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Modifying unhealthy behaviors among primary school children

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Abstract---Background: Unhealthy behaviors among primary school children arise during childhood, which often persist into adulthood, affecting health and well-being in later life. These unhealthy behaviors are represented in the misuse use of technology, bullying, smoking and anxiety. Aim of the Study: This study aimed to evaluate the impact of the educational health program on modifying unhealthy behaviors among primary school children. Design: Quasi-experimental was utilized to achieve the aim of the study. Setting: The study was conducted in the Sharabeya area affiliated to the Sharabeya Educational Administration of the Directorate of Education in Cairo, which includes many primary schools. Sample: A Multistage sample was selected randomly it compromised of 124 primary school children. Tools: Two tools were used for data collection, first tool: An interviewing questionnaire for primary school children including two parts; Part I: Demographic characteristics of the children, Part II: children's' knowledge about unhealthy behaviors. Second tool: Assessing children reported practices about unhealthy behaviors. Results: the main results of the study revealed that, significant improvement in children knowledge and their reported practices regarding unhealthy behaviors. Conclusions: the study concluded that the educational health program remarked improvement all items of

knowledge and reported practice of children related to unhealthy behavior. Recommendation: Raising awareness among parents about health problems resulting from unhealthy behaviors of school children as well as teachers in spreading the culture of healthy behaviors among children through awareness campaigns within schools to improve the health of students and also to increase their academic achievement.

Keywords---modifying, primary school, unhealthy behaviors.

Introduction

Unhealthy behaviors have been found to have an important influence on morbidity and mortality. These behaviors not only influence children's health but also create burdens for the nation and society as a whole. It is well documented that behaviors developed during childhood influence health in adolescence and adulthood (Turnock, 2021). Primary school period is recognized as a period of vulnerability and progressive development toward adult personality and character. Variations in children's behaviors reflect a blend of intrinsic biologic characteristics and the environments with which the children interact (Pathak et al., 2020). Unhealthy behaviors among primary school children are very common and any one dealing with children is likely to encounter many of them. Unhealthy behaviors in children are increasingly coming into focus as serious treatable conditions and as precursor of adult psychopathology (Turnock, 2021).

Schools are considered ideal settings for improving child health behaviors because of the amount of time that children spend there, infrastructure, and the role that schools play in community education and health improvement (Baranowski et al., 2020). It is important for school-based interventions to be theoretically informed in order to identify variables influencing behaviors and provide information on designing interventions to manipulate these variables for behavior modification (Kliegman et al., 2020). Improving health attitudes in children are important because attitudes may predict behavior as demonstrated in school-based interventions (Magarey et al., 2020).

In addition to educating students, schools also influence their social-emotional health and well-being. Students who have positive experiences at school are less likely to have mental health problems and engage in unhealthy behaviors than students who experience school negatively (McLaughlin, 2021). The mental and physical changes enable school children to undertake new tasks and social roles. This is the time that has a huge impact on children's behaviors (Druz et al., 2020). Previous research has indicated that children's behaviors have long-term effects on later life. Hence it is important to monitor the development of unhealthy behaviors among school children (Achenbach et al., 2020). Unhealthy behaviors such as bullying, misuse of technology, anxiety and smoking, these behaviors are visible among school children in general. A child may have more than one unhealthy behavior (Catalano et al., 2020). Unintentional injuries as a result of bullying behavior are a major cause of death and disability among school children. Many injuries lead to permanent disability and brain damage. Victims of

bullying have increased stress, depression, reduced ability to concentrate, increased risk for smoking, and aggressive behavior (*Beck et al., 2021*).

The school health nurse has a crucial role in the provision of comprehensive health services to students entering schools that require management during the school day (*Klockner and Nayum, 2020*). The role of the school health nurse in serving as a team member in providing preventive services, early identification of unhealthy behaviors, interventions, and referrals is important to foster health and educational success. Controlling these unhealthy behaviors early in life may help decrease the burden of noncommunicable diseases in adult life, and thus decrease the pressure on society and the healthcare system (*Lundy and Janes, 2021*). The emerging and evolving new unhealthy behaviors and decreasing protective factors are creating area for school health nurses to use innovative school health programs considering decreasing costs and saving effort and time (*Robert et al., 2019*).

Significance of the study

Living in developing countries such as low economic resources, school children reported difficulty in accessing healthcare services. Insufficient time spent with their physician or school health nurse is an indirect message that health care providers either lack necessary training and knowledge or interest in addressing students, with high density in the classes, especially in the governmental school's may also contributes. Students in primary school represent as an important social group in the society because they are more liable to follow unhealthy behaviors which make them vulnerable to many health problems as bullying, misuse of technology, anxiety and smoking (*Albuhairan et al., 2021*). Interventions in the primary grades can help support children as they develop the necessary the interpersonal skills and learn how to effectively relate to others. Working cooperatively with other children to complete a task can help children understand and respect others' perspectives. It also helps them learn to trust and to be more tolerant of others and diversity (*William et al., 2020*).

Aim of the Study

The aim of this study was to evaluate the impact of educational health program on modification of unhealthy behaviors among primary school children through:

- Assessing primary school children knowledge regarding healthy and unhealthy behaviors.
- Assessing primary school children reported practices regarding unhealthy behaviors.
- Design educational health program based on health needs and problems of primary school children.
- Evaluate the effect of educational health program on modification of unhealthy behaviors among primary school children.

Research Hypothesis

The educational health program will have a positive effect on modification of

unhealthy behaviors among primary school children.

Subjects & Methods

Research design

A Quasi experimental study design (one group pre and post-test) was utilized to conduct study.

Research setting

This study conducted at El Sharabeya educational administrator, which includes many primary schools, four schools were selected according to the statistical equation and their names were (*Ahmed Shawky, Abel Aziz Gawish, Abdel Moneam Reyad and Saad Zagloul*), these places were chosen especially because this place is a popular place and one of the most famous places north of Cairo. Its inhabitants consist of different groups according to the economic and educational level, with most of its inhabitants engaged in craft work. Schools are located in this place which is of average economic condition and has the largest number of primary schools.

Sampling

The sample of the study was multistage sample technique. In Cairo governorate, there were 20 educational administrative districts, Elsharbeya educational administrator was chosen. This study was conducted in 4 schools and they were chosen by using systemic random sample. The numbers of studied sample were 124 children and 31 children were selected from every school from fourth, fifth and sixth grade because they were good at reading, so they read the questionnaire and answer accurately. Primary school children's daily life and unhealthy behavior of children threatens their current and future lives, as the researcher noticed that children do many behaviors, they believe that it is safe, but it carries with it great dangers that threaten their lives. Behaviors that must be dealt with and treated because they will expose children to dangers, and since children in different stages of education are characterized as a natural stage and a sensitive developmental stage, these behaviors can turn into practiced habits without awareness, which negatively affects the lives of children

Tools of the study

Two tools were used for data collection.

First tool: Structured interviewing questionnaire for primary school children

This tool was an Arabic questionnaire sheet constructed by the researcher after reviewing related literatures. This tool was divided into two parts: -

- Part I: It was concerned with socio-demographic data for children and their parents under study as regards: age, stage, the father's education, the mother's education, Father's occupation, Mother's occupation, family size

and number of rooms.

- Part II: It was concerned with primary school children knowledge regarding bullying, electronic devices, anxiety and smoking. The items of this sheet were used pre and post program and it was modified from (*Ministry of Education, 2021*).

Scoring System of children knowledge

The primary school children were given scores two marks to the correct response and one to the incorrect answer. The scores of the items were summed-up and the total divided by the number of the items, these scores were converted into a percent score. Knowledge was considered satisfactory if the percent score equal 50% or more and unsatisfactory if less than <50% (*Kidger et al., 2020*) (pre and post educational health program).

Second tool: Assess children reported practices of unhealthy dangers behaviors

This tool was adopted by the researcher from (*Joshi et al., 2021*) used to assess reported practices for primary school children regarding bullying, electronic devices, anxiety and smoking. The items of this sheet were used pre and post program.

Scoring System of children reported practice

The primary school children were given scores two marks to the correct response and one to the incorrect answer. The scores of the items were summed-up and the total divided by the number of the items, these scores were converted into a percent score. Reported Practices was considered adequate if the percent score equal 50% or more and inadequate practice if the percentage score less than <50% (*Kidger et al., 2020*) (pre and post educational health program).

Content Validity

In order to test validity of the research tools; they were tested by five of professors of community health nursing-faculty of nursing Ain shams university. The required modifications were carried out accordingly.

Content Reliability

In order to test reliability of the research tools; they were tested by Cronbach alpha test of reliability. The tools were proved to be strongly reliable tool ($r = 0.863$).

Ethical Considerations

Verbal approval was obtained from the primary school children to ensure willingness to engage in the study after explaining its purpose and nature, the researcher also provided strict concern to keep their privacy, and it has no harmful effect on them, the information was confidential and they have the right

withdraw from the study at any time.

Administrative design

An official permission including the title and purpose of the study were submitted from the dean of faculty of nursing Ain Shams University and forwarded to the director of El Sharbeya Educational Administration, to get an approval for data collection to conduct the study.

Operational Design

The study to be completed passed through different phases included: preparatory phase, pilot study and field work phase.

Preparatory phase

A review of the past and current available related literatures covering all aspects of the researcher subject using the available textbooks, articles, nursing magazines and internet search. In order to get a clear picture on the research problem and to assist in the development of data collection tools.

Pilot study

It was conducted on 12 primary school children representing 10% the total study sample, the aim of the pilot study was to evaluate clarity, visibility, applicability and content validity as well as the time required to fulfill the developed tools. According to the obtained results, modifications and rearrangement of some sentences were done. The members included in the pilot study were excluded from the study sample.

Field Work

The study included 124 students. The researcher attended the previously mentioned setting of the study two days / a week from 9 am to 12 pm. Data were collected through a period of 6 months from beginning of October 2020 until the end of March 2021. Data was collected from the studied students through structured questionnaires. Each participant took approximately 30-40 minutes to complete the interview questionnaire. The researcher collected data through distributing questionnaire to studied sample; each question was explained to the studied sample then answered by them. Application of the educational health program took 3 months after finishing baseline assessment for all children. The questionnaire was distributed to the studied sample twice; (1) pre-test to assess students' knowledge and their reported practices before implementing educational program, (2) Post-test to assess students' knowledge and their reported practices after implementing educational program.

Program construction

Phase 1: Assessment phase

Two days/weeks, three hours/day (9 Am -12 pm) for data collection (pretest),

which was carried out through six months; the average time consumed to fill tools were approximately 30-40 minutes.

Phase 2: Program Implementation

Program implementation based on conducting session plans using different educational methods, and media in addition to the use of guiding booklet specifically designed and developed based on primary school children assessment needs. Implementation of the program took three months through visited the pre-mentioned setting. Time was opened for attendance to ask questions and to receive the corresponding answers as well as to express their feedback toward the teaching session. Media used posters, laptop and guidance booklet which includes instruction and information for primary school children as a reference during and after program implementation.

Phase 3: Program Evaluation

Evaluation was applied before and after the program through pre and posttest. Administration of interviewing questionnaires by using the same tools, in order to identify differences, similarities and areas of improvement, as well as defects and estimated the effect of educational health program to improve primary school knowledge and practices related to unhealthy behaviors.

Statistical Design

The collected data were organized, categorized, tabulated and analyzed. Data were presented in tables and charts using the statistical package for social science (SPSS) version 11.20. The statistical significance and were assessed using percentage (%), mean, standard deviation (SD), Chi square test (X^2) and P-Value.

Significance of Results

- $P > 0.05$ No significant difference (NS)
- $P < 0.05$ or < 0.02 Significant difference. (S)
- $P < 0.01$ or $P < 0$. Highly significant difference (HS)

Results

Table (1) shows that, 61.3% of students were female. 38.7% of them at fifth stage. 30.6% of them had illiterate and 41.9% of students had illiterate father. Also 66.1% of students' mothers were working while 83.9% of students' fathers were working and 75.8% of them had family size ≥ 5 . Table (2): shows that, regarding the satisfactory level of children knowledge, in pre-program 30.6%, 23.4%, 33.9%, 45.2% respectively of the children had satisfactory knowledge related to bullying, misuse of technology, stealing, anxiety, smoking respectively in preprogram, and improved in post program to be 78.2%, 83.1%, 79.8%, 91.1% respectively with highly statistically difference P. value < 0.001 for all items. Table (3): shows that, regarding total level of children's' reported practice, in pre-program 30.6%, 29.0%, 45.2%, 51.6% respectively of the children had satisfactory knowledge related bullying, misuse of technology, stealing, anxiety, smoking respectively in

preprogram, and improved in post program to be 8.9%, 6.5%, 11.3%, 12.9 % respectively with highly statistically difference P. value <0.001 for all items. Figure 1: denotes that, 32.3% of the children had satisfactory knowledge in preprogram, phase and improved to be 83.9% in post program phase. Figure (2): reveals that, 54.8% of primary school had reported practices preprogram phase, and this percentage improved to 17.7% post program phase. Table (4): this table shows that there were highly statistically significant relations between the studied children level of reported practices and their total level knowledge pre and post program, with p-value ($p>0.05$).

Table 1
Distribution of the studied sample regarding to their socio- demographic characteristics (no=124)

Items	No.	Percent %
• Sex		
Male	48	38.7
Female	76	61.3
• Stage		
Fourth	36	29.0
Fifth	48	38.7
sixth	40	32.3
• Birth order		
First	16	12.9
Second	63	50.8
Third	43	34.7
Fourth or more	2	1.6
• Mother ' education		
Illiterate	38	30.6
Read / write	30	24.2
Basic / secondary	24	19.4
University	32	25.8
• Mother occupation		
Working	82	66.1
Not working	42	33.9
• Father ' education		
Illiterate	52	41.9
Read / write	21	16.9
Basic / secondary	11	8.9
University	40	32.3
• Father occupation		
Working	104	83.9
Not working	2	1.6
Retirement	18	14.5
• Family size		
<5	30	24.2
≥5	94	75.8
• Number of rooms		
Two	86	69.4

Three	33	26.6
Four	5	4.0
five	0	0

Table 2
Distribution of primary school children regarding to their knowledge about unhealthy behaviors pre and post program (N=124)

Total knowledge of unhealthy behaviors	Pre				Post				Chi-square	
	Correct		Incorrect		Correct		Incorrect		X ²	P-value
	N	%	N	%	N	%	N	%		
Bullying	38	30.6	86	69.4	97	78.2	27	21.8	56.590	<0.001**
Total mean	8.8548±3.72575				11.9677±3.25835				- 6.342#	<0.001**
Misuse of technology	29	23.4	95	76.6	103	83.1	21	16.9	88.692	<0.001**
Total mean	6.3387±2.64079				9.4113±2.26681				-7.743 #	<0.001**
Anxiety	42	33.9	82	66.1	99	79.8	25	20.2	53.407	<0.001**
Total mean	7.2419±3.07989				9.4839±2.38383				- 6.334#	<0.001**
Smoking	56	45.2	68	54.8	113	91.1	11	8.9	60.351	<0.001**
Total mean	10.7177±4.65311				13.9194±3.01917				- 5.432#	<0.001**
Total	40	32.3	84	67.7	104	83.9	20	16.1	67.829	<0.001**
Total mean	38.2500±14.04558				52.5645±10.0561				- 7.690#	<0.001**

Table 3
Distribution of primary school children regarding to their reported practice related to unhealthy behaviors pre and post program (N=124)

total reported practice of unhealthy behaviors	Pre						Post						Chi-square	
	Always		sometime		Rarely		Always		someti me		Rarel y		X ²	P-value
	N	%	N	%	N	%	N	%	N	%	N	%		
Bullying	38	30.6	58	46.8	28	22.6	18	14.4	21	16.4	9	7.1	66.340	<0.001**
Mean and SD	2.3226±0.57803						2.6694±0.47235						-6.138	<0.001**
Misuse of technology	36	29.0	71	<0.001**	17	13.4	8	6.3	25	19.8	9	7.1	88.498	<0.001**
Mean and SD	1.9032±0.73716						2.6935±0.62700						-8.686	<0.001**
Anxiety	56	45.2	40	<0.001**	28	22.4	14	11.2	16	12.7	9	7.1	71.191	<0.001**
Mean and SD	2.1855±0.67915						2.7258±0.56076						-8.066	<0.001**
Smoking	6	5.1	36	<0.001**	2	1.6	1	0.8	12	9.4	2	1.6	67.125	<0.001**

	4	.6		1**	4	.4	6	.9	2	.7	6	.4		
Mean and SD	1.6774±0.78137				2.4758±0.73765				-5.191		<0.001**			

Figure 1: Distribution of primary school children regarding to their total satisfactory knowledge about unhealthy behaviors pre and post program (N=124).

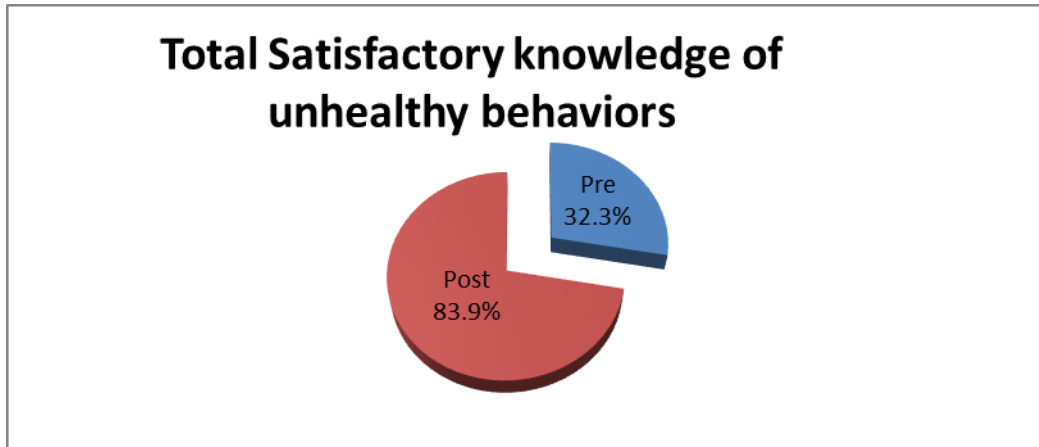


Figure 2: Distribution of primary school children regarding to their total reported practices about unhealthy behaviors pre and post program (N=124)

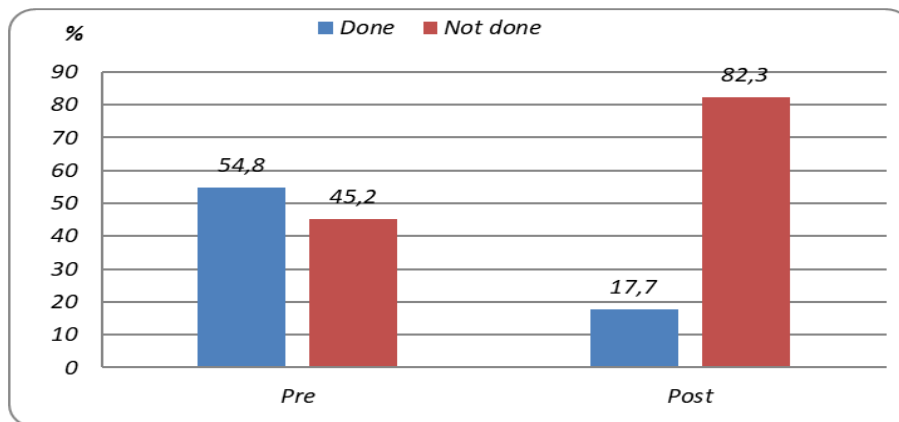


Table 4
Relation between primary school children total knowledge and total practice regarding unhealthy behaviors (n=124)

Total practice	Total knowledge	
	r	P-value
Pre	0.320	<0.001**
Post	0.407	<0.001**

Discussion

Behavior Modification is one of the different methods and philosophies dealing with “inappropriate,” “abnormal,” or “undesirable” behaviors. Usually all behaviors are maintained, changed, or shaped by the consequences of that behavior (Achenbach *et al.*, 2020). Early multiple health behavior change interventions are needed before unhealthy behaviors become established to prevent accumulation of risk behaviors as youth mature and their future adverse health outcomes (Turnock, 2021).

A total of 124 primary school children participated in the present study, regarding to parents' education, the current study revealed that, less than two fifths of them were illiterate. This finding could be attributed to that when the parents are educated, more attention is usually given to the student physically and healthy behavior (table 3). These finding were in the same line with the study conducted by (Gupta *et al.*, 2021) who studied behavioral problems on 65 school children in Philadelphia and his sample size was 4855 child who found that when the parents' education decreases, the health risk increases and they revealed that parent's ignorance was one of predisposing factors which leads to unhealthy behaviors.

The present study found that, the nearly two third of children mothers were worker. This result may be explained by that mothers' occupation could affect the students' health either positively or negatively according to characteristics of mothers' work. Positively, if mothers' work outside hone let her become more experienced and aware about student health needs, and negatively, if the mother becomes so exhausted to take care of the students' mothers after working. In relation to family size, the present study revealed that, slightly more than three quarters of them were lived in crowding places. This finding on agreement with a similar study done by (Gupta *et al.*, 2021) were found that, living condition such as crowding places, increase family size, and environment increase the risk of unhealthy behaviors and the risk of diseases.

According to the research hypothesis of the current study that, there will have a positive effect of educational health program on modification of unhealthy behavior among primary school children

The present study cleared was a highly statistically significant difference between children's total satisfactory level of knowledge pre and post program (table 2). The finding agrees with that of the study conducted by (Magarey *et al.*, 2020) who studied changes on 92 primary school children's behavior, knowledge, attitudes and environments in Croatia and his sample size was 1475 child who found that there was 65% of them insufficient knowledge of the children before the program but after implementation of the program the children had gained a great deal of knowledge, consequently, there was improvement of the children's healthy behaviors. The researcher believed that the improvement of children's knowledge led to improvement of their school achievement and their general health condition.

The present study revealed a highly statistically significant difference between

children total adequate level of reported practices pre and post program (table 3). This finding supported by (Gupta et al., 2021) who found that more than one quarter of sample group had improvement of their behaviors in the post program. From the researcher point of view these results could be related acquired the knowledge and practices through implementation of the program which helped the children to apply healthy practices to improve their behaviors and thus preventing unhealthy behaviors.

In concern to primary school children satisfactory level of knowledge regarding unhealthy behaviors, few children had satisfactory level of knowledge about unhealthy behaviors as bullying, misuse of technology, anxiety and smoking in pre-educational health program and results improved where the majority of them had satisfactory level of knowledge after implementation of the program with highly statistically significant differences between pre and post program (Figure 1).

The result of the present study agreed with (Magarey et al., 2020) who reported that the result is not always successful in changing behavior, but is successful for knowledge attainment, in relation to teaching children about unhealthy behaviors to prevent its negative effect on their health. The finding of this result also in the same way with the finding of (Prochaska and Velicer, 2021) who studied transtheoretical model of health behavior change on 965 boys and 877 girls in primary school children in Northern Taiwan and found that there was a great effect of health behavior change program on children knowledge improvement.

In relation to total adequate reported practices the present study indicated that, there was improvement in total children reported practices regarding unhealthy behaviors after implementation of the educational health program with highly statistically significance difference between pre and post program (Figure 2). This finding coincided with (Magarey et al., 2020) who found that more than one third of children had adequate reported practices regarding unhealthy behaviors. The present study finding revealed a highly statistically significant difference between children total adequate level of reported practices and children total level satisfactory level of knowledge pre and post program (Table 4). The present study findings contradicted with studies as (Gupta et al., 2021) who stated that, increase knowledge level does not mean usually increase in performance level. The present study findings contraindicated also with (Prochaska and Velicer, 2021) who mentioned that, it is easy to modify or correct knowledge but it is difficult to change behavior and performance which can lead to adverse health outcomes.

Conclusion

The present study concluded that the educational health program reported a remarkable improvement in all items related to primary school children's knowledge and reported practice related to unhealthy behavior (Bullying, Misuse of technology, anxiety ,smoking), while there were highly statistically significant difference in all items between pre and post educational health program. Educational professionals should pay attention to the different patterns of unhealthy behaviors that increase during this period should be initiated earlier in childhood and preventive measures for behaviors that increase during this period

should be initiated earlier in childhood.

Recommendations

In the light of findings of the current study the following recommendations are suggested

- Raising awareness among parents about health problems resulting from unhealthy behaviors of school children as well as teachers in spreading the culture of healthy behaviors among children through awareness campaigns within schools to improve the health of students and also to increase their academic achievement.
- Promote healthy behaviors among school children through designing posters, illustrated pamphlets in simple and clear language booklet.
- Dissemination of modifying unhealthy behavior program among primary school children in different educational administrators through Egyptian governmental.
- Further researches to investigate contributing factors of unhealthy behaviors among primary school children to modify child behaviors.
- Further studies include larger number of primary school children from different geographical area to generalized results in Egypt.

References

- Achenbach, T. M., Ivanova, M. Y., Rescorla, L. A., Turner, L. V. & Althoff, R. R. (2020). Internalizing/externalizing problems: Review and recommendations for clinical and research applications. *Journal of the American Academy of Child & Adolescent Psychiatry*, 55(8), 647–656.
- Albuhairan, F., Tamim, H., Al Dubayee, M., AlDhukair, S., Al Shehi, S., Tamimi, W., et al. (2021). Time for an adolescent health surveillance system in Saudi Arabia: findings from 'Jeeluna'. *J Adolesc Health* 57:263–269.
- Baranowski, T., Cullen, K.W., Nicklas, T., Thompson, D. & Baranowski, J. (2020): Are current health behavioral change models helpful in guiding prevention of weight gain efforts? *Obesity* (2020) 11 (Suppl.):23S–43S. 10.1038/oby.2003.222
- Beck, N., Arifl Paumier, M. & Jacobson, K.(2021): Adolescent injuries in Argentina, Bolivia, Chile, and Uruguay: Results from the 2012–2013 Global School based Health Surveys (GSHS). *Injury* 3:1–8.
- Catalano, R.F., Fagan, A. & Gavin, L. (2020): Worldwide application of prevention science in adolescent health. *Lancet* 379:1653–1664.
- Druz, V., Iermakov, S., Nosko, M., Shesterova, L.& Novitskaya, N. (2020): The problems of students' physical training individualization. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 21(2), 51-59. <http://dx.doi.org/10.15561/18189172.2017.0201>
- Gupta, A.K., Mongia, M. & Garg, A.K. (2021): A descriptive study of behavioral problems in school going children. *Ind Psychiatry J*,;26:91-4
- Joshi, D., Gokhale, A. V., & Acharya, A. (2021): Student's response and behavior in the classroom environment. *International Journal for Cross-Disciplinary Subjects in Education*, 2, 926–934.
- Kidger, J., Araya, R., Donovan, J. & Gunnell, D. (2020). The effect of the school

- environment on the emotional health of adolescents: A systematic review. *Pediatrics*, 129, 1–25. Date modified:2020-06-23
- Kliegman, R.M., St. Geme, J.W., Blum, N.J., Shah, S.S., Tasker, R.C. & Wilson, K.M. (2020): *Nelson Textbook of Pediatrics*. 21st ed. Philadelphia, PA: Elsevier; chap 25.
- Klockner, C.A. & Nayum, A. (2020): "Specific barriers and drivers in different stages of decision-making about energy efficiency upgrades in private homes". *Frontiers in Psychology*. 7: 1362. doi:10.3389/fpsyg.2016.01362. PMC 5014904
- Lundy, K. & Janes, S. (2021): *Community health nursing: caring for the public's health*. 3rd ed. USA: Jones & Bartlett Company. pp. 345–360.
- Magarey, A.M., Pettman, T.L., Wilson, A. & Mastersson, N. (2020): Changes in primary school children's behavior, knowledge, attitudes, and environments related to nutrition and physical activity. *ISRN Obes.*: 752081 10.1155/2013/752081.
- McLaughlin, C. (2021): Emotional well-being and its relationship to schools and classrooms: A critical reflection. *British Journal of Guidance and Counselling*, 36, 353–366. Date modified:2020-06-23
- Ministry of Education (2021): National strategic plan for education in Egypt: towards a paradigm shift . Cairo: MoE" (PDF). Planipolis.iiep.unesco.org. Archived from the original (PDF) on 20 December 2019.
- Pathak, R., Sharma, R., Parvan, U., Gupta, B., Ojha, R. & Goel, N. (2020): Behavioural and emotional problems in school going adolescents. *AMJ* 4:15–21
- Prochaska, J.O. & Velicer, W.F. (2021): The transtheoretical model of health behavior change. *Am J Health Promot.* ;12(1):38-48. doi:10.4278/0890-1171-12.1.38
- Robert, M., Kliegman, Bonita, F. Stanton, Joseph, W. St. Geme, Nina Schor, Richard E. Behrman (2019): *Nelson Textbook of Pediatrics. Development and Behavioral Pediatrics*. 19th edition. 2018 Elsevier Saunders. Pp. 67-112.
- Turnock, B.(2021): *Essentials of public health*. 3rd ed. USA: Jones & Bartlett Company; pp. 100–115
- William W. Hay, Myron J. Levin, Judith M. Sondheimer, Robin R. Deterding. (2020): *Current diagnosis & treatment – Pediatrics. Behavioral & developmental variation*.19th edition. Pp. 103.