concluded** thatlow social competence in elementary schools is associated with increased risk of overweight or underweight and shows a strong positive correlation between social competence and body mass index**. The study recommended**that providing social training skills programs for pupils to increase social competenceand an educational program for public to improve social competence among underweight, normal weight, overweight and obese pupils.

Keywords: Social Competence, body weight, primary school

INTRODUCTION

Social competence is essential forsocial, cognitive, and emotional development and for encompasses "skills and behaviors of a child that lead to positive social outcomes," including kindness and cooperation, appropriate extroversion, and communication abilities **(Güngör, 2014)**. Social competence is the children's ability to respond to and to deal with challenging social interactions/interpersonal situations. Approaches to social competence have focused on skills such as emotional regulation and social problem solving, and on a child's ability to achieve desired social outcomes such as having friends and being popular **(Echeverría et al., 2016)**.

Social competences changed over the life course and depend on the development of capabilities such as social awareness, social skills, and self-confidence. For example, young children not only learn to play games with others, such as peekaboo or pretend games, but also learn important forms of self-control, including patience, sharing and temper management, and empathy with others. **(Schoon, 2009**). During the school years, a mismatch between a child's behavior and contextual demands may develop from a behavioral problem, such as poor social competence or loneliness, into a functional impairment, such as social anxiety, social phobia or depression **(Pendir, 2016).**

There are two aspects of children's social skillfulness. One aspect is to learn a variety of important social skills appropriate in different contexts and the other is to learn to relate and behave in a way that is acceptable to other people. These aspects may be further divided into more specific skills, such as: positive relations with others, accurate social cognition, the absence of maladaptive behaviors, and effective social behaviors **(Junttila, 2010)**.

The development of competence in social contexts requires that individuals have opportunities to interact with others to learn appropriate social cues and skills. As such, the processes of developing social competence begins at an early age, first as children engage in interactions with immediate family, and later as those interactions extend into various additional social environments. Consequently, early childhood is a critical period in this process as it is a time of rapid development and learning **(Goodman, & Southam-Gerow, 2010)**

For the individuals who experience obstacles and who are thought to restrict opportunities to interact with peers, it is expected that they will have lower levels of social competence than individuals who do not encounter those challenges **(Martinez et al., 2011).** According to a new research published in the American Journal of Public Health, low social competence, or the skills and behaviors necessary to engage in appropriate and positive social interactions could result in an increased likelihood of

obesity of children. Children with low social competence may engage in unhealthy behaviors to avoid social situations in which they expect negative social feedback or to reduce the stress associated with negative social experiences. This could result in energy imbalance and weight gain if such responses take the form of solitary and sedentary activities or unhealthy eating behaviors," **(Jackson,&Cunningham, 2015).**

Although abnormal body weight (obesity, overweight and underweight) may lead to lower social competence, it is also possible that low social competence increases the chances of becoming overweight or obese. Children with low social competence may be cheers, prefer the company of adults, or avoid engaging in activities with their classmates. They may be victimized and stigmatized because of their poor social skills, and they may exclude themselves from social situations. This could result in more time spent being inactive or eating—for example, watching television and finding solace for loneliness in calorie-rich foods (**Moore & Cunningham, 2012),** although childhood obesity is related to a variety of negative medical, social, and psychological outcomes **(Maginot, 2014)**

Weight gain in children can occur if energy intake is higher than energy expenditure. Complex factors stand behind this imbalance including genetic, biological, environmental and psychosocial influences. However, behavioral and social factors rather than changes in biological or genetic ones seem to play significant roles in raising the prevalence of childhood obesity**(Badawi et al., 2013)**

Childhood obesity is increasingly described as "an epidemic" in countries and cultures across the world and has been called one of the most serious public health challenges of the 21st century **(Güngör, 2014and Caprio et al., 2008).** Data from a nationally representative sample reported in children ages six through eleven, approximately 33% of the populations sampled were overweight and approximately 18% of them were obese **(Ogden et al., 2012).**

Significant of the study: Obesity and impaired social competence often occur together and have serious implications for children's well-being. More knowledge about how weight and social competence affect oneanothercouldinforminterventionstopromotechildren'ssocialdevelopmentandreduceobesity. Low social competence in elementary schools is associated with increased risk of unhealthy weight gain. ((**Jackson, &Cunningham, 2015).**

This study Aimed to:

1- Assess levels of social competence among primary school pupils.
2- Examine the relationship between pupils'weight and social competence.

Research questions:

1- What is the pupils' level of social competence?
2- What is the difference classification of body mass index among primary schools pupils?
3- Is there a significant relationship between pupils' weight and social competence?
4- Is there any effect of socioeconomic status on the social competence of primary school pupils?

SUBJECTS AND METHOD

Research design: Descriptive cross-sectional research design was used.
Setting: The study was conducted at Assiut city governmental primary schools.Assiut city is divided into two regions the East Cityand the West City. The total number of primary governmental schools at Assiut city is 51, which is divided into 24 in the East region and 27 in the West region with total strength of 15043 pupils in the fifth and the sixth grade.

The study was carried out in 25% of total governmental primary schools which represents in thirteen governmental primary schools at Assiut City. Thirteen schools were chosen randomly, seven schools from West of Assiut City include El-Talia, Ahmed Oraby, El-Tahreir Elrasmia for languages, Taha Hossien,, Mohammed Fareed, Al-Manshea and Om El-moemenien primary school. Six schools from East of Assiut City include Dorea Elhoseni, El-nahdda in Eellidia,, Elzahraa, Badder Elrasmia for languages,Al-Nassr and Osama Ibn-Zied primary school.
Sampling and sample size: A multistage, stratified, sampling design was used.

In the first stage, schools were randomly selected from a sampling frame that included all Assiut City governmental primary schools ordered according to the region; seven schools from the west region and six from the east region (i.e. 13 schools in total). One class from each grade (5^{th}, and 6^{th} grades) in the selected schools was randomly chosen also.All pupils attending the selected classes were included (the class in every school ranged from 40 to 55 pupils according to school capacity). The total number of pupils was 1119 students.

Inclusion criteria: All pupils who agreed to participate in this study and who arewithout chronic diseases and are able to communicate with their classmates.
Tools: Self-administered questioner was developed to conduct the study include **two tools**. **Tool I:** includes two parts**, first part** socio-economic dataas age, sex, educational level of parents, family income, and occupation of parents. **Second part:** measurement of pupil weight, height, and calculating body mass index by dividing weight in kilograms over height in meter squared. The cutoff points of less than 18.50 for underweight, 18.5 to 25 for normal weight, 25 to 29.99 for overweight, and 30 or higher for obese**(Ogden et al, 2010).**

Tool II: A social competence questionnairewas developed by the researchers after reviewing self-descriptionquestionnaire,designed by **(Marsh, 1990)** and other Child post stress symptoms scale (CPSS) developed by **(Foa, et al., 2001**) to measure the pupils' levels of social competence. It includes 25 statements divided into three subscales; social competence subscale includes 10 items, the emotional competence subscale includes 6 items and peer relation subscale includes 9 items with 6 negatively items (words) and 19 positively items (words).All items are answered on a 5-point Likert-type scale, with a 1 indicating

"does not apply", 2 indicating "does not apply very well", 3 indicating "sometimes applies and sometimes doesn't apply" 4 indicating "applies rather well", and 5 indicating "applies very well.

Scoring System: Total scoring for social competence questioner was *(125)* grade. Each Question was scored *from one* grade to 5 grades. The scores of each item was summed up and then converted into a percent score using the following score system to assess the level of social competency (low = score <50%, moderate = score 50-70%, and high = score >70%**.**

Ethical consideration:

An official approval letter was obtained from the dean of Faculty of Nursing, Assiut University to the Under-Secretary of Education at Assiut Governorate. The letter included a permission to carry out the study and explained the purpose and nature of the study. Confidentiality of the information and oral consent were taken from pupils for participating in the study. The written consent of the managers of schools was taken. The pupils had the right to accept or refuse to participate in the study. Consent to participate in the study was secured orally from each pupil. Ethical approval was obtained from the relevant research ethical committee at the Faculty of Nursing, Assiut University.

Validity of the tools: Social competence questionnaire was translated to Arabic language and presented to five experts in the community health nursing and psychiatric nursing field in Assiut University to assessthe validity of tools. Modifications were done according to the direction of the experts committee.

Reliability was estimated by Alpha Cronbach's test to test internal consistency r=0.660.

A pilot study was carried out before starting data collection on 10% of pupils, who were excluded from the sample. The aim of pilot study was to test the clarity of the tool and to estimate the time required to fill the questionnaire. Based on the results of this pilot study modifications were done in the tools.

Data collection*:* The researchers introduced themselves to the school manger, teachers and pupils; the purpose and nature of the study were explained. The researchers also explained the main parts of the questionnaire. After that, the questionnaire was distributed to pupils by the researchers. Pupils were asked to complete the questionnaire. After that, the researchers measured the pupils' weight and height to determine body mass index. Filling the questionnaire took from60 to -90 minutes by pupils in every class. After the pupils completed the questionnaire, the researchers collected the questionnaires, paying careful attention to incomplete answers and ask pupils to complete them. Finally, the researchers thanked the pupils and teachers for their cooperation. The study startedfrom 9 am to 12 pm, every day, the researchers cover two classes only. The researchers collected data two days per week (Saturday and Sunday). Data was collected in the period from the first of February 2017 until the end of April 2017.

Statistical Analysis: Data analyses were performed with the SPSS version 19.0 software(Statistical Package for Social Science). Data were presented as number, percentage, mean and standard deviation. Chi-square test was used to compare qualitative variables between groups. Kruskal Wallis test was used to compare quantitative variables among more than two groups in case of non-parametric data. Spearman correlation was done to measure correlation between quantitative variables. P-value considered statistically significant when $P < 0.05$.

RESULTS

Table (1): illustratesthat62.5% of pupils aged ≥12 years old with mean±SD age11.67±0.67,males constituted 50.1%, 61.7 from sixth grade. More than half (58.7% & 52.3%) respectively of pupils had fathers and mothers with basic education, while 4.6% and 12.1% respectively of them had fathers and mothers not working or housewives. Also, 9.7 % of the pupils had family income ranged from 500 to 1000 poundsper month.

Figure (1): Shows that 31.4% of pupils were overweight while 18.2 %of them were underweight.

Figure (2) indicates that 41.6% of the studied pupils had low level of social competence while 32.7% of them had high level of social competence.

Figure (3): This figure shows strong positive correlation r=0.196between BMI and social competence score found among studied pupils.

Table (2): shows that highest means score of studied pupils (31.44±5.51) at social domain followed by (27.16±16) peer relation and the lowest mean score (17.39±3.90) emotional domain.

Table (3) shows the relation between social competence domain and body mass index. It was clear that the highest mean score between social domain and underweight (32.25±5.61) with statistical significant difference P= 0.001. While, there is no statistical significant difference between emotional domain, peer relation domain and body mass index P= 0.986 and 0.342 respectively.

Table (4): shows that, there is a statistical significant difference between social competence levels with pupils' age, grade, father& mother's educational levelalso, with father's occupation at P=0.000, 0.000, 0.000, 0.006 and 0.000 respectively

Table (1):Distribution of the studied primary school pupils by their socio-economic characteristic

Items	No. (n= 1119)	%
Age		
11-12	420	37.5
>12	699	62.5
Mean±SD(Range)	11.67±0.67(10.0-13.0	
Sex		
Male	561	50.1
Female	558	49.9
Academic year:		
Grade fifth	429	38.3
Grade sixth	690	61.7
Father education		
Illiterate	207	18.5
Basic education	657	58.7
Secondary education	147	13.2
High education	108	9.6
Mother education		
Illiterate	330	29.5
Basic education	585	52.3
Secondary education	117	10.5
High education	87	7.7
Father occupation		
Employee	210	18.8
Skilled worker	354	31.6
Unskilled worker	291	26.0
Free business	213	19.0
Not working	51	4.6
Mother occupation		
Employee	984	87.9
House wife	135	12.1
Family income		
500-<1000	108	9.7
1000-< 1500	273	24.4
1500<2000	318	28.4
>2000	420	37.5

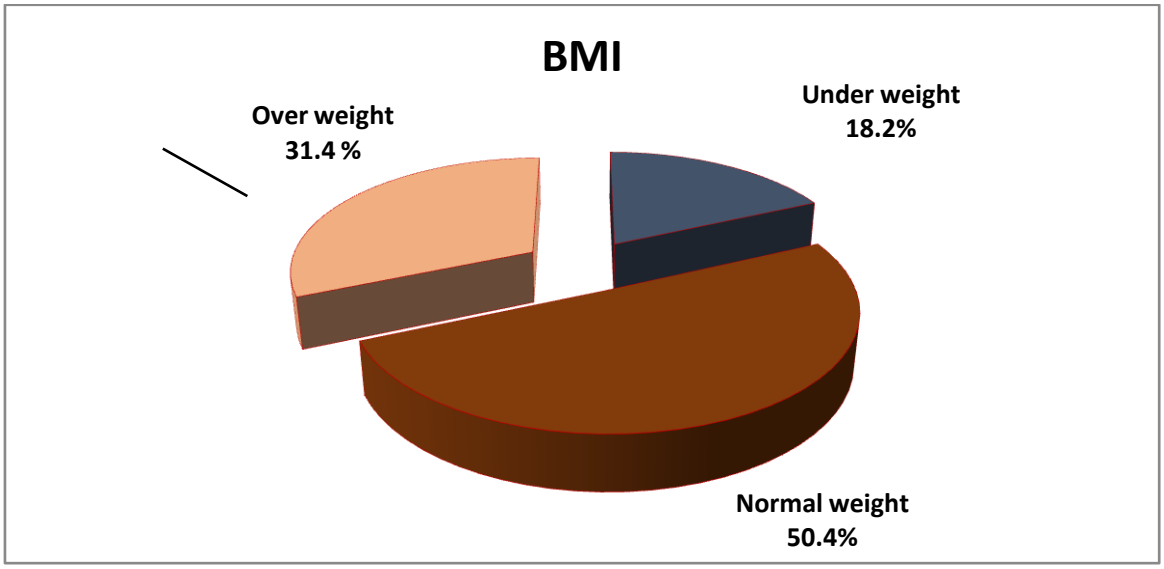

Figure (1) Distribution of studied pupils according to their body Mass Index (BMI)

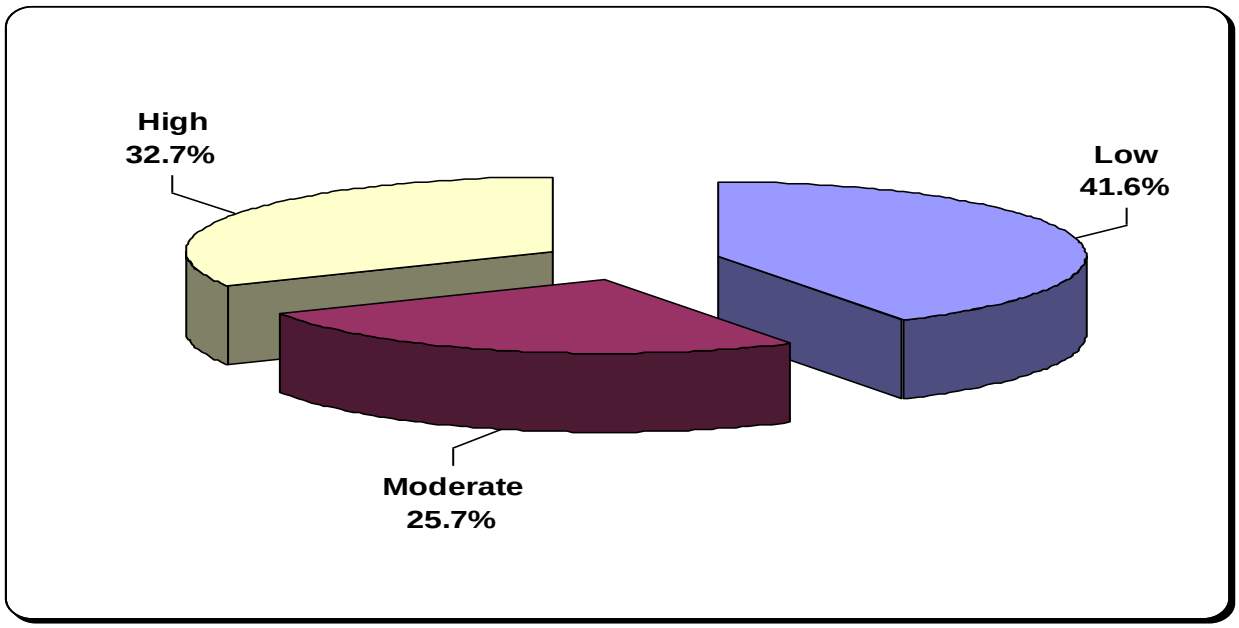

Figure (2): Distribution of studied pupils regarding to their social competence level

Table (2): Mean scores of studied pupils regarding their social competence domains

Items	Max. score	Mean ± SD	Range
Social domain	**50**	31.44 ± 5.51	18.0 - 44.0
Emotional domain	**30**	17.39 ± 3.90	8.0 - 28.0
Peer relation domain	**45**	27.16 ± 4.40	15.0 - 39.0
Total social competence score	**125**	75.99 ± 10.13	50.0 - 96.0

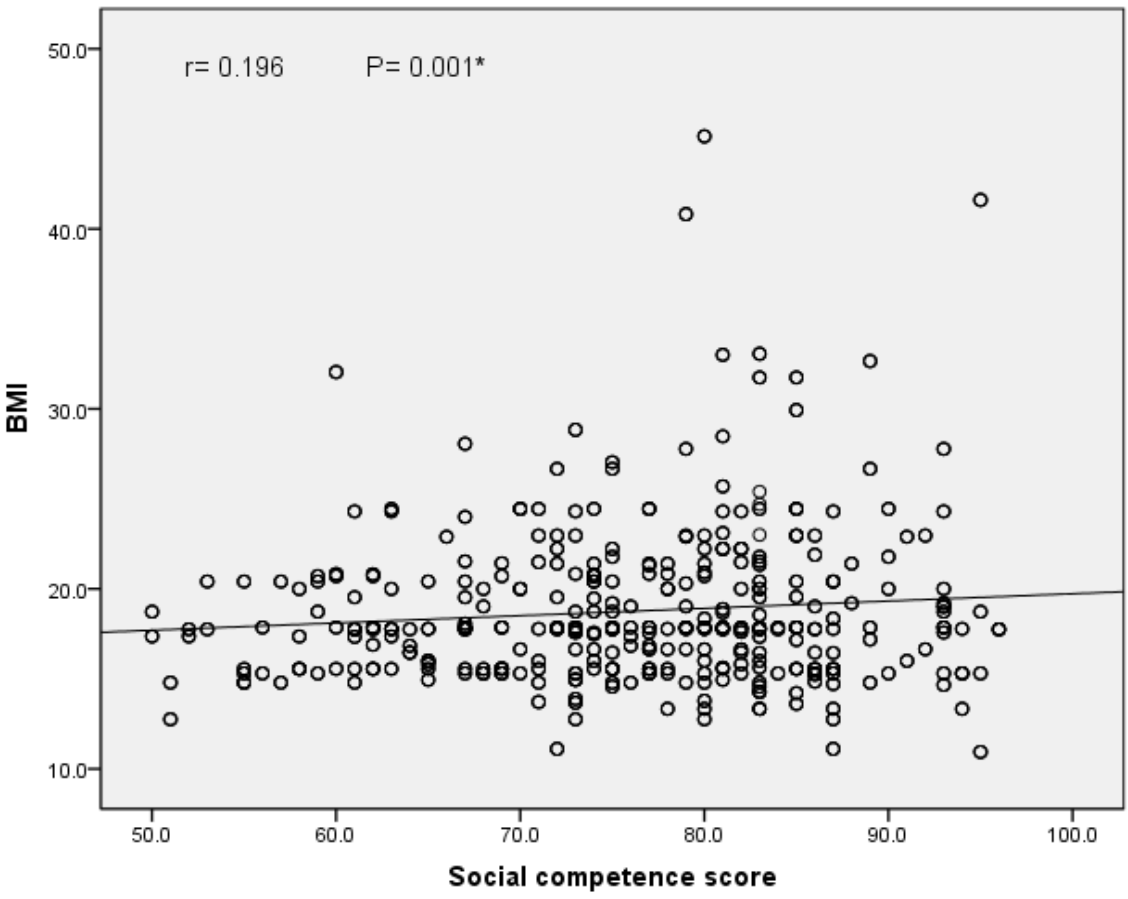

Fig. (3): Correlation between BMI and social competence score

Table (3): Relation between social competence domains score and body mass index

Social competence domains	BMI			
	Underweight (n=204)	Normal (n=564)	Overweight/ obese(n=315)	P-value
	Mean ± SD	Mean ± SD	Mean ± SD	
Social domain	32.25 ± 5.61	30.92 ± 5.34	31.80 ± 5.63	**0.001***
Emotional domain	17.41 ± 4.28	17.36 ± 3.94	17.44 ± 3.62	**0.986**
Peer relation domain	27.37 ± 4.84	26.94 ± 4.47	27.39 ± 3.99	**0.342**
Total social competence domain score	77.03 ± 11.27	75.22 ± 10.16	76.63 ± 9.28	**0.018***

T test was used. Significant when p≥ 0.05

Table (4): Relation between social competence level of studied pupils and their socio-economic characteristics

Items	Total social competence level						
	Low level (n= 465)		Moderate level (n= 288)		High level (n= 366)		P-value
	No.	%	No.	%	No.	%	
Age							
11-12	231	55.0	96	22.9	93	22.1	0.000*
>12	234	33.5	192	27.5	273	39.1	
Sex							
Male	219	39.0	144	25.7	198	35.3	0.134
Female	246	44.1	144	25.8	168	30.1	
Grade:							
Grade fifth	243	56.6	93	21.7	93	21.7	0.000*
Grade sixth	222	32.2	195	28.3	273	39.6	
Father education							
Illiterate	96	46.4	33	15.9	78	37.7	0.000*
Basic education	255	38.8	192	29.2	210	32.0	
Secondary education	72	49.0	42	28.6	33	2.4	
High education	42	38.9	21	19.4	45	41.7	
Mother education							
Illiterate	132	40.0	90	27.3	108	32.7	0.006*
Basic education	264	45.1	141	24.1	180	30.8	
Secondary education	36	30.8	42	35.9	39	33.3	
High education	33	37.9	15	17.2	39	44.8	
Father occupation							
Employee	78	37.1	54	25.7	78	37.1	0.000*
Skilled worker	180	50.8	87	24.6	87	24.6	
Unskilled worker	93	32.0	84	28,9	114	39.2	
Free business	93	43.7	48	22.5	72	33.8	
Not working	21	41.2	15	29.4	15	29.4	
Mother occupation							
Employee	63	46.7	24	17.8	48	35.6	0.077
House wife	402	40.9	264	26.8	26.8	32.3	
Family income((L.E.)							
500-<100	51	47.2	24	22.2	33	30.6	0.595
1000-< 1500	114	41.8	72	26.4	87	31.9	
1500<200	138	43.4	84	26.4	96	30.2	
More than 20**00**	162	38.6	108	25.7	150	35.7	

Qi square test was used. Significant when p≥ 0.05

DISCUSSION

According to a new research published in the American Journal of Public Health, childrenwith low social competence, or the skills and behaviors necessary to engage in appropriate and positive social interactions could result in an increased likelihood of obesity. From the preventive health point of view, the variables relating to the development of obese children should be reversed in early life**(Saunders et al., 2012)**. For this purpose, it is necessary to study the relationship between social competence and weight status in primary school-aged children.

Regarding personal characteristics in the current study, the mean±SD of age were 11.67±0.67, more than half of the studied pupils were males and in the sixth grade.**Jackson & Cunningham 2015**shows that the mean age of the mean age of fifth grade was 11.1 years

Regarding the pupils' weight, the present study revealed that about one third of the studied pupils were overweight, while less than one fifth of them were underweight. The present studyis in the same line with **Jackson & Cunningham 2015** who reported that pupils at six grade about one quarter of studied pupils were overweight and with**Taha and Marawan 2015**who studiedtheSocio-behavioral Determinants of Overweight and Obesity in Egyptian Primary School Children on 354 children aged 8-12 years and found that the prevalence of childhood overweight was about one quarter.

Concerning social competence, the present study presented that more than two fifth of studied pupils had low level of social competence while about one third of them had high level of social competence. Also, it was clear that there was a positive strong correlation between social competence and

pupils` body mass index (r=0.196). Also, the current study is in the same line with **Short2014** who found that lower social competence is significantly correlated with a greater likelihood of unhealthy weight gain. Nine-year old participants with lower social competence were more likely to be overweight or obese by the time they were 11years old. The authors suggested that "Children with low social competence may engage in unhealthy behavior to avoid social situations in which they expect negative social feedback or to reduce the stress associated with negative social experiences. This could result in energy imbalance and weight gain if such responses take the form of solitary and sedentary activities or unhealthy eating behaviors,"

Also, the currentresults agree with **Kang 2010** who found that the relationships between body weight and social competence in childhood, impaired social well-being and unhealthy weight often are found together. **Sapienza et all 2017** reported that the components of social competence were negatively associated with obesity and most studies focused on self-esteem, pattern of interaction with peers and social relationship.

This study evaluated several negative social domains and peer relationship domains associated with childhood underweight and overweight. Findings support that overweight children are perceived as less socially competent than their normal weight counterparts on certain domains. The current study exploresthat low social competence may relate to subsequent weight gain and weight loss are that children who are not engaged with peers may be less receptive to cues about ideal body type, perhaps because they spend less time among peers or may be less skilled at interpretingor less motivated bysocial censure in the same line with **Maginot 2014** who reported that differences in social competence based on weight status were observed in the obtained sample

Martinez et al 2011 reported that children with obesity have moderate deficits in social competence compared to healthy controls.
The current study reflected that the high level of social competence increases among pupils who are more than 12 years old and who are in six grade. This result can be interpreted on the basis that, as the age increases, level of maturity and perception and not fearing increase as well. Also,this result illustrated thatthe high level of social competence increased more among pupils with highly educated fathers and mothers because the high education lead to best deal (relationship) with their children (pupils).

There was no statistically significant relationship between family income and levels of social competence p= 0.595these resultsdisagree with **Jackson and Cunningham 2015** who found that children in the highest socioeconomic status quintile experienced a significant increase in social competence relative to those in the lowest quintile (0.14; $P < .05$).
A group difference was observed related to social competence levels with pupils' age, grade, father& mother's education and father occupation (table 6). This result is in the same line with **Maginot 2014** who reported that there was a significant effect of age by weight group and overweight children were significantly younger than their counterparts (normal weight child age^{-} = 9.73, *SD* = 1.34, overweight child age^{-} = 9.30, *SD* = 1.25, obese child age^{-} = 9.70, *SD* 1.30 in years).

The present study concluded that: low social competence in elementary schools is associated with increased risk of overweight or underweight. Results demonstrated that overweight and underweight pupils are perceived as less socially competent than normal weight pupils. Furthermore, the current study shows a strong positive correlation between social competence and body mass index r= 0.196. The findings of the current study were consistent with most of the existing literature; however, additional researches are needed to identify protective factors that limit the negative outcomes of weight-based victimization.

RECOMMENDATIONS

1- Social skills training programs must be provided to increase social competence.
2- Health education program for the public to improve social competence among underweight, normal weight, overweight and obese children.
3- Increasing the public' knowledgeand awareness about the social competence through mass media.
4- Future researchesshould continue to examine the potential protective factors that can help children manage the negative social-psychological outcomes associated with increased weight status.

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