



Can medical schools provide a solution for health workforce imbalance through formal and hidden curricula?

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Abstract: Health workforce imbalances is a worldwide problem, and it shares the origin with the speciality choice and plans made by doctors. Most of the career advice takes place outside the formal curriculum, precisely, through the hidden curriculum. This analytical review aimed to explore health workforce imbalance and the complex role played by the medical schools and the need for structured career advice through the formal curriculum. The scientific literature published in English language on PubMed and Google Scholar databases, has been searched for articles about health workforce imbalance, career choice, the formal curriculum, and hidden curriculum, and then reviewed to reveal how these factors intertwine and how health workforce imbalance could be addressed in Sudan through medical education. The hidden curriculum devalues some specialities, and as long as it remains unopposed by the formal curriculum it will drive students away from these specialities. Formal career advice which can serve as an opposing force to the hidden curriculum has been highlighted by the World Federation of Medical Education, however, it remained an area of non-compliance by medical schools. Collaborative efforts need to be made between medical schools, Sudan Medical Council and medical educationalists and will be invaluable to health system planning and to tackle health work-force imbalances. More research is need on hidden curriculum and how it affects career planning, the speciality choice and the complex factors affecting it. Such research will help to achieve understanding and solutions for the imbalance in the distribution of health workforce in Sudan.

Keywords: Career choice; medical students; hidden curriculum; healthcare; workforce; Sudan

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Introduction

The issue of Health workforce imbalances, attributed to doctor's mal-distribution across the specialities and in rural and urban areas, can be in part attributed to career decision taken by doctors (1).

Furthermore, when medical students join medical schools with their minds preoccupied with certain preferences about

medical career, which do not usually match workforce needs nor the available opportunities for speciality training (2). Then through their years at medical schools their opinions and career plans change, this attributed to the medical school curriculum and the degree of exposure it provides to different specialities (2). In the past four decades, health workforce imbalances have become challenge for health authorities not only in Sudan but worldwide. In the United

Kingdom, a major reform occurred under the guidance of the General Medical Council (GMC) in terms of reducing the overburden of knowledge and shift away from the didactic teaching to aid students and faculty members to shift towards primary care. However, little attention has been paid for the hidden curriculum (3).

Querido *et al.* [2013] showed that variations in systems from entry to medical school until speciality and postgraduate training across countries possibly influence career choice dynamics and hence renders comparing results unfeasible between different systems (2). From an educational perspective, it is clear both the research in the field of career choice and the reforms attempted has focused on the formal curriculum and therefore, led to reforms without change.

The career decision is of crucial importance not only to student and medical schools' reputation, but also to the community and the health system. However, the health system suffers the most from this phenomenon, as there is an unbalanced distribution of doctors across the specialities and most importantly lack of doctors in rural areas (4,5).

The factors associated with career choice are numerous, which are medical school characteristics, students' characteristics, student's value and satisfying (personal) career needs. The area of educational factors in particular, is of significant ambiguity. In this review article, we aimed to explore how medical schools impact the health system through shaping medical students career choices and plans, which in turn plays a role in healthcare workforce imbalance (2).

Methodology

The question of this review is whether medical education both formally and informally affects students career choices and plans, and therefore it shapes tomorrow's health system by determining distribution of doctors among specialities as well as urban and rural areas.

The scientific literature published in English language on PubMed and Google Scholar databases was searched for articles about the career choice, the formal curriculum, and hidden curriculum and we used root-cause analysis to identify how they intertwine and how health workforce imbalance could be addressed through medical education.

A total of 4,998 articles were identified published between 1988 and 2020, original research, reports and reviews were included, then filtered according to their relevance to the scope of the review and their novelty. We initially filtered the articles using their titles and then

by reading abstracts and therefore 29 articles were ultra-filtered to be included in this review. The included articles were critically read by the authors for root-cause analysis to elicit answers to the review question.

Health workforce imbalances, what happened globally and in Sudan?

Sudan is one of the largest African countries with inveterate medical education history in the region, the country has around 66 medical schools in both governmental and private sectors (6). Despite this number of medical schools, Sudan faces shortage of doctors, disproportionate distribution of the health workforce and brain drain (6). It was shown in a study done in the University of Science and Technology in Sudan that surgery, medicine, paediatrics, and obstetrics and gynaecology were the most chosen specialities by the students and the students were mainly driven by their interests while choosing a speciality (7). We found it alarming that family medicine and public health do not make it to the list of the chosen specialities.

The impact of career choices of medical graduates has become evident in the early 80s of the past century in Australia when the health system faced and is still facing a shortage of rural doctors (8). In the sub-Saharan region of Africa, the situation is even worse as it suffers from a significant shortage of doctors and imbalances of the health workforce in general. The estimated workforce is 750,000 health workers in the region serves 682 million people, and Sudan is certainly not an exception in this shortage (9). Because of the impact of health workforce imbalances, several studies attempted to identify why students and graduates make the career choices they do. This is done by investigating the role of demographic factors, gender and personality traits in medical graduates' career pathways (10-12).

It worth mentioning that career choices (in terms of speciality choice) cannot be incriminated only for the disproportionate distribution of doctors among specialities, but also for the health workforce imbalances in terms of the choice of practice location. The unevenly distributed health workforce is an issue at the global scale, that affects all countries, whether rich or poor (1). Doctors tend to be aggregated in the capital cities and urban areas in a way that super passes the available work opportunities leading to unemployment of doctors. Whereas paradoxically few of them accept to work in rural areas, and many rural posts remain empty (9). This imbalance has detrimental effects on the community, particularly in poor countries,

as the rich ones can negotiate the problem through the use of technology, such as helicopter ambulance service and remote medicine (1). An example of how significantly this imbalance can affect community health could be seen in Mexico, where life expectancy differs greatly between the urban and rural communities, being 55 years and 71 years, respectively (13).

How did health workforce imbalance happen and how is related to medical students' career choices?

The factors leading to health workforce imbalances overlap with those of career choice in parts and differs in others; these factors include individual factors, organizational environment, and both healthcare and educational systems (1). Medical schools location, admission criteria, curriculum content, physical resources allocation strategies, teachers as role models affect speciality choice and practice settings (14).

Around a quarter of junior doctors reported, career indecision as a source of stress (4). Rational career choice is vital to the students, to their institutions, and their community (15). In a South African study, only 47% of medical students decided on their future speciality. An early decision will enable the student to make clear career plans (1).

We cannot ignore its impact, because of the cost to society is tremendous in preparing their tomorrow's doctors. The importance of informed career choices from social and economic perspectives have been highlighted by Gillie & Isenhour (5).

How can medical schools rectify healthcare workforce imbalances?

As we mentioned earlier factors affecting career choice overlap with some of those leading to health workforce imbalances, this could be used as an antagonising force against workforce imbalance.

The formal curriculum

The effect of the educational strategies appeared to affect students' career choices, essentially, curricular elements such as rural attachment had enhanced graduates' desire to pursue a career in rural areas (16). Furthermore, there is existing evidence that curricular innovation such as problem-based learning (PBL) and community-oriented medical education (COME) is associated with a greater

likelihood to choose a career in primary care or family medicine (17). Several medical schools have gone several steps forward by adopting curricular innovations addressing students' career development, such as electives (15). The significance of incorporating career advice into the formal curriculum has been stressed by the Liaison Committee on Medical Education, by setting a standard that medical schools must provide a system to guide students to choose electives, explore career options and application for speciality training (15). However, only a few American medical schools adhered to this standard (15). Career counselling usually takes place outside the frame of the formal curriculum, as most medical schools lack comprehensive career development programs (18).

Reforms at the level of the educational system have been attempted to rectify the distribution of the health workforce. The admission criteria have been revisited and changed, curricula have been reviewed, new instructional methodologies have been implemented, and speciality training regionalisation was proposed. The majority of these reforms have focused on the production of primary care and rural doctors, in compliance with the World Health Organization (WHO) recommendations regarding the focus on the provision of service in the community (1).

The hidden curriculum

The concept of the hidden curriculum is relatively recent yet expanding (19). The first definition in the context of medical education was as the "set of influences that function at the level of organizational structure and culture", put by Fredric Hafferty (20). Precisely, he further described the Hidden Curriculum as the mindset and aspects that are habitually acquired in the life-space of medical education, which is best visible at the level of the institution in "policy development, evaluation, resource allocation, and institutional slang" (20). The hidden curriculum appears to be more potent and influential than the formal curriculum, and its effects are rarely harmless (20-22). Furthermore, recent studies showed that the hidden curriculum shapes how doctors perceive themselves in the occupational context by forming their professional identity (23).

After two decades of research in the subject, MacLeod's questions the use of research to aggregate issues in medical education that are no longer hidden. In this regard, she questions the appropriateness of using the term Hidden Curriculum (24). To address this pressing concern of MacLeod, Lawrence and colleagues have conducted a

literature review and analysed definitions of the hidden curriculum. Interestingly, they have conceptualised, through thematic analysis, the hidden curriculum, and identified the following themes (19):

Institutional-organizational concept: built on Hafferty's definition, emphasizes medical school structure, norms, and culture (20).

Interpersonal-social concept: Synonymous with Hafferty's definition of the informal curriculum "unscripted, improvised, and social forms of teaching and learning that take place" (20).

Contextual-cultural concept: The broadest conceptualization of the term applies to whatever learned without being explicitly stated in the curriculum, "the "hidden" or "informal" curriculum is the broader cultural milieu of medical education that occurs outside of formal instruction" (25).

Motivational-psychological concept: Hidden curriculum, under this definition, is largely unintentional (26).

The hidden curriculum bears resemblance and differences across countries, for instance, part of the hidden curriculum is that clinical and hospital specialities are given more weight than specialities that related to the community work (3,22).

An example of the hidden curriculum, during ward rounds teaching, clinicians tend to praise hospital doctors for treating patients referred by family physicians. Without equally acknowledge the expertise of family medicine physicians in taking such decisions based solely on clinical acumens without accessibility to myriad of clinical investigations (imaging, biochemical and histological tests). In Canada, family medicine new trainees were asked about their encounters with the hidden curriculum. They were being told that family medicine is a waste of intelligence and that they do not need to know certain things, as they are just going to become family physicians. Some of the trainees mentioned denying their interest in the speciality when they were asked by others about their career plan, to avoid undermining (21).

Although researchers more frequently depict the hidden curriculum as unfavourable, for example, is a cause of the erosion of ethics, biases, and cynicism. Hidden curriculum can positively influence students, and this has been highlighted by a few researchers (19).

Career counselling is effective and useful

Career counselling usually takes place outside the frame

of the formal curriculum, as most medical schools lack comprehensive career development programmes (18). In the World Federation of Medical Education (WFME) Basic Medical Education Standards for accreditation, career guidance is regarded an important part of the quality development standards and as measure of performance of students and graduates (27). Importantly, The career guidance is highly recommended by the WFME, as stated that "the medical school should provide academic counselling that includes career guidance and planning" (27). It appears that the career guidance has implicit importance within the WFME standards and is only linked to medical schools, while its importance for the health system is overlooked.

What support can medical schools provide in Sudan?

Medical schools can play a vital role by educating the medical teacher on hidden curriculum, including career advice in the formal curriculum and by utilising links with organisations like health authorities (Sudan Medical council and Health Ministry) and educational scholars (*Figure 1*).

Conclusions

In conclusion, health systems worldwide are facing the challenge of disproportionate distribution of doctors among specialities and rural and urban practice settings. Importantly, reforms were attempted without change as they ignored the hidden curriculum. In this review, we highlight career choices and plans as an important root to this problem. Career advice is needed to protect the communities' investment in their future doctors and to provide a balancing force against the negative hidden curriculum, which may drive students away from pursuing their chosen speciality.

In Sudan, we recommend collaborative efforts to be made between medical schools, Sudan Medical Council and medical educationalists in order to improve the health system planning and to tackle health work-force imbalances. More research in hidden curriculum and how it affects career planning is necessary at both the level of undergraduate and postgraduate medical education. Determining the speciality choice and career planning and the complex factors affecting it is needed to ensure the stability of the health system. Research on the current situation of the health system and the distribution of the

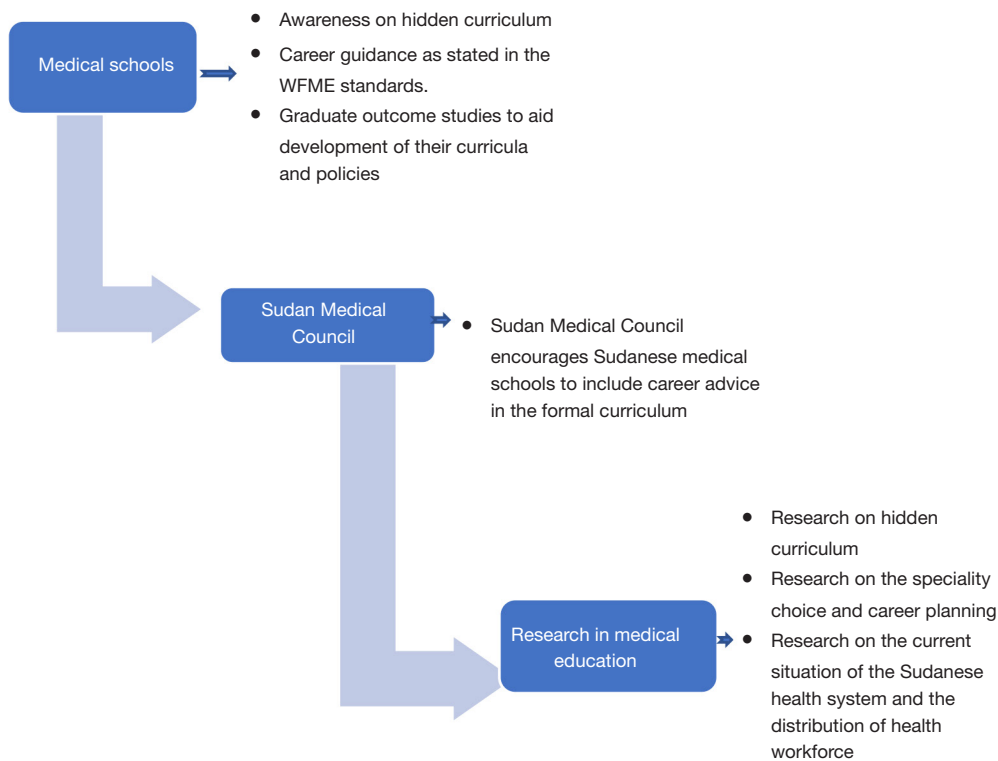


Figure 1 The role of medical schools in providing improvement in career choice through improvement in research, awareness about hidden and formal curriculum and involvement of the Sudan Medical Council.

health workforce in Sudan is urgently needed.

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