



Social Sciences & Humanity Research Review



Contributing Towards "Clean And Green Pakistan" Through Health Awareness Activities Elementary School Education: Students' Perspectives

Dr. Muhammad Samiullah¹, Sher Muhammad Awan², Waqar Hassan³, Prof. Dr. Hafiz Muhammad Ather Khan⁴

Assistant Professor, Faculty of Education, Allama Iqbal Open University, Islamabad, Pakistan Email: Sami.ullah@aiou.edu.pk

² Professor (Social Sciences & Humanities), The Tenacious International College Rawalpindi, Pakistan, Email:sher.m.awan786@gmail.com

³ Lecturer (Statistics) The Tenacious International College Rawalpindi, Pakistan
⁴ Director ORIC, Allama Iqbal Open University Islamabad, Pakistan
Email: athar.khan@aiou.edu.pk

ARTICLE INFO

Kevwords:

Clean And Green Pakistan, Health Awareness Activities, Elementary level.

Corresponding Author:

Dr. Muhammad Samiullah, Assistant Professor, Faculty of Education, Allama Iqbal Open University, Islamabad, Pakistan Sami.ullah@aiou.edu.pk

ABSTRACT

As the students only focus on academic achievements of their students hence, health awareness is neglected at elementary level schools in Pakistan. So, this research project was conducted to find out the level of students' health awareness at elementary level in two districts and how it may be increased via activities of health awareness. Survey research had been conducted. Through random sampling, male and female elementary level students at public schools had been selected who were studying in class 8 in the year 2022-23. There were 520 students (250 male and 270 female) as well who gave their opinion on 5-point Likert Scale student's questionnaire. Using SPSS, percentage of their opinions have been calculated under descriptive statistics with their mean scores against each statement. The results showed perceptions of respondents about each statement. Some recommendations were made for the students at elementary school to improve the teaching methodology in a way that they may involve themselves in Health awareness activities.

INTRODUCTION

Every child has the right to quality education, which includes having access to clean, safe drinking water and other school-related- facilities. A child spends most of the day in school, where hygiene practices have an impact on learning, health, and feeling of dignity.

The Sustainable Development Goals (targets 4.a, 6.1, and 6.2) recognize the importance of hygiene practices in schools as essential elements of a "safe, non-violent, inclusive, and effective learning environment" and as a component of "universal" WASH access, which emphasizes the need for WASH outside of the home. (UNICEF, 2020)

The education of students about cleanliness is crucial. Many kids gain some of the most basic hygiene knowledge in school, where they may also be exposed to cleanliness habits that may not be encouraged at home. Through health education and by serving as role models for schoolchildren, teachers may teach kids about WASH. Methods that have been shown to produce the longest-lasting learning results and successfully promote the transition toward healthy behaviors can be employed for this goal (UNICEF, 2020).

An activity is a way to support or guide someone toward a particular desired activity without telling them what to do or forcing them to. It should ideally be something simple, lovely, sociable, and timely. (Dreibelbis et al 2016). A set of practices and conditions for better health maintenance and prevention from illness, personal hygiene habit formation is very crucial for the children. This study is based on the aspects supported by the (WHO) and (UNICEF). "Hygiene refers to situations and behaviours that help to maintain health and prevent the spread of diseases," World Health Organization (WHO) states. Personal hygiene is the practice of keeping one's body clean. (Khan, 2021).

Elementary school students' adherence to good personal hygiene practices may help to prevent infectious infections. Individual and communal cleanliness can lessen dangers, particularly from communicable diseases, and improve a community's general health. Instilling excellent hygiene practices in youngsters does more than just keep them safe from illness and germs. Additionally, it enhances their general health and keeps them feeling and smelling clean and fresh. (Blackwell et al 2018)

Statement of Research Problem

It is important to teach elementary school children about good personal hygiene habits and sanitation of environment for Clean and Green Pakistan which is not focus of elementary school education. No tree plantation is taught through activities. Textbook activities may be effective in this regard. Employing Activities (for CGP) are meant to encourage change behavior of elementary school students. They are ignored and are far more beneficial than attempting to impose change based on more established norms. The application of these activities relies on encouragement and assistance. Direct instruction or enforcement is avoided. It provides the conditions for people to decide to change on their own. To link the said two, this research was conducted to see the extent of health awareness activities' contribution towards Clean and Green Pakistan as perceived by students at elementary level

Objective of the Research

This research was conducted to achieve following objective:

To determine effectiveness of textbook (HA) activities for awareness in terms of "Clean & Green Pakistan" among elementary school students.

Research Question

To what extent textbook (HA) activities are effective for hygiene practices awareness among elementary school students, as perceived by them?

Literature Review

Schools are viewed as an essential setting for executing training programs. They have the uncommon capability of considering a wide populace of youngsters and adolescents. An educational plan that includes health training features the significance of health awareness .It likewise gives importance to the physical action that

assist students in keeping up healthy ways of life about eating and physical action (Story, Kaphingst, and French, 2006; Hung, 2015). Over the world, there is a wide scope of nourishment training activities routed to younger students, with the cooperation of schools, government and health advancement organizations conveying information about eating routines and patterns and explicit instruction to forestall or oversee dietary-related and way of life related infections (Worsley, 2002).

Health advancement is the path toward connecting with people to have control over their health and improve it. It is more than concentrating on particular practices, and join a wide extent of social and natural interventions (WHO,2015). One of the most noteworthy fields in health advancement is health improvement and schools are the best ground for giving guidance. The hugeness of schools is all around reflected in the declaration by the United Nations Children's Fund (UNICEF) that calls schools "the amplest world channel for broadcasting information to the families, school staff, arrange people and understudies themselves". In this manner, schools are an essential bit of health advancement (WHO, 2000). Schools offer access to around one billion understudies and their families around the globe. In addition, necessary education is provided by school and this is provided at the most appropriate time (Langford, et al., 2015).

Training can assist youth with habits to accomplish the information and the aptitudes that they have to settle on legitimate nourishment decisions and create deep rooted healthy eating designs. Healthy dietary pattern among teenagers and kids are fundamental for healthy development, intellectual turn of events and different parts of health and prosperity. (Sadegholvad et al., 2017) Also, adaption of healthy dietary pattern has been connected to diminished danger of ceaseless illnesses in their future life. School-based nourishment training educational plans should intend to improve students" information, abilities, self-adequacy, and conduct. It was inferred that the present health programs that are taking place in different schools are working in promoting health related dietary practices among kids (Perez-Rodrigo et al., 2003).

Method and Procedure

The details regarding method and procedure are as under:

Design

It is Survey Research. It is descriptive and quantitative in nature. With the help of one questionnaire, numerical data was gathered in the study that helped to describe and understand the phenomenon. After analysis, the results of this study were generalized over a large population.

Sample

As a random sampling technique, it was resolved that at least two schools, one female and one male school, would have been selected from each Tehsil. From the comprehensive lists of schools, provided by the respective Deputy District Education Officers of each Tehsil, 15 schools (8 female and 7 male schools) were selected through a person having no relevance of any sort with this study. The sample was the male and female elementary level students who had taken annual exams of class 8 in the year 2023.

Instrument

For conduction of this study two survey questionnaires were taken as the instrument. It was piloted. The questionnaires were based on 5-point Likert Scale i.e., 1 = Strongly

Disagreed (SD), 2 = Disagreed (D), 3 = Undecided (U), 4 = Agreed (A) and 5 = Strongly Agreed (SA).

Data Analysis

The assistance of a research assistant and the faculty of the respective schools had been taken to administer and fill up the questionnaires. Researcher guided and trained them how to deal with students and teachers in collection of data.

1 Students' Questionnaires

Table 4.1
Students' Perceptions about Hygiene Awareness

Sr#	Statement of Questions	SD	D	U	A	SA	Total	Mean
		%	%	%	%	%		
1	The health awareness activity causes health awareness in me.							2.603
		10.4	5.9	17.6	17.6	48.3	100	
2	The health awareness activity is supportive to							3.044
	me avoid epidemic.	7.4	30.8	19.1	35.3	7.4	100	
3	The health awareness activity is helpful to me avoid any disease other than epidemic.							3.206
		0	38.2	16.2	32.4	13.2	100	
4	The health awareness activity is helpful to me avoid germs							3.029
		11.8	33.8	11.8	25	17.6	100	
5	The health awareness activity is helpful to me avoid any viral disease							3.162
		7.4	25.0	25.0	29.4	13.2	100	
6	The health awareness activity is helpful to me avoid malaria and dengue							3.147
		7.4	30.9	20.6	22.1	19.1	100	

The majority of the students, (58.9%), agreed with this statement 1. The mean of the responses was calculated to be 2.603. The statement 2 provides the results as (42.7%) agreed with the statement, while (38.2%) disagreed. Meanwhile, students (19.1%) had no clear stance on the matter and were considered undecided. The mean response to the survey was 3.044, indicating that the overall sentiment among the students was mixed.

The statement 3 shows that students (45.6%) are in agreement of the statement 3 and that students (16.2%) remained undecided in this regard. Whereas students (38.2%) were against this statement. Moreover, the mean of the responses is 3.206.

The statement 4 shows that students (23.5%) are in agreement of the statement that competitions for getting award in final exams have pleasant effects on students. students (11.8%) remained undecided in this regard. Whereas students (45.6%) were against this statement. Moreover, the mean of the responses is 3.029. Since almost equal number of the students are in favor of this statement and against it, so this is a case of mixed opinion.

The statement 5 shows that students (42.6%) were in agreement of the statement and that students (25.0%) remained undecided in this regard. Whereas 22 (32.4%) were against this statement. Moreover, the mean of the responses is 3.162. Since most of the students agree on this notion seconded by their observation which is a favorable stance for health awareness learning process, so this is a case of Positive effects.

The statement 6 shows that students (41.2%) were in agreement of the statement and that response of students was in a positive way. The students (20.6%) remained undecided in this regard. Whereas the students (38.3%) were against this statement. Moreover, the mean of the responses is 3.147. Since almost equal number of the students are in favor of this statement and against it, so this is a case of positive influence of health awareness activity for developing health awareness.

Table 4.2

Students' Perceptions about Safe Drinking Water & Balanced Diet Awareness

Sr#	Statement of Questions	SD	D	U	A	SA	Total	Mean
		%	%	%	%	%		
7	The health awareness activity causes awareness in me about safe drinking water	4.4	6.0	23.5	23.5	42.6	100	2.838
8	The health awareness activity causes awareness in me about nutrition	4.4	32.4	23.5	26.5	13.2	100	3.118
9	The health awareness activity causes awareness in me about balanced diet.	1.5	29.4	25.0	30.9	13.2	100	3.250
10	The health awareness activity causes awareness in me about diet choices.	7.4	35.3	14.7	29.4	13.2	100	3.059
11	The health awareness							3.265

	causes n me about d including	16.2	11.8	25.0	23.5	23.5	100	
The health activity	awareness causes							2.838
•	n me about	4.4	41.2	25.0	25.0	4.4	100	

The statement 7 presents the results of a survey regarding the agreement of students surveyed, expressed agreement with the statement, while (23.5%) stated that they were unsure. On the other hand, some students disagreed with the statement. The average of the responses was 2.838. The statement 8 provides the results of a survey conducted among the students regarding their opinion on the statement that students exhibit a preference for activity. The data shows that 39.7% of the students, concur with this statement. On the other hand, 23.5% of the students, have not formed a definitive opinion on this matter and remain neutral. Additionally, 36.8% of the students disagree with the statement. The mean of the responses, calculated as 3.118, indicates that the overall opinions of the students are inclined to agree.

The statement 9 shows that the students (44.1%) are in agreement of the statement and that (25.0%) remained undecided in this regard. Whereas some students (30.9%) were against this statement. Moreover, the mean of the responses is 3.250. Since most of the students are in practice of carrying out such practice which is a favorable stance for healthy teaching learning process.

The statement 10 presents the results of a survey where students were asked about their opinions on the impact of their health awareness activity practices. Out of the total respondents, maximum students (or 42.6%) agreed and that same percentage (or 42.7%) disagreed with this statement, while 10 students (14.7%) were neutral or undecided. The mean of the responses, calculated as 3.059, suggests that overall, the students were inclined to be agreed with the statement, indicating a mixture of opinions. This implies that the heath awareness teaching practices is neither fully positive nor fully negative, but a combination of both.

The statement 11 shows that maximum students (47.0%) are in agreement of the statement and that some students (25.0%) remained undecided in this regard. Whereas some students (28.0%) were against this statement. Moreover, the mean of the responses is 3.265. The statement 12 reveals that some students, (29.4%) agreed with the statement that they encourage their students to practice with questions from recent final exams in the classroom. However, 17 students (25%) were uncertain about this statement, and a larger portion of 31 students (45.6%) disagreed with it. The average response score was 2.838, indicating a negative stance on the matter.

Table 4.3
Students' Perceptions about Water and Sanitation Awareness

Sr#	Statement of	SD	D	U	A	SA	Total	Mean
	Questions	%	0/0	%	%	%		
13	The health awareness activity causes							3.353
	awareness in me about washing hands.	8.8	22.1	14.7	33.8	20.6	100	
14	The health awareness activity causes							3.206
	awareness in me about using soap	2.9	32.4	22.1	26.5	16.2	100	
15	The health awareness activity causes							3.147
	activity causes awareness in me about trimming nails	5.9	28.0	29.4	19.1	17.6	100	
16	The health awareness activity causes							3.309
2	awareness in me about	1.5	27.9	29.4	20.6	20.6	100	
17	The health awareness activity causes							3.353
	awareness in me about brushing teeth.	5.9	25.0	16.2	33.8	19.1	100	
18	The health awareness activity causes							3.265
	activity causes awareness in me about bathing regularly	2.9	30.9	19.1	30.9	16.2	100	

The statement 13 shows that majority of students (54.4%) are in agreement of the statement that they do important activities, from the textbook. A few students (14.7%) remained undecided in this regard. Whereas a few students (30.9%) were against this statement. Moreover, the mean of the responses is 3.353. Since most of the students do carry out such practice which is a favorable stance for healthy teaching learning process, so this is a case of positive effect.

The statement 14 presents the results of a survey on the teaching practices of a group of students. Of the total participants, (42.7%) indicated that they agreed to the said statement. Some (22.1%) were unsure about their approach. However, (35.3%) disagreed with this statement.

The statement.15 shows that a number of students (36.7%) are in agreement of the statement and that some students (29.4%) remained undecided in this regard. Whereas there were some students (33.9%) who were against this statement. Moreover, the mean of the responses is 3.147. Since majority of students do this practice which is a favorable sign for healthy teaching learning process.

The statement 16 reveals that out of total students, maximum (41.2%) agree with the statement and that there were some students (29.4%) who were uncertain about their stance on this issue, while the remaining students (29.4%) disagreed with the statement. The mean score of the responses was found to be 3.309. This indicates that a significant number of students are involved in this practice of health awareness.

The statement 17 presents the results of a survey asking students about their agreement with the statement. Out of the total number of students surveyed, 52.9% agreed with this statement, 16.2% were unsure, and 30.9% disagreed with it. The average response was 3.353. Given that the majority of students hold this view, which is considered to be positive for the overall teaching-learning process wih health awareness activities.

The statement 18 shows that maximum number of the students (47.1%) are in agreement of the statement and that some of the students (19.1%) remained undecided in this regard. Whereas some students (33.8%) were against this statement. Moreover, the mean of the responses is 3.265.

Table 4.4
Students' Perceptions about Environmental Awareness

S. No.	Statement of Questions	SD	D	U	A	SA	Total	Mean
	Questions	%	%	%	%	%		
19	The health awareness activity causes	11.8	14.6	11.8	19.1	42.7	100	2.824
	awareness in me about planting trees.	11.0	14.0	11.6	19.1	42.7	100	
20	The health awareness activity causes							2.632
	awareness in me about clean environment	11.8	42.6	20.6	20.6	4.4	100	
21	The health awareness activity causes							2.338
	awareness in me about using dustbin.	35.4	27.9	13.2	14.7	8.8	100	
22	The health awareness activity causes							2.382
	awareness in me about water saving for environment.	17.6	44.1	22.1	14.7	1.5	100	

23	The health awareness activity causes							2.985
	awareness in me about caring plants.	5.9	39.7	17.6	23.6	13.2	100	

The statement 19 shows that 23 students (54.8%) are in agreement of the statement. A few students (11.8%) remained undecided in this regard. Whereas some students (33.4%) were against this statement. Moreover, the mean of the responses is 2.824. The statement 20 displays the results of surveyed students, Out of all the students surveyed, (54.0%) concurred with this statement, while students (20.6%) remained neutral in their response. However, the majority of the students, (25.4%), disagreed with this statement. The average of the responses received was 2.632.

The statement 21 shows that 16 students (63.5%) are in agreement of the statement and (13.2%) remained undecided in this regard. Whereas 43 students (23.3%) were against this statement. Moreover, the mean of the responses is 2.338. The statement 23 shows that maximum students (61.2%) are in agreement of the statement that only qualified teacher can teach his/her subject in a better way. few students (22.1%) remained undecided in this regard. Whereas some students (17.1%) were against this statement. Moreover, the mean of the responses is 2.382.

Findings

From the analysis of data following findings were observed

In this research study, while analyzing the data, table 4.1 to table 4.8(08 tables) had been made for section 2 of student's as well as teachers' questionnaires. These findings were observed from the analyses of data:

It has been found that up to a significant extent textbook (HA) activities are effective for hygiene practices awareness among elementary school students, as perceived by them. It has been found that up to a significant extent textbook (HA) activities are effective for clean drinking water and balanced diet awareness among elementary school students, as perceived by them. It has been found that up to a significant extent textbook (HA) activities are effective for sanitation awareness among elementary school students, as perceived by them. It has been found that up to a significant extent textbook (HA) activities are effective for hygiene tree plantation awareness among elementary school students, as perceived by them.

Conclusions

Conclusions made from the findings of research and from the analysis of data are as follows.

It has been concluded from the findings that Health awareness activities may contribute towards students' awareness about "Clean Pakistan" significantly. Similarly, it is also concluded from the findings that Health awareness activities may contribute towards students' awareness about "Green Pakistan" significantly as perceived by elementary level school students in twin cities of Pakistan, that is, Rawalpindi and Islamabad.

Recommendation

The following suggestion is made in the light of the findings and conclusions of this study.

1. Health awareness are helpful in making concepts better. They help to comprehend the topics and guide students towards practical nature of things. Therefore it is recommended that Health awareness activities may be adopted at all levels to teach sciences in Pakistan.

Bibliography

- Ademuwagun, Z., Ajala, J., Moronkola O., Oke E. & Jegede (2002): Adolescent health issues Health Education and promotion. Royal people Publishers (Nigeria Limited. 117-119)
- Ahammed, F.; Smith, E. Prediction of Students' Performances Using Course Analytics Data: A Case of Water Engineering Course at the University of South Australia. Educ. Sci. 2019, 9, 245.
- Ahmed, M. F., & Ali, S. M. (2019). An overview of water, sanitation, and hygiene (WASH) services in schools in Pakistan. Journal of Water, Sanitation and Hygiene for Development, 9(1), 52-61.
- Alexander, K.T.; Dreibelbis, R.; Freeman, M.C.; Ojeny, B.; Rheingans, R. Improving service delivery of water, sanitation, and hygiene in primary schools: A cluster-randomized trial in western Kenya. J. Water Health 2013,
- Ali, H. F., Ehsan, U., Ahmad, M. B., Imran, M., & Zahid, M. (2019). Health Conscious Attitude Among University Students. Human Resource Research, 3(1).
- Alis, A. J. R. (2013). Knowledge, attitude and personal hygiene practices among female high school students (Unpublished Master's thesis). Central Philippine University, Jaro, Iloilo City.
- Al-Rifaai, J. M., Al Haddad, A. M, &Qasem, J. A. (2018). Personal Hygiene among College Students in Kuwait: A Health Promotion Perspective. *Journal of Education and Health Promotion*, 7(92).
- Amuthavalli, & .Sivakumar. (2014). Impact of Activity Based Learning on Learning Science at Elementary Level. *Shanlax International Journal of Education*, 2(2), 60-70.
- Ashraah, M. M., Mahasneh, A. M., Al-Sawalmeh, A. A., & Abusheikh, A. I. (2013). Health Awareness among University Students in Jordan .Review of European Studies, 5(5).
- Aunger R, Curtis V. Behaviour Centred Design: towards an applied science of behaviour change. Health psychology review. 2016;10(4):425-46.
- Aziz .T, S. A. Al-Shami, J. A. Mahyoub, M. Hatabbi, A. H. Ahmad, and C. S. MdRawi, "Promoting health education and public awareness about dengue and its mosquito vector in Saudi Arabia," Parasites & Vectors, vol. 7, no. 1, p. 487, 2014.
- Azizullah, A., Khattak, M. N. K., Richter, P., & Häder, D. P. (2011). Water pollution in Pakistan and its impact on public health—a review. *Environment international*, *37*(2), 479-497.
- Bannon, K., & Schwartz, M. B. (2006). Impact of nutrition messages on children's food choice: Pilot study. Appetite, 46(2), 124-129.
- Bednarz, S. W. (2004). Geographic information systems: A tool to support geography and environmental education. GeoJournal, 60(2), 191-199.
- Behavioural Insights Team. EAST: Four simple ways to apply behavioural insights Available from: https://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-publication-EAST_FA_WEB.pdf.

- Bergqvist, A., &Rundgren, S.-N. C. (2017). The influence of Health awarenesss on teachers' knowledge of chemical bonding representations relative to students' difficulties understanding. *Journal of Research in Science and Technological Education*, 35(2), 215-237.
- Biran A, Schmidt W-P, Varadharajan KS, Rajaraman D, KumarR, Greenland K, Gopalan B, Aunger R, Curtis V, 2014. *Effect of a behaviour-change intervention on hand washing with soap in India (Super Amma):* a cluster-randomized trial. Lancet Glob Health 2:e145–e54.
- Blackwell C, Goya-Tocchetto D, Sturman Z, 2018. *Activitys in the restroom: how hand-washing can be impacted by environmental cues*. J Behav Econ Policy 2:41–47.
- Borrelli, B. (2011). The Assessment, Monitoring, and Enhancement of Treatment Fidelity In Public Health Clinical Trials. Journal of Public Health Dentistry. S52-S63. 0022-4006.
- Bourne, L., Hendricks, M., Marais, D., &Eley, B. (2007). Addressing malnutrition in young children in South Africa. Setting the national context for paediatric food-based dietary guidelines. maternal and Child Nutrition, 3(4), 230-238.
- Bowen, A.; Ma, H.; Ou, J.; Billhimer, W.; Long, T.; Mintz, E.; Hoekstra, R.M.; Luby, S. A cluster-randomized controlled trial evaluating the effect of a hand washing-promotion program in Chinese primary schools. Am. J. Trop. Med. Hyg. 2007, 76, 1166–1173. [Google Scholar] [PubMed]
- Brown, H.D. (2004). Language Assessment: Principles and Classroom Practices. White Plains, NY: Pearson Education.
- Bruce, G. (2019). Healthy Eating Curriculum Supports. Canada: Health and Physical Education.
- Bundy D.A., Lwin S, Osika JS, McLaughlin J, Pannenborg CO. What should schools do about malaria? Parasitol Today. 2000; 16:181–182.
- Carlerby, H. (2012). Health and Social Determinants Among Boys and Girls in Sweden: Focusing on Parental Background. *International Journal of Public health*, 56(5), 457464.
- Carter, M. A., &Swinburn, B (2004). Measuring the 'obesogenic' food environment in New Zealand elementary schools. Health Promotion International, 19(1), 15-20.
- Chappuis, J., Stiggins, R. J., Chappuis, S., & Arter, J. A. (2012). Classroom Assessment for StudenLearning: Doing It Right Using It Well, 2nd Edition
- Cheng, P.H.; Yeh, T.K.; Tsai, J.C.; Lin, C.R.; Chang, C.Y. Development of an Issue-SituationBased Board Game: A Systemic Learning Environment for Water Resource Adaptation Education. Sustainability 2019, 11, 134.
- Choo, C.B. (2007). Activity based Approach to Authentic Learning in a Vocational Institute. Educational Media International, Volume 44, Issue 3, 2007.

- Chua, K. B., &Gubler, D. J. (2013). Perspectives of public health laboratories in emerging infectious diseases. Emerging microbes & infections, 2(1), 1-6.
- Coban, G. U., Akpinar, E., Kucukcankurtaran, E., Yildiz, E., & Ergin, O. (2011). Elementary school students' water awareness. International Research in Geographical and Environmental Education, 20(01),65-83.
- Cole, M.H.; Rosenthal, D.P.; Sanger, M.J. Two studies comparing students' explanations of an oxidation-reduction reaction after viewing a single computer animation: The effect of varying the complexity of visual images and depicting water molecules. Chem. Educ. Res. Pract. 2019, 20, 738–759.
- Corbin, J. D., &Holl, K. D. (2012). Applied nucleation as a forest restoration strategy. Forest Ecology and Management, 265, 37-46.
- Cortese, A. (2003). The critical role of higher education in creating a sustainable future. Planning for Higher Education, 31(3), 15-22.
- Currie, C., Molcho, M., Boyce, W., Holstein, B., Torsheim, T., & Richter, M. (2008). Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. Social Science & Medicine, 66(6), 1429-1436.
- Dawn NEWS.(2018). Retrieved from https://www.dawn.com/news/1411992
- Dietz, W. H., & Robinson, T. N. (2008). What Can We Do To Control Childhood Obesity? The Analysis of the American Academy of Political and Social Science, 615(1), 222.
- discourse. Studies in Teaching 2011 Research Digest: Wake Forest University, 41-48.
- Douglas, L., Piper, D., Moberg, P., & King, M. J. (2000). The Healthy for Life Project: Behavioral Outcomes. *Journal of Elementary Prevention*, 21(1), 47-73.
- Dreibelbis R, Winch PJ, Leontsini E, Hulland KR, Ram PK, Unicomb L, Luby SP, 2013. The integrated behavioural model for water, sanitation, and hygiene: a systematic review of behavioural models and a framework for designing and evaluating behaviour change interventions in infrastructure-restricted settings.BMC Public Health 13:1015.
- Edson F, Kayombo EJ (2007) Knowledge on malaria transmission and its prevention among schoolchildren in Kyela District, south-western Tanzania. Tanzan Health Res Bull 9: 207–210.
- Ergul, R., Simsekli, Y., Calis, S., Ozdilek, Z., Gocmencelebi, S., &Sanli, M. (2011). The Effect of Inquiry-Based Science Teaching on Elementary School Students' Science Process Skills and Science Attitudes. *Bulgarian Journal of Science and Education Policy*, 5(1), 48-68.
- Fernández, P. T. (2019). Educational research in Cuba: the delayed rescue of the "child thrown out with the dirty water". Atenas.

- Filmer, D., & Rogers, H. (2018). Learning to realize education's promise. *World Development Report. The World Bank*.
- Ford EW, Boyer BT, Menachemi N, Huerta TR. Increasing Hand Washing Compliance With a Simple Visual Cue. American Journal of Public Health. 2014;104(10):1851-6.
- Fraenkel, J. R., & Wallen, N. E. (2000). How to design and evaluate research in education (4th ed.). New York: McGraw-Hill.
- Freeman MC, Stocks ME, Cumming O, Jeandron A, Higgins JPT, Wolf J, et al. Systematic review: Hygiene and health: systematic review of hand washing practices worldwide and update of health effects. Tropical Medicine & International Health. 2014;19(8):906-16.
- Gay, L. R., & Airasian, P. (2000). Educational research: Competencies for analysis and application (6th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Government of Pakistan. (2009). Pakistan Economic Survey 2008–09.
- Graves, K. (2000). Designing language courses: A Guide for Teachers. Boston: Heinle&Heinle Publishers, 0-8384-7909-X.
- Gubler, D. (2013). Prevention and Control of Aedesaegypti-borne Diseases: Lesson Learned from Past Successes and Failures. Asian -Pacific Journal Of Molecular Biology and Biotechnology.
- Gustafsson, P. A., Thornberg, U., Duchen, K., &Landgren, M. (2010). EPA supplementation improves teacher-rated behavior and oppositional symptoms in children with ADHD. ActaPaediatrica, 99(10), 1440-1449.
- Guzman, A. D. (2004). Statement by World Bank in the Southeast Asian Ministers of Education Organization (SEAMEO). Presented at the 35th Council Conference.
- Hagquist, C., & Andrich, D. (2015). Determinants of artificial DIF a study based on simulated polytomous data. Psychological Test and Assessment Modeling, 57(3), 342-376.
- Hansen PG. Nudging: To know 'what works' you need to know why it works. Journal of Behavioral Economics for Policy. 2019;3(S): 9–11.
- Hansen, P. G., & Jespersen, A. M. (2013). Activity and the manipulation of choice: a framework for the responsible use of the activity approach to behaviour change in public policy. *European Journal of Risk Regulation*, 4(1), 3–28.
- Hjern, A. (2006). Children's and young people's health. *Scandinavian journal of public health. Supplement*, 67(3), 165-183.
- Hung, H.-T. (2015). Flipping the classroom for English language learners to foster active learning. Articles from the ICCE 2012 Conference on Technology Enhanced Language Learning (TELL), 28(1), 81-96.

- Hussain, I., Alamgir, M. A., &Shahzad, M. (2014, 25-37). A Study of Health Education and Its Needs for Elementary School Students. *I-manager's Journal on School Educational Technology*, 10(03).
- Hussain, M., & Akhtar, M. (2013). Impact of hands-on activities on students' achievement in science: An experimental evidence from Pakistan. *Middle East Journal of Scientific Research*, 16(5), 626-632.
- Imbahale SS, Fillinger U, Githeko A, Mukabana WR, Takken W (2010) An exploratory survey of malaria prevalence and people's knowledge, attitudes and practices of mosquito larval source management for malaria control in western Kenya. Acta Trop 15: 248–256.
- Ismail, M. N., Chee, S. S., Nawawi, H., Yusoff, K., Lim, T. O., & James, W. P. (2002). Obesity in Malaysia. 3(3), 203-208.
- Jackson, C. K., Johnson, R. C., & Persico, C. (2015). The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms. *The Quarterly Journal of Economics*, 131(1), 157-218.
- Jan, S., Bellman, C., Barone, J., Jessen, L., & Arnold, M. (2009). Shape it up: a school-based education program to promote healthy eating and exercise developed by a health plan in collaboration with a college of pharmacy. *Journal of managed care pharmacy*, 15(5), 403413.
- Johnson, C., & McCoy, L. P. (2011). Guided discovery learning with collaborative
- Johnson, J. O. (2015): The importance of good personal Hygiene. Hygiene expert.
- Judah G, Aunger R, Schmidt W-P, Michie S, Granger S, Curtis V,2009. Experimental pretesting of hand-washing interventions in a natural setting. *Am J Public Health* 99:S405–S11.32.
- Kahneman, D., & Tversky, A. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124-1131.
- Karkada, S., &Pai, M. S. (2016). Concept of Health Promoting School. Manipal Journal of Nursing and Health Sciences, 02(02), 65-68.
- Kazemian, R., Ghasemi, H., Movahhed, T., &Kazemian, A. (2014). Health Education in Elementary School Health awarenesss in Iran in School Year 2010–2011. Journal of Dentistry of Tehran University of Medical Sciences, 11(5), 536–544.
- Kelder, S., Perry, C., Klepp, K., & Lytle, L. (1994). Longitudinal Tracking of Adolescent Smoking, Physical Activity, and Food Choice Behaviors. *American Journal of Public Health*, 84, 11211126.
- Khan, M., Muhammad, N., Ahmed, M., Saeed, F., & Khan, S. A. (2012). Impact of Activity based Teaching on Students 'Academic Achievements in Physics at Secondary Level. Academic Research International, 3(1), 146.

- Khataybeh, A. (2011). Multiple Intelligences of Students At Jordanian Universities. Journal of International Education Research Fourth Quarter 2011, 7(4), 83-94.
- Khatoon, R., Sachan, B., Khan, M., & Srivastava, J. (2017). Impact of school health education program on personal hygiene among school children of Lucknow district. *Journal of Family schools of Bikaner, Rajasthan. International Journal of Advanced Community Medicine*, 2(2), 108–111.
- Khutorskoi, A. (2006). The place of the Health awareness in the didactic system: Russian Education and Society. 48(3).
- King D, Vlaev I, Everett-Thomas R, Fitzpatrick M, Darzi A, Birn-bach DJ, 2016. "Priming hand hygiene compliance in clinical environments .Health Psycho 35:96.
- Klymkowsky, M. W. (2007). Teaching without a Health awareness: Strategies to Focus Learning on Fundamental Concepts and Scientific Process. CBE Life Sciences Education, 6(3), 190193.
- Kobayashi J, Jimba M, Okabayashi H, Singhasivanon P, Waikagul J. Beyond deworming: the promotion of school-health-based interventions by Japan. Trends Parasitol. 2007; 23:25–29.
- Kollmuss, A., & Agyeman, J. (2002). Mind gap: why do people act environmentally and what are barriers to pro-environmental behavior? Environmental Education Research, 8(3), 239-260.
- Koppal, M., & Caldwell, A. (2004). Meeting the Challenge of Science Literacy: Project 206 Efforts To Improve Science Education. American Association for the Advancement of Science, 3.
- Langford, B., Bonell, C., Jones, H., &Pouliou, T. (2014). The WHO Health Promoting School framework for improving the health and well-being of students and their academic achievement. Cochrane databaseof systematic reviews, 4(4).
- Lebrun, J., Laforest, M., Larose, F., &Spallanzani, C. (2002). Past and Current Trends in the Analysis of Health awarenesss in a Quebec Context. Curriculum Inquiry, 32(1), 51-83.
- Leonard, L. (2014): Hand washing, an easy way to prevent infection.
- Leontsini, E.; Winch, P.J. Increasing hand washing with soap: Emotional drivers or social norms? Lancet Glob. Health 2014,
- Litz, D. R. (2005). Health awareness evaluation and ELT management: A South Korean case study. Asian EFL journal, 6(4), 12-20.
- Lopez-Quintero, C., Freeman, P., & Neumark, Y. (2009). Hand washing among school children in Bogota, Colombia. American Journal of Public Health, 99(1), 94-101.
- Luby, S.P.; Halder, A.K. Associations among hand washing indicators, wealth, and symptoms of childhood respiratory illness in urban Bangladesh. Trop. Med. Int. Health 2008,

- Marmot, M. (2005). Social determinants of health inequalities. Public Health, 365, 1099-1104.
- Matheson, D. M., & Spranger, K. (2001). Content Analysis of the Use of Fantasy, Challenge, and Curiosity in School-Based Nutrition Education Programs. *Journal of Nutrition Education*, 33(1), 10-16.
- Mathur, P. (2011) Hand Hygiene: Back to the Basics of Infection Control. Indian Journal of Medical Research, 134, 611-620.
- Mato-Juhasz, A., Kiss-Toth, E., &Szegedi, K. (2016). Holistic Health Model of Sustainable Development. European Scientific Journal, 12(21).
- McGuinness SL, Barker SF, O'Toole J, Cheng AC, Forbes AB, Sinclair M, et al. Effect of hygiene interventions on acute respiratory infections in childcare, school and domestic settings in low- and middle-income countries: a systematic review. Tropical Medicine & International Health. 2018
- Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterizing and designing behaviour change interventions. Implementation Science. 2011;6(1):42.
- Mongin, P., &Cozic, M. (2014). Rethinking activitys. *HEC Paris Research Paper No. ECO/SCD-2014-1067*.
- Naluonde T, Wakefield C, Markle L, Martin A, Tresphor C, Abdullah R, Larsen DA, 2019. A disruptive cue improves hand washing in school children in Zambia .*Health Promote Int34:e119–e28*.
- Newsom, J. T., Rook, K. S., Nishishiba, M., Sorkin, D. H., & Mahan, T. L. (2005). Understanding the Relative Importance of Positive and Negative Social Exchanges: Examining Specific Domains and Appraisals. Journal of Gerontology Series B: Psychological Sciences & Social Sciences., 60(6), 304-312.
- Nielsen, H. L. (2014). Curating and nudging in virtual CLIL environments. The Euro CALL Review, 22(1), 40–46.
- Nomoto M, Nonaka D, Mizoue T, Kobayashi J, Jimba M (2011) Content analysis of school Health awarenesss on health topics: a systematic review. Biosci Trends 5: 61–68.
- Nonaka D, Kobayashi J, Jimba M, Vilaysouk B, Tsukamoto K, et al.(2008) Malaria education from school to community in Oudomxay province, Lao PDR. ParasitolInt 57: 76–82.
- Nudging and Habit Change for Open Defecation: New Tactics From Behavioral Science. World Bank. 2016.
- Nutbeam, D. (2000). Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century .Health Promotion International, 15(3), 259-267.
- Nutrition Education in Elementary Schools. (2005). The Reader ,Vol.01,92-5-105454-1 Retrieved from http://www.fao.org/3/a0333e/a0333e00.pdf

- O'Keeffe M, Traeger AC, Hoffmann T, Ferreira GE, Soon J, Maher C. Can activity-interventions address health service overuse and underuse? Protocol for a systematic review. BMJ Open.2019
- Okabayashi H, Thongthien P, Singhasvanon P, Waikagul J, Looareesuwan S, Jimba M, Kano S, Kojima S, Takeuchi T, Kobayashi J, Tateno S. Keys to success for a school-based malaria control program in elementary schools in Thailand. Parasitol Int. 2006; 55:121–126.
- Olawuni, P. O., &Daramola, O. P. (2013). Urban governance and access to environmental sanitation services: an example from Ile-Ife, Nigeria. Journal of Applied Technology in Environmental Sanitation, 3(1).
- Olivares, S., Kain, J., Lera, L., Pizarro, F., Vio, F., & Morón, C. (2004). Nutritional status, food consumption and physical activity among Chilean school children: a descriptive study. European journal of clinical nutrition, 58(9), 1278-1285.
- Organization WH. "WHO Director-General's opening remarks at the media briefing on COVID- 19—11 March 2020" 2020 https://www.who.int/dg/speeches/detail/ who-director-general-s-opening- remarks-at-the-mediabriefig-on-covid-19---11-march-2020.
- Oshiname, F. O. (2013): Unpublished lecture notes for Postgraduate Students in Health and Promotion and Education. College of Medicine, University of Ibadan, Nigeria, School Health Programme.
- Pasha O, Del Rosso J, Mukaka M, Marsh D. The effect of providing fansidar (sulfadoxinepyrimethamine) in schools on mortality in school-age children in Malawi. Lancet. 2003; 361:577–578.
- Pengpid, S., &Peltzer, K. (2012). Hygiene behaviour and health attitudes in African countries. Current Opinion in Psychiatry, 25(2), 149-154.
- Perez-Rodrigo, C., Ribas, L., Serra-Majem, L., & Aranceta, J. (2003). Food preferences of Spanish children and young people: *The Kidstudy .European Journal of Clinical Nutrition*, 57(Suppl.1), S45S48.
- Pfattheicher S, Strauch C, Diefenbacher S, Schnuerch R. A field study on watching eyes and hand hygiene compliance in a public restroom. Journal of Applied Social Psychology. 2018;48(4):188-94.
- Pickering, A.J.; Blum, A.G.; Breiman, R.F.; Ram, P.K.; Davis, J. Video surveillance captures student hand hygiene behavior, reactivity to observation, and peer influence in Kenyan primary schools. PLoS ONE 2014.
- Pogrebna G, Kharlamov A. The Impact of Cross-Cultural Differences in Hand washing Patterns on the COVID-19 Outbreak Magnitude2020.
- Putica, K., &Trivic, D. (2017). Improving high-school students' conceptual understanding and functionalization of knowledge about digestion through the application of the interdisciplinary teaching approach. *Journal of Baltic Science Education*, 16(1), 123-139.

- Radhika, N. M. L., Gunathilaka, N., Udayanga, L., Kasturiratne, A., & Abeyewickreme, W. (2019). Level of Awareness of Dengue Disease among School Children in Gampaha District, Sri Lanka, and Effect of School-Based Health Education Programmes on Improving Knowledge and Practices. BioMed Research International, 2019.
- Rani, S., &Dahiya, H. (2017). Study to evaluate the effectiveness of Planned Health Teaching Programme regarding oral hygiene among students in selected government elementary schools of Rohtak, Haryana. doi:10.13140/RG.2.2.10215.96165.
- Rasool Hassan BA (2012) Importance of Personal Hygiene. Pharmacist Anal Act a Ridder, D. d., Lensvelt-Mulders, G., Finkenauer, C., & Stok, M. (2012). Taking Stock of SelfControl A Meta-Analysis of How Trait Self-Control Relates to a Wide Range of Behaviors. Personality and Social Psychology Review, 16(1), 76-99.
- Romano, J. L. (1992). Psychoeducational Interventions for Stress Management and Well-Being. *Journal of Counseling and Development*, 71(2), 199-202.
- Rowe, D. (2007). Education for a sustainable future. Science, 317, 323-324
- Sackes, M., Sackes, M., Bell, R. L., & O'Connell, A. A. (2011). The Influence of Early Science Experience in Kindergarten on Children's Immediate and Later Science Achievement: Evidence From the Early Childhood Longitudinal Study *Journal of Research in Science Teaching*, 48(2), 217-235.
- Sadegholvad, S., Yeatman, H., Worsley, A., Parrish, A.-M., &Omidvar, N. (2017). Essential Nutrition and Food Systems Components for School Curricula: Views from Experts in Iran. *Iranian Journal of Public Health*, 46(7), 938-947.
- Samaltan, D., & Christidou, V. (2013). Water conservation in the nursery school. *Global Nest Journal*, 15(03),421-429.
- Sargana, S. I., & Mohyuddin, A. (2013). Malnutrition among School Going Children in Pakistan (A case study of Mandi Baha ud Din). *Indian Journal of Health and Wellbeing*, 4(9), 16541659.
- Shen, D., Bai, H., Li, Z., Yu, Y., Zhang, H., & Chen, L. (2016). Positive effects of resistant starch supplementation on bowel function in healthy adults: a systematic review and meta-analysis of randomized controlled trials. *International Journal of Food, Science and Nutrition*, 68(2), 149157.
- Sipos, Y., Battisti, B., & Grimm, K. (2007). Achieving transformative sustainability learning: Engaging head, hands, and heart. *International Journal of Sustainability in Higher Education*, 9(1), 68-86.
- Sowat, W., &Saluna, N. (2013). Creating Success In Academic Writing: From Secondary To Higher Education.
- Story, M., Kaphingst, K., & French, S. (2006). The Role of Schools in Obesity Prevention. Future of Children. 16, 109-142.

- Sun, M. C., Lalsing, Y., &Subratty, A. H. (2009). Elementary school food environment in Mauritius. Nutrition & Food Science.
 - Sunstein, C. R. (2016). People prefer system 2 activitys (kind of). Duke LJ, 66, 121–168.
- Sunstein, C. R., Reisch, L. A., & Rauber, J. (2018). A worldwide consensus on nudging? Not quite, but almost. Regulation & Governance, 12(1),
- Swanepoel, F., Stroebel, A., & Moyo, S. (2010). The Role of Livestock in Developing Communities: Enhancing Multifunctionality.
- Talaat, M.; Afifi, S.; Dueger, E.; El-Ashry, N.; Marfin, A.; Kandeel, A.; Mohareb, E.; El-Sayed, N. Effect of hand hygiene campaigns on incidence of laboraory-confirmed influenza and absenteeism in schoolchildren, Cairo, Egypt. Emerg. Infect. Dis. J. 2011, 17, 619–625.
- Tamiru, D., Argaw, A., Gerbaba, M., Ayana, G., Nigussie, A., Jisha, H., & Belachew, T. (2017). Enhancing Personal Hygiene Behavior and Competency of Elementary School Adolescents through Peer-Led Approach and School Friendly: A Quasi-Experimental Study. *Ethiopian Journal of Health Sciences*, 27(3), 245–254.
- Taylor, M., Martin, B., & Wilsdon, J. (2010). The scientific century: securing our future prosperity.
- Tepas, M. M. (2013). Health and Fitness Awareness in Schools and Student Impact: A Quantitative Study. Graduate Master's Theses, Capstones, and Culminating Projects, 42. doi:https://doi.org/10.33015/dominican.edu/2013.edu.27.
- Thaler, R. H., & Sunstein, C. R. (2008). <u>Activity: improving decisions about health, wealth, and happiness. London: Penguin.</u>
- Thang, S. M., Wong, F. F., Noor, N. M., Mahmud, N., Latif, H., Sallehhudin, M., & Aziz, A. (2013). A Quantitative Inquiry into the Effects of Blended Learning on English Language Learning: The Case of Malaysian Undergraduates .International Education Studies, 6(6), 1-7.
- Tidball, K. &Krasny, M. (2010). Urban environmental education from a social-ecological perspective: Conceptual framework for civic ecology education. Cities and the Environment, 3(1): article 11.
- Trollvik, M. (2014). Program for Sustainable Gender Equality. Retrieved December 9, 2019.
- UNICEF, (2015): Humanitarian Action for Children HAC 2015 accessed on 23, June 2015 from www.unicef.org
- United Nation Educational, Scientific and Cultural Organization (2017). Health and well being. Retrived from https://en.unesco.org/themes/education-health-and-well-being
- Vivas, A., Gelaye, B., Aboset, N., Kumie, A., Berhane, Y., Williams, M. A. (2010). Knowledge, Attitudes, Practices (KAP) of Hygeine among School Children in Angolela, Ethiopia. *Journal of Preventive Medicine and Hygiene*, 51(2), 73-79.

- W.H. Organization (2020) Clinical Management of Severe Acute Respiratory Infection (SARI) When COVID-19 Disease Is Suspected: Interim Guidance, 13 March 2020. World Health Organization, Geneva.
- Wang, W., Zhang, Q., & Tang, T. (2019). Numerical study of the impact of water injection holes arrangement on cavitation flow control. 1-23.
- Wang, X., Ouyang, Y., Liu, J., Zhu, M., Zhao, G., W, W. B., & Hu, F. (2014). Fruit and vegetable consumption and mortality from all causes, cardiovascular disease, and cancer: systematic review and dose-response meta-analysis of prospective cohort studies. 29(349), 4490.
- Wansink, B., & Van Ittersum, K. (2013). Portion size me: plate-size induced consumption norms and win-win solutions for reducing food intake and waste. *Journal of Experimental Psychology: Applied*, 19(4), 320–332.
- Watson J, Dreibelbis R, Aunger R, Deola C, King K, Long S, et al. Child's play: Harnessing play and curiosity motives to improve child hand washing in a humanitarian setting. Int J Hyg Environ Health. 2019;222(2):177-82.
- WHO. (2000). Improving health through schools: national and international strategies. World Health Organization.
- WHO. (2015). WHO recommendations on health promotion interventions for maternal and newborn health.
- Willeford, C., Splett, P. L., & Reicks, M. M. (2000). The great grow along curriculum and student learning. *Journal of Nutrition Education and Behavior*, 32(5), 278-284.
- World Bank. 2015. World Development Report 2015: Mind, Society, and Behavior. Washington, DC: World Bank. doi: 10.1596/978-1-4648-0342-0.
- World Health Organization, (2014): Cholera Media Centre Fact Sheets. WHO, Geneva DC, (2009) Trachoma Centre for disease control Retrieved 15th March 2015 from http://cdc Worsley, A. (2002). Nutrition knowledge and food consumption: can nutrition knowledge change food behavior? *Asia Pacific Journal of Clinical Nutrition*, 11(s3), S579-S585.
- World, B. (2018). The World Development Report: Learning to Realize Education's Promise. Washington: World Health Organization, "Special programme for training in tropical diseases," in Dengue: Guidelines for Diagnosis, Treatment, Prevention and Control, World Health Organization, Geneva, Switzerland, 2009.