Information Technology in Medical and Patient Education

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Background. Patient education and awareness play an important role in the quality and effectiveness of health care outcome. Information technology has a significant role in delivering and improving health care performance on individual, society, and organization. However, medical staff has an important role in conducting and applying information technology in the health care organizations.

Aim. The aim of this study is to assess medical staff attitude, knowledge, and skills toward applying information technology in patient education.

Methods. This study was conducted in King Faisal Specialist Hospital and Research Center (KFSH&RC) in Riyadh, KSA. A total of 60 medical staff from different specialty responded to the study questionnaire.

Results. Of the 100 questionnaires distributed, 60 were returned, giving 60% response rate. The result shows that more than 90% (n = 55) of respondents agreed to use PEIS in their unit, while 61% (n = 37) were in need to take computer training to develop their skills and knowledge in using information technology. More than 80% rated themselves as "Good" or above in using hospital information system (HIS), while only 57% rated the same level for general computer skills. Lack of time and language were among the biggest barriers in conducting patient education.

Conclusion. In conclusion medical staff had a very positive attitude towards applying patient education information system. However, the language barrier and lack of time were considered as the biggest barriers for conducting patient education. Accordingly the results showed that there is a significant need for computer training.

Keywords. Attitude to computers; medical informatics, information system, patient education, patient awareness, computer skills.

Introduction

Patient education and awareness play an important role in the quality and effectiveness of health care outcome. Although patient education has long been a cornerstone of health care practice, the shortening of stays has increased the need for a discharge teaching plan that includes home care. (1) Another general purpose of consumer health education is to activate individuals to take part of responsibility for their own health. At the same time patients have become more sophisticated in their request for information. On the other hand the practitioners have become increasingly under pressured of time and demands of managed care. (8) Information technology has a significant role in delivering and improving health care performance on individual, society, and organization. Computers can be used to print information about medications, illnesses, and symptoms so that patients leave the hospital with a personalized hand-out that can be read at home. Widely available software can be used to perform personal risk profiling. This type of software clearly illustrates for
the patient how such factors as lack of exercise, smoking, or untreated hypertension or hyperlipidemia can reduce life expectation and how changing them can prolong it. (8) Computers have recently begun to find a place in the everyday work of health care staff. The use of patient education information system (PEIS) in patient education is in its infancy. However, medical staff has an important role in conducting and applying information technology in the health care organizations so the successful integration of the medium into clinical practice requires the acceptance and support of staff members. (4)

The study
Aim
The aim of this study is to assess medical staff attitude, knowledge, and skills toward applying information technology in patient education.

Sample
The study sample consisted of 60 different medical staff members (physician, nurse, health educator, and other…etc) in King Faisal Specialist Hospital and Research Center, (KFSH&RC), Riyadh, Kingdom of Saudi Arabia

Methods
A total of 60 medical staff from different specialty (Physician = 21, Nurses = 25, Health Educator = 8, others = 6; Total N = 60, Female = 33, Male = 27) responded to the study questionnaire. The questionnaire was designed in six sections: biographical details, self assessment of computer skills, knowledge update sources, barriers of conducting patient education, attitude to use patient education information system (PEIS), and the need for computer training.

Results
Of the 100 questionnaires distributed, 60 were returned, giving 60% response rate. The result shows that more than 90 %, (n = 55) of respondents agreed to use PEIS in their unit, which clearly document an enthusiasm for using information & communication technology in conducting medical education. In the same time 61 % (n = 37) were in need to take computer training to develop their skills and knowledge in using information technology. More than 80% rated themselves as "Good" or above in using hospital information system (HIS), while only 57 % rated the same level for general computer skills (Table 1). Lack of time and language were among the biggest barriers in conducting patient education respectively (Table 2). Patient attitudes were considered as one of the barriers by more than 11% of the respondents. The medical staff members (physicians, nurses, health educators and other) a very positive attitude towards advances in modern technology, like applying patient education information system (PEIS). Another important finding of this survey shows that in addition to the favorable attitudes, computer-related technologies (internet and electronic methods) are also applied in medical knowledge updating (Figure 1).

![Figure 1](image.png)

**Figure 1** Methods of updating medical knowledge.
Table 1 The computer skills of medical staff, N=60.

<table>
<thead>
<tr>
<th>Application</th>
<th>None (%)</th>
<th>Basic (%)</th>
<th>Good (%)</th>
<th>Excellent (%)</th>
<th>Outstanding (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>2</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>Computer Skills</td>
<td>9</td>
<td>33</td>
<td>36</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Hospital information system</td>
<td>3.3</td>
<td>15</td>
<td>45</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td>Internet &amp; literature search</td>
<td>2</td>
<td>25</td>
<td>40</td>
<td>27</td>
<td>7</td>
</tr>
</tbody>
</table>
Table 2 Barriers of conducting patient education in %.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language barrier</td>
<td>18.3</td>
</tr>
<tr>
<td>Lack of time</td>
<td>23.3</td>
</tr>
<tr>
<td>Lack of plans for educational</td>
<td>8.3</td>
</tr>
<tr>
<td>activates</td>
<td></td>
</tr>
<tr>
<td>Lack of financial resources</td>
<td>8.3</td>
</tr>
<tr>
<td>Uncooperative patient</td>
<td>11.7</td>
</tr>
<tr>
<td>All of the above</td>
<td>28.3</td>
</tr>
<tr>
<td>Other</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Discussion

The inability to use information technology effectively is potentially as disadvantageous as the inability to read and write. Rapid developments, including the digitization of the medical record, electronic teaching methods and the internet, mean that medical staff members need to be equipped with the proper attitude and needed tools and skills to deal with and exploit these advances. (7)

The importance of developing medical staff IT and other "key skills" is recommended by the Dearing Report on higher education (Dearing 1997). (9)

However, one study has reported that no relationship exists between computer knowledge and computer attitudes (Liu et al. 2000). One reason for our finding could be that computer knowledge hard to define and test. Others have suggested that previous computer experience may be beneficial, but does not necessarily result in favorable outcomes towards computerized care planning (Getty et al. 1999). (8) This is consistent with our finding which indicates a positive attitude toward applying information technology while more than 60% still in need to tackle computer training.

Conclusion

In conclusion medical staff had a very positive attitude towards applying patient education information system. However, the language barrier and lack of time were considered as the biggest barriers for conducting patient education. Accordingly the results showed that there is a significant need for computer training.

References

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