

Identifying barriers to implementation of health promoting schools in Pakistan: The use of qualitative content analysis and fuzzy analytic hierarchy process

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ABSTRACT

Acknowledging government's failure to implement health promotion approach in Pakistani schools, and recognizing the need for research in this area, this study was initiated with the purpose of providing exploratory insights into the barriers that are hindering implementation of health promoting schools. Both qualitative and quantitative techniques were used. Qualitative study involved interviews and content analysis. Quantitative analysis used multi-criteria decision-making (MCDM) method, called as Fuzzy AHP. Ten important barriers were identified in qualitative analysis. The quantitative analysis identified five most important barriers; little infrastructure, poor behavior of community, lack of govt. support, lack of health promotion skills, and lack of legislation and policy. Although the results of this research are promising for targeting some specific barriers to HPS, how these barriers can be overcome is less clear. Future researchers can approach the experts for identifying possible solutions to these problems. This research informs that any effort towards implementation of health promoting schools in Pakistan will require contemplating barriers identified in this research. This research contributes to school health promotion literature by identifying possible variables which can impede the implementation of HPS approach. Moreover, the application of Fuzzy AHP technique provides sophistication in determining the relative importance of barriers to health promoting schools.

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1. Introduction

Children's health is an important source of human capital accumulation and economic growth in a country. Unhealthy children remain unable to achieve good nurturing environment which negatively affects their cognitive performance and productivity (Shaw et al., 2015). Unfortunately, millions of world's children are living under poor health conditions which can be precluded through less expensive health promotion initiatives (Ehiri, 2009).

International organizations such as World Health Organization, United Nations International Children's Emergency Fund (UNICEF), and United Nations Educational, Scientific and Cultural Organization (UNESCO) have recognized that schools can help in promoting children's health and well-

being. Health is shaped by the context in which [individuals] find themselves, where not only the physical environment but the surrounding ethos and relationships can support, or indeed undermine, health. Schools are the place where children spend a lot of their time while working and learning together, and thereby provide context for promoting or undermining health. Healthy habits and behaviors developed under school settings augment lifecycle inertia of healthy practices that accelerate the community's health (Agmon et al., 2015).

Given the importance of schools as suitable settings for health promotion, World Health Organization's (WHO) global health initiative seeks to create and increase the number of health promoting schools (HPSs). Health promoting schools focus on health related curriculum (social skills, essential knowledge and physical health), safe and hygiene physical environment, and interaction between community and school (Deschesnes et al., 2003).

In Pakistan, the situation of school health promotion is very discouraging. Previously, some initiatives were taken by local and international

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organizations but still health promotion is strongly lacking in Pakistani schools. According to a document published by the Ministry of Education's Curriculum Wing in collaboration with United Nations' Educational, Scientific and Cultural Organization, school health services during 1970's and School Health Program in 1980's were the part of health service delivery in Pakistan, but remained unsuccessful in their implementation. The document further highlights the need for launching school health promotion in Pakistan.

Recently Punjab Health Sector Reforms Program (PHSRP) and some other programs like School Health Program by National Commission for Human Development (NCHD) are in progress but these programs are limited in nature, and remain unable to promote a large scale adoption of health promotion in Pakistani schools (Arif, 2015). Pakistan was also the signatory of Beard and Redmond (1979) of World Health Organization, but failed to reach the slogan 'Health for all by the year 2000'. So, the question arises; why despite many initiatives, school health promotion remained unsuccessful in Pakistan?

This question draws our attention toward understanding roadblocks in the way of implementing health promoting schools in Pakistan. In order for health promotion initiatives to be adopted in maximum school settings in Pakistan, there is a need to investigate those factors which are hindering the implementation of these initiatives (Prasla and Prasla, 2011; Arif, 2015). It is important because no health initiatives can be successful until the maximum number barriers are understood and removed. Unfortunately, not even a single study systematically highlights the issues related to successful implementation of health promoting schools in Pakistan.

The purpose of this research was to identify barriers to the implementation of health promoting schools in Pakistan. In order to identify these barriers, a qualitative, interview-based, content analysis was performed. Although content analysis helps in identifying context specific factors through expert interviews, it lacks a structured methodology to identify relative importance of each factor. Knowing relative importance is essential, especially, in the contexts where resources are scarce, and interventions need to be focused on the most important issues. It requires a more robust and systematic evaluation of the barriers identified in content analysis.

In order to prioritize (or rank out) the barriers identified in qualitative analysis, we used multi-criteria decision-making (MCDM) method, called as Fuzzy analytic hierarchy process (AHP) or Fuzzy AHP. This method provides solution to ranking problems in various fields of study (Mon et al., 1994). This research is first in its type for combining content analysis with a sophisticated quantitative data analysis tool, Fuzzy AHP. In this study, Fuzzy AHP has been used for determining the weights for the barriers identified in qualitative content analysis.

2. Material and method

Globally, there is no single model for the implementation of school health promotion in every context (Prasla and Prasla, 2011). As a result, there was a need for conducting research at regional level so that the issues related to the local context could be highlighted. So, this research remained focused on Multan region of the province of Punjab.

The participants of this research were professionals in district health office, education department, schools, district administration, healthcare organizations especially those focused on children's health, social welfare department, and NGO's and other national and international organizations working in relevant field. Purposive sampling was used for this study. Purposive sampling is a non-probability technique which focuses on researcher's judgment for selecting subjects under investigation. This research focused people, from above mentioned organization, with some knowledge and understanding of the issue under investigation. The organizations were also selected purposively under the criterion of their potential link with school health promotion. After a great effort to identify and access study participants, a total of 43 key informants participated in qualitative interviews and quantitative analysis; 14 Officers from district health office, including school health and nutrition officers (33%), 6 medical officers from different healthcare organizations, including children complex (14%), 5 officers from district education office (12%), 13 people from school administration and teaching staff from 8 different schools (30%), 2 officers from social welfare department (5%), 2 representatives of district administration (5%), 1 manager of an NGO (2%). However, 2 participants from district health office, 1 medical officer, and 1 officer from education department were unable to participate in second survey which was conducted for the ranking of barriers identified in content analysis. So, the number of participants in ranking survey was 39.

2.1. Qualitative analysis: Expert interviews

Meetings with the key informants were organized, and their availability was assured before visiting them. It took about 40 minutes, on average, interviewing each participant. The major questions we asked each participant was; "what are major barriers to the implementation of health promoting schools in Pakistan?" The participants were informed about the concept of HPS and its implementation. The interviewing researcher was expert in subject matter, and performed dual job during interviews i.e., conducted interviews as interviewer and took important notes of interview. During each interview, the interviewer used his knowledge of HPS literature to generate and facilitate discussion, and added discussion where necessary. After each interview, the key points of discussion were summarized on a paper, and shared

verbally with each participant. It helped to include in the summarized interviews any final ideas of the participants. The process of initial data collection took about four months. A content analysis was performed after collecting data. In order to conduct content analysis, the summarized interviews were transcribed by an independent transcriber. Accuracy was assured by comparing transcribed notes with summarized interviews.

2.1.1. Content analysis

A computer based content analysis was performed by using qualitative data analysis tool Atlas.ti. The transcribed interviews were inserted into Atlas.ti for examining the themes appearing in data. In order to develop precise categories, the requirements of the objectivity of analysis were fulfilled by using a three step process from existing literature (Pullig et al., 2002). Step one focused on

identifying some general themes relevant to barriers. The categories were defined by applying single word descriptors obtained from the data. All possible distinctive interpretations were encapsulated before establishing each category. This step was important to establish the correctness of interview questions for obtaining themes. Step two centered on testing the consistency and objectivity of categories through sample judgment process. Taking insights from (Pullig et al., 2002), pretesting of method was also performed for checking reliability of coding process (Pullig et al., 2002). In this regard a random number generator was used to obtain four samples of responses created in interviews. Built on the derived general themes, two independent researchers (judges) defined a number of words explaining each category. Table 1 shows the final categories of barriers and their analogous definitions.

Table 1: Categories of major barriers to the implementation of health promoting schools

Barriers categories	Definition
Lack of leadership and vision	Lack of leadership lack of vision direction governance
Poor behavior of community	Poor behavior awful attitude inadequate orientation inferior inclination
Little Infrastructure	Little Infrastructure health facilities play grounds buildings
Poor Monitoring	Poor Monitoring little surveillance no evaluation little observation
Poor Economic conditions	Poorness reduced circumstances meagerness scant means
Lack of school's interest	Lack of school's interest lack of consideration pay little attention
Lack of government support	Lack of government support Little attention little funding low priority
Lack of inter-sector collaboration	Lack of collaboration lack of joint effort lack of teamwork little connections
Lack of health promotion skills	Lack of skills inadequate know-how little professionalism less capable
Lack of a solid legislation and policy	Lack of legislation absence of policy inexistent procedures no law

The symbol “|” shows either term “or”. The categories of definitional words were determined by taking into account all possible variations in these words. For example, collaboration, collaborate, collaborated and collaborating were all categorized into the collaboration category.

Finally, each final category was put into Atlas.ti software. Wildcards were used for category search. We used wildcards by utilizing the definitions list assembled by the judges. When categories are searched with the use of wildcards, a search expression such as “awareness | understanding | knowledge | sensibility” finds all paragraphs with these words. The out-turn of this research process are quotations (also called category hits). These quotations indicate the paragraphs linked to a distinct category. Quotations were reviewed on the basis of these paragraphs. This process helped judges to identify unrelated categories, and improved the reliability of analysis (Pullig et al., 2002). In order to avoid misplacement of quotations the results were once again reviewed. Six misplaced quotations were found, and placed in appropriate category.

2.1.2. Results of content analysis

Ten categories of barriers were used for software based content analysis. As already mentioned, the main question for interviews was; what are major

barriers to the implementation of health promoting schools in Pakistan? The analysis found 218 quotations (hits) for the categories of question related to barriers. Table 2 shows that ‘poor behavior of community’ was discussed the most (12.8%), while ‘poor monitoring’ was considered the least (7.3%). The hit closer to ‘poor behavior of community’ was ‘little infrastructure’ (12.4%). The proximate hits are ‘Lack of solid legislation and policy’ (11.5%), ‘Lack of government support’ (11.5%), ‘Lack of school's interest’ (10.1%), ‘Lack of health promotion skills’ (9.6%), ‘Lack of leadership and vision’ (8.7%), ‘Poor economic conditions’ (8.3%), and ‘Lack of inter-sector collaboration’ (7.8%).

2.2. Quantitative analysis

After the completion of expert interviews and content analysis, a questionnaire was developed to rank out the relative importance of barriers. We approached the same key informants who participated in qualitative interviews, and requested them to rank out relative importance of barriers enlisted in the questionnaire. In this questionnaire each barrier was randomly assigned a code (BAR1, BAR2 BAR10). Appendix A shows the survey questionnaire. The participants assessed ten barriers and ranked each factor relative its effect on the implementation of health promoting schools in

Pakistan. The results of quantitative analysis have been shown in Table 4.

Table 2: Frequencies of codes for barriers (in number and percentage)

Barriers categories	Total hits(raw)	Total hits per question(relative %)
What are major barriers to the implementation of health promoting schools in Pakistan?		
Lack of solid legislation and policy	25	11.5
Poor behavior of community	28	12.8
Little Infrastructure	27	12.4
Poor Monitoring	16	7.3
Lack of government support	25	11.5
Lack of leadership and vision	19	8.7
Lack of health promotion skills	21	9.6
Lack of inter-sector collaboration	17	7.8
Poor economic conditions	18	8.3
Lack of school's interest	22	10.1
Total	218	100

This section proposes a methodology for prioritization of barriers. The methodology consists of three main stages as given in Fig. 2. The first step requires a comprehensive hierarchy of all the barriers which related with HPS. This is done by thoroughly studying the considered chain and identifying potential loopholes. These are then analyzed for overlaps and categorized using similar characteristics. This exercise should be repeated whenever a major change is made in the chain. The second step in the process involves assigning weights to the criteria according to their importance. Fuzzy AHP is used for this purpose and expert views are taken as input. The third step involves determining the scores of different criterion by analyzing them under ten different barriers. Finally, comparison of results and managerial implications has been discussed.

2.2.1. Fuzzy analytical hierarchy process

There are many multi-criteria decision-making (MCDM) methodologies but the analytical hierarchy process (AHP) has more interest due to its accuracy and effectiveness to conduct the accurate results, AHP method firstly discussed by Saaty (1980). It is a measurement theory assisted by pairwise comparisons based on replies from experts (Anuar et al., 2013). The AHP skillfully assists both decision makers and managers through its decomposition, comparative judgment, and synthesis of priorities (Borade et al., 2013). In addition, Dyer and Forman proposed several advantages, as follows (Dyer and Forman, 1992): (I) AHP can solve the problems that have tangible, intangible, individual, and shared values; (II) it can assist decision makers in focusing on objectives rather than on alternatives; and (III) it allows for every factor to be considered in turn because it divides each problem into its own structural hierarchy (Dey and Cheffi, 2013). Accompanying these substantial impacts, decision-making aided by AHP likely increases a firm's reasonableness and comprehensiveness (Chen, 2000).

The AHP method is a useful MCDM tool, but one must recognize that it relies on judgments made by humans; as such, these judgments frequently have a

high level of vagueness and uncertainty. To reduce the degree of uncertainty, Chang developed a system that introduces triangular fuzzy numbers as a means to reduce uncertainty factors and to increase the level of accuracy (Chang, 1996). Generally, fuzzy numbers utilize three numbers a_1 , a_2 , and a_3 as shown in Fig. 1. Many studies have successfully applied this fuzzy integration into their methodology due to its greater reliability, and this study also integrates the fuzzy theory into the AHP approach (Haq and Kannan, 2006).

The fuzzy AHP methodology extends Saaty's AHP by combining it with fuzzy set theory. In fuzzy AHP, fuzzy ratio scales are used to indicate the relative strength of the factors in the corresponding criteria. Therefore, a fuzzy judgment matrix can be constructed. The final scores of alternatives are also represented by fuzzy numbers. The optimum alternative is obtained by ranking the fuzzy numbers using special algebraic operators. In this methodology, all elements in the judgment matrix and weight vectors are represented by triangular fuzzy numbers.

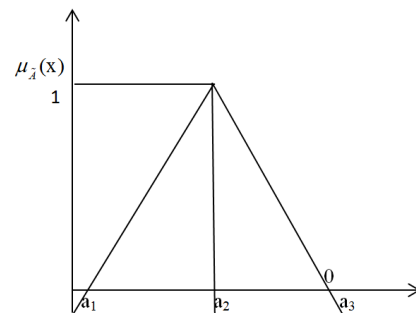


Fig. 1: Triangular fuzzy number

- Step 1: Identification of attributes: In this step the Fuzzy AHP is to identify the common attributes of the given problem. Importance should be addressed towards precision and reliability of the given attributes, because the study depends on these attributes while the misconception of these attributes leads to a failure of the research model.
- Step 2: Pairwise comparisons under fuzzy environment: Once the attributes related to the problem are clearly defined, the next step is to make a pairwise comparison among the common attributes: one over and another under the fuzzy

environment. To set up this fuzzy pairwise comparison, experts are to be approached with a comparative questionnaire. From the replies of the experts, every attribute of the problem will be compared and this linguistic comparison gets converted into the fuzzy pairwise relation matrix.

$$\tilde{A} = \begin{bmatrix} 1 & a_{12} & a_{13} & \dots & a_{1(n-1)} & a_{1n} \\ a_{21} & 1 & a_{23} & \dots & a_{2(n-1)} & a_{2n} \\ \dots & \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots & \dots \\ a_{(n-1)1} & a_{(n-1)2} & a_{(n-1)3} & \dots & 1 & a_{(n-1)n} \\ a_{n1} & a_{n2} & a_{n3} & \dots & a_{n(n-1)} & 1 \end{bmatrix}$$

- Step 3: Defuzzification: The pairwise comparison was made up of fuzzy numbers in previous step; so then these triangular fuzzy numbers are converted into crisp numbers, this conversation process is called defuzzification process. While many types of defuzzification methods exist in the literature, this study uses the centroid method of defuzzification for its well-known acceptance.
- Step 4: Estimation of global weights: The defuzzified pairwise comparison obtained from the previous step will be processed through various standard arithmetic operations of formal AHP to find the global weights of each attribute. The arithmetic calculations involved in the formal AHP are listed below.

Standardize the defuzzified pairwise comparison matrix (all values in the matrix should lie between 0 and 1). Calculate the eigenvalue (λ) with the assistance of the sum of standardized rows. The eigenvalue is nothing but the global weight of each attribute.

- Step 5: Check for consistency: Because the data is based on human judgments, which naturally include difference, the results must be validated. Thus, the priorities of the criteria and the relevant steps are checked for consistency. The cyclic process is repeated until the consistency index (C.R) is less than 0.1 which is shown in Table 3.

The following steps provide the consistency check for the pairwise comparison matrix (Haq and Kannan, 2006). Calculate the eigenvector or relative weights and λ_{max} for each matrix of order n . Compute the consistency index for each matrix of order n by the formulae:

$$CI(\lambda_{max} - n)(n - 1).$$

The consistency ratio is then calculated using the formulae:

$$CR = CI/RI.$$

- Step 6: Prioritization of attributes: Once the consistency is achieved, then the attributes are prioritized based on their weights, and from this priority the essential attribute will be identified.

2.2.2. Results of the proposed approach

Using fuzzy numbers to indicate the relative importance of one barrier type over the other, a fuzzy judgment vector is then obtained for each criterion. These judgment vectors form part of the fuzzy pairwise comparison matrix which is then used to determine the weight of each criterion. Table 4 shows the meaning of linguistic expressions in the form of fuzzy numbers and Table 3 shows the random consistency index to calculate the consistency ratio (CR).

Fig. 3 represents the fuzzy membership function for linguistic expressions for the HPS barriers. Experts are asked to give their assessment in the form of these linguistic expressions which are then converted and analyzed to finally get the weights. Chang's extent analysis method has been used for determining weights from pairwise comparisons.

- Step 1: Categories of Major Barriers to the Implementation of Health Promoting Schools are given in the Table 1.
- Step 2: Once the common barriers are identified, then a pairwise comparison among the barriers, one over another, under the fuzzy environment is established. To achieve this, the case industrial managers were contacted and a questionnaire was provided. Based on their replies, the pairwise comparison was made, which were converted to fuzzy inputs with the references shown in Table 4.
- Step 3: Defuzzification: The next step is defuzzification, in which the pairwise comparison of barriers under fuzzy input is converted to crisp values. Many defuzzification methods exist, but in this paper, the centroid method of defuzzification is used because of its greater acceptance in the literature. The defuzzified pairwise comparison is shown in Table 5.
- Step 4: Estimation of global weights: The global weights of the barriers are estimated based on the replies of the experts through the arithmetic operations of AHP which are shown in Table 5.
- Step 5: Check for consistency: Even though the weights are obtained, there is still a need to check for consistency because all the data used were obtained from human judgments; the obtained results are consistent and reliable which are shown in Table 3.
- Step 6: Prioritization of attributes: After the successful completion of the consistency check the priorities of the barriers are shown in Table 5.

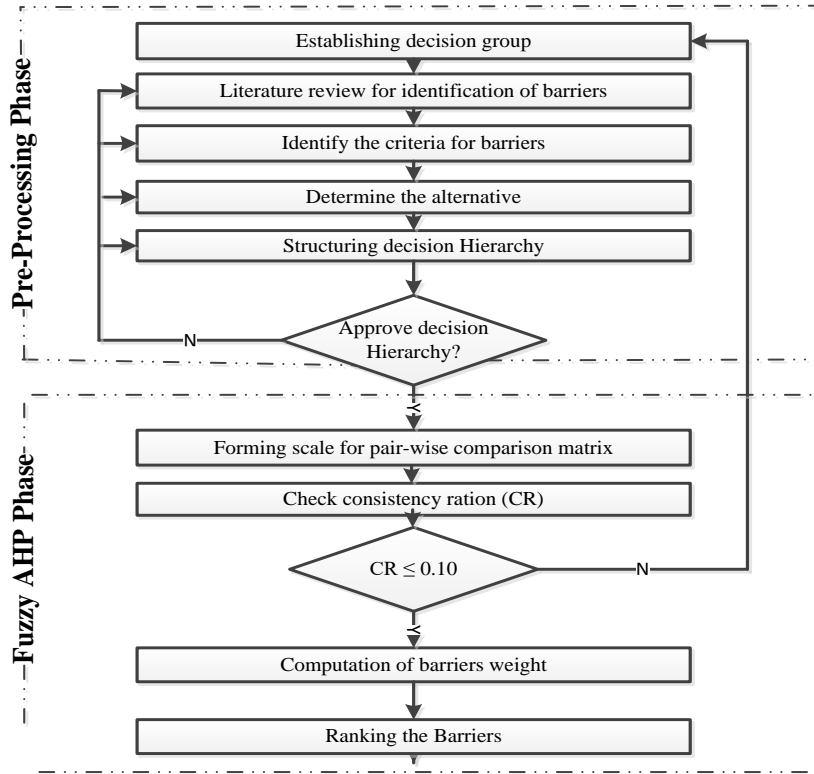


Fig. 2: Proposed fuzzy AHP framework for ranking the barriers

Table 3: The random consistency index

Size (n)	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.52	0.89	1.11	1.25	1.32	1.40	1.46	1.51

Consistency ratio is 0.1 and random index is 1.51, whereas $\lambda_{max} = 11.918$

Table 4: Scale for relative importance used in the pairwise comparison matrix

Intensity of importance	Fuzzy number	Linguistic variables	Triangular fuzzy numbers (TFNs)	Reciprocal of TFNs
1	$\tilde{1}$	Least important	(1, 1, 3)	(0.33, 1.00, 1.00)
3	$\tilde{3}$	Slightly important	(1, 3, 5)	(0.20, 0.33, 1.00)
5	$\tilde{5}$	Important	(3, 5, 7)	(0.14, 0.20, 0.33)
7	$\tilde{7}$	Extremely important	(5, 7, 9)	(0.11, 0.14, 0.20)
9	$\tilde{9}$	Most important	(7, 9, 11)	(0.09, 0.11, 0.14)

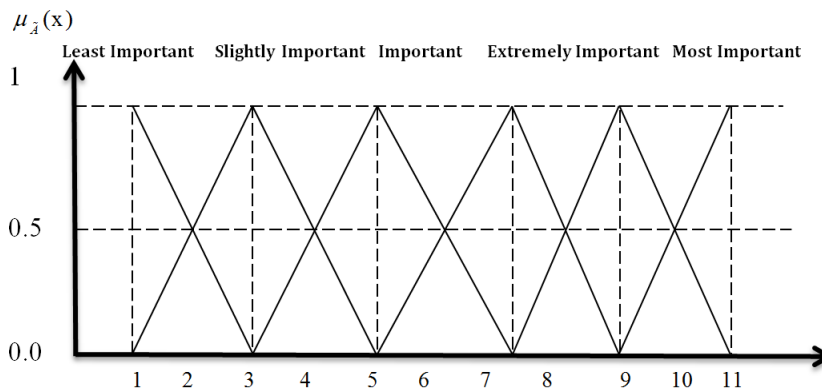


Fig. 3: Fuzzy membership function for linguistic expressions for criteria

From Table 6 and Fig. 4 show that little infrastructure available for school health promotion (BAR4) is the most important barrier in the health promoting schools. Obviously, it is impossible to implement school health promotion programs without appropriate infrastructure and facilities. Unfortunately, school health infrastructure in almost

non-existent in Pakistan, and requires government’s immediate attention for the success of any program aimed at promoting health in school children. The remaining barriers are arranged as follows as per their weightage and overall priority: BAR4> BAR1> BAR7> BAR9>BAR2> BAR8> BAR5> BAR3> BAR6> BAR10.

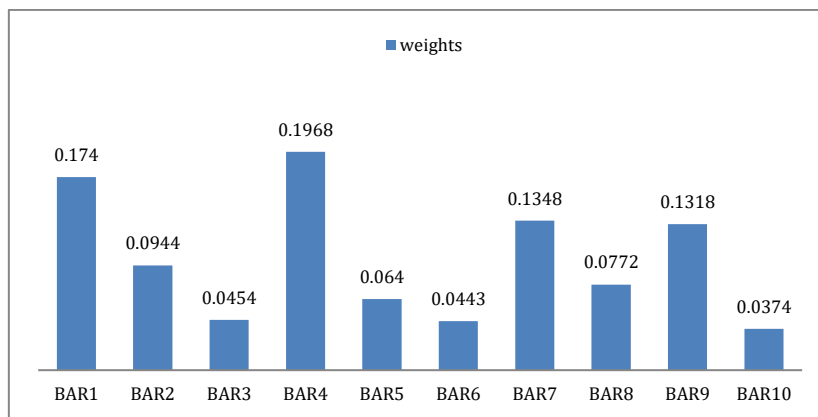
Table 5: Pairwise comparison matrixes of major barriers

	BAR1	BAR2	BAR3	BAR4	BAR5	BAR6	BAR7	BAR8	BAR9	BAR10	Weights	Rank
BAR1	1	2	3	2	3	2	2	3	3	4	0.1740	2
BAR2	0.5	1	3	2	7	2	2	3	2	2	0.0944	5
BAR3	0.33	0.33	1	4	2	2	3	2	3	2	0.0454	8
BAR4	0.5	0.5	0.25	1	5	3	3	7	2	2	0.1968	1
BAR5	0.33	0.14	0.5	0.2	1	2	4	5	3	4	0.0640	7
BAR6	0.5	0.5	0.5	0.33	0.5	1	2	3	2	3	0.0443	9
BAR7	0.5	0.5	0.33	0.33	0.14	0.5	1	4	3	2	0.1348	3
BAR8	0.5	0.33	0.5	0.14	0.2	0.33	0.25	1	2	3	0.0772	6
BAR9	0.33	0.5	0.33	0.5	0.33	0.5	0.33	0.5	1	2	0.1318	4
BAR10	0.25	0.5	0.5	0.5	0.25	0.33	0.25	0.33	0.5	1	0.0374	10

Consistency ratio is 0.1 and random index is 1.51, whereas λ_{max} = 11.916

Table 6: Barriers ordered from most important to least important (based on Table 5)

Randomly Assigned Barrier Codes	Weights	Rank	Barriers
BAR4	0.1968	1	Little infrastructure available for school health promotion
BAR1	0.174	2	Poor behavior and lack of understanding in community towards school health promotion
BAR7	0.1348	3	Lack of government support
BAR9	0.1318	4	Lack of health promotion skills
BAR2	0.0944	5	Lack of proper legislation and policy
BAR8	0.0772	6	Lack of leadership and vision
BAR5	0.064	7	Lack of school's interest
BAR3	0.0454	8	Poor monitoring
BAR6	0.0443	9	Lack of inter-sector collaboration
BAR10	0.0374	10	Poor economic conditions of families

**Fig. 4:** Graph of barriers ranking according to weight

3. Discussion

A number of barriers were identified in qualitative analysis. The quantitative analysis performed in Fuzzy AHP environment informed about the relative importance of each barrier. Results in Table 5 show that BAR4, BAR1, BAR7, and BAR9 obtained significantly high weights. Now we discuss these most important four barriers.

3.1. Little infrastructure available for school health promotion

Infrastructure refers to practical, structural and physical system of a school to deliver services and facilities for health promotion. Infrastructural barriers refer to lack of adequate sanitation and water, lack of play grounds, poorly ventilated classrooms, contaminated water, overcrowding, improper disposal of wastage, no dispensary etc. Respondents believe that lack of infrastructure is the second most important barrier to implementation of

health promoting schools in Pakistan. One respondent from a high school quoted; "you talk about health promotion, but our schools don't have even classrooms and boundary walls. We don't have electricity, children drink contaminated water, and there are no toilets in many schools. Do you think we can promote health in these schools?" Overall, lack of infrastructure is a common phenomenon in Pakistani schools, especially in small towns and villages. It is a fact that limited availability of infrastructure is a stigmatic barrier to health promoting schools in the country. These limitations of infrastructure cause transferable and parasitic diseases in children (Govender, 2005).

Besides poor health promotion infrastructure in schools, it is a common situation, especially, in rural Pakistan that health facilities are far from schools and students' residence. People avoid traveling far from their school or house for a pill or two (Chakraborty et al., 2003). Therefore, they take treatment from non-practitioners with eastern medicine or from less experienced health

professional available in the locality. Moreover, the available health units, where the cases from schools can be referred, are small in number, lack infrastructure, medicines, doctors/nurses, and are poorly managed. The placement of nurses and health professionals in the schools for health counseling and the availability of in-school or nearby health services is essential but due to lack and improper allocation of resources, it is a challenge for the authorities to focus on this issue.

3.2. Poor behavior and lack of understanding in community towards school health promotion

Among the most important barriers, 'poor behavior of community' was assigned a considerably high rank. Our respondents believe that Pakistani society lacks a real understanding of school health promotion. As one of the respondents quoted; "people don't even know what a health promoting school is; and what is its importance for the health of our future generations". Health promotion initiatives can never be successful if community is less aware of their importance. Pakistan shares a major burden of parasitic, infectious and communicable diseases. These diseases can be overcome with prevention and health promotion measures rather than large investments on treatment and medicines (O'Neill et al., 2004; Prasla and Prasla, 2011). These measures, however, require positive health seeking behaviors, which Pakistani society lacks (Shaikh and Hatcher, 2004).

We cannot expect that a community with poor understanding or awareness of an issue will appropriately demand its solution. The alarming situation is that people are accustomed of unhealthy behaviors like eating unhealthy or even unhygienic food, over-eating, lesser physical exercise etc. One of the respondents told; "we are not transmitting healthy habits in our children, our attitude towards health is less responsible".

The change in the existing behavior is not so easy or overnight process. Literature reveals that the concern of health in schools and other educational institutions is all there but behavior transformation takes time, and is quite slow (Dooris and Doherty, 2010). However, any health promotion initiatives should gain consensus of the local community through communication and behavior change (Govender, 2005). In other words, initiative for school health promotion must be accompanied by behavior change exercises, as the literature suggests that the successful implementation of the health promotion programs can be facilitated with the change in mindset (Macnab, 2013).

3.3. Lack of government support

The third most important barrier to implementation of health promoting schools in Pakistan is lack of government support and funding. Insights from existing literature also suggest that lack government support and funding is a primary

barrier to the implementation of school health promotion (Hills et al., 2015; Melo et al., 2013; Seigart et al., 2013). Although the government, especially the government of Punjab province, announced education and health as top priorities, the respondents believe these are just political slogans. One social worker told that "our observation of school health status in the country suggests that government's attention to school health is almost inexistent. Only one province (Punjab) has launched school health program. This program also seems ineffective. No monitoring system and necessary resources for the functioning of the program are in place. Health and nutrition supervisors are non-technical, less in number, and under-utilized. Many times these nutrition officers are sent to different government offices for performing special duties, like duties during wheat harvesting season. Basic health units don't have sufficient resources to attend school referral cases". Without government's support and funding, implementation of school health is almost impossible. Our respondents believe that decision makers and policy makers are less aware of the importance of health promotion in schools. Decision makers and policy makers have been considered as important social determinants of health in a society (Evcı et al., 2012). Unfortunately, the governing class in Pakistan is less aware of the problems caused by the absence of health promotion in schools. This is one of the reasons that funds and support remain limited.

3.4. Lack of health promotion skills

Respondents believe that lack of skills is the fifth most important barrier to HPS implementation. Literature is also evident that inadequate health promotion skills at school level are among major barriers to implementation (Hills et al., 2015). One officer from education department added that "our teachers have experience and adequate qualification but they don't have essential skills and competencies to deliver health promotion programs. Without a proper mechanism of developing health promotion skills, we cannot introduce such initiatives in our schools". In addition to this, schools don't have specialized posts related to school health promotion. Specialized post is important not only with respect to expertise but also for sharing workload of teachers. If the existing teachers are trained and allocated health promotion duties, it may create a situation of stress among teachers, and a reduction in productivity is quite probable (Karasek and Theorell, 1992). Moreover, hiring new people requires resources which the country lacks. One education officer added; "our complex system of public and private schools can make the situation worse. Public schools already lack resources and funding. Employing health related people seems impossible in this situation. Private schools are more likely to raise their fees if they are forced to hire specialized staff for health promotion". So, lack of

health promotion skills is not a simple issue. It requires resources and government's interest.

3.5. Lack of proper legislation and policy

The fourth most important barrier is lack of proper legislation and policy. Legislation has been considered as the most effective tool for implementing health initiatives (Jackson et al., 2006). Our respondents believe that health promotion efforts will never be functional and successful until the government establishes proper legislations and operational reforms in favor of health initiative in schools. A senior medical officer added; "in this country nothing can be implemented without a proper legislation and its forceful implementation. You need to convince politicians for developing and implementing school health promotion legislation. Schools' inability to promote health must be considered a legal offense, and be penalized". At government level the initiative of lobbying and political advocacy in favor of these initiatives can bring legislative change for public health policy and organizational practices (Nutbeam, 2000). Unfortunately, we expect little from governments in this regard because they have little interest in these issues.

Given the importance of children's health as the wealth of nation, responsible nations seek to improve the status of child health. It is well understood that school are the most appropriate entities for child health promotion. Based on their ability to provide students with integrated and positive experiences and structures which promote and protect their health, health promoting schools claim to be the best approach for improving a nation's children's health. However, Pakistan lags far behind the developed nations in the countrywide implementation of HPS approach. The reason behind Pakistan's failure to implement HPS approach may be due to the presence of some serious barriers which need to be recognized and removed for successful HPS implementation.

Acknowledging Pakistan's failure to implement HPS approach, this study was initiated with the purpose of providing exploratory insights into the barriers that are hindering HPS implementation. Ten barriers were identified. Out of these, five are the most important as was found in quantitative analysis. Owing to the research team's access to some important people from health, education, and other related organizations, this study is the first in identifying such barriers based on the opinion of key informants. This study provides insights into the barriers to HPS implementation specific to Pakistan. However, the findings are not far from generalization. Though a small number of similar findings already exist in HPS literature, a comprehensive analysis with reference to Pakistan was lacking.

By identifying some specific barriers to the implementation of health promoting schools in Pakistan, the findings of this research provide useful

insights into the importance of these factors for successful implementation of HPS approach. These findings are helpful not only for Pakistani governments but also for international organizations—USAID, WHO, UNICEF etc.—interested in HPS programs in Pakistan. Our findings suggest that any initiative towards school health promotion will require taking into account the barriers identified in this research.

The insights obtained from this study can promote further research also. This study identified a number of most important barriers to the implementation of HPS approach in Pakistan, but a causal relationship between these barriers and the implementation of HPS approach remains to be discovered. In fact, our research was not aimed at testing theory, but to explore barriers specific to Pakistan. Future research can use theoretical insights for establishing hypothesized link between these specific barriers and implementation of HPS approach. Based on our results, future research can also identify ways of removing these barriers.

Barriers identified in this research may play an important role in implementing health promoting schools in Pakistan. More specifically, the findings of this research have important implications for four important school health promotion stakeholders; government, donor organizations, schools, and community. Government as an important stakeholder needs to provide support and funding for establishing appropriate infrastructure in schools and other relevant organizations. In this regard, the important thing is the government's intent to promote health in schools. However, it requires policy makers' awareness of the importance of this issue. As already discussed, school health regulation is vital for implementing HPS approach in the country. Establishing school health legislation and a clear policy for its implementation will also require the government's attention. Government's attention towards this issue can also help in improving community's behavior towards school health through sponsorship of widespread media campaigns and other behavior change exercises. As discussed earlier, government can also help in improving health promoting skills of schools. So, any school health initiatives will require an active participation of the government at all levels (central, provincial, and local).

Donor organizations such as WHO, UNICEF, UNESCO etc. can also benefit from the findings of this research in such a way that they can demand the government a certain level of health promotion skills, infrastructure, and legislation before providing funding for any such projects. These funding can be proportionate to public funds for these projects, and may also require the relevant ministries to establish a proper mechanism of implementation, monitoring and evaluation.

The findings of this research have implications for schools also. Schools' readiness for improving their health promoting skills, providing infrastructure, and obeying health promotion

legislation can play a vital role in implementing health promotion initiatives. Moreover, by organizing special sessions with parents, schools can play an important role in improving community's behavior towards health promotion. Community can also benefit from this research in a sense that it can demand the government and schools to develop health promoting infrastructure in schools and provide/implement a clear school health promotion policy and legislation.

Appendix A. Survey questionnaire for quantitative analysis

According to World Health Organization a health-promoting school is a place where all members of the school community work together to provide

students with integrated and positive experiences and structures which promote and protect their mental and physical health. In Pakistan, the situation of school health promotion is very discouraging. This research aims at identifying those factors which can be potential barriers to the implementation of Health Promoting Schools in Pakistan. Following are some potential barriers and facilitator to the implementation of health promoting schools in Pakistan. We want your opinion on the relative importance of each barrier.

Questionnaire is shown in Table A.7. Please rank the following barriers from 1 to 10 with 1 being the most important and 10 being the least important. Responses must contain a unique answer from 1 to 10.

Table A.7: Questionnaire

Randomly Assigned Barrier Code	Barriers	Rank
BAR1	Poor behavior and lack of understanding in community towards school health promotion	
BAR2	Lack of proper legislation and policy	
BAR3	Poor monitoring	
BAR4	Little infrastructure available for school health promotion	
BAR5	Lack of school's interest	
BAR6	Lack of inter-sector collaboration	
BAR7	Lack of government support	
BAR8	Lack of leadership and vision	
BAR9	Lack of health promotion skills	
BAR10	Poor economic conditions of families	

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