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ORIGINAL RESEARCH REPORTS

Assessment of the Compliance of Problem-Based Learning Case Scenarios with the Social Accountability Values in Undergraduate Medical Education Curriculum

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Abstract

Purpose: To assess the integration of Social Accountability (SA) values in newly developed problem-based learning (PBL) case scenarios.

Method: A validated "SA inventory for PBL" was used to assess the integration of SA values; relevance; quality; equity; cost-effectiveness in PBL case scenarios in a problem-based learning (PBL) medical curriculum.

Results: Of the 63 PBL cases scenarios, in the relevancy domain, there were 52 cases (82.5%) that were relevant to social health concerns, 30 cases (47.6%) which addressed more than one social determinant of health, and 21 cases (33.3%) which addressed the principles of health promotion. In the equity domain, 61 (98.4%) and 62 (96.8%) of cases addressed the patient's gender and age group respectively, 28 cases (44.4%) which addressed the society's underserved, disadvantaged, and vulnerable populations, and only 3 cases (4.8%) addressing the patient's ethnicity. In the cost-effectiveness domain, 40 out of 63 case scenarios (63.5%) needed modifications to address treatment costs and providing alternatives. In the quality domain, 65.1% of cases (41 out of 63) needed modifications to address the concept of person-centered healthcare.

Discussion: Adapting and utilizing a validated inventory to evaluate values related to SA is a useful educational practice for informing medical educators' leaders to develop a socially accountable PBL medical curriculum. These findings could be useful to adjust curricula content to prepare the next generation of doctors who can meet societal needs.

Keywords: Social accountability, Medical education, Medical schools, Relevance, Quality, Equity, Cost-effectiveness

1. Introduction

The mission of medical schools is to train and graduate competent doctors who are dedicated to the health of the community and able to deliver health services along with preventive, educational, managerial and treatment services at all levels [1,2]. Medical schools should adjust their educational, research, and service programs to respond to priority health issues of individuals as

well as society as a whole [3]. In 1995, The WHO emphasized the concept of social obligation of medical schools towards their communities by setting the definition of social accountability as the "obligation of medical schools to direct their education, research and service activities towards addressing the priority health concerns of the community, region, and/or nation they have the mandate to serve" [4].

Relevance, quality, cost-effectiveness, and equity are considered the principals and values of SA to be

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taken into account by medical schools [4]. Relevance exists when the most prevalent and pressing health concerns, as well as the most vulnerable individuals and groups in society, are prioritized. Cost-Effectiveness is achieved when available resources are optimally utilized for the benefit of both individuals and the general population. Quality health care is person-centered care, which means that interventions are most pertinent and coordinated to meet a patient's or citizen's comprehensive needs. Equity implies that each member of a society has equal access to essential health services [5]. Medical schools can apply these principles and values during planning, implementing, and assessing the influence of their education, research, and service programs on applying SA [6]. Despite all the initiatives to increase awareness and understanding of SA, introducing and applying SA concepts in medical curricula needs more effort. [7,8] Different assessment frameworks have been developed to evaluate SA within medical schools, including the WHO SA grid published by the WHO, the CPU model, and the Training for Health Equity Network (THEnet) framework [9–13].

Social Accountability concepts are among the core tenets of the Faculty of Medicine Suez Canal university (FOM/SCU) since its establishment in 1978. FOM/SCU has strived to meet community needs and has adopted community-based education as one of its main educational strategies. To achieve this strategy, it developed a well-planned community program [14]. In 2015, FOM/SCU applied the “Conceptualization, Production, Usability” (CPU) SA model to measure the degree of compliance of its program with social accountability standards [15]. The findings of the aforementioned study showed that FOM/SCU complied with many parameters of the CPU model, and it can fulfill a socially accountable mandate in the near future.

In 2017, the National Authority for Quality Assurance and Accreditation in Education in Egypt issued its second version of the National Academic reference standards (NARS-Medicine), which are based on competencies. Several competencies/key competencies in NARS-Medicine are directed towards enhancing the concept of social accountability [16]. This was a trigger for our medical school to revise all its curriculum items to be sure that SA concepts are well integrated.

As one of the FOM/SCU educational strategies is problem based learning, there is therefore a regular update of its PBL scenarios [15,17]. However, in response to the previously issued NARS-Medicine, the faculty, in 2018, renewed all PBL case scenarios presented to students, to ensure their relevance to

the requirements of NARS competencies, including social accountability concepts. According to the Global consensus for social accountability of medical schools GCSA, problem-based learning (PBL) and student-centered education strategies are appropriate vehicles for implementing SA principles [18]. Despite the previously mentioned models of SA assessment, the literature lacks a feasible and reliable instrument for measuring the implementation of SA in medical curricula [13]. However, in 2021, Abdalla et al., [6] developed and validated a Social accountability inventory for PBL-for examining the integration of SA values in PBL case scenarios that are used in PBL curricula [6]. As a result two medical schools have used this framework to measure the integration of SA in their undergraduate medical curriculum in Ireland and united Arab Emirates [19,20]. Therefore, the current study aimed to use the developed inventory to evaluate the integration of SA values in newly developed PBL case scenarios.

2. Method

2.1. Study setting

The FOM/SCU educational strategies are community-based education, problem-based learning (PBL), student-centered education, project-based learning, evidence-based medicine and interdisciplinary integration [17]. The FOM/SCU educational program is a five-year curriculum followed by a two-year internship. The program consists of two phases. The first phase comprises years 1 and 2 and deals with the pathophysiology of the different organ systems. The second phase comprises years 3,4 and 5 and deals with clinical clerkship. The curriculum emphasizes professional ethics, social and behavioral sciences, teamwork, and evidence-based medicine. The school has a well-planned community program including teaching, research and service taking into consideration the community needs. PBL sessions are conducted in phase 1, while in phase II they are replaced by evidence-based case scenarios within the clinical clerkship.

2.2. Study design and the inventory

This is a cross-sectional study conducted at FOM/SCU, Egypt to examine the integration of SA values in PBL cases scenarios using a validated inventory [6].

The used inventory consists of 17 close-ended statements that evaluate social accountability values including: relevance, equity, cost-effectiveness and quality. To collect responses to the questions

examining relevance, quality and cost-effectiveness, a 4-point-Likert scale [A (agree), B (disagree), C (neither agree nor disagree), and D (not applicable)] was used. The scale of the questions related to equity included three items: “yes, not applicable or no”.

2.3. Sampling

The inventory was made online in a Google Form, then three faculty members – after training - were invited to assess each PBL case independently (a total of 63 PBL cases) (Table 1). Responses were received in a spreadsheet and reviewed.

This study started in July 2021 and ended in September 2021. It included the following steps.

2.3.1. Establishing a task force group

Creating a social accountability work group (SAWG) was the initial step taken to use the developed inventory to evaluate all PBL case scenarios of phase I (year 1& 2). A group of eight faculty members were selected according to their previous experience in formulating PBL scenarios or in working as academic year coordinators, and for having qualifications in medical education.

2.3.2. Orienting the task force group

Two meetings were held, moderated by the two authors from FOMSCU, to orient the SAWG with the concepts of social accountability, to discuss the inventory they will use in evaluating the PBL scenarios, as well as to clarify any difficult terms (if any). The aim of the two meetings was to ensure that the group was clear about using the inventory during case scenario evaluation.

2.3.3. Evaluation of the social accountability concepts in PBL case scenarios

All PBL case scenarios (63 scenarios) of phase 1 (years 1 &2) were evaluated using the validated

“social accountability inventory for PBL” [8]. A number of PBL case scenarios was assigned to a group of three members. The task of each group was to carefully read the scenarios and respond to the 17 questions accordingly using the online Google form.

2.4. Data analysis

Responses were reviewed by two of the authors independently (MEA) and (MHT) for agreement. For the cases rated by three rates, the agreement of two rates was accepted. In the cases rated by two raters or one rater where there are no agreement two experts on the PBL cases from FOM/SCU were invited to make a review of the answers and select the most appropriate answer.

All the data were exported to JASP 0.16.1.0 software, and the percentages were obtained.

3. Results

A total of sixty-three case scenarios used in FOM/SCU curriculum were evaluated for the integration of SA values and concepts.

For the 10 items of relevance domain (Table 2), there are 52 (82.5%) cases used at FOM/SCU relevant to the social health concern of the society. There are 30 (47.6%) cases that addressed more than one social determinant of health and 21 (33.3%) cases addressed the principles of health promotion. Of the studied PBL cases scenarios, 10 (15.9%) of the cases involve different stakeholders and the same for the integration of psychosocial issues in the cases and 21 (33.3%) pointed out the relevant principles of health promotion and preventive measures. Moreover, 11 PBL case scenarios addressed medical professionalism (17.5%), 19 trigger a referral (30.2%) and 14 reflected the importance of a multidisciplinary approach (22.2%). Lastly, only 8 (12.7%) of the cases reflected the relevant health system management issues.

Within the 5 items of the equity domain, the results revealed that 61 (98.4%) of cases addressed the patient's gender, 62 (96.8%) cases addressed the patient's age group, 28 (44.4%) cases addressed the society's underserved, disadvantaged, and vulnerable populations, 18 (28.6%) addressed the socio-economic aspects of the patients and only 3 (4.8%) cases addressed the patient's ethnicity table (2).

Additionally, 40 out of 63 (63.5%) of the case scenarios in the cost-effectiveness domain lacked triggers for discussing treatment costs and providing alternatives.

Finally, 65.1% of cases (41 of 63) lacked triggers that addressed the concept of person-centered healthcare in the quality domain.

Table 1. Number of PBL Cases scenarios per course.

Module	No. of PBL Cases
Blood and Lymph	4
Central Nervous System (CNS)	6
Cardiovascular System (CVS)	6
Endocrine System	4
Foundation Module 1	7
Foundation Module 2	7
Gastrointestinal Tract (GIT)	6
Musculoskeletal System (MSK)	6
Reproduction Module	4
Respiratory System	5
Special Senses	4
Urinary System	4
Total	63

Table 2. Agreements concerning the social accountability domains.

Q	Domain	Item	Agree No. (%)	Neither Agree or Disagree No. (%)	Disagree No. (%)	Not applicable No. (%)
1	Relevance	The problem case scenario is relevant to social health concerns.	52 (82.5)	0	3 (4.8)	8 (12.7)
2		The problem case scenario addresses one or more of the social determinants of health.	24 (38)	0	30 (47.6)	9 (14.3)
3		The problem case scenario points out the relevant principles of health promotion and preventive measures.	21 (33.3)	0	34 (54)	8 (12.7)
4		The problem case scenario reflects the involvement of different stakeholders in health care.	10 (15.9)	1 (1.6)	44 (69.8)	8 (12.7)
5		The problem case scenario integrates the relevant psychosocial issues, rather than only disease-oriented issues.	10 (15.9)	1 (1.6)	43 (68.3)	9 (14.3)
6		The problem case scenario reflects the relevant health system management issues.	8 (12.7)	0	33 (52.4)	22 (34.9)
7		The problem case scenario includes the relevant elements of medical professionalism	11 (17.5)	0	43 (68.3)	9 (14.3)
8		The problem case scenario includes triggers* embedded in the (primary to tertiary) health care referral system based on the case complexity.	19 (30.2)	0	36 (57)	8 (12.7)
9		The problem case scenario includes triggers* linked to the evolving roles of doctors in the health system	15 (23.8)	0	42 (66.7)	6 (9.5)
10		The problem case scenario includes triggers* highlighting the importance of a multidisciplinary approach to patient management	14 (22.2)	0	39 (61.9)	10 (15.8)
11	Equity	The problem case scenario addresses the ethnicity of the patient.	3 (4.8)	0	60 (95.2)	0
12		The problem case scenario addresses the socioeconomic aspects of the patient.	18 (28.6)	0	38 (60.3)	7 (11.1)
13		The problem case scenario addresses the patient's age group	61 (96.8)	0	2 (3.2)	0
14		The problem case scenario addresses the patient's gender	62 (98.4)	0	1 (1.6)	0
15		The problem case scenario includes under-served, disadvantaged, or vulnerable populations in society	28 (44.4)	0	6 (9.5)	29 (46)
16	Cost-effectiveness	The problem case scenario includes triggers* for discussing treatment costs and providing alternatives	8 (12.7)	0	40 (63.5)	14 (22.2)
17	Quality	The problem case scenario includes the concept of 'person-centered healthcare'.	10 (15.9)	0	41 (65.1)	12 (19)

4. Discussion

This study examined how social accountability values were integrated into the FOM/SCU Problem case scenarios. In general, this study revealed that social accountability values are heavily embedded in case scenarios via appropriate triggers, particularly in the relevance domain. However, the presence of these values varied from one course to another, and some cases needed modifications to better address the equity and cost effectiveness domains.

In relevancy domain, the current study revealed that 82.5% of PBL case Scenarios used at FOM/SCU were relevant to social health concerns and 33.3% of cases addressed the principles of health promotion. These findings are in alignment with a study conducted in the United Arab Emirates [20] which revealed that a majority of PBL case scenarios (87%) were relevant to social health concerns and reflected the changing roles of physicians in the health system. However, our study is in contrast to another study which conducted in Ireland using the same inventory tool, which revealed that only 22.2% of case scenarios addressed health concerns while 16.7% of them pointed out health promotion and preventive measures. This finding could be explained by the fact that the designed PBL case scenarios in Ireland study, was developed mainly to integrate basic sciences and clinical sciences, while in FOM/SCU the learning outcomes related to health concerns and preventive measures are covered using PBL and other teaching and learning methods. However, this does not rule out that PBL could be also an effective platform for integrating health concerns, health promotion and preventive measures [19], which are mandatory For future physicians work as indicated in Egypt NARS-Medicine 2017 [16].

The findings of the current study are satisfactory, as it is essential for medical schools to appreciate and prioritize the major health concerns of the community, region, and/or nation they are mandated to serve [21]. It also meets the mission and mandate of FOM/SCU, which aims to improve population health in the served community and work with its stakeholders to satisfy social needs [17,22]. Similarly, this study is in agreement with many FOM/SCU activities, such as eradication of poliomyelitis and certain parasitic diseases, and prevention of other health concerns such as heart disease, cancer, and traffic accidents as documented in a previous article [22]. Robert F Woollard in 2006, and Hamdy in 2018, reported that the ability of medical schools to create feedback loops that measure their achievement in meeting the needs of their communities is crucial for effective action to support

the medical school to be transformative rather than informative medical school [21,23].

Moreover, the current study showed that more than half of case scenarios pointed out more than one social determinant of health (SDH), and one third of case scenarios addressed issues related to health promotion. There is growing concern in teaching social determinants of health in undergraduate medical education. Joy H Lewis et al., 2020, reported that despite the impact of SDH on individual and population health, SDH education is not always given the same priority as basic or clinical sciences [24]. Improving medical students' understanding of social determinants of health, such as the environments in which people are born, grow, live, work, and age, as well as socioeconomic status, education, employment, and health-care access, is critical for their future practice after graduation, in providing targeted healthcare, and shaping people's health [25–27]. Furthermore, knowing and understanding the social determinants of health will provide the information and framework necessary to comprehend both patient's needs and the social factors that influence health outcomes [28]. The authors of the current study believe that the reason for addressing SDH in some but not all PBL scenarios is that this issue is thoroughly covered in the field training program, where FOM/SCU students spend ample study time in various community settings. This does not rule out that PBL could be also an effective platform for integrating social determinants of health and assisting students in learning about them.

Additionally, the present study showed that few PBL case scenarios (17.5%) reflected integration of medical professionalism, evolving roles of doctors in health system (23.8%) and healthcare referral system based on case complexity (30.2%) and importance of a multidisciplinary approach to patient management (22.2%). Even though, these issues are more fully addressed in the FOMSCU field training program, we believe more improvement in the case scenario content is required, as these traits are critical to maintaining proper and safe medical practice, strengthening relationships with patients and working in a team with colleagues [20].

Our results showed that most cases need modifications to reflect the relevant health system management issues. Understanding health system management issues such as healthcare strategy, rising healthcare and equipment costs, information systems, electronic health records and mounting privacy issues, is crucial for a medical graduates in order to become a health system change agent, which is the ultimate goal of a socially accountable medical school [29].

In the equity domain, results revealed that 98.4% of cases addressed the patient's gender, 96.8% of cases addressed the patient's age group, and almost half of cases addressed the society's underserved, disadvantaged, and vulnerable populations. These findings are in disagreement with studies conducted in Ireland [19] and the United Arab Emirates [20] which reported only 11% and 15.2% (respectively) of case scenarios needing improvement to address the society's underserved, disadvantaged, and vulnerable populations. Low socioeconomic status (SES) is a significant determinant of health-care access and people with a low socioeconomic status are more likely to be in poor health, to be uninsured, to seek healthcare less frequently, and to receive poor-quality care. SES can have an impact on a person's lifestyle and life expectancy. As a result, socioeconomic status is a good predictor of an individual's health outcomes [30]. Thus, addressing issues related to underserved populations and community placement in underserved populations is paramount for supporting their health [5], which is something that should be considered in our problem scenarios.

In the current study, only 3 cases (4.8%) addressed the patient's ethnicity. This low value can be attributed to that the vast majority of the Egyptian population belonging to the same ethnic group. The Central Intelligence Agency (CIA) World Factbook lists “Egyptians” as 99.7% of the population and “other” as 0.3% [31]. “Other” refers to people who are not citizens of Egypt, people who come to Egypt to work for international companies, and diplomats.

Although ethnic minorities comprise only 0.3% of the Egyptian population, we believe that ethnicity has a significant impact on health and healthcare access, and that racial and ethnic disparities exist in healthcare and are important social accountability determinants [32]. It was reported that PBL case scenarios should include information about socioeconomic status, ethnicity, and identifying vulnerable populations in the patient's profile to prompt appropriate discussion and emphasize its significance [33]. Therefore, we should increase the percentage of case scenarios that address this issue.

Similarly to the study conducted in UAE, which reported that 11% of case scenarios discussed treatment costs [25], our study reported that only 12.7% of case scenarios contained triggers for discussing treatment costs and providing alternatives in the cost-effectiveness domain. Encouraging patients to make their own healthcare choices such as treatment options, and financial issues such as treatment costs have become one of the main duties of the physician [34]. PBL can help students become

involved in learning how to disclose financial consequences and appropriate alternatives with their patients through modelled case scenarios in order to instill these characteristics.

Finally, 65.1% of cases in our study lacked triggers addressing the concept of person-centered healthcare in the quality domain. This percentage was lower than the study conducted in UAE, which reported 78% for patient-centeredness [20]. Furthermore, the study in Ireland showed 100% incorporation of the person-centered healthcare concept in their PBL scenarios [19]. Person-centered health care [35] entails that patients take an active role in their own medical treatment, working closely with their treating physicians. It is care that is considerate of, or responsive to, an individual patient's preferences, needs, and values. Numerous studies have demonstrated a correlation between patient-centered care and patient satisfaction as well as social and physical well-being [36,37].

The main limitation of the current study is that we conducted a quantitative analysis of the integration of social accountability values in PBL case scenarios. Further qualitative analysis of these values using other approaches will be important in validating our rich documentary data.

5. Conclusions

Our study concluded that social accountability values addressing the Egyptian major social health concerns, social determinants of health were successfully integrated into the majority of PBL case scenarios of FOM/SCU. In contrast, social accountability values such as the importance of a multidisciplinary approach to patient management, discussing treatment costs and providing alternatives with patients, and the concept of ‘person-centered healthcare’ were inadequately addressed.

Medical educators can use our study data not only in Egyptian context but also in the region to adjust their curriculum content, particularly those who use a problem-based learning approach. Similarly, healthcare leaders can work collaboratively with their stakeholders to prepare juniors' healthcare providers to meet the ever-changing and diverse needs of the community which they will serve. Future research should focus on how medical students understand these values and how medical faculty can support the medical schools to integrate these values in PBL curriculum.

Ethical approval

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Conflict of interest

There are no conflicts of interest.

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