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CLINICAL & BASIC RESEARCH

Effectiveness and Needs Assessment of Faculty Development Programme for Medical Education

Experience from Saudi Arabia

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تقييم فعالية واحتياجات برنامج تطوير أعضاء هيئة التدريس للتعليم الطبي

تجربة من المملكة العربية السعودية

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ABSTRACT: ***Objectives:*** Faculty members are the most important resource in any institution of higher education as medical education has been, and continues to be, a priority for medical colleges in Saudi Arabia. This study aimed to assess faculty members' perceptions of faculty development programmes (FDPs) in supporting important goals in medical education. In addition, this study aimed to assess faculty members' perceived needs. ***Methods:*** This cross-sectional study was conducted between August 2016 and August 2017 and involved participants from six universities in Saudi Arabia's Western Province. The survey consisted of 31 items designed to assess FDP effectiveness and 49 items designed to assess needs in FDPs. ***Results:*** A total of 210 faculty members participated in the study (response rate = 52.5%) and identified 49 needs. Faculty members perceived personal improvement in delivering medical education and the provision of greater educational involvement as the most effective considerations in an FDP. The respondents considered 13 needs to be of utmost importance; the remaining were considered important. ***Conclusion:*** This study assessed and identified faculty needs and important skills to consider when establishing an FDP. Furthermore, it provided information addressing the needs of, or gaps between, current and desired conditions in medical education in Saudi Arabia. The study also identified the most important elements (i.e. personal improvement) of faculty-perceived effectiveness for a successful FDP in medical education.

Keywords: Faculty; Program Development; Needs Assessment; Perception; Medical Education; Saudi Arabia.

الملخص: الهدف: يعد أعضاء هيئة التدريس أهم الموارد في أي مؤسسة للتعليم العالي والتعليم الطبي وكانوا ولا زالوا من الأولويات بالنسبة للكليات الطب في المملكة العربية السعودية. هدفت هذه الدراسة إلى تقييم إدراك أعضاء هيئة التدريس لبرامج تطويرهم وذلك لدعم الأهداف المهمة في التعليم الطبي. بالإضافة إلى ذلك، هدفت هذه الدراسة إلى تقييم الاحتياجات المُتصورة لأعضاء هيئة التدريس. **الطريقة:** أجريت هذه الدراسة المستعرضة بين أغسطس 2016 وأغسطس 2017 وشملت مشاركون من ست جامعات في المنطقة الغربية بالمملكة العربية السعودية. تضمن الاستبيان المستخدم 31 بنداً صممت لتقييم فعالية برنامج تطوير أعضاء هيئة التدريس و 49 بندا مصممة لتقييم الاحتياجات في برامج تطوير أعضاء هيئة التدريس. **النتائج:** شارك ما مجموعه 210 من أعضاء هيئة التدريس في الدراسة (معدل الاستجابة = 52.5%) وتم تحديد 49 احتياجاً. يدرك أعضاء هيئة التدريس أن تطوير الذات في تقديم التعليم الطبي وتوفير مشاركة تعليمية أكبر هما من أهم الاعتبارات التي يجب مراعاتها في برنامج تطوير أعضاء هيئة التدريس. رأى المُجيبون على الاستبيان أن 31 احتياجا هي متطلبات ذات أهمية قصوى واعتبروا أن بقية الأحتياجات هامة. **الخلاصة:** قيمت هذه الدراسة وحددت احتياجات أعضاء هيئة التدريس والمهارات الهامة التي يجب مراعاتها عند إنشاء برنامج تطوير أعضاء هيئة التدريس. علاوة على ذلك قدمت هذه الدراسة معلومات تتناول الاحتياجات أو الفجوات بين الأوضاع الحالية للتعليم الطبي وتلك المرجوة منه في المملكة العربية السعودية. حددت الدراسة أيضاً أهم عناصر ادراك أعضاء هيئة التدريس لفاعليتهم (التاثير الذاتي) والتي تسهم في انجاح برنامج تطوير قدراتهم في التعليم الطبي.

الكلمات المفتاحية: أعضاء هيئة التدريس؛ تطوير برنامج؛ تقييم الاحتياجات؛ الإدراك؛ التعليم الطبي؛ المملكة العربية السعودية.

Advances in Knowledge

- *Most faculty members at medical colleges in Saudi Arabia lack formal training in areas essential to improving their academic performance.*
- *Personal effectiveness in delivering medical education is considered the most important achievement target in a faculty development programme (FDP).*
- *While the results of this study are of local importance, a survey of all faculty members in Saudi medical schools would provide information about their needs and establish a basis for FDP activities on a national level.*

Application to Patient Care

- *FDPs can teach college of medicine faculty members and students how to communicate with their patients, resulting in better adherence to treatment and ultimately, improvement of symptoms.*
- *Implementing an FDP may reduce medical errors and prevent adverse events during treatment.*
- *FDPs may increase patient satisfaction and reduce claims of malpractice.*

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Medical education has been, and continues to be, the highest priority of medical colleges in Saudi Arabia. This prioritisation is evident in the establishment of more than 35 medical colleges nationwide.[1] Every medical college has a goal, vision, mission and core values that it tries to maintain and adhere to through a carefully articulated curriculum.[2] Physicians who graduate from these colleges must be competent, professional and able to respond to needs within the society.[3]

A faculty development programme (FDP) is a planned activity that is designed to improve an individual's knowledge and skills in areas considered essential to the performance of a faculty member as a teacher, researcher or administrator in order to address needs for future development.[4] Faculty development can lay the foundation of quality enhancement in medical education.[5]

Faculty members are the most important resources in any institution of higher education. Therefore, an FDP should act as a resource to meet faculty members' individual goals as teachers, scholars and leaders.[6] Faculty members at medical schools must be talented and productive teachers, effective clinicians and successful researchers. These pressures have evolved from the competition between different medical schools and institutions, contemporary curriculum development and shortcomings in research, teaching and production.[7] In addition, FDPs must prepare faculty members to deal with rapidly occurring changes in medical education, healthcare delivery systems and clinical teaching and practice.[8] Glowacki-Dudka and Brown elucidated the most beneficial effects of FDPs as self-evaluation through teaching scales, awareness of effective teaching methods and student evaluations.[9] However, the beneficial effects of FDPs were later found to be broader than what was described by Glowacki-Dudka and Brown and other benefits were established.[9]

A needs assessment is defined as a systematic process of collecting and analysing information to address the gaps between current and desired conditions.[10] This study is one of three parallel projects that tackled different aspects of FDPs. Although the same inclusion and exclusion criteria were used across all three projects, separate groups of surveyors used entirely different questionnaires for each project. This study aimed to assess faculty members' perceptions of FDP effectiveness and identify the most important goals for the programme. Additionally, this study aimed to assess the perceived needs of faculty members participating in FDPs.

Methods

This cross-sectional study involved participants from six universities in Saudi Arabia's Western Province and was conducted from August 2016 to August 2017. The participants were faculty members who had worked as full-time or joint appointees, taught with or without clinical assignments and had participated in FDPs during the previous two years. Newly employed and part-time faculty members and those classified as serving in non-teaching positions were excluded. Participants were selected through a consecutive sampling technique which was based on eligibility criteria.

The total number of faculty members in the population under consideration was 400. The required sample size was estimated at a 95% confidence level with an estimated 40% response distribution and a margin of error of ± 5%. The required minimum sample size, calculated using Raosoft® (Raosoft, Inc., Seattle, Washington, USA) was 197, and the final sample size was determined to be 210, accounting for an approximately 10% non-response rate.

The questionnaire used in this study was a pre-designed self-administered tool generated by previous research.[11–16] This comprehensive questionnaire included all possible items from related publications in the literature. The items of the questionnaire were divided into two sections that addressed two different aspects of faculty development (i.e. needs and effectiveness). The researchers personally distributed the survey to maximise the number of completed items and allow participants to ask questions. Explaining the purpose of the study and its impact on enhancing FDPs encouraged the faculty members to complete the questionnaires.

The survey consisted of 31 items designed to assess the effectiveness of FDPs and 49 items designed to assess the needs that should be addressed by FDPs. The questionnaires used a five-point Likert scale with ordinally scaled options. The options for the first questionnaire were: one, not effective; two, less effective; three, somewhat effective; four, moderately effective; and five, more effective. For the second questionnaire, the options were: one, not at all important; two, not very important; three, moderately important; four, important; and five, very important. In addition, the demographic profile of the participants was collected to identify whether any demographic and work factors correlated with perceptions of FDPs.

The validity of the questionnaire's content was ensured by consulting a panel of experts in the field of

FDPs for review and modifications. The panel included three local experts from King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) and three international experts from three different universities in the USA. Analyses of data collected during pilot testing were conducted using Cronbach α for internal consistency, which demonstrated high reliability. The scales' and subscales' consistency were determined by factor analysis.

Statistical Package for the Social Sciences (SPSS), Version 23 (IBM Corp., Armonk, New York, USA) was used to analyse the collected data. To summarise quantitative variables, descriptive statistics such as mean, median and standard deviation were used. Frequencies and percentages were used to summarise qualitative variables.

To ensure the confidentiality of information, all questionnaires were completed and submitted anonymously. Furthermore, the cover page of each questionnaire explained confidentiality issues, including instructions on how to complete the questionnaire and provided space for participants to give informed consent to participate in the study. The Institutional Review Board of King Abdullah International Medical Research Center, Riyadh, Saudi Arabia, approved this study (IRBC/430/16).

Results

A total of 210 faculty members participated in the study (response rate = 52.5%). Most participants were from KSAU-HS (56.7%), followed by Batterjee College (BC; 13.8%), Taif University (TU; 10.5%), Ibn Sina College (IBSC; 8.6%), Umm Al Qura University (UQU; 7.1%) and Rabigh University (RU; 3.3%). The majority of participants were full-time faculty members (81.4%), over 40 years old (80.5%) and male (75.2%). Only 1% did not specify their gender. In terms of highest educational achievement, most participants were PhD degree holders (67.1%), followed by master's degree (21%) or bachelor's degree holders (9%). The distribution of academic positions of the participants showed that most were assistant professors (54.3%), followed by associate professors (18.6%), professors (15.2%), lecturers (8.6%) and teaching assistants (3.3%). Regarding the length of teaching experience, most participants had taught for between 3–10 years (52.4%), followed by 11–20 years (20%) teaching experience. Some had less than two years of teaching experience (15.7%) while fewer had more than 20 years teaching experience (10%) [Table 1].

Faculty members perceived the two most effective items to be addressed in an FDP as the improvement of personal qualities and making provisions for greater educational involvement (mean = 4.22 ± 0.88

Table 1: Characteristics of faculty members of medical schools in Saudi Arabia who participated in this study (N = 210)

Characteristic	n (%)
Institution name	
KSAU-HS	119 (56.7)
UQU	15 (7.1)
BC	29 (13.8)
IBSC	18 (8.6)
RU	7 (3.3)
TU	22 (10.5)
Employment status	
Full-time	171 (81.4)
Joint appointees	39 (18.6)
Age in years	
25–30	4 (1.9)
31–35	9 (4.3)
36–40	26 (12.4)
41–45	64 (30.5)
46–50	51 (24.3)
>50	54 (25.7)
Not known	2 (1)
Gender	
Male	158 (75.2)
Female	50 (23.8)
Not known	2 (1)
Highest educational achievement	
Bachelor's degree	19 (9)
Master's degree	44 (21)
PhD degree	141 (67.1)
Not known	6 (2.9)
Academic position	
Teaching assistant	7 (3.3)
Lecturer	18 (8.6)
Assistant professor	114 (54.3)
Associate professor	39 (18.6)
Professor	32 (15.2)
Teaching experience in years	
<2	33 (15.7)
3–5	61 (29.1)
6–10	49 (23.3)
11–15	22 (10.5)
16–20	20 (9.5)
21–35	21 (10)
Not known	4 (1.9)

KSAU-HS = King Saud bin Abdulaziz University for Health Sciences; UQU = Umm Al Qura University; BC = Batterjee College; IBSC = Ibn Sina College; RU = Rabigh University; TU = Taif University.

Table 2: Faculty-perceived effectiveness of a faculty development programme in Saudi Arabia

Rank	Item	Mean ± SD	Verbal interpretation
1	Improving personal qualities (e.g. being consistent, trustworthy, inspiring, authentic, etc.)	4.22 ± 0.88	More effective
2	Providing greater educational involvement	4.21 ± 0.80	More effective
3	Enhancing teaching strategies	4.19 ± 0.92	Moderately effective
4	Improving teaching skills	4.18 ± 0.85	Moderately effective
5	Improving teaching methodologies	4.17 ± 0.92	Moderately effective
6	Improving self-awareness (e.g. strength, weakness and limitations)	4.16 ± 0.86	Moderately effective
7	Positively changing teaching behaviour	4.16 ± 0.84	Moderately effective
8	Understanding the process of developing curricula	4.16 ± 0.91	Moderately effective
9	Using students' needs assessment efficiently	4.15 ± 0.98	Moderately effective
10	Increasing knowledge of educational principles	4.14 ± 0.84	Moderately effective
11	Positively changing attitude towards teaching	4.13 ± 0.89	Moderately effective
12	Improving career productivity	4.12 ± 0.88	Moderately effective
13	Improving interpersonal relationships among faculty members	4.11 ± 0.87	Moderately effective
14	Improving teacher-student interactions	4.10 ± 0.93	Moderately effective
15	Bringing positive changes in attitude towards the institution	4.10 ± 0.83	Moderately effective
16	Improving personality (e.g. emotional control, displaying appropriate values and morals towards other)	4.10 ± 0.93	Moderately effective
17	Improving test development abilities	4.09 ± 0.92	Moderately effective
18	Planning learning activities linked to set objectives	4.06 ± 0.96	Moderately effective
19	Improving career satisfaction	4.06 ± 0.93	Moderately effective
20	Increasing awareness about the mission and vision of the institution	3.99 ± 0.87	Moderately effective
21	Giving sense of personal fulfilment	3.95 ± 0.87	Moderately effective
22	Enhancing scholarly activity productivity	3.95 ± 0.91	Moderately effective
23	Working with others harmoniously	3.95 ± 0.93	Moderately effective
24	Increasing understanding of the research process	3.94 ± 0.98	Moderately effective
25	Learning educational scholarship skills	3.94 ± 0.93	Moderately effective
26	Improving relationships among colleagues	3.92 ± 0.94	Moderately effective
27	Establishing a faculty network	3.89 ± 1.01	Moderately effective
28	Gives sense of identity	3.88 ± 0.86	Moderately effective
29	Contributing to retention in academia	3.86 ± 0.99	Moderately effective
30	Increasing understanding about research management	3.83 ± 0.99	Moderately effective
31	Increasing awareness of research funding opportunities and research protocols	3.82 ± 1.01	Moderately effective

SD = standard deviation.

and 4.21 ± 0.80, respectively). Enhancing teaching strategies (mean = 4.19 ± 0.92), improving teaching skills (mean = 4.18 ± 0.85) and methodologies (mean = 4.17 ± 0.92) as well as improving self-awareness (mean = 4.16 ± 0.86) and positively changing teaching behaviour (mean = 4.16 ± 0.84) were rated as moderately effective. Awareness of research funding opportunities and research protocols (mean = 3.82 ± 1.01), understanding research management (mean = 3.83 ± 0.99), retention in academia (mean = 3.86 ± 0.99), establishing networks (mean = 3.89 ± 1.01) and improving relationships (mean = 3.92 ± 0.94) with colleagues were among the items perceived as less effective in FDPs [Table 2].

A total of 49 needs were identified with 13 needs considered of utmost importance while the remaining were considered important [Table 3].

Discussion

FDPs in medical colleges are currently considered more important than before. Although full-time Saudi faculty members constitute a large body in academia, most are not equipped with formal training in the field of medical education.[17] The current study reflected this finding as faculty members believed the most effective items in an FDP were improving personal qualities and providing greater educational involvement. Such

Table 3: Level of importance of developing various skills in a faculty development programme in Saudi Arabia

Rank	Skill	Mean ± SD	Verbal interpretation
1	Presenting work at conferences	4.58 ± 3.72	Very important
2	Giving effective feedback	4.38 ± 0.81	Very important
3	Teaching communication skills	4.36 ± 0.73	Very important
4	Problem-based learning	4.35 ± 0.82	Very important
5	Creating an OSCE	4.28 ± 0.84	Very important
6	Teaching evidence-based medicine	4.28 ± 0.77	Very important
7	Using effective teaching strategies for student-centred learning	4.28 ± 0.73	Very important
8	Teaching small groups	4.24 ± 0.80	Very important
9	Fostering team-building skills	4.23 ± 0.82	Very important
10	Accessing medical information online	4.22 ± 0.88	Very important
11	Teaching the 'problem' student/resident	4.21 ± 0.81	Very important
12	Evaluating a course or programme	4.21 ± 0.79	Very important
13	Developing online teaching materials or courses	4.21 ± 0.77	Very important
14	Evaluating learning	4.20 ± 0.87	Important
15	Teaching clinical reasoning skills	4.20 ± 0.82	Important
16	Supporting wellness (e.g. stress reduction, time management, work/life balance, etc.)	4.19 ± 0.91	Important
17	Designing a course or educational programme	4.19 ± 0.84	Important
18	Engaging in scholarly activities	4.18 ± 0.79	Important
19	Teaching professionalism	4.17 ± 0.86	Important
20	Understanding scholarship of teaching	4.15 ± 0.81	Important
21	Teaching procedural skills (e.g. swallowing assessment, basic laparoscopy, etc.)	4.10 ± 0.98	Important
22	Developing PowerPoint presentations for teaching	4.08 ± 1.01	Important
23	Teaching others how to teach	4.08 ± 0.88	Important
24	Creating portfolios for learning	4.06 ± 0.79	Important
25	Critiquing research articles	4.05 ± 0.91	Important
26	Writing an ethics proposal	4.05 ± 0.86	Important
27	Advocating for good health	4.05 ± 0.83	Important
28	Writing articles and abstracts for journals	4.04 ± 0.85	Important
29	Managing conflict and negotiation	4.04 ± 0.80	Important
30	Engaging in interprofessional education	4.04 ± 0.80	Important
31	Teaching in ambulatory or community-based settings	4.00 ± 0.86	Important
32	Teaching international medical graduates	3.99 ± 0.94	Important
33	Writing grants	3.98 ± 0.87	Important
34	Participating in career planning and promotions	3.98 ± 0.85	Important
35	Developing a course web page	3.96 ± 0.92	Important
36	Fostering colleagues' career development (e.g. mentorship)	3.95 ± 0.87	Important
37	Preparing a teaching dossier or creative professional activity dossier	3.95 ± 0.84	Important
38	Leading health professional organisations	3.89 ± 0.92	Important
39	Mentoring in a cross-cultural context	3.88 ± 0.82	Important
40	Teaching in cross-cultural settings	3.87 ± 0.75	Important
41	Developing video conferencing and webcasting skills	3.85 ± 0.92	Important
42	Learning about audience response systems	3.83 ± 0.91	Important
43	Teaching 101 (for novice teachers)	3.82 ± 0.96	Important
44	Chairing committees	3.81 ± 0.98	Important
45	Planning for retirement	3.80 ± 1.05	Important
46	Developing one-to-one teaching skills	3.74 ± 1.02	Important
47	Planning sabbatical skills	3.67 ± 1.07	Important
48	Teaching large groups	3.66 ± 1.03	Important
49	Giving media interviews	3.59 ± 1.07	Important

SD = standard deviation; OSCE = objective-structured clinical exam.

findings were also confirmed by several studies in North America.[17,18] For example, McLeod *et al.* found that faculty members' perceived needs reflected their principal commitments and clinicians desired workshops in clinical teaching.[18]

In this study, enhancing and improving teaching strategies, skills and methodologies were among the most important features in faculty-perceived effectiveness. This result is similar to findings by Haden *et al.*, wherein the respondents showed interest in learning more about matters related to teaching.[19] Other important aspects of faculty-perceived effectiveness were improvements in personal, student or curriculum-related aspects of their jobs. Faculty development plays an important role in bringing about organisational changes and promoting innovation and excellence in teaching. It also contributes by changing the institutional culture and establishing policies that support and reward excellence in academia. Unfortunately, this finding was not reflected in this study as there was only one institution-related perceived effectiveness aspect among the top ten elements. Other important institution-related aspects, including increasing awareness about an institution's mission and vision, improving test development abilities and linking instructional activities to set objectives, were less important than other personal-related aspects of perceived effectiveness.

Among the least important aspects of faculty-perceived effectiveness in FDPs were research awareness, understanding and funding, retention in academia, establishing faculty networks and improving colleague relationships. Steinert *et al.*'s study found that FDPs helped with faculty development by improving competencies pertaining to teaching, administration and research.[13]

Most of the faculty members in this study focused on personal aspects of perceived effectiveness, whereas institutional, research-related and other aspects of perceived effectiveness were considered to be less important. This finding is similar to previously published research, which reported a need to improve faculty members' knowledge in related areas in order to function properly as teachers, however, other findings determined that faculty needed more training in research skills.[5]

An effective FDP should be established based on the five major elements published by Wilkerson and Irby and Steinert *et al.*[20,21] These elements include professional, instructional, leadership, organisational development and programme evaluation. These elements were also reflected in the results of the current study, with professional and instructional development being the most important.

The needs assessment is a process that includes the collection and analysis of information regarding what a target group needs to learn.[22] In a faculty development needs assessment at the Faculty of Medicine at McGill University, Canada, McLeod *et al.* concluded that the needs assessment process is an important way to direct faculty development activities to the particular responsibilities of the faculty members.[18] Similar national surveys assessing faculty development have been published in the USA and Europe.[23,24]

As the number of medical schools in Saudi Arabia is growing rapidly and the faculty of medical schools include both locals and expatriates, a needs assessment should be the first step to establishing an FDP. While the results of this study have local importance, a survey distributed to faculty members of all Saudi medical schools might provide more specific information about their needs and help establish a basis for FDP activities on a national level.

In this study, the most important skills to be covered in FDPs were those related to improving transition points in individual faculty members' careers. An effective FDP should also include skills that medical educators should master, including presenting at conferences, giving effective feedback and teaching communication skills and evidence-based medicine. Additionally, faculty members identified the importance of FDPs addressing important tools for learning and assessment such as objective-structured clinical examinations, small group teaching and problem-based learning as well as understanding wellness, professionalism and interprofessional education. Among the least important skills to emphasise in FDPs were giving media interviews, planning sabbaticals and chairing committees.

A major limitation in the present study was the poor response rate, which might have occurred due to the difficulty in convincing busy faculty members to spend time completing the survey. The methodology of this study did not allow the researchers to collect in-depth responses that could have been achieved through a qualitative, interview-based study. Such a study might include a comparison of responses from different faculty ranks or teaching experiences. Qualitative research concerning FDPs in Saudi Arabia would constitute an extensive research project but would complement the current study's quantitative data. Such a study could be done by faculty members and masters' students interested in medical education.

Conclusion

Most faculty members at colleges of medicine in Saudi Arabia need further formal training in essential areas to improve their academic performance. This study assessed and identified important needs and skills that should be incorporated into an FDP to address these

areas. In addition, this study provided information to address the gaps between current and desired conditions. Local and national medical schools are urged to assess faculty needs and create FDPs according to those needs. Several methods and strategies may be used to achieve these needs, including collaborative joint reviews between the six universities and medical education conferences that tackle FDPs. The most important items to be achieved for faculty-perceived effectiveness in FDPs in medical education were personal aspects of perceived effectiveness. Colleges and medical institutions should establish a comprehensive FDP focusing on aspects of personal effectiveness which would prepare faculty members to fulfil their academic roles and promote career development. FDPs are created to improve a faculty member's commitment to their work and their ability to achieve goals and objectives for themselves and their institution. A unified faculty development diploma should be established in Saudi universities which would address faculty members' professional needs.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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