Content analysis of undergraduate guiding documents for a medical graduate attributes in different healthcare systems

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ABSTRACT

Objective: The basic aim of this study is to assess the attributes/competencies presented in the publically available guiding documents of globally accepted healthcare systems and accreditation bodies.

Methodology: The study was based on a quantitative study design that involved the content analysis of the concerned six target documents. The thematic and manifest content analysis was done to determine the commonalities and differentiating features among the attributes of different medical graduates across the globe. Six common attributes and several sub-attributes were identified through thematic analysis and later searched in the documents using the Ctrl+F option. The data was plotted on MS Excel sheet and the percentage frequencies were deduced.

Results: The results suggested that the two attributes that received the major emphasis were clinical/applied skills and knowledge. Among the remaining four, professionalism, personal grooming and leadership showed a mixed pattern while the community healthcare was mentioned minimally.

Conclusion: This study suggests that globally, undergraduate guiding documents of the major healthcare systems expect their medical graduates to acquire almost similar attributes at the culmination of their respective degrees. However, the amount emphasis laid on them by these healthcare systems vary depending upon their local needs. Interestingly, the attributes delineated by Pakistan Medical & Dental Council are in considerable alignment to the ones recognized globally.

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INTRODUCTION

In the past couple of decades, the field of health professions education has evolved tremendously. This was imminent to cope up with the ever-changing trends in medical educations. Among the number of changes that took place in the recent times, the recognition of the importance of attributes of a medical graduate is envisioned as quite significant.[1-3] This change has led to the emergence of "outcome based education" where the holistic outlook and structure of the curriculum is dictated by the abilities that the student should acquire at the end of the course/curriculum.[2,4] It is an educational strategy in which, as defined by Harden and colleagues " product defines process".[5] Thus the emphasis is not on the educational process but on the type of the medical graduates that will be produced by the end of the graduate program. Furthermore, the overall structuring of the curriculum will then take place under the light of these outcomes or attributes desired of them.

In the light of outcome-based education, the medical education regulatory bodies from across the countries have developed documents that contain the details of a number of attributes and competencies that they want their medical graduates to achieve. Some of these international medical education regulatory bodies are: World health organization (WHO), Accreditation Council for Graduate Medical Education (ACGME), Canadian Medical Education Directives for Specialists (CanMEDS), General Medical Council (GMC), The Scottish Doctor and Pakistan Medical and Dental Council (PMDC).

The notion behind the attributes identified by these regulatory bodies is to establish a list of competencies that a modern times doctor should be equipped with. These attributes would assist these doctors to perform a wide array of health care services ranging from a health care provision to a good community leader, a manager and a

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researcher. These competencies have been considered specifically important and achievable for learners at different levels of expertise.[6] Some additional attributes delineated by these councils include a good communicator, collaborator, a health advocate and a scholar with the ability to teach, research, appraise critically and to become a life long learner.[7-11]

Pakistan Medical and Dental Council is the main governing and statutory body that ensures the ethical and standardized medical teaching, learning and practice all over the country.[11] One of the major achievements of this council is to establish 7 core-competencies that a Pakistani doctor should achieve at the time of his graduation and named it as PMDC's seven star doctor. These attributes are meant to warrant the standardization and uniformity among the medical graduates. It also safeguards the good clinical practices and an optimal level of competency for all the medical graduates.[11]

This article is an attempt to interpret as well as compare the competencies identified by different healthcare systems by using the technique of thematic and manifest content analysis. In addition, it also narrates the local perspective and puts forth some recommendations to improve upon the attributes of a Pakistani doctor.

METHODOLOGY

After a thorough and a critical evaluation by the author and a senior medical educationalist, no ethical issue was found due to which the study was not forwarded to the ethics committee for the review. Furthermore, the study was carried out in June 2016 at Khyber Medical University, Peshawar, Khyber Pakhtunkhuwa, Pakistan on the publically available documents, without the need for dealing with human or animal subjects.

The study was based on a quantitative study design that involved the content analysis of the concerned target documents. The outcomes/competency/discipline-based curricular documents of six different internationally acknowledged medical education accreditation bodies belonging to global healthcare systems were the population targets. These documents were reviewed for the attributes that were delineated for their respective medical graduates.

A purposive sampling technique was used and a methodology of manifest documentary/content analysis was selected.[12] The basic aim was to carry out a non-reactive research based on critical analyses. Furthermore, a comparison between the six publically available official documents was made with respect to the attributes they have outlined for their respective graduates and the degree of overlap between them. These documents were: The five-star doctor: An asset to health care reform[7], ACGME General Competency requirements,[9] The Draft Can MEDS 2015 Physician Competency Framework[10], Tomorrow's Doctors, Outcomes and standards for undergraduate medical education[8], Learning Outcomes for the Medical Undergraduate in Scotland: A Foundation for Competent and Reflective Practitioners (3rd Edition)[13] and The curriculum of MBBS (Revised 2011) Prepared by: Pakistan Medical & Dental Council & Higher Education Commission Islamabad.[11]

Since the basic purpose of this study was to compare the above listed documents and delineate their common and differentiating elements, it was necessary to conduct a thorough appraisal of these documents. A thematic manual analysis was performed.[14] A meticulous read was given to the whole document and the competencies/attributes mentioned within each document were outlined and matched. A group of sub-attributes/competencies were further outlined and correlated accordingly. This approach was essential to identify as many attributes were although named differently but were contextually similar to each other (Table 1).

Once the common attributes were enlisted, a manifest content analysis was performed where the key items were manually searched one by one in all the documents using the Ctrl+F option on the PDF/word format of the document. The frequencies with which these named attributes occurred within the documents were noted on MS Excel sheet. In addition, total word counts of the relevant descriptive parts of the respective documents were also noted to determine the percentage frequency of the key words. However, attempts were made to exclude the irrelevant sections of the document such as content/indexed tables, annexures, preface and references, to avoid the inclusion of unnecessary words in the total count.

The manifest content analysis was then followed by the interpretation of the underlying context of these attributes and their subsequent matching.

The data acquired from the above analysis in the form of percentage frequencies has been presented in the form of tables and charts using MS Excel. The percentage frequencies of the outline attributes were calculated using the formula % age frequencies = numbers of key words/

Word count of the guiding document x 100. The details of the manual analysis and contextual interpretation have been scripted in the results and discussion sections.

RESULTS

This study included two techniques of content analysis namely the thematic manual and manifest content analysis. A thematic manual analysis of all the documents suggested that a total of six attributes/competencies were unanimously included in all of them. In order to avoid any discrepancy, each attribute was then further classified into sub attributes/competencies, which were then correlated accordingly. Though these attributes vary in terms of the vocabulary used, their contextual interpretation implied that they all elucidated the same underlying principle and hence could be grouped together. These competencies are enlisted in the table 1.

A detailed manifest content analysis was performed and the data was retrieved in the form of percentage frequencies for each attribute per document using the formula mentioned in table 2. The results revealed that although all 6 competencies were mentioned, the emphasis given on some competencies/attributes were considerably more than the others. There was an uneven coverage of all the attributes through out these documents. This was depicted by the variation observed in the number of key words for each competency used per document as well as by their respective frequency percentages (Graph 1, Table 2). According to the overall analysis, among all the attributes, the major emphasis was given to the attributes of clinical/applied skills and knowledge. This was then followed by a moderate emphasis on professionalism, personal grooming and leadership attributes while the community health evidently lacked the mention among the majority of the documents. The highest percentage frequency of applied/clinical skill was shown by the GMC's document (percentage frequency: 0.87%), followed by the Scottish Doctor and CanMEDS (percentage frequency: 0.68% and 0.66%), respectively. The Scottish doctor maximally addressed the knowledge element with the frequency of 0.58% while the CanMEDS laid major emphasis on professionalism (Percentage frequency: 0.83%). A mixed trend was observed with the attributes of personal grooming and leadership qualities. However, the ACGME document did not mention the leadership attribute at all. Lastly, the community healthcare aspect seemed to receive the minimal attention by the great majority of the documents. Only ACGME document emphasized on it (Percentage frequency: 0.17%) while the Scottish doctor lacked it entirely.

As far as the subthemes/attributes analysis was concerned, the most commonly used nomenclature in the knowledge category was knowledge itself with the highest percentage frequency among all the sub attributes. Likewise the applied and clinical skills showed a similar pattern with the general term of skills being used repetitively in all the documents followed by patient care and medical practice, respectively. The sub themes of professional and communication skills were notably recurrent under their respective competencies while both leader and leadership were used intermittently to depict the attribute of leadership. Lastly the sub attributes of community healthcare did not show any obvious pattern (Table 2). A comparative analysis of all the competencies has been tabulated in table 2 and is displayed both in terms of the number of keywords for each attribute/document and their percentage frequencies.

Table 1 - A list of 6 common attributes/competencies and sub attributes identified in the guiding documents of the global health care systems through thematic manual analysis

Common Competencies	ACGME	CanMEDS	WHO	GMC	Scottish Doctor	PMDC
Knowledge Based	Medical Knowledge			Scholar & scientist	What the doctor is able to do	Knowledgeable
Applied/clinical skills	Patient Care	Medical Expert	Care provider	Practitioner	How the doctor approaches their practice	Skillful
Professionalism	Professionalism	Professional	Manager	Professional	The doctor as a professional	Professional and a role model
Personal grooming	Interpersonal communication Practice-based learning personal improvement	Communicator Collaborator	Communicator Decision Maker			Critical thinker Researcher

Leadership qualities	Leader		Community Leader			Leader
Community healthcare	System based practice, system improvement	Health advocate	Community Leader			Community health promoter

Table 2 - Manifest content analysis of common competencies among the guiding documents of the global healthcare systems.

Learning Outcomes		Global Healthcare Systems											
		GMC		CanMEDS		ACGME		WHO		Scottish Doctor		PMDC	
Common competencies	Related Terms	Numbers		%Age frequencies		Numbers		%Age frequencies		Numbers		%Age frequencies	
Knowledge	Knowledge/Knowledgeable	32	0.28	17	0.24	4	0.23	1	0.04	51	0.58	44	0.13
	Scholar/scholarly	6	0.05	15	0.21	0	0	0	0	0	0	0	0
	Scientist	6	0.05	0	0.00	0	0	0	0	0	0	0	0
	Total	**44**	**0.38**	**32**	**0.44**	**4**	**0.23**	**1**	**0.04**	**51**	**0.58**	**44**	**0.13**
Applied/clinical skills	Clinical skills	5	0.04	2	0.03	0	0	0	0	4	0.05	9	0.03
	Patient care	21	0.18	19	0.26	3	0.17	1	0.04	1	0.01	2	0.01
	Medical expert	0	0	7	0.10	0	0	0	0.00	0	0	0	0
	Healthcare provider	0	0	10	0.14	0	0	6	0.21	0	0	1	0
	Practitioner	7	0.06	0	0	0	0	1	0.04	5	0.06	1	0
	Clinical/medical practice 6/22	28	0.24	4/2	0.08	0	0	0	0	2	0.02	1/5	0.02
	Skilful	0	0	0	0	0	0	0	0	0	0	2	0.01
	Skills	34	0.29	10	0.14	6	0.35	2	0.07	48	0.54	93	0.27
	Clinical experience	6	0.05	0	0	0	0	0	0	0	0	0	0.0
	Total	**101**	**0.87**	**48**	**0.66**	**9**	**0.52**	**10**	**0.35**	**60**	**0.68**	**114**	**0.33**
Professionalism	Professionalism	0	0	4	0.06	3	0.17	0	0	2	0.02	6	0.02
	Professional	33	0.28	48	0.66	0	0.00	5	0.18	31	0.35	29	0.08
	Manager	2	0.02	6	0.08	0	0.00	3	0.11	2	0.02	3	0.01
	Role model/role modelling	1	0.01	2	0.03	0	0.00	0	0.00	0	0.00	7	0.02
	Total	**36**	**0.31**	**60**	**0.83**	**3**	**0.17**	**8**	**0.28**	**35**	**0.39**	**45**	**0.13**
Personal grooming	Practice based learning	0	0.00	0	0.00	3	0.17	0	0	0	0.0	0	0
	Communicate/communicator/ communication	15	0.13	19	0.26	3	0.17	3	0	27	0.30	32	0.09
	Collaborator	0	0	6	0.08	0	0	0	0	0	0	1	0
	Decision maker	3	0.03	3	0.04	0	0	2	0.07	0	0	4	0.01
	Critical thinker	0	0	0	0	0	0	0	0	2	0.02	4	0.01
	Researcher	0	0	1	0.01	0	0	1	0.04	2	0.02	3	0.01
	Total	**18**	**0.15**	**29**	**0.40**	**6**	**0.35**	**6**	**0.21**	**31**	**0.35**	**44**	**0.13**
Leadership qualities	Leader	1	0.01	8	0.11	0	0	2	0.07	1	0.01	4	0.01
	Leadership	6	0.05	6	0.08	0	0	0	0	1	0.01	5	0.01
	Total	**7**	**0.06**	**14**	**0.19**	**0**	**0**	**2**	**0.07**	**2**	**0.02**	**9**	**0.03**
Community healthcare	System based practice	0	0	0	0	3	0.17	0	0	0	0	3	0.01
	Health advocate	0	0	5	0.07	0	0	0	0	0	0	0	0
	Community leader	0	0	0	0	0	0	2	0.07	0	0	0	0
	Community health promoter	1	0.01	0	0	0	0	0	0	0	0	2	0.01
	Total	**1**	**0.01**	**5**	**0.07**	**3**	**0.17**	**2**	**0.07**	**0**	**0.00**	**5**	**0.01**

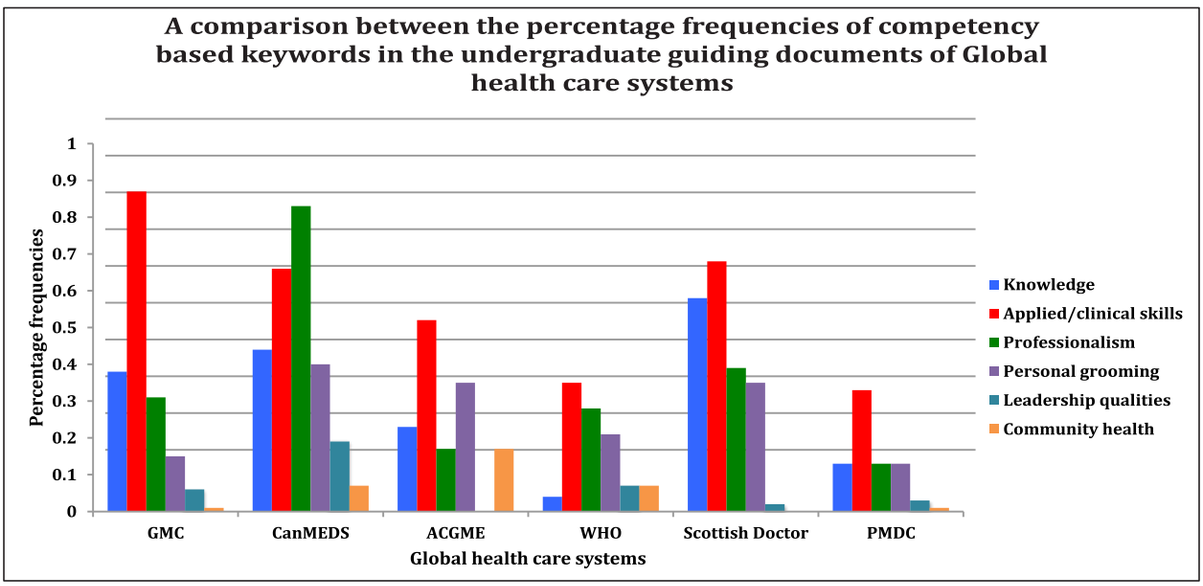

Figure 1 - a comparison between the percentage frequences of competency based keywords in the undergrdauate guiding documents of global health care systems.

DISCUSSION

This study suggested that globally, undergraduate guiding documents of the major health care systems expect their medical graduates to acquire a minimum of the following attributes at the culmination of their respective degrees. Based on the findings of this study, these competencies/attributes can be equated to these six domains: 1) Knowledge-based, 2) Clinical skills, 3) Professionalism, 4) Personal grooming, 5) Leadership qualities, 6) Community healthcare

Although, different phrases or expressions were used for different competencies, all these health care systems eventually want their graduates to develop a strong knowledge base, which would then assist them in refining their clinical skills. In addition, it was expected from the medical graduates all over the globe to incorporate the elements of good clinical and ethical practice with professionalism. Another common component was that medical graduates are needed to have an insight for community health and an ability to seek basic health provisions for all the individuals in a community. Finally, it is necessary for all the doctors to develop themselves personally as well professionally through the process of life long learning. This is vital to develop good interpersonal communication skills, leadership qualities and decision-making skills.

Although there were some differences in terms of the degree emphasis laid by the international medical educational governing bodies, it was evident that the overall aim and approach of all these councils reconcile with one another, suggesting the attributes required of a medical doctor are reasonably the same all over the globe. This clearly explains the motive and reasoning behind the range of competencies identified by various international regulatory bodies. A three-circle outcome model

suggested by Harden and his colleagues illustrates the crux of what all these educational reform committees have been advocating for their medical graduates.15

As far as the practical application and authentic efforts to achieve these attributes are concerned, one of the earliest examples of the curriculum with a defined set of attributes comes from the work of Smith and Dollase2, who outlined the nine attributes that are expected from the graduates of MD2000 medical program at the Brown University in Rhode Island. These attributes were developed after receiving a significant criticism from the Association of American Medical Colleges (AAMC) to the medical education system. It was then suggested that the revolutionary process of teaching and learning gets more effective and successful when the end targets and educational goals are explicitly defined in the form of attributes desired of the medical graduates. The model suggested by the above mentioned authors have since been considered as a landmark in the planning, implementing and evaluating a curriculum with a set of defined attributes.

Despite a range of common features, there appears a thin margin of discrepancy between the approaches of

these different healthcare systems especially when compared with the approach of our local body (PMDC). For instance, there seems to be a lack of knowledge based element as an integral component of a WHO's 5-star doctor.[7] More emphasis has been laid on the generic traits of good clinical practice, personal grooming and community health provision, which aren't the case in PMDC, where the graduates are expected to develop a very strong knowledge base.11 Similarly, only PMDC'S 7-star doctor requires the medical graduate to inculcate the skills of a researcher. This has not been delineated by any of the other regulatory councils. Only CanMEDs has projected the collaborative skills[10s] while the remaining bodies including PMDC have emphasized on the communication skills and leadership qualities. The competencies identified by PMDC appear to be more holistic and universal. One reason behind this can be the late inclusion of the concept of 7-star doctor by PMDC as against the guiding documents of the remaining health care systems.

LIMITATIONS

There were a few limitations to this study. Firstly the pattern and structure of all the documents were different. Such as the use of different nomenclature for different attributes or the word count of each document, thus affecting the standardization of the analysis. Secondly, all these documents were composed at different times, which may have assisted those written in the latter years to have a more comprehensive and detailed approach towards the undergraduate attributes. Lastly, the analysis was based on the written details that each curricular document encompasses. The content, which was actually delivered to and received by the medical graduates, has not been assessed. Further studies are required to compare these documents holistically.

CONCLUSION

After a through assessment and appraisal, it is a pleasing spectacle to see that the attributes identified by PMDC's for its medical graduates are in configuration with the competencies identified by other international councils. Still the following recommendations are meant to strengthen the PMDC's 7-star doctor approach. The PMDC curriculum document lacks the explicit mention of the underlying features and expectations from these attributes. Therefore, more elaboration and detailing are required to comprehend the underlying needs of these competencies with regards to the local scenario. Currently, the traditional curriculum is in use and the concept of

PMDC's 7-star doctor is relatively new. It is therefore, yet to be seen whether this curriculum can cater to the attributes identified for PMDC's 7-star doctor? This puts a question mark on the practicality to the attributes identified by PMDC for Pakistani medical graduate. One attribute that needs an overt reference is good communication skills among our local doctors. It is therefore imminent for the medical student to be good at interpersonal communication skills. Only then the progression towards good critical thinker and a leader can be achieved. Most of these competencies appear to have been driven from the already identified ones. There is a need to structure the attributes of a 7- star doctor in accordance with the local scenario. For instance, the attributes of a critical thinker or a researcher are difficult to achieve in our current scenario owing to the massive workload and time paucity faced by our graduates. Making amendments in our curriculum design and implementation can contribute to the solution of these issues. Hence, the competencies delineated by these medical education regulatory bodies are indeed vital and necessary but with more deliberation and thoughtfulness, a more practical and a beneficial doctor can be produced, provided that attempts are taken to merge the international and local demands more comprehensively.

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