Designing university students' health surveillance system in Iran from stakeholders' opinion

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ABSTRACT

Background: The university student health surveillance system can play a key role in the health promotion of the educated class of the society. This can be done through collecting information related to health and using it for screening and prevention of disease. Hence, this article will be based on the necessity of existence of such system.
Materials and Methods: We used interview and focus group discussion in this qualitative study. The participants were the health system authors, experts, student service administrators, and also students. Content analysis was done after data saturation by the research team.
Results: Based on thematic analysis, 249 codes were obtained, and about 20 themes or main expressions were extracted by separating purported sentences and combining them, and omitting overlaps. These themes were summarized into 13 subcategories and finally 4 main categories. The four categories included necessity of surveillance, stewardship, components of health surveillance system, and administrative consideration.
Conclusions: From the participants' point of view, it seems necessary to have a health surveillance system for students; this system must be in accordance with the health system of the country. The Ministry of Health is the best option for stewardship of the system; however, it needs universities' support. Need assessment, performing a pilot study, and considering a program for quality control can guarantee for success in this program.

Key words: Iran, stakeholders, students' health, surveillance system

INTRODUCTION

Health is a multidimensional subject. The World Health Organization (WHO) definition indicates that health is not just about the absence of diseases; rather it is about full social, mental, physical, and spiritual welfare.

College period is a very important stage of life, which is known to be an active transitional period. Getting more mature physically, mentally, and socially during this period, young people gradually accept the responsibility for their health. Entering university is accompanied with a considerable amount of excitement, which can influence the students' life.

Studies indicate that many students showed high-risk behaviors like smoking, drinking alcohol, lack of exercise, and also being on unhealthy diet.[1-3] This transitional period is the best time for evaluating the youngsters and also designing the grounds for appropriate actions.

In a study regarding Iran's students' mental health conditions, students' vulnerability toward unhealthy diet, sleep disorders, smoking, drug addiction, accidents, depression, and also addiction to computer and internet were reviewed.[4]

Peikari *et al.* emphasized on the need for having students' consultation centers in their study. They also give credit to provide a service that meets students' priorities and using their available tremendous potential for providing better services.[5]

Researches show that students are exposed to serious risk factors like lack of exercise, unhealthy diet, obesity, risk producing behaviors, and use of tobacco products.[6-8] Due attention to the majority of the population who is young and also with a large population of university students (nearly 4 million in 2012),[9] should raise great consideration for their health problems in responsible authorities.

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Considering the fact that there are not enough appropriate structures regarding education and control on health-related behaviors and peer influence, we aimed to study the necessity of establishing a students' health surveillance system from the stakeholders' point of view.

Materials and Methods

In this qualitative research, considering the aim of the study, stakeholders were divided into two groups, key informants and students, who were chosen by purposive sampling. Key informants were academic staffs or managers in health system, had undergone semi-structured interviews. All of them had worked for at least 5 years in their respective fields and were familiar with the health system structure (inclusion criteria). We used snowball technique in this step. According to participants' preferences, the interview was held, and after getting permission from the participants, the contents of interviews were recorded. Each interview lasts about 45 min. Each interview was fully transcribed and re-checked with the participants and using bracketing method.[10,11]

For the students group, three different groups of university students in different courses were studied by focus group discussion (FGD) technique. They were then invited to participate in the study sessions after a comprehensive explanation was given about the research objectives and data collection procedure through phone calls. Three sessions were held with five to eight students in homogenous groups (in terms of expressing their opinions). The discussions lasted approximately 70 min. The authors were the facilitators of most FGDs and took notes.

Data analysis was performed using the "OpenCode" software; the content of each interview was considered as a whole, and the text's fundamental meaning was described in sentences.

Using the experts' and specialists' ideas, in order to control and confirm the themes lead the examiners to the point of finding the depth of the proposed concepts, and participants issues. The study was continued until data saturation in order to increase its validity. To collect more integrated information, the samples were selected from a wide spectrum of participants, experts, student service administrators, and students as well. To address conformability, we shared summarized interview findings with the participants at the end of the group discussion (respondent validation). Long-term contact with the data and also rigorous effort to know other people's opinions were the key factors that enhanced this project's credibility.[12]

The main pivotal points of the survey's interviews and FGDs were issues like the necessity of the implementation, the dimensions and content of the system, the surveillance level, and the executive management.

The participants were ensured about the confidentiality of data. They were also informed that participation was voluntary and they could withdraw at any time during the study. The nature and purpose of the study were explained to each participant and permission to audiotape the interview sessions was sought orally prior to the interviews. They were also reassured that no one other than the research team would have access to this information.

Results

In this research, we used a distinctive approach to summarize the results.[13]

The key informants were divided into two groups and, thus, totally there were three types of interviewees: (1) the health system's informants (e.g. decision makers in the Ministry of Health and also informed professors in the medical universities) in which 10 interviews were carried out; (2) the student service managers (e.g. student assistants in the universities and the Ministry of Health) in which three interviews were conducted; and (3) university students.

Based on thematic analysis, 249 codes were obtained that finally gave 20 themes or main expressions which were extracted by separating purported sentences and combining them, and omitting overlaps. These themes were summarized into 13 subcategories and finally 4 main categories. These four categories included necessity of surveillance, stewardship, components of health surveillance system, and administrative consideration.

The themes, subcategories, and categories and the relationship between them are presented in Table 1.

Necessity of implementation
Most of the interviewees agreed on the necessity of designing surveillance system. This category shows the importance and consideration of running such a program in health system and includes three subcategories that are explained as follows.

Essentiality of paying attention toward students as the country's future administrators and elites
Most of the interviewees believed that students were the country's future assets and allocating more resources for their health can be cost-effective.

Table 1: Relationship between the themes, subcategories, and categories

Categories	Subcategories	Themes
1) The necessity of implementation	1.1) Necessity of paying attention toward students as future administrators and elites of the country	1.1.1) The significance of students' health as future main assets of the country
		1.1.2) The unification of current disorganized services in universities
	1.2) Using the students' health center's databank to collect sources and make long-term planning	1.2.1) Using information to determine the trend of health-related behaviors among students
		1.2.2) The feasibility of establishing a comprehensive databank for burden of students' diseases
	1.3) Students being exposed to risk	1.3.1) Attending university and joining peer groups as a potential risk factor
		1.3.2) Higher risky behaviors at this age
2) Stewardship	2.1) Policy making	2.1.1) Planning stewardship with Ministry of Health and universities
		2.1.2) The method of providing funding
	2.2) Information management	2.2.1) Controlling the data collection and planning for utilization, and considering its ownership right for the universities and the Ministry of Health
		2.2.2) Confidentiality of data
	2.3) Surveillance system quality	2.3.1) The necessity of maintaining standards in different processes of health surveillance such as design, performance, and evaluation
	2.4) Surveillance system models	2.4.1) Considering national family physician project for student health
		2.4.2) Adopting models from developed countries, simultaneously considering cultural backgrounds and designing native pattern
3) The components of health surveillance system	3.1) Health surveillance time and frequency	3.1.1) Periodically surveillance should be kept at the beginning of entry to the university and also annually
	3.2) Staff and place of health surveillance system	3.2.1) Existence and availability of valid bases for collecting health information of students regarding physical, mental, social, and spiritual health
4) Implementation considerations	4.1) Need assessment	4.1.1) Need assessment by the Ministry of Health
	4.2) Prioritization	4.2.1) Considering disease prevalence
		4.2.2) Significance of disease burden
	4.3) Place of service providing	4.3.1) Health centers in the university, where the services were provided
	4.4) Method of service providing	4.4.1) The method of surveillance and necessity of compiling health records for all students

Key informant number 6 stated: "*Our view toward students should be different; it should be a type of source allocating specified to them for future exploitation.*"

Paying more attention to students' health is not according to the rule of health euity, although key informant number 10 believed thus: "*It's not fair to say students were elites and the rest of people were not. This is not acceptable in health system.*"

Using the students' health databank for collecting sources, and long-term planning

Among the benefits of providing surveillance system is the unification of the different services in universities, which will also reduce the expenses.

Key informant number 5 said, "*We have disordered services areas which are an obstacle for providing better services; providing health services to students must be based on the country's general surveillance system.*"

According to one of the key informants, using the elicited information as a specious databank can help us to detect the health trends or disease trends among young students.

Key informant number 8 stated: "*This system must be planned in a way that constantly takes care of students' health; disease trends must also be detected and pre-planned.*"

The collected information makes it possible to set up a databank for disease burden, and it will boost students' health.

Key informant number 3 mentioned thus: "*So, entering university can be a good control knob to set up a complete databank for the country and for students' diseases burden; it can also be used by policy makers in other sections.*"

Students being exposed to risk

With due attention to facing more risks in this age and also living in university, it is necessary to know about the dangers

that threaten students' health in all mental, physical, and social aspects of their life. Key informant number 9 said, *"Student life is basically full of danger, some things like bad eating habits, addictive drugs, smoking, mental diseases and anxieties. In other words, college life is not good enough."*

The university youth were spending a risky time, since they were in danger of mental, social, and physical problems.

Key informant number 10 mentioned, *"A student is in an age at which he can possibly have high risk behaviours or be exposed to dangers that might influence him for many years."*

Stewardship

Improving and enhancing policy outcomes is the predominant positive potential of stewardship and this category includes four subcategories that are explained below.

Making policy

Most interviewees believed that making decisions and designing plans were the duties of the health ministry.

Key informant number 5 stated: *"Health ministry is the policy maker of the country and should think and take a crucial decision about the health of students and youth."*

However, key informant number 3 believed that the Ministry of Youth is responsible for students' health:
"We have approximately three million students in our country, so the Ministry of Youth must be the trustee of their health and establish a system for them."

Providing financial and structural sources should be considered in advance for establishment, permanency, and covering services. Considering this fact that such a system would be extravagant, many of interviewees believed that the government must cover its expenses.

"Organizing this health surveillance system should be considered as the duty of universities' medical and health clinics, although the government must be the responsible for the expense," one of the students in the second FGD said.

Information management

For planning and managing the information, it is essential to pay more attention to software and hardware foundations for collecting and recording data and protecting information, and using data for evidence based decision making.

Key informant number 7 said, *"People who do something for students and their health should retain information ownership."*

One of the necessities of a surveillance system is the fact that information should be confidential.

Key informant number 4 stated: *"We can never report the secrets of students' information since secrecy is a rule in this field."*

Surveillance system qualities

The necessity of maintaining standards is vitally important in all processes like design, performance, and health system evaluation, and it can also affect the final results.

In some cases, enhancing the quality is more expensive, although it leads to reducing the expenses and increasing the data validity in the long term and it would be valuable for making decisions based on evidences.

Key informant number 10 mentioned, *"… but gained information should be clean enough to detect trends even after a while, also we can study analytically, find high risk groups and influence on them."*

Surveillance models

Key informant number 10 mentioned, *"The way of surveillance and using needed pattern were important in the design process, since there were different ideas about surveillance standards. Some considered that using current health system (including family physicians network) as a practical and economic way to* implementing the devised surveillance system.

Key informant number 2 said, *"The general model of providing services in the country is based on P.H.C, family physician and referral system. We have to make an effort to transform the health centres' activities into general health system in the country."*

Other group of participants believed that using developed countries as models and using their experiences and also adjusting them to Iranian culture can result in designing and compilation of a native health system for Iran students.

Key informant number 9 mentioned, *"Health system patterns, which are in foreign countries, should be necessarily studied and checked and also we should make them equivalent to the culture of our country and our people."*

Components of health surveillance system

Definition of surveillance system and its components varies in different references and this category includes two subcategories that are explained below.

Health surveillance time and frequency

There were significant differences between the ideas about the time and frequency of surveillance implementation. Some believed that screening students when they enter university could be enough as well as finding high-risk people and keeping them under surveillance, whereas the other group advised periodical and annual examinations.

Key informant number 9 mentioned, *"Annual observations are necessary to inspect the risk factors and find probable diseases, although those who have risk factors must be kept under continuous surveillance."*

Staff and place of health surveillance system

As there are not many physical problems and also because of youthfulness in this age, the health surveillance system should be designed considering the precautions to be taken for controlling the risk factors and concentrating on health behaviors and also other health dimensions (physical, mental, and social).

Key informant number 11 mentioned, *"Paying attention to all aspects of physical, mental and social health is vitally important and some people believe that they were equally crucial. It means that one incorrect aspect will influence on other aspects, if all of them were not taken as important."*

Moreover, some participants believed that focusing on mental and social aspects of diseases in students is more important as they are young and the burden of their physical diseases is narrower. Some administrators have focused on merging this system in the family physician plan to gain overlaps.

"We won't need any other special surveillance system, if we have a system which provides services properly. For instance, a family physician who fulfils all the clinical needs of a student," key informant number 5 said.

Administrative consideration

This category shows the system how to work and includes four subcategories that are explained below.

Need assessment

Need assessment and filling the health needs are the essential factors to succeed in providing health services. It was agreed that the health ministry can be the executive of health system, as it has experienced staff and a good reputation.

"Need assessment must be done by the health ministry; if not, it might result in wasting sources and losing," key informant number 10 mentioned.

The base of prioritizing

There are various health-related problems and it is obvious that prioritizing and choosing them should be based on valid themes. Report of disease burden and multiple indexes of health and population can be considered as the basis in this field. Diseases and controlling them are the most important responsibility of the system.

Key informant number 8 said, '*Furthermore, the burden of diseases must be estimated, so university entrance can be a useful control knob for this aim.*"

The place of providing service

There are health centers in universities, which were considered as the best and the most available places for providing services.

"… current health surveillance centres in universities can help us to provide any kind of service," key informant number 1 stated.

The method of providing service

The services can be properly provided for all students, considering the risk factors and diseases through preparation of electronic files.

"Providing a health surveillance system for students must be in accordance with the country's software and general health surveillance system," key informant number 2 stated.

DISCUSSION

Risk behaviors contribute markedly as the leading causes of death, disability, and social problems among youth and adults all around the world, especially in developing countries. Development of a risk behavior surveillance system is recommended to monitor different kinds of these behaviors. Although they may provide a lot of valuable information for policy development and decision making, they may impose tremendous burden on healthcare expenditure in the era of scarcity of resources. The necessity of basing each health program on a stakeholder need assessment is mentioned in the literature.[14] The present study was conducted with the purpose of exploring the necessity of health surveillance system for students, from their and the key informants' points of view. Health surveillance system for students can be an important step in this section of the society. The participants were Iran's health system's key informants and also students.

The main extracted categories of the study were the necessity of surveillance, stewardship, characteristics of the surveillance system, and the implementation of considerations from an expert's perspective.

Both groups of the participants emphasized the necessity of building a surveillance system for students. Most of them underlined the importance of a surveillance system working on all risk behaviors and attributes, along with the Ministry of Health and universities, since previous studies have only stressed on mental health as the main part of student's health surveillance system.[15]

Detection of disease trend is one of the discussed subjects in this project. There is no appropriate health information system for students in spite of having student health centers in the universities. Health surveillance system can enable using the health services efficiently by screening the students who need these services more than others.

A study conducted by the Centers for Disease Control and Prevention (CDC), the Youth Risk Behavior Surveillance System (YRBSS), showed that behaviors that contribute to unintentional injuries and violence, tobacco use, alcohol and other drug use, sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including human immunodeficiency virus (HIV) infection, unhealthy dietary behaviors, and physical inactivity lead to the highest burden of youth health problems. The authors of this article believe that creating a surveillance system for students has to go parallel with its availability and usage of its services. Moreover, the executives of the surveillance system also believe that these systems must be created.

As the participants believed, the Ministry of Health and universities can cooperate to create a surveillance system. In some countries, there are some systems designed with the support of international organizations (e.g. the World Bank), whose actions are similar to our findings and can be used as an appropriate model.[16]

There are some challenges in providing financial resources and in the health project's performance methods. Integration of this system to the previously devised primary healthcare (PHC) information system or the family physician program can offer a practical solution, although it is necessary to focus on the exact information record structure in this regard.

It was pointed out in the study that there is no accurate health databank regarding the risk factors in students compared with the ordinary population. Clearly, planning will not be possible without knowing about students' health needs. This option reminds us that the system's design, need assessment, and primary study are necessary before running such a system, and there is a need for studying the feasibility and economic matters before launching this system. Moreover, recording

the results and using the experiences of the current health surveillance programs of the students from other countries will contribute to the final implementation of the program.

In regard to the components of the surveillance system, our findings embody the importance of detection of disease prevalence and burden, appropriate scheduling, and attending to all aspects of health from the experts' points of view, which were parallel with the USA Health Association's advice.[17]

The importance of providing essential elements and expenses of such a system is the main issue and most of the interviewees mentioned consideration of the frequency indicators, disease severity and burden, and also reducing the costs related to diseases of this period (considerations 1).

Of course, it is necessary to mention that people's confidentiality of personal information should be morally considered, and this is one of the current challenges in using the system's data in other countries.[18]

Considering that our surveillance population was young and had little physical problems, the topic of taking precautions for controlling the risk factors and reinforcing protective factors, and also attending to other health aspects (spiritual, social, and mental) should be proposed more precisely.[5,15]

It has also been proposed in different interviews that paying attention toward the program targets and some current properties, such as simplicity, flexibility, data quality, sensitivity, and timeliness regarding these cares, will help the targets to be more useful.

Some of our respondents believed that defined strategies and protocols to extract relevant information and to produce due feedback for improvement of students' health programs could result in increasing the validity, reliability, and impact of this comprehensive surveillance system.

Limitations of this study

In this study, the snowball method is used for sampling, but due to lack of time of key informants, some of them were not interviewed. Consequently, the stakeholders' points of view about the necessity of the surveillance system's operation were extracted as the data saturation occurred.

Because of the large number of proposed themes and their low diversity, and also since it is impossible to name them all, we have tried to collect the most important and most relevant codes among the 249 codes into 20 themes.

Conclusion

No studies were carried out in this field in Iran, although the results can offer a solution related to student surveillance system's operation. Also, in this study, students' opinions were used since students are an important group in this system and using their opinions can enhance the credibility of the results (consideration 2).

Establishing such a system needs the political and organizational commitment to support and provide the necessary elements. So, use of both human and procurement resources is required for the launch and protection of the surveillance system (consideration 3).

We finally suggest considering the key points and designing a comprehensive and accurate program for the system, which are some undeniable factors. It is suggested that there should be a section established for the coordination between different parts of university, the Ministry of Health, the Ministry of Youth, and other related sections.

Based on the results of the study, it can be said that the participants generally agree on the necessity of establishing a health surveillance system, although it is important to consider the following:

- The burden of the diseases which will be determined through this program and paying attention toward the frequency index, disease severity, disease burden, and reducing the expenses related to diseases
- Targets and turnover of this program should be reviewed, the method of publishing and using data must be obtained, and the relation between other organizations should be considered; also, the chart of program's components and the workflow must be drawn
- Use of both human and procurement resources is required for the launch and protection of the surveillance system (it can be determined and provided for a long time).

Acknowledgment

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