Influence of a Community-Oriented Curriculum On The Medical Students' Perception of Priority Health Problems in Their Local Community.

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Abstract

Introduction: Community-oriented medical education (COME) implies using the health needs of a certain community as the base for development of educational goals as well as selection and implementation of teaching activities. A model of COME is adopted by Al-Baha University Faculty of Medicine (FMBU) in Saudi Arabia. Through this curriculum, more emphasis is paid to priority health problems (PHPs) of the local community of Al-Baha province. **Objective:** to determine the influence of the COME curriculum of FMBU on the students' awareness of PHPs in their local community. **Methods:** Through a mixed qualitative and quantitative approach, identification and prioritization of PHPs of the local community of Al-Baha province was conducted from the students' points of view. Factors that might affect students' perception of these PHPs were also investigated. **Results:** Among a list of 11 disease categories, traffic injuries, cardiovascular diseases and diabetes were agreed upon by the students as the most PHPs of Al-Baha community. Results of this study are in favor with the positive impact of study in the COME on students' awareness of the PHPs in their local community. This assumption was consolidated in comparison to other factors that might be of influence like residence in this local community. **Conclusion:** COME curriculum could improve medical students' awareness of PHPs in their local community. A comparative research between impact of this COME curriculum and another classic curriculum in a similar community is indicated.

Keywords: *Community-Oriented Medical Education, Priority Health Problems*

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Introduction

Saudi Arabia (SA) has rich and unique geographical, demographical and climatic diversities.[1] Al-Baha province, located in the south west of SA and one of the high altitude regions, 1900 meter above sea level, is a prototype of these diversities. Al-Baha province has an area of 36,000 km² and a population of 459,200. The region is characterized by the presence of mountains, plains, hills, valleys and desert stretches. The variation in topography influences the climate of the region. It is very cloudy, foggy, and rainy in winter but mild and pleasant in summer and spring.[2]

These geographic and climatic characters of Al-Baha province have resulted in a diversity of health conditions. High altitude associated with low air pressure, temperature and

oxygen has well known health effects. Mountainous and desert areas and the climate of Al-Baha also have shaped a characteristic natural life of plants, animals, birds and insects that also have effects on man health.[3] The foggy weather and rugged roads in-between mountains stand as main causes of road and traffic accidents.[4] The conservative and religious background of the Al-Baha community also has its effects on knowledge, practices and attitudes of the population toward health.

In view of these unique characteristics and conditions, the Faculty of Medicine at Al-Baha University (FMBU) was established in 2008. Through the educational program of FMBU, an innovative, integrated and COME curriculum was adopted vertically in the five years of undergraduate medical study.[5-8] In order to shape out a convenient curriculum model of FMBU, a variety of steps were followed. Needs assessment and prioritization of local community health problems were the initial steps.[9]

Prioritization of health problems is a challenging process. It is not simply determined by morbidity and mortality rates but there are a range of other factors that should be considered. Along with epidemiology, the following considerations are important: prevalence of the health problem, potential for being prevented, and costs to the individual and the community.[10] During the planning phase of FMBU curriculum and out of the expectation that PHPs may differ from the national Saudi level to the local level of Al-Baha province, planners spared no efforts to define and address PHPs in the new curriculum.[5]

To further take care of the identified PHPs, a plan for collaboration between the university and the local health authority as well as the local community was incorporated in the FMBU curriculum plan. As a result of this collaboration, the Ministry of Health centers and hospitals as well as variety of the community localities are utilized as teaching and training venues for FMBU students, a type of collaboration which is indicated for a convenient and socially accountable COME curriculum.[11]

After years of implementation of this curriculum and the intake of several students' batches, this question has been raised: How far has this COME curriculum impacted the students' perception of PHPs of the local community? Through this study, an answer for this question is looked for through testing the impact of this COME curriculum among other factors on the students' ability to judge priority of health problems in their local community.

General objective: is to determine the influence of the community-oriented curriculum of Al-Baha Faculty of Medicine, Saudi Arabia on the medical students' ability to recognize priority health problems in their local community. Specific objectives: Specific objectives of this study are (1) To develop a list of priority health problems in Al-Baha community from the FMBU students' points of views. (2) To investigate influence of study in the community-oriented curriculum through comparing perceptions of two students' grades; junior and senior grades, related to PHPs in their local community. (3) To study the relation between students' residence and their judgment on priorities of the different disease categories. (4) To identify sources of knowledge that influencing FMBU students' perception of PHPs in their local community.

Methods

Study design and setting: A mixed qualitative and quantitative approach was followed in this descriptive-cross sectional study. The qualitative component was used to identify the range of diseases that are expected to be a priority in Al-Baha local community. The identified diseases were included in unordered list. Through the quantitative

component the identified list of diseases were reordered from the highest to the least priority based on FMBU students' perceptions.

Study population and sampling: A convenience purposeful sample of 62 students was studied. This number comprises all year 2 and 5 students in FMBU (31 students in each year). The batch of year-2 was the first in the medical curriculum after the preparatory year while the batch of year 5 was the oldest. At that time of the study, the college had been established only five years ago therefore a sixth year batch wasn't yet available. *Instrumentation and data collection:* Through the qualitative part, a "Nominal Group Technique" (NGT) was utilized to identify a primary list of PHPs in the local community of Al-Baha province from the students' point of view.[12,13] For this purpose, two students groups were formed. One group consisted of year 2 students while the other consisted of year 5 students. Number of students in the two groups was equal; 31 students in each group. For each group, a trained student moderator was assigned to clarify the objectives and moderate the dynamics of group.

The student moderators facilitated a group discussion on how to prioritize a certain disease based on preset criteria. Utilized prioritization criteria are: prevalence, morbidity, mortality, disability and economic burden of the health problem.[14] These criteria were agreed upon prior to the NGT process.

Students' views related to the different PHPs in the local community of Al-Baha province were explored through the NGT discussion. In each group a list of disease categories was written on a flip chart. Finally the two lists were combined in one common list of 11 diseases categories.

To fulfill the quantitative part, a self-administered anonymous questionnaire was developed based on output of the two groups and validated by a group of four experts. The questionnaire consisted of the following three sections: the common list of disease categories as identified by the students, list of factors or sources that could be of impact on their perception of a disease priority, as well as general and personal data. A 1-5 rating scale was assigned to the list of disease categories.

The questionnaire was distributed on the students' of the two grades in a paper format. Finally, filled questionnaires were collected and tallied. Mean of scores given by the students for each disease category was calculated and the diseases' list was reordered accordingly.

Data management: Descriptive statistics (frequencies, percentages, means and standard deviations) were utilized. Statistical significance was calculated through Chi square test. Statistical significance level was set at $p < 0.05$. Statistical analysis has been done by IBM® SPSS v.20.

Ethical considerations: Students were given the liberty to deny participation in this study without any consequences form them and also to withdraw from the study at any time. Students who agreed to participate have signed an informed consent before participation. Students were advised not to write their names or any other identification data on the questionnaires forms.

Approval for conducting the study has been obtained from the Institutional Research Committee and Human Ethics Committee of the Faculty of Medicine, Al Baha University.

Results

The overall response rate of students to the questionnaire was equal to 88.7% with almost comparable percentages from each cohort. The majority (84%) of students responded were residents of Al-Baha province while the minority (16%) was residents of other regions in Saudi Arabia.

Through the NGT, views of year 2 and year 5 students related to the different

PHPs in the local community of Al-Baha province were explored.

Box (1) the primary (unordered) list of disease categories identified through the NGT by undergraduate year 2 and year 5 medical students of FMBU:

- Cardiovascular diseases
- Respiratory diseases
- Digestive system diseases
- Renal and urinary diseases
- Nervous system diseases
- Diabetes and endocrine disease
- Cancers
- Injuries of traffic accidents
- Infectious diseases
- Perinatal problems
- Congenital anomalies

Table (1): Mean priority scores and ranking of the list of disease categories according to their priority from the students' point of view*.

List of diseases	*Mean score given by 2nd year students*	*Mean score given by 5th year students*	*Total mean score*	*Rank*
Injuries due to traffic accidents	4.67	4.71	4.70	1
Cardiovascular diseases	3.35	4.15	3.75	2
Diabetes and endocrine diseases	3.74	3.64	3.70	3
Renal and urinary diseases	2.96	3.32	3.15	4
Cancers	3.00	3.14	3.10	5
Respiratory diseases	3.00	3.12	3.05	6
Nervous system diseases	2.52	2.43	2.74	7
Digestive system diseases	2.55	2.75	2.65	8
Infectious diseases	2.6	2.25	2.40	9
Perinatal diseases	2.30	2.29	2.30	10
Congenital diseases	2.26	2.25	2.25	11

Based on estimated total means, the list of disease categories could be reordered from the highest to the lowest priority. As shown in the table, injury due to traffic accidents and cardiovascular diseases were judged by the students as the highest two PHPs in the local community of Al-Baha.

We assumed that study in the COME curriculum might be a determinant of students' judgment of PHPs of the local community compared to other factors like residing in this community. Table (2) shows the relation between residence of students, either in Al-Baha our outside, and their judgment of priority of the disease categories.

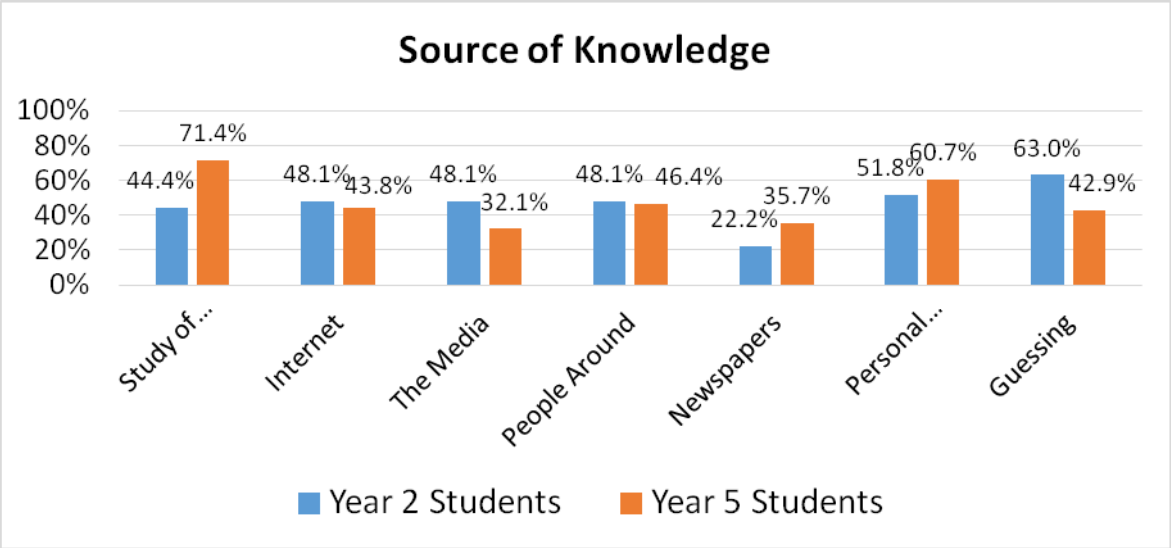
Table (2): Relation between students' residence and their judgment on priorities of the different disease categories.

List of diseases	*Percentage of Al-Baha resident students rated the disease as of high priority*	*Percentage of students resident outside Al-Baha who rated the disease as of high priority*	**P Value**
Injuries due to traffic accidents	93.5 %	100%	0.712
Cardiovascular diseases	54.4 %	55.6 %	0.292
Diabetes and endocrine diseases	63 %	33.3%	0.194
Renal and urinary diseases	34.8 %	11%	0.149
Cancers	21.7%	44.4%	0.024*
Respiratory diseases	28.3%	33.3%	0.898
Digestive system diseases	13%	23%	0.012*

X^2 test *is the test of significance used.*

The table shows that there is a coincidence in the trend of agreement between the two groups of Al-Baha residents and non-resident as regard priority of the different diseases categories. For example, the great majority (> 90%) in the two groups agreed upon priority of injuries due to traffic accidents while the minority (<30%) in the two groups agreed upon priority of the digestive system diseases. This finding might refute the hypothesis that residence in Al-Baha is main factor influencing the students' awareness of the PHPs in the local community.

Sources of knowledge that might influence students' judgment of a disease priority were evaluated as shown in Figure (1).



X^2 tests (P Values)

Study	Internet	Media	People	News-papers	Personal Experience	Guessing
0.04*	0.14	0.23	0.89	0.27	0.51	0.02*

Figure (1) Sources of knowledge that might influence students' judgment of a disease priority

The figure shows that study of medicine through the COME curriculum, was agreed upon by the majority of 5th year students as the main source of their information related to the PHPs of the local community of Al-Baha. On the other hand, guessing was agreed upon by the majority of the 2nd year students as the main source of their judgment on priority of health problems.

Accordingly, the list of 11 disease categories shown in Box (1) was identified. In a subsequent phase these disease categories were prioritized, and reordered, based on a rating scale within the students' questionnaire.

Prioritization of the primary list of disease categories was conducted by students of the two batches through giving a score from 1 (the lowest) to 5 (the highest) for each disease. Table (1) shows means of the scores given by the students of each batch to the different disease categories as well as the algebraic sum of the two means for each category.

Discussion

According to this study and among a list of 11 disease categories, injuries due traffic accidents were rated by the medical students of FMBU as the highest priority health problem in Al-Baha province. This finding is consistent with national Saudi records. According to the report of Country Cooperation Strategy for WHO and SA (2011)[15], road traffic accidents have been increasing and are now the largest cause of death in adult males aged between 16 and 36 years.[16] Possible factors that underlie for this health problem in the local community of Al-Baha province are; rugged roads resulted from the mountainous nature of the region; the foggy weather most of the year times in Al-Baha, as well as the rash driving attitudes of young adults.

Cardiovascular diseases and diabetes mellitus respectively were perceived by the students as the second and third health priorities in Al-Baha province. According to the report of Country Cooperation Strategy for WHO and SA; it was stated that with increasing longevity and changes in lifestyle toward welfare and the predominance of unhealthy food habits, there has been a consequent increase in patterns of diseases with marked increase in illnesses related to non-communicable diseases in particular cardiovascular diseases and diabetes.[15] According to the Saudi Ministry of Health, Diabetes Mellitus is a major public health problem in Saudi Arabia with almost 25 percent of Saudi adults between the ages of 30 to 70 suffering from the disease.[16]

Renal diseases, cancers, respiratory diseases, digestive system diseases as well as nervous system diseases are rated by students to be of intermediate priority among the list of diseases. According to Alsuwaida et al. (2010), chronic renal diseases are significantly higher in the older age groups, higher serum glucose, waist/hip ratio and blood pressure. These risk factors are connected to former group of priority health problems like DM and CVS diseases.[17]

As regard cancers, cumulative priority of different types of cancers is progressively increasing indicated by increased number of cases in SA in general. According to the Cancer Index (2008), it is estimated that the risk of getting cancer before age 75 in SA is 8.9% and people dying from cancer each year equals 8,900. There are no data available on the burden of cancers in Al-Baha province in particular.[18]

In high altitude regions where shortage in oxygen level is a constant finding, respiratory diseases including bronchial asthma are acquiring higher priority. Data related to the prevalence and burden of bronchial asthma in Al-Baha region is scarce.[19] In the context of this high altitude region and based of the students' perception of its priority, respiratory diseases are still in need for more care in the undergraduate curriculum of FMBU.

Infectious diseases together with perinatal problems and congenital diseases were perceived by students as the lowest priority

among the other disease categories of the list. stated that infectious diseases and vector borne diseases have been decreased very much in SA in current decades.[20] Increased health investment, improved population awareness, vaccinations and controlling of insects and vectors and provision of treatments all have contributed to the improvement of trends related to this type of diseases.

Genetic diseases are considered as a priority health problem in SA as well as the other Gulf Cooperation Council (GCC) states. The Report on Health Research Priority Settings in GCC states through the executive board of the health ministers of these states, recommended targeting genetic diseases by further research.[21] In SA in general and in a conservative community like that of Al-Baha, consanguineous marriages is highly prevalent. This is in turn increases the risk for genetic diseases.[22] In view of this fact as well as the students' perception of priority this health problem, the FMBU curriculum should incorporate more content and community-based activities relevant to this disease category.

Through this study, evidence is provided on the students' perception of PHP in the local community of Al-Baha and of Saudi community at large. Compared to other factors or sources of influence, study in the COME and Internet were significantly related to the students' perception of the PHPs. Impact of the COME curriculum was consolidated by the increasing trend of dependence on this factor/source from year 2 to year 5. On the other hand, utilization of the internet and social media was significantly related to the students' perception of the PHPs.[23]

Conclusion

Injuries due to traffic accidents, cardiovascular diseases and diabetes are rated by the medical students of FMBU as the highest three health priorities in Al-Baha province. These findings are in harmony with the PHP at the national Saudi level. According to these findings, tracking and reweighing of content and activities relevant to these PHPs is indicated. Results of this study are in favor of the positive impact of COME on students' perception of the PHPs in their local community.

Because of the naturally occurring small class size in FMBU, sample size of students was the main limitation of this study. In view of this limitation, these results can be used as a base or starting point to further build on researches in the future.

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