

Assessment of Nutritional Status and Signs of Growth among Bullying School Children

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How to cite this paper: El-Sahar, E.-S. G. E., & Sopeah, H. R. A. (2019). Assessment of Nutritional Status and Signs of Growth among Bullying School Children. *Psychology*, 10, 1908-1922.
<https://doi.org/10.4236/psych.2019.1014123>

Received: September 5, 2019
Accepted: November 17, 2019
Published: November 20, 2019

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Abstract

Nutritional status is one of the indicators of the quality mental and physical for children. Assessment of physical growth is one of the important tools for assessing nutrition status for children, especially bully children. Bullying is the activity of repeated, aggressive behavior intended to hurt another individual, physically, mentally, or emotionally over time. Both kids who are bullied and who bully others may have serious, lasting problems. The aim of our study is to assess nutritional intake and anthropometric statuses in bullying Schoolchildren (9 - 12 years old) and determine nutritional adequacy with Dietary Reference Intake (DRIs). The study was conducted on 50 males and 50 females (9 - 12 years) suffering from bullying and was diagnosed by bullying behavioral scale (BBS), and investigated nutritional status by using 24 hours recall, diet history, food habits, anthropometric measurements and clinical signs. The most important results were: approximately more than 50% of study sample didn't eat breakfast, 1 - 3 snacks/day, canned juice/day and soft drinks/day. Nutrient intake was lower than recommended in protein, fiber, water, vit D, vit E, folic acid, calcium, iron, zinc, selenium, omega 3, taurine and choline. About 50% and 36% from males and females, respectively had underweight; 10% of males had obesity; besides, total sample had normal measure upper arm circumference (MUAC). About 45% of the total sample had moderate malnutrition. The highest percentage for clinical sign of the sample was loss teeth by 33%; then 20% had white spots nails and 19% had a stuttering speech, while the smallest percentage was bleeding gums by 5% for bullying children. Conclusion: Bully school children had deficiency in some nutrients, some bad eating habits and some growth problems; our results suggest follow healthy eating habits, nutritional intervention for bullying children and nutritional adequacies to help improve behavioral bullying status.

Keywords

Bullying, Anthropometric Status, Physical Growth, Nutritional Status

1. Introduction

Bullying is a sub-category of aggressive conduct with the following three minimum requirements: hostile intent, power imbalance and repetition over time (Uvonen & Graham, 2014). Bullying can therefore be described as a repetitive, aggressive conduct designed to harm another person (victim), physically, mentally, or emotionally. It is in school and the workplace. It is also known as “peer abuse” (Elizabeth, 2014 and Burger et al., 2015).

Dan Olweus says bullying occurs when a person is “exposed, repeatedly and over time, to negative actions on the part of one or more other persons”, he claims adverse activities happen when an individual deliberately inflicts injury or pain on another individual, by physical contact, by words or in other ways. Individual intimidation is generally defined by an individual behaving in a manner to gain authority over another individual (Valerie, 1989 and Williams, 2011). Most of the bullies were victims of bullying (Goldsmid & Howie, 2014).

Types of bullying are Verbal, Physical, Cyber and Relational bullying. Verbal bullying is most common in primary school and could also start much sooner while continuing in individual life in subsequent phases (Cook et al., 2010). Cyber bullying is reported to be more prevalent in secondary school than in primary school (Berger, 2014). Bullying occurs for a variety of reasons: for example, the bully child has been bullied before, or was lonely, had problems at home, had low self-esteem, feeling jealous, had a big ego, likes to empress, had physical defects and had malnutrition (Keashly et al., 2010 and Notelaers et al., 2011).

More than three out of every five (60.8%) students report being bullied in Egypt primary school, and the prevalence of bullying children in primary school was about 20%. Bullying exposed to males by 70% more than girls, from 10 to 12 years old which are exposed or bullying to prove oneself (Ashmawy, 2018), while the prevalence of bullying was around 28 percent (U.S. Department of Education) (Hamm et al., 2015). Malnutrition and physical status are indicators of many problems such as behavioral, physical, sensory, mental, cognitive, developmental, emotional and or a combination of these (Garden, 2010 and Morcillo et al., 2015).

Nutritional status is the equilibrium between an organism’s consumption of nutrients and their expenditure in growing, reproducing, and maintaining health procedures (Guthrie et al., 2006). Adequate dietary intake is essential for the growth and development of children, not only physiologically, but also behaviorally and mentally (Merkiel, 2014).

Excessive and insufficient consumption of nutrients or energy can have a detrimental effect on the health of children, predisposing to childhood dental caries, obesity, lower self-esteem, underachievement at school and bullying (Gibson et al., 2012 and Maunder et al., 2015), and also to diseases like obesity, hypertension, atherosclerosis and osteoporosis (Lobstein et al., 2004 and McCrindle, 2015). Usually, childhood is the key step for adopting and consolidating eating habits, but they were more affected by food globalization (Sawaya et al., 2009).

Where most children in their eating habits tended to eat wider range of industrial food, salty snacks, more soft drinks, skipping breakfast, not eating plenty of grains, vegetables, fruit and drinking milk beside leaving traditional cuisine (Stong et al., 2003 and Bogin et al., 2014). These erroneous habits affect the health and behavior of children and may cause excessive violence to children represented by bullying towards others (Ersilia & Christina, 2017).

Physical growth of a child is a reflection of the child's dietary and nutritional status reflects the overall well-being of society. Physical development evaluation is one of the appropriate instruments to evaluate the nutritional status of the child (Srivastava et al., 2012). Physical growth not only illustrates the individual's nutritional status but also social well-being of the community as well as the efficiency of the healthcare system, directly reflects the socioeconomic status of the family and the influence of the surrounding environment (Eze et al., 2018).

The present study aimed to assess nutritional intake and anthropometric statuses in bullying Schoolchildren (9 - 12 years old) and determine nutritional adequacy with Dietary Reference Intake (DRIs).

2. Materials and Methods

The present study was carried out in two places; El fager El gdeda and El fateh School, Zwya El hamra Administration, Cairo, Egypt. The investigated sample of children includes 100 children (50 females and 50 males), their age (9 - 12 yrs.) with symptoms of bullying.

All children groups were subjected to the following:

1) Personal data & Socio economic data: It includes (name, sex, age, address and school name).

2) Nutritional statuses were assessed through:

Evaluation of nutritional status of a person is considered the most important step in the evaluation and following up person in normal and in diseases specially in young age in the present study It include:

a) Food Habits:

The required information was taken from children themselves or their mothers, through a questionnaire which includes; breakfast, number of snacks/day, canned juices intakes and soft drinks/day, prepared by the researcher.

b) 24 hr. Dietary Recall:

The 24 hours dietary recall was applied for followed 3 days. Food quantities were calculated and analyzed using food composition tables of the national nutrition institute and compared with recommended Nutrients Intake (WHO, 2005 and USDA, 2011).

c) Anthropometric Measurements:

It is used in the present study include weight (WT) nearest 0.1 kg, height (HT) nearest 0.5 cm (WHO, 2014).

Body mass index (BMI) has been calculated as weight in kilograms divided by height in meter squared (kg/m^2) (De Onis et al., 2007). Height-for-age,

weight-for-age, and BMI-for-age indices were calculated with World Health Organization (WHO, 2014).

Z-scores: A z-score is a test of the number of standard deviations below or above a raw score. Are expressed from their means in terms of standard deviations. These z-scores therefore have an average distribution of 0 and a standard deviation of 1. The formula for calculating the standard score is given below:

$$Z = \frac{(x - \mu)}{\sigma}$$

x = data point (weight or height for children)

μ = mean average stander weight or height in the same age)

σ = standers deviation

>-3 was mean acute malnutrition.

<-3 to ≤-2 was mean moderate malnutrition.

<-2 was mean normal nutrition (De Onis et al., 2007 and WHO, 2015).

Measure upper arm circumference (MUAC) and Skin fold by Caliper according to WHO (WHO, 2014).

d) Clinical signs: Clinical examination was an important practical method to assess the nutritional and behavioral status for children with bullying. Clinical signs were divided to Face, teeth, gum, nails, skin, speech and vision (WHO, 2015).

3) Bullying behavioral status:

It is an important step for assessment and identify of bullying behavioral status through bullying behavioral scale (BBS).

The scale of (BBS) has consists of 45 claus distributed on five forms of bullying (Verbal, physical, social, sexual and property bullying).

*Verbal bullying includes 10 paragraphs (insulting, cursing, shouting, spreading rumors, ridicule, bad words and bad names).

*physical bullying includes 10 paragraphs (Beatings - Tightening of hair or ear - push - use sharp tools).

*social bullying includes 14 paragraphs (Harassing - exclusion - jealousy - humiliation - Defamation - controlling them).

*sexual bullying includes 5 paragraphs (rename by sexual name - provocation - forcing to talk in sexual speech).

*property bullying includes 6 paragraphs (taking the property of others with force, theft and destruction it) Al-Sobhayn & Ali, (2007).

4) Statistical Analysis:

Data of the present study were classified, results were discussed and also statistically analyzed using, Mean, Standard Deviation (\pm SD), T-test, Analysis Of Variance (ANOVA) and Correlation Matrix by using package software SPSS windows (Vandallen, 1997).

3. Results

Nutritional Status Results:

Food habits:

Table 1 showed that eating breakfast, no. of Snakes, Canned juice and soft drinks/day for bullying children, approximately more than half of study samples did not eat breakfast. Accordingly, the data in the same table concluded that 43% of the study sample ate 3 - 6 snacks/day. And about 84% and 90% from total sample intake canned juices and soft drinks respectively.

There was a statistically significant difference between male and female in breakfast and soft drinks at ($P < 0.01$).

24 hr. Dietary Recall: **Table 2** summarizes the proportions of macro nutritional adequacy in bullying children. This study indicated intake in male and female bullying children, lower than recommended in protein, fiber and water at (85.7% - 88.5%), (58% - 61%) and (47% - 44%) respectively compared with DRI. Other nutrients intakes (carbohydrate and lipids were more than the recommended quantity for male and female compared with DRI.

When compared such intakes between boys and girls according to RNI we found statistically significant differences for the intakes of carbohydrates and lipids at ($P < 0.05$) and statistically significant differences for the intakes of water at ($P < 0.01$).

Results in **Table 3**, showed that mean micro nutrition intake for bullying

Table 1. Eating breakfast, no. of Snakes, Canned juice and soft drinks/day for bullying children.

Sex	Break fast	No. of snacks/Day		Canned juice/Day	Soft drinks/Day
		1 - 3	4 - 6		
No children					
Male (50)	25	30	18	39	46
Female (50)	10	20	25	45	44
Total (100)	35	50	43	84	90
Sig.	0.00 (*)	0.121	0.101	0.093	0.00 (*)

Significant values * $P < 0.01$ (Statistically significant differences between male and female bullying children. No = number.

Table 2. Mean macronutrients intake of the sample according to DRI in bullying children.

Nutrient for DRI %	Total male (n 50)	Total female (n 50)	P value
Carbohydrates (g/day)	251 ± 12 (204%)	275 ± 27 (223.5%)	0.032*
Protein (g/day)	30 ± 1.6 (85.7%)	31 ± 4 (88.5)	0.123
Lipids (g/day)	31 ± 1.2 (103%)	32 ± 6 (106.6%)	0.012*
Fiber (g/day)	18 ± 2 (58%)	19 ± 2 (61%)	0.435
Water (ml/day)	941 ± 15 (47%)	881 ± 13 (44%)	0.003**

DRI: dietary reference Intake. Significant values * $P < 0.05$, ** $P < 0.01$. (Statistically significant differences between male and female bullying children according to the DRI.

Table 3. Mean micronutrients intake of the sample according to DRI in bullying children.

Nutrient for DRI %	Total male (n 50)	Total female (n 50)	P value
Thiamin Vit.B1 (mg/day)	0.9 ± 0.032 (112.5%)	0.83 ± 0.02 (103.7%)	0.512
Riboflavin Vit.B2 (mg/day)	1.4 ± 0.2 (116.6%)	1.3 ± 0.7 (108%)	0.165
Niacin Vit.B3 (mg/day)	16 ± 2 (133%)	18 ± 4 (150%)	0.561
Pantothenic acid Vit.B5 (mg/day)	3.9 ± 0.2 (130%)	4.9 ± 0.7 (163.3%)	0.128
Vit.B6 (mg/day)	1.7 ± 0.3 (121.4%)	1.9 ± 0.21 (135.7%)	0.326
Botin Vit.B7 (µg/day)	15 ± 1.4 (125%)	17 ± 0.23 (141.6%)	0.271
Vit.A (mg/day)	601 ± 21 (150%)	554 ± 31 (138.5%)	0.518
Vit.D (mg/day)	2.1 ± 0.1 (42%)	1.9 ± 0.4 (38%)	0.004**
Vit.E (mg/day)	6.1 ± 12 (76%)	5.9 ± 0.9 (73.7%)	0.011*
Vit.C (mg/day)	33 ± 0.7 (60%)	38 ± 1.9 (69%)	0.038*
Folic acid Vit.B9 (µg/day)	109 ± 22 (54.5%)	111 ± 18 (55.5%)	0.007**
Calcim (mg/day)	450 ± 23 (56.2%)	389 ± 51 (48.6%)	0.011*
Phosphorus (mg/day)	681 ± 52 (97.2%)	667 ± 23 (95.2%)	0.187
Iron (mg/day)	6.2 ± 0.3 (68.8%)	5.8 ± 0.77 (64.4%)	0.892
Zinc (mg/day)	5.9 ± 02 (59%)	7.1 ± 1.4 (71%)	0.022*
Magnesium (mg/day)	177 ± 12 (98%)	189 ± 15 (105%)	0.532
Selenium (µg/day)	23 ± 1.9 (51%)	21 ± 0.9 (46.6%)	0.003**
Omega3 (mg/day)	654 ± 82 (57%)	582 ± 14 (50.7)	0.007**
Taurine (mg/day)	372 ± 52 (49.6%)	432 ± 33 (57.6%)	0.002**
Choline (mg/day)	255 ± 18 (68%)	212 ± 13 (56.5%)	0.003**

Vit.: vitamin. DRI: dietary reference Intake. Significant values, *P < 0.05, **P < 0.01. (Statistically significant differences between male and female bullying children according to the DRI.

children. The mean intake of micronutrients in male and female bullying children were lower than recommended in vit D, vit E, vit C, folic acid, calcium, iron, zinc, selenium, omega 3, taurine and choline at (42% - 38%), (76% - 73%), (60% - 69%), (54.5% - 55.5%), (56.2% - 48.6%), (68.8% - 64.4%), (59% - 71%), (51% - 46.6%), (57% - 50.7%), (49.6% - 57.6%) and (68% - 56%) respectively compared with DRI. But female lower than male in Phosphorus at 95.2% and 97.2% compared with DRI. But the rest of micro nutrients intakes (thiamin, riboflavin, niacin, pantothenic acid, biotin, and magnesium were more than the recommended quantity for male and female compared with DRI.

There were statistically significant differences between male and female for the intakes of vitamin E, vitamin C, calcium and zinc (P < 0.05), and statistically significant differences for the intakes of vitamin D, folic acid, selenium, omega 3, taurine and choline (P < 0.01).

Anthropometric Measurements: Table 4 shows the anthropometric measurements among bullying children. About 50% had mean weight 30 kg, mean height 136 cm and BMI was 16.3 (under weight), beside 40% had mean weight

Table 4. Mean weight, height, body mass index, and Measure upper arm circumference of bullying children.

Sex	No and %	Mean weight/kg (SD)	P	Mean height/cm (SD)	p	Mean BMI kg/m ² (SD)	P	*MUAC (mm)	P
Male n = 50	25 (50%)	30 (±2.2)		136 (±4.1)		16.3 (±1.2)			
	20 (40%)	45 (±3.1)		146 (±3.4)		21.1 (±2.2)		20.5	
	5 (10%)	55 (±1.1)	0.04*	130 (±4.3)	0.242	32.5 (±1.5)	0.002**		0.345
Female n = 50	18 (36%)	33 (±4.6)		140 (±1.8)		16.8 (±2.7)			
	32 (64%)	45 (±3.3)		150 (±1.7)		20 (±2.5)		21.2	

BMI = Body mass index; SD = Standard deviation. MUAC = Measure upper arm circumference. Significant values, *P < 0.05, **P < 0.01. (Statistically significant differences between male and female bullying children according mean weight, Mean height, Mean BMI and MUAC.

45 kg, mean height 146 cm and BMI was 21.1 (normal weight), and About 10% had mean weight 55 kg, mean height 130 cm and BMI was 32.5 (obesity weight) for males bullying sample, while 36% from female bullying sample had mean weight 33 kg, mean height 140 cm and BMI was 16.8 (under weight), also 64% had mean weight 45 kg, mean height 150cm and BMI was 20 (normal weight). Male sample had underweight and obesity higher than female sample. In addition to measure upper arm circumference (MUAC) was normal by average (20.5, 21.2 mm) for male and female respectively. There were statistically significant differences between male and female bullying children in mean weight and BMI at P < 0.05 and P < 0.01 respectively.

It could be seen at **Table 5** that mean height-for age and weight-for age Z-scores of bullying children. It showed that (29, 23) male and female bullying children respectively (about 52% from total sample) had normal nutrition, but (21, 24) male and female bullying children respectively (about 45% from total sample) had moderate malnutrition, while 5 female bullying children (about 5% from total sample) had acute malnutrition.

Clinical signs: the data in **Table 6** showed that clinical signs (skin, teeth, gums, nails and speech) for children with bullying. The highest percentage was 33% for children who suffering from loss teeth, was followed about 20% from the investigated samples had white spots nails, beside stuttering speech, wearing glasses, pale skin, caries teeth and lisping speech were 19%, 15%, 14%, 9% and 8% respectively, while the smallest percentage was bleeding gums by 5% for bullying children.

There were a statistically significant difference between male and female in stuttering speech, and loss teeth at (P < 0.01).

Table 5. Mean height-for age and weight-for age Z-scores of bullying children.

Sex	No of sample	Height-for age Z-scores	Weight-for age Z-scores
Male n = 50	29	1.2 (± 0.23)	2.2 (± 0.2)
	21	-2.1 (± 0.3)	-2.4 (± 0.1)
Female n = 50	23	1.4 (± 0.6)	2.7 (± 0.6)
	24	-2.8 (± 0.1)	-2.3 (± 0.3)
	5	-3.1 (± 0.02)	-3.2 (± 0.03)

SD = Standard deviation. NO = number.

Table 6. Clinical signs (skin, teeth, gums, nails and speech) for children with bullying.

Sex	Speech		Skin	Teeth	Gums	nails	Vision	
	Stuttering	Lisping	Pale	Loss	Caries	Bleeding	White spots	Wearing glasses
M (50)	10	5	5	14	4	2	9	7
F (50)	9	3	9	19	5	3	11	8
% of Total children)	19%	8%	14%	33%	9%	5%	20%	15%
Sig.	0.00 (*)	0.091	0.012	0.003 (*)	0.103	0.081	0.121	0.022

Significant values *P < 0.01 (Statistically significant differences between male and female bullying children).

The important results were approximately more than half of study samples did not eat breakfast, nutrients intake were lower than recommended in protein, fiber, water, vit D, vit E, folic acid, calcium, iron, zinc, selenium, omega 3, taurine and choline. About 45% from total sample had moderate malnutrition and about 33% for children had loss teeth and 19% had stuttering speech.

4. Discussion

This study was concerned with assessing the nutritional status and signs of growth for bullying school children, and showed that, approximately more than half of study samples did not eat breakfast, Similar result was obtained with [Hugues et al., \(2014\)](#) who establish whether the experience of bullying and cyber bullying has had an impact on breakfast skipping, roughly half of the respondents (50.4%) reported that they did not eat breakfast on a regular basis, these results show the potential interrelationships between cyber bullying, school bullying and anxiety in anticipating breakfast skipping . and about 43% of the study sample ate 3 - 6 snacks/day. This result agree with [\(Zahedi et al., 2014\)](#) who evaluated the association between junk food intake and mental health in a national sample of children and adolescents 6 to 18 years. And showed that there was a substantial association between violent conduct and intake of junk foods (P < 0.001), in addition, daily consumption of sweetened drinks and salty snacks was substantially linked with violent behavior, including physical fighting and intimidation, junk food consumption may improve the risk of mental distress and violent conduct in kids and adolescents. And agree with [\(Cincinnati, 2013\)](#), who

showed that aggression, attention issues, and withdrawal behavior associated with soft drink intake in young kids.

And found the intake in male and female bullying children lower than recommended in protein, fiber and water compared with DRI, this result was a line with [María et al. \(2015\)](#) who aimed to assess nutritional intake and anthropometric statuses for children (7 - 9 years), and found intakes were lower for fiber. And consistent with [Tikal et al., 1976](#) who accentuate macronutrients deficiency were associated with increased behavior problems, the link between protein deficiency and aggressive behavior has been observed in rats. and in line with [Jackson et al., 2017](#) who topic bullying has revealed that a significant amount of kids and young people are harassed each year, poor nutrition may be an significant modifiable risk factor for adolescent bullying behaviors (10 - 17 years), Results indicate that poor nutrition considerably improves youth chances of persistent bullying, findings indicate that attempts to enhance non-deviant youth nutrition may have the added advantage of decreasing their probability of persistent bullying. And with [Bellisle, 2004](#) who reported diet can influence kids and adolescents' cognitive capacity and behavior of violence, the literature suggests that good constant dietary habits are the best way to guarantee optimum mental and behavioral efficiency at all times, kids and teenagers with bad nutritional status are subjected to behavioral and mental changes that can be enhanced through dietary interventions.

Beside showed mean micro nutrition intake in vit D, vit E, vit C, folic acid, calcium, iron, zinc, selenium, omega 3, taurine and choline were lower compared with recommended DRI. But female lower than male in Phosphorus, this result was a agree with [María et al. \(2015\)](#) who found micro nutrients intakes were lower for vitamin D, zinc, iodine, vitamin E, folic acid, calcium and iron for children (7 - 9 years), and with [Christine et al., 2015](#) who crossed food consumption survey was performed on 1840 children attending grade 2 (mean age 8.6) and grade 5 (mean age 11.7), the nutrient and energy intake of children was compared with the NNR-based reference values, mean consumption of calcium, magnesium, selenium, iron , zinc, vitamins E and D from college meals did not achieve the reference values, while sodium was surpassed.

And consistent with the results of [Hambly et al., 2017](#) who study micronutrient therapy for violent male aged 4 - 14 who displayed ongoing violent and aggressive behaviors received micronutrient intervention containing ascorbic acid (vitamin C), vitamin E, biotin, pyridoxine (vitamins B6), zinc and selenium, in a 16-week. Participants were examined for changes in violent and aggressive behaviors that measured by using the Children's Aggression Scale, and the result showed that micronutrient therapy significantly improved in parent-reported. And in the line with [Rosen et al., 1985](#); [Werbach, 1992](#); [Corapci et al., 2010](#) who recorded the impacts of dietary iron deficiencies and zinc deficiencies in aggressive kids and behavioral disorders. Similar result was obtained with [Schoenthaler and Bier \(2000\)](#) who reported that Poor nutritional habits in

children (6 - 12 years) that lead to low concentrations of water-soluble vitamins (vitamin C) impair brain function and subsequently cause violence serious anti-social behavior. And the result in the same direction with (Kaplan et al., 2004) who affirm that psychiatric symptoms such as depression, mood swings, and aggression can be mitigated by adding vitamins and minerals (vitamin c and zinc) to broad-based nutrient formulas in children.

About 50% from total male sample had underweight, beside 40% had normal weight and About 10% had obesity weight, this result agree with Griffiths et al. (2006) who showed that bullying children who suffer from obesity may have been victims of bullying someday and male higher than female . While 36% from female bullying sample had underweight also 64% had normal weight. Male sample had underweight and obesity higher than female sample, this result concur with (Dario et al., 2015) Who conducted a survey to explore the relationship between weight status and school bullying in 947 outpatient kids and adolescents (6 - 14 years of age) and confirmed that underweight and obesity in bullying among kids and adolescents is of continuing concern throughout the world and may be strongly linked, and obese males perpetrated more bullying behavior compared to obese females. In addition to measure upper arm circumference (MUAC) was normal for male and female. This result agree with (María et al., 2015) who report that children 7 - 9 years suffering from some problem in behavior BMI-for-age was calculated and showed that 53.1% were normal weight and The weight was insufficient at 46.9%, of which 38.6% had surplus body weight (19.6% overweight and 19.0% obesity) and had normal MUAC.

About 45% from total sample had moderate malnutrition, while 5% from total sample had acute malnutrition, this results confirm finding in **Table 2** and **Table 3** that elucidate bully schoolchildren had deficiency in some nutrients such as (protein, vit D, vit E, vit C, folic acid, calcium, iron, zinc, selenium, omega 3, taurine and choline) compared with RNI. This result with a line with Eze et al. (2018) who selected school children aged 6 - 12 years and had some problems behavior were measured using standard protocols. Weight-for-age, and height-for-age as Z-scores, and showed, a majority of the children have malnutrition, school-feeding programs in schools as well as nutrition education/campaign directed at parents and their children will help forestall the double burden of under- and over-nutrition among our children.

And concert with (Jianghong & Nicola, 2011 and Jackson et al., 2017) who proposed that poor nutrition may be a significant modifiable risk factor for adolescent and child intimidation behaviors, the findings show that poor nutrition considerably improves the chances of constant bullying between adolescents and children. And in line with Bacchini et al. (2017) who intended to explore the interplay between BMI z-score, self-concept in various activities (physical, athletic, social) and peer victimization, The sample consisted of 419 men and 396 women, the results showed that greater concentrations of BMI z-score are a risk factor for peer victimization and bad self-concept, which could lead to bullying.

Clinical signs result showed 33% from children suffering from loss teeth and this highest percentage and some children suffer from white spots nails, stuttering speech, wearing glasses, pale skin, caries teeth and lisping speech, this result agree with [Gordon, et al. \(2010\)](#) who explained that bullying children suffer from speech problems such as stuttering and this makes them adopt violent behavior due to a sense of lack of self-esteem. And this result affirm results in [Table 3](#) and [Table 5](#) that showed about 45% from total sample had moderate malnutrition and had deficiency in vitamin E and C compared with RNI, this result agree with [\(Aruna et al., 2017\)](#) who showed Age-related macular degeneration (AMD) is one of the leading causes of vision loss, initial findings from the Age-Related Eye Disease Study (AREDS) showed that antioxidant supplementation (β -carotene and vitamins C and E) and zinc were associated with a decreased danger of development of AMD. And confirm with result in [Table 3](#), sample had deficiency in iron compared with RNI, and this result in the same section with [Josephine, Toby, & Surjit \(2014\)](#) and [Matthew et al. \(2018\)](#), who said iron is an essential component of the hemoglobin molecule, the most common cause of anemia worldwide is an iron deficiency, one of the important symptoms are pale skin and white markings on the nails. Iron plays a key role in both oxidative stress, skin pale and cutaneous wound healing.

On the other hand there were statistically significant differences at ($P < 0.01$) between male and female in stuttering speech, and loss teeth This result obtained in this study was in agreement with [\(Stephens et al., 2018\)](#) who has indicated that childhood bullying is prevalent and can have severe adverse effects on both the victim and the bully. A victim of bullying and bullying in adolescents includes having a disability or medical condition such as asthma, diabetes mellitus, skin condition, or allergy to food; or being a weight and stature outlier. And with [Langevin and Prasad \(2012\)](#), who showed that there was a statistically significant relationship among children with stuttering speech and victim and statistically significant relationship among children with stuttering speech and bully children who were victims. Finally, more study must be done about nutritional and physical status assessment for bullying children in order to improve their aggressive behavior and nutritional status.

5. Conclusion

Bully children suffered from malnutrition, and lower intake in some nutrients such as (protein, water, vit D, vit E, vit C, folic acid, calcium, iron, zinc, selenium, omega 3, taurine and choline) compared with RNI. Beside some problems in physical growth such as underweight and obesity, beside highest percentage of children suffering from loss teeth, white spots nails and stuttering speech, so our results suggest follow healthy eating habits, nutritional intervention and educational strategies are needed to promote healthy eating in bullying children, adequacies nutrition to help improve behavioral bullying status and interest to educate nutrition for mothers bully children.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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