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DOI: 10.4103/jehp.jehp_7_19

# Prioritizing the health education needs based on community participation: AHP method

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## Abstract:

**INTRODUCTION:** The identification of health education needs through the community results in targeted services and health promotion. Prioritizing these needs, in addition to identifying the desired health system based on the needs of the community, is required for the optimal allocation of resources. Therefore, this study was conducted with the aim prioritizing the health educational needs of Sabzevar-Iran community.

**MATERIALS AND METHODS:** This study was a two-step mix study. In the first stage, the qualitative method of the main themes of health educational needs of Sabzevar society was determined. Then, the questionnaire was prepared by a paired scale (36 questions) and quantitative method was used to prioritize the main themes with Analytic Hierarchy Process (AHP) software. The random sampling method was used in this study and data analysis was performed using Expert Choice software using AHP method.

**RESULTS:** Social problems with 0.206, contagious diseases with 0.205, nutrition with 0.161, and public health with 0.132 were in the first to fourth grades of health educational needs in Sabzevar city and environmental health, health management, noncontagion diseases, elderly, and occupational health were in the fifth to ninth grades. The consistency index in this study was 0.08, although the adjustment index is <0.1 good and acceptable.

**CONCLUSION:** Social problems are the first priority of Sabzevar society, which require appropriate training.

## Keywords:

Community-based participatory model, educational needs, health, prioritize

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Received: 05-01-2019

Accepted: 19-03-2019

## Introduction

Health is the sustainable development axis and is a must to the promotion of life standards. Although resolving the society health problems lies mainly with the health-care systems, the development of society public health requires the engagement and collaboration of all social organizations to identify the challenges and fostering the public and private systems.<sup>[1,2]</sup> The involvement and participation of all the stakeholders result in better recognition of health system needs,<sup>[3,4]</sup> and prioritization

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of health problems in line with correct planning aiming at such problems can provide help with promoting the efficiency of the health system of the country.<sup>[3,5]</sup>

The assessment of the community through collaborative studies leads to realistic and effective planning as well as community development.<sup>[6-8]</sup> Identifying the health requirements through the society will result in targeted provisioning of the services and promotion of health status.<sup>[9,10]</sup> Nowadays, the traditional research methodologies to realize the health requirements of the people and resolving their problems are not adequate enough due to limited

**How to cite this article:** Hashemian M, Ghardashi F, Izadi AR, Akbarzadeh R. Prioritizing the health education needs based on community participation: AHP method. J Edu Health Promot 2019;8:127.

participation of the society.<sup>[11,12]</sup> Community-based participatory studies have recently been supported as an important method of collaboration to address the local health concerns.<sup>[13]</sup> Research and measures integrity through collaboration between public experts, academics, and social colleagues are currently taking root as a new method of community-based participatory model which will result in the improvement of health and welfare of the community members.<sup>[14,15]</sup> In community-based participatory research, it could be possible to bring at the community level the powerful basics by integration of knowledge and awareness as well as collective participation.<sup>[16,17]</sup> However, these studies will be fruitful only if the physicians and academic researchers are trained for collaborative activities with the communities as colleagues and have a common understanding with the society.<sup>[13,18-20]</sup>

Considering the Policy 1 provisions of the Health System Reform Plan referring to “institutionalizing the accountable education approach in the health system,” “supply and promotion of health system higher education content based on the national requirements and international standards,” and “expanding society-based education,”<sup>[21]</sup> the medical sciences universities must implement fundamental changes in their macro planning. A prerequisite for change and reform in the present status is the compilation of training program, requiring the identification of targets or desirable points. Objectives often have root in needs. For this reason, to design and implement realistic and effective programs, carefully measuring the requirements and compiling the specific goals based on the identified requirements would be necessary. Needs assessment, in fact, is collecting and analyzing the information based on which the requirements of individuals, organizations, and communities are identified.<sup>[22]</sup> Needs assessment is the fundament of the education structure, and the stronger this fundament, the upper building would be stronger and invulnerable.<sup>[5]</sup> Needs assessment is an important tool in designing, development, and appraisal of continual education programs.<sup>[23]</sup> Results of the studies indicate the importance of needs assessment in medical sciences universities, and according to the professors, it is one of the top priorities of any university.<sup>[24]</sup> The educational needs assessment should be carried out for different health groups’ students, health policy-makers, scholars and researchers, and all other stakeholders toward the expansion of personal knowledge and promotion of their communication skill<sup>[25,26]</sup> and it would be necessity for the purpose of continued effectiveness of academic trainings, and the educational needs assessment of the students should be studied and evaluated at regular intervals.<sup>[27]</sup>

Accountable education describes an educational program and curriculum founded upon the perception

and response to the society health needs and preparing the students for work and giving services to the society.<sup>[28]</sup> The problems and requirements pertaining to health education and promotion are often simultaneously influenced by various factors such as social, individual, and organizational factors, and accordingly, in every area, prioritization and correct decision-making can result in time and cost saving, avoiding from trial-error methods, and preventing from wasting of resources. Hence, in order for the integration of quantitative and qualitative criteria to take place and in a word, a logical and safe decision-making accompanied by prioritization in planning and the interventions in health education and promotion should benefit from multiple criteria decision-making models.<sup>[29]</sup> Prioritization is required for the determination of public health prospect based on sound principles, evidence, and efficiency.<sup>[30]</sup> Determining the priorities – in addition to the desired path of health system which is specified based on the society needs – is also necessary for optimum allocation of limited resources.<sup>[31,32]</sup> Specifying priorities must be maintained and repeated at logical and regular intervals considering the demographic changes, and the relevant results should be considered in planning procedures.<sup>[33]</sup>

Results of the studies are indicative of the difference between the problems pertinent to the sustainable health in every minority<sup>[34]</sup> and the health priorities based on the needs assessment in every society,<sup>[35,36]</sup> and this illustrates the requirement for performing of community-based needs assessment in various societies. Hence, all the consultative educational planning and primary health services and the relevant provisioning methods of such planning and information must be prioritized through local and regional needs assessment and compiled aboriginally for each region and according to their needs and problems. Therefore, this study was conducted to identify health education needs and prioritize them that affect Sabzevar citizens.

## Materials and Methods

This descriptive-analytical study was of cross-sectional type (2016–2017) conducted using the mixed method.

The first phase of the current study entitled “The investigation of health needs in Sabzevar city,” performed by survey study in which data collection was done by individual and group interviews with people and organization managers.

In this survey, data analysis led to the extraction of 233 health problems from the city population, 590 health problems related to the health deputy, and 159 health problems related to the treatment deputy. In sum, the analysis of both the internal and external stockholders

of the Sabzevar University of Medical Sciences, 1900, health problems was extracted.

Afterward, the data pertaining to the educational needs of the health treatment problems of Sabzevar Township were extracted and analyzed through two steps using qualitative and quantitative methods.

In the first phase, using qualitative method, the data were coded and categorized by the researchers based on the specifications, similarities, and differences of the problems. Next, the above categories were validated and confirmed by a panel of experts (including ten health faculty professors and managers). Accordingly, the main domains of health educational needs of Sabzevar society were categorized in the following nine themes: environmental health, general health, communicable and noncommunicable diseases, nutrition and food hygiene, professional health, health services management, social problems, and the elderly.

After specifying the main themes in the first step, a questionnaire of 36 questions was prepared using Paired Comparison Scale method. In this questionnaire, all main nine themes mentioned above were compared individually with each other. In Paired Comparison Scale, the priority rate of each factor over other factors is measured by allocating one of the odd numbers from 9 (totally more important), 7 (very important), 5 (more important), 3 (slightly important), and 1 (equally important). In this case, the allocated number must be toward the factor with higher importance.

The random sampling method was used in this study; a number of 123 samples were selected from among all of the understudy groups and the questionnaire was given to them. After data accumulation, data analysis was performed using Expert Choice software (Version 11, 2111 Wilson Blvd, suite 700, Arlington, VA, USA) using Analytic Hierarchy Process (AHP) method.

Different quantitative and qualitative techniques (Such as: DIMITLE, TOPSIS) can be implemented for the purpose of needs assessment and prioritization.<sup>[37-41]</sup> AHP is one of the most reliable techniques of expert knowledge-based multiple criteria decision-making method<sup>[42]</sup> and is applied in the prioritization of the subjects that are influenced by several criterion and various factors, making decision-making problematic.<sup>[43,44]</sup> Using AHP, it could be possible to extract precise information rapidly and summarize them in tables and graphs.<sup>[45]</sup>

AHP process was designed in 1970 by Saaty to aid the managers in decision-making of the issues where several criteria are involved. AHP method makes correct group decision-making possible in problems

involving qualitative, quantitative, and mixed criteria. Using AHP method in decision-making involves a three-phase process including hierarchical building phase, performing paired comparisons and calculating weights, and finally system compatibility.<sup>[46]</sup> In this study, after collecting the questionnaires designed based on paired comparisons, the remaining phases and data analysis were carried out using the AHP software (Version 11, 2111 Wilson Blvd, suite 700, Arlington, VA, USA).

## Results

Sixty-eight (55.3%) people of 123 samples participating in the study were male and 55 (44.7%) persons were female. The highest number of participants belonged to 41–50-year-old age group with 54 (43.9%) people frequency and the lowest number belonged to 21–25-year-old age group with 15 (12.2%). Table 1 shows the frequency of the participants based on the education level.

The main domains of Sabzevar society health educational needs were categorized according to the following nine themes:

### Environmental health

Lack of sanitary sewage disposal system, increased number of pigeon fanciers, stray dogs and cats, using metal mug in the streets, water coolers, noise pollution, fertilizer transport problems, fertilizers and pesticides' chemicals, lack of public baths, problems of chicken breeding farms, livestock keeping problems, disturbing occupation businesses across Township, lack of respect for the citizens' rights in new construction sites, the pollution caused by brick-burning furnaces and its impact on the citizens' health, especially at late hours of the night, the impact of physical environment of the workplace on the staff spirit and lack of separation of waste and recycling, people's habit of dumping waste in the channels, throwing trashes in the streets, and the presence of vermin.

### Public health

Public health (high health problems in the periphery of cities, low health culture in the population, lack of

**Table 1: Frequency of the participants based on the education level**

Education level	Frequency	Percent	Valid percent	Cumulative percent
Diploma	18	14.6	14.6	14.6
Associate degree	15	12.2	12.2	26.8
Bachelor	35	28.5	28.5	55.3
Master's degree	47	38.2	38.2	93.5
PHD	6	4.9	4.9	98.4
Physician	2	1.6	1.6	100.0
Total	123	100.0	100.0	

public awareness regarding the dangers emanating from disposable utensils, ultraviolet radiation and the impact of healthy lifestyles on health, changing or modifying behavior based on health education models, and ignoring the overall dimensions of health). Fertility health issues (such as misuse of medications and herbal products during pregnancy and after delivery, cesarean complications, and infertility problems). School health (lack of health education in kindergartens and schools, presence of lice in kindergartens, lack of training for kindergarten teachers, shortage of psychologist and sports teacher in schools, unfair distribution of milk in downtown schools, and unhealthy snacks in school buffets). Mental health (mental and psychological problems of the society and employees due to lifeless office spheres, increased stress, pregnant lactating women employees' stress, lack of adequate motivation in staff, depression disorders, anxiety disorders and the lack of preventive methods, absence of training correct parenting, lack of knowledge on the healthy lifestyle, lack of intellectual coordination between parents and children, and lack of emotional communication in families due to mass media). Oral hygiene issues (including the role of dental health, ways to prevent tooth decay, especially in children, and the like).

### **Contagious diseases**

Hepatitis B, tuberculosis, and hospital infections.

### **Noncontagious diseases**

Cardiovascular diseases, cerebrovascular diseases, brain strokes, cancer, common diseases animal and human, diabetes, hypertension, brucellosis, fatty liver, digestive disorders, osteoporosis, seizures, animal bites, dermatology diseases, diarrhea, thyroid, and other diseases.

### **Nutrition and food health**

Incorrect nutrition of children and young people and fast food use, lack of awareness of the society about breastfeeding, the manner and amount of food intake in the society, the need for investigation of nutritional awareness, attitude and practice in different age groups of the society, examination of salt content in breads of Sabzevar city and the required training, the need for determining the consumption pattern of vegetable oil, salt, and simple sugars in different age groups, food fraud issues, noncompliance of food providers and distributors with food sanitation principles, malnutrition in children, inappropriate nutrition pattern, the use of artificial colors in food, children growth disorders, consumption of solid oils, the use of paraffin in fruit shops, noncompliance with clean clothes code in bakeries and fast food shops, frequent use of fried oils in confectioneries, obesity, lack of oversight of retail outlets in terms of hygienic conditions, and lack of proper use of vegetables.

### **Occupational health**

Stress in the workplace, physical problems of staff due to long-sitting and nonstandard equipment, and the prevalence of work-related illnesses in employees of the city workshops.

### **Social problems**

Traffic accidents, divorce, delinquency, domestic violence (child abuse and violence against women), conflict and contention, addiction, fall of the age of drug use, prevalence of drug use, high number of motorcyclists, social factors affecting health such as poverty, illiteracy and unemployment, the relationship between parenting practices with mental disorders, substance abuse, antisocial behaviors, suicide, increasing marriage age, the prevalence of hookah in households, increased risky sexual behaviors, the prevalence of computer games in children, the presence of addicted people syringes in the streets and shared syringe between injecting drug addicts, smoking in public places, and lack of awareness among parents about high-risk behaviors of children at puberty.

### **Health services management**

Determining the staff satisfaction level from the authorities, injuries arising from the unsafe injections, the impact of people's participation in the health system, the quality of communication in the human resources management system, the management of resources and facilities in the health system, the assessment of staff satisfaction with the implementation of family doctor system, cosmetic surgery, combining traditional Islamic medicine with modern medicine, health development plan from people's perspective, indiscriminate use of medication, low level of knowledge of health-care workers on the sterilization of health center appliances and equipment, lack of knowledge of experts regarding health applications research methodology, uncoordinated guidance of responsible experts in the area of research, community-based interventions and health promotion, community empowerment for self-care, investigating, self-care behaviors' effect in preventing high-risk behaviors, rural health insurance problems, lack of educational facilities, lack of motivation in health workers due to inequality of wages and benefits, and poor performance of the health centers.

### **Elderly**

Inactivity, inappropriate nutrition, the relationship between aging and well-being, the relationship between aging and mental health, examining the integrated care of the elderly by the medical group, promoting health culture through religion, and religious teachings.

The results of data analysis using AHP method indicated that the weight of criteria in the results based on the



groups of views collected from the respondents, social problems with 1.000, contagious diseases with 0.995, nutrition with 0.779, and public health with 0.641 ranked from first to fourth of health education problems of Sabzevar city, and afterward, the environmental health, health management, noncommunicable diseases, aging, and occupational health allocated the fifth to ninth ranks to themselves. The consistency index in this study was 0.08, although the consistency index lower than 0.1 is considered as good and acceptable [Chart 1].

After final analysis, the social problems with 0.206 occupied the first priority [Table 2]. Subsequently, the contagious diseases, nutrition, public health, environmental health, health management, noncontagious diseases, elderly, and occupational health were ranked next [Chart 2].

### Discussion

The effort to improve community hygiene and health depends on the ability of health organizations to use research knowledge and participate in its production.<sup>[20]</sup> Numerous studies have been conducted on the prioritization of research problems in the medical sciences universities of Iran,<sup>[24]</sup> but the society-based health educational needs have been neglected and very few relevant studies are found in the literature.

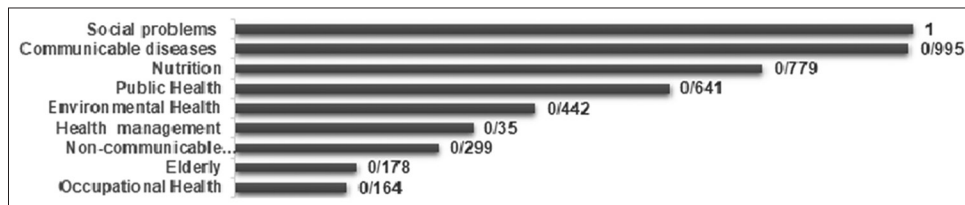
Results of the studies are indicative of diversity and extent of the community’s health culture problems, including social health issues.<sup>[47,48]</sup> The University of Michigan’s survey report on community-based health needs identified that during the year 2011–2012, access to care, mental health, substance abuse, and obesity were the first to fourth health problems’ priorities of the people;<sup>[49]</sup> whereas in the present study, the social problems, infectious diseases, nutrition, and public health constituted the first four priorities of the people.

Results of the studies demonstrate the difference between the perception of the society, educational needs, and the medical sciences universities.<sup>[50]</sup> Assessment of needs is necessary for the success of an educational program. Most of the organizations implement the education and development without needs assessment. These organizations are vulnerable to over- or undereducation and ultimately inappropriate education.<sup>[51]</sup> Result of the study undertaken by Golanbar and Malekiavarsin showed that continuous medical training programs are not consistent with general practitioners educational needs.<sup>[52]</sup>

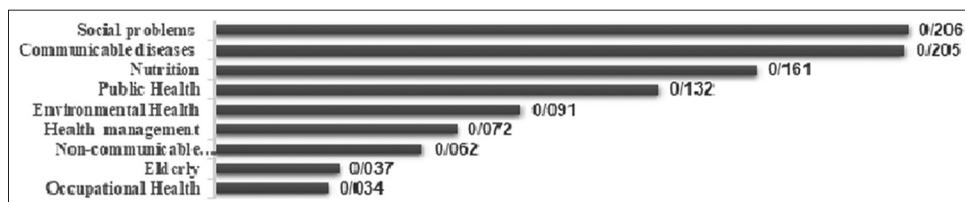
In this study, social problems were the first priority of Sabzevar community that highlighted the need for suitable educational programs. Given that our country is moving from traditional life to modernity and issues such as traffic, computer games, addiction and degree orientation, and unemployment (domain: seven items) need for culture building, the communities must provide the necessary base to deal with the technology

**Table 2: Priority of community education needs factors with the relative importance**

Row	Educational needs	Priority	Weight of factor	Consistency index
1	Social problems	First	0/206	0/08
2	Communicable diseases	Second	0/205	
3	Nutrition and food health	Third	0/161	
4	Public health	Fourth	0/132	
5	Environmental health	Fifth	0/091	
6	Health services management	Sixth	0/072	
7	Noncommunicable diseases	Seventh	0/062	
8	Elderly	Eighth	0/037	
9	Occupational health	Ninth	0/034	



**Chart 1: Priority of community education needs factors with relative importance**



**Chart 2: Normalized results prioritizing health education needs**

and its complications, something unfortunately receiving less attention in our societies. Kies and Loos in their study reported that the most frequent needs of health workers include informing, educating, and empowering people about health issues and programs that support personal and social health efforts, as well as mobilizing social participation to identify and resolve health problems.<sup>[53]</sup> Findings of another study identified the most important health education needs as “life skills training”<sup>[35]</sup> that is consistent with the results of our study.

Owlia *et al.* conducted a research study titled “Identifying research priorities in Iran,” and by collecting 6723 research projects titles, they concluded that communicable diseases, noncommunicable diseases, health system research, medicine and industry, basic sciences, traditional medicine and pharmaceutical herbs, environmental health, nutrition, and dentistry constituted the most important priorities of research domains in Iran, respectively.<sup>[54]</sup> Although the prioritization result of the study by Owlia *et al.* is not consistent with the present study results, it indicates that our scholars and academics are going the wrong way, conducting research and prioritization regardless of the society needs.<sup>[54]</sup> Findings of the studies by Burhansstipanov *et al.* and Golanbar and Malekiavarsin also are evidence of a mismatch between the educational needs of the people and the academic community.<sup>[50,52]</sup>

## Conclusion

Obviously, the described problems are of great importance, and addressing the reasons behind them requires investigation; currently, however, reducing concerns and responding to the health and hygiene requirements of the people are of the most immediate duties and priorities of medical universities across the country.

## Acknowledgment

This article is the result of a research project at the Sabzevar University of Medical Sciences that with 95004 Code has been registered.

The authors are grateful to the Sabzevar University of Medical Sciences due to the financial support of the research project and all the participants in this research project.

## Financial support and sponsorship

This article is the result of a research project at the Sabzevar University of Medical Sciences that with 95004 Code has been registered. The University of Medical Sciences has paid all the financial support for the project.

## Conflicts of interest

There are no conflicts of interest.

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