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REVIEW ARTICLE

Current Status of Accreditation of Medical Education: A Systematic Review

Gaurav Mishra[1, 2], Tripti Shrivastava[3, 4], Lalitbhushan Waghmare[5], Prerna Anup Patwa[2], Rohan Kumar Singh[2]*

[1]Dean, Faculty of Interdisciplinary Health Sciences, [2]Department of Radio-diagnosis, [3]Director, Internal Quality Assurance Cell, [4]Department of Physiology, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (Deemed to be University), Sawangi, Wardha-442001 (Maharashtra) India, [5]Pro Vice Chancellor, Datta Meghe Institute of Medical Sciences (Deemed to be University), Sawangi, Wardha-442001 (Maharashtra) India

Abstract:

Medical education accreditation has taken up an enormous place in worldly perspective and India is not far away from embracing it wholeheartedly. In the same direction, we undertook an extensive systematic literature search to identify all existing relevant studies in area of quality centricity, requirements, standards, criteria, accrediting bodies at national and international level as per relevance of present study taking their stipulations into account. We searched Medline (PubMed) and Google Scholar on 24th December 2021. The search strategy for Medline database through PubMed search engine was as follows with keywords and unique identifiers generated by the PubMed database.(((((((quality centricity) AND (y_5[Filter]))) AND (((accreditation) AND (y_5[Filter])))) AND (((accreditation standards) AND (y_5[Filter])))) AND (((NAAC) AND (y_5[Filter])))) OR (((WFME) AND (y_5[Filter])))) OR (((LCME) AND (y_5[Filter]))) with filters applied: in the last 5 years for updated and recent literature for decipherance of trends. We identified 120 records through database searches. There were 52 additional records which were identified through other sources i.e., literature search, cross references, expert consultation etc. We retrieved 172 articles after removal of duplicates. These records were duly screened and assessed for eligibility. Thirty-five articles were eligible for inclusion whereas, 137 records were excluded. Amongst these 35 records, we excluded 26 more articles due to various reasons like not matching inclusion/ exclusion criteria etc. Finally, 9 studies were included. The review of literature spans over multiple aspects of medical education and accreditation along with curricular reforms and challenges encountered in bringing about or executing these reforms. We undertook an extensive systematic literature search to identify all the existing relevant studies in the area of quality centricity, requirements, standards, criteria, accrediting bodies at national and international level as per relevance of the present study taking their stipulations into account. We searched Medline (PubMed) and Google Scholar on 24th December 2021. The search strategy for Medline database through PubMed search engine was as follows with keywords as well as unique identifiers generated by the PubMed database for the said search strategy.*(((((((quality centricity) AND (y_5[Filter]))) AND (((accreditation) AND (y_5[Filter])))) AND (((accreditation standards) AND (y_5[Filter])))) AND (((NAAC) AND (y_5[Filter])))) OR (((WFME) AND (y_5[Filter])))) OR (((LCME) AND (y_5[Filter]))) ID – unique identifiers for PubMed database generated by the database itself.* Filters: in the last 5 years (For updated and recent literature for trend decipherance).

Keywords: Accreditation, Medical Education, National Assessment and Accreditation Council, World

Federation for Medical Education, Liaison Committee on Medical Education, International Accreditation

Results of Searches:

We identified 120 records through database searches. There were 52 additional records which were identified through other sources i.e., literature search, cross references, expert consultation etc. We retrieved 172 articles after removal of duplicates. These records were duly screened and assessed for their eligibility. We found that 35 articles were eligible for inclusion whereas, records were excluded. Amongst these 35 records, we excluded more articles due to various reasons like not matching inclusion/ exclusion criteria etc. Eventually, 9 studies and records were included. The present systematic review of literature deals with contemporary perspective and status of accreditation of medical education globally with different points discussed in literature dwelling upon reforms as well as challenges encountered in execution. The review of literature spans over multiple aspects of medical education and accreditation along with curricular reforms and challenges encountered in bringing about or executing these reforms. The PRISMA chart for the said literature search is as follows in Fig.1.

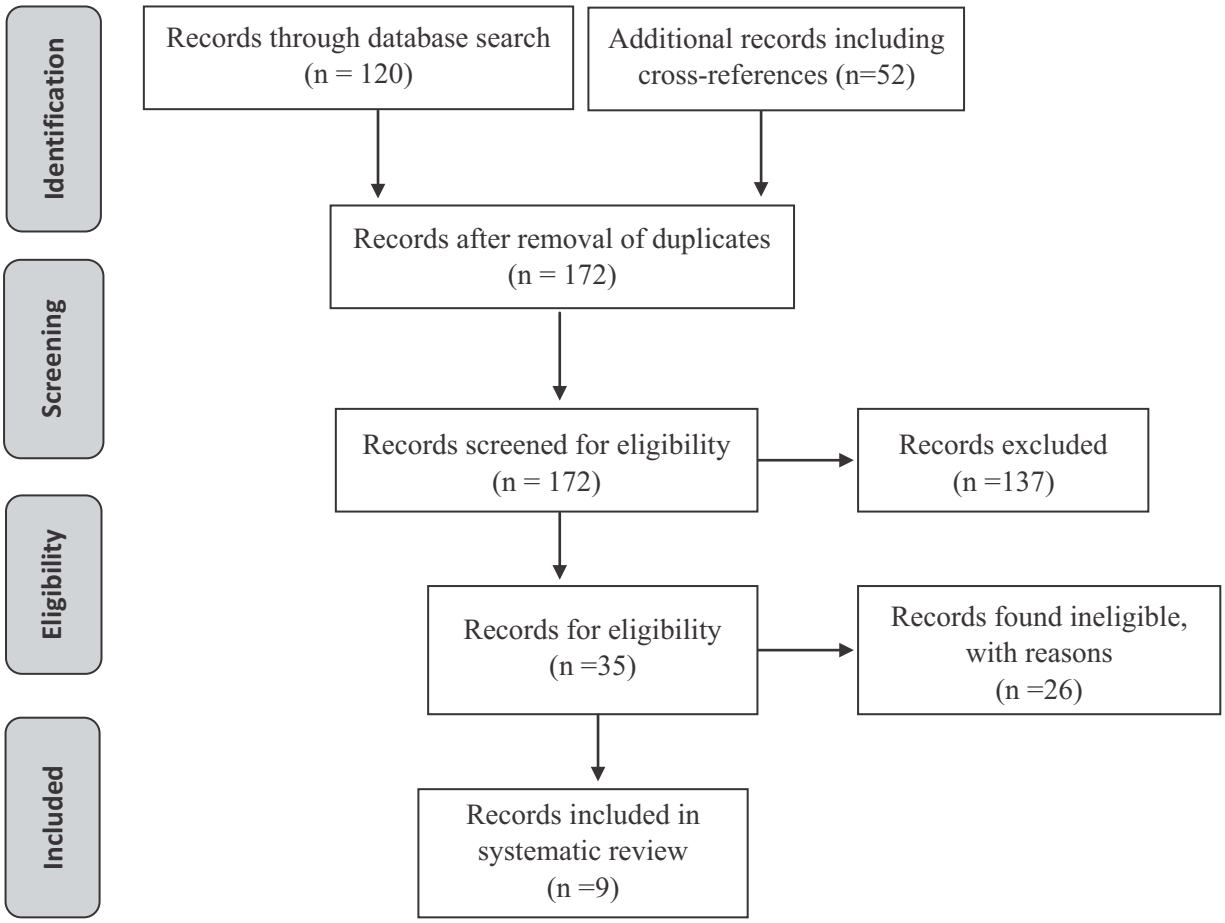

Fig. 1: PRISMA Chart for the Present Study

Accreditation – What does it Mean and Stand for?

At present, there are more than 3000 institutions/ schools providing education to qualifying candidates in the domain of medicine all across the globe. These institutions/schools have a common aim of bringing out the best from their learners but at the same time, they incorporate into their usage different models of education, teaching, learning, assessment as well as monitoring their quality centricity in doing the same [1]. The need and necessity to carry out evaluation and critical appraisal of these educational models, various structural models and frameworks utilised for teaching, learning, assessment as well as quality assurance and monitoring activities becomes very relevant owing to ever increasing number of newer institutions/schools in medicine all over the world giving rise to variation and an additional need to redefine the range of variation which can be taken under the wing of acceptance [2, 3]. It can be added that until accreditation can be redefined through a critical appraisal, it will be difficult to clear perspectives regarding the medical institutions/ schools to properly and ideally function as expected and prescribed globally [4].

Accreditation can be defined first-hand by making an apt reference to Zanten *et al.* [5] as 'an evaluative process by which an agency/authority/ body reviews an educational institution with reference to sets of clearly defined criteria, standards or procedures. One of the main purposes of accreditation processes in place all around the globe is to direct and encourage as well as facilitate the quality assurance mechanisms in place for monitoring the overall activities of medical institutions/schools the world over towards acceptable and meaningful outcome [1].

It was an initiation by the World Health Assembly as a part of its strategy for the globe to direct all countries around the world to begin and put in place systems for accreditation of their medical institutions/schools [6, 7]. The same has been aimed to be provided at internationally and globally accepted level by specified standards and requirements by the World Federation for Medical Education where compliance is recorded and maintained for various accrediting agencies in all countries providing medical education [8, 9]. According to Zanten *et al.* [5], there are various bodies in different countries providing their services for accreditation of medical institutions/ schools with predefined criteria, standards, stipulations, and requirement, which show considerable variation and differences in morphology. Moreover, there are agencies which provide general accrediting services which are not specifically designed for medical education whereas there are some agencies on the other hand which provide specialised accrediting services for medical institutions/schools including professional bodies like national medical councils and independent agencies providing similar services [10]. There are some studies which emphasise the importance and need for specialised agencies with specific guidelines and standards for accreditation of medical institution/schools [11, 12].

Global Accreditation Status:

According to the World Bank Economic Group, there are 186 countries which have at least one agency providing accreditation services for undergraduate education in total. Out of these, there are 92 countries which benefit from medical education specific accreditation agencies whereas

63 countries have agencies providing accrediting services but are generalised and not specific towards medical education. There are 31 countries where the status of accreditation agencies being in place is not clearly known [1]. The lowest percentage of nations having an accrediting agency is in Sub Saharan Africa which is 20 out of 48 countries amounting to 48%. The number of general and medical education specific accrediting agencies is 14 each amounting to a total of 28 agencies in Sub Saharan Africa. The maximum percentage of nations having an accrediting agency is 100% in North America where both US and Canada have specific medical education accrediting agencies in place [1]. In the province of Middle East and North Africa, there are 20 nations with medical institutions/schools amongst which are 18 countries with at least one type of accrediting agency and 12 with medical education specific accrediting agency in place. Out of a total of 27 agencies in Middle East and North Africa, 14 agencies provide medical education specific accrediting services while 13 provide general accrediting services [1]. Europe and Central Asia has the maximum number of countries providing medical education with a total of 48 countries. But only 18 out of 48 have medical education specific accrediting agencies and 30 have general accrediting agencies [1].

The province of Eastern Asia and Pacific has 23 countries where 21 countries have accrediting agencies in place. Only 12 out of 21 have medical education specific accrediting agencies in place [1]. In the province of Latin America and Caribbean there are 37 countries which have medical institutions/schools where 34 have accrediting agencies in place. Out of 34, 26 have medical education specific accrediting agencies in place. Puerto Rico is listed as a country from this region in the World Directory where medical education accreditation was initiated pre-1980 – one of the earliest in the perpetual timeline of medical education accreditation [1].

The World Federation of Medical Education (WFME) is a currently operating independent public organisation which came into force in 1972 under the aegis of World Health Organisation (WHO) and the World Medical Association (WMA) [13]. The WFME has given a 'trilogy' of standards and guidelines for medical education under basic medical education, post graduate education and lifelong learning and healthcare professions as stated in 2003, subsequently getting revised in 2012, 2015 and 2020 respectively. The membership of WFME is provided currently via these networks - International Federation for Medical Students Association (IFMSA) as well as Junior Doctors Network (JDN) respectively. The IFMSA have requested the WFME to enlist the status of accreditation for all medical institutions/ schools which are already included in World Directory of Medical Schools where it is expected that all of the enlisted educational bodies will disclose their contemporary status of accreditation therein as it is mandatory on the part of all medical institutions/ schools to disclose their accreditation status into public domain considering the same their social responsibility. In the same direction, the WFME is making itself convenient and more user-friendly for all the constituent nations irrespective of their English-speaking status [13].

Competency Based Medical Education and Entrustable Professional Activities:

Competency Based Medical Education (CBME) is both the need as well as talk of the hour as one

could infer from the modern-day changes and modifications made to the ever-dynamic body of medical education all over the world. The origins or the roots of the same can be traced back to 2 founding documents on Entrustable Professional Activity (EPA) by Ten Cate [14] and on milestone staging by Dreyfus [15]. Frank *et al.* [16] have emphasised upon the important role of CBME for educating the present-day medical learner. The more the outcomes are targeted, the better the methodology will get refined. The essence of CBME can be said to be entirely outcome based as also enhancing the scope of research in the same direction on how, till what extent, which level, what manner the clinical outcomes are met with successfully and if not, what the deficiencies are. Plotting a way out of the deficiencies thus gathered will further refine the methodologies incorporated for maintaining the quality centricity [13].

Also, core EPA's can be defined as 'activities that residents seeking admission to a particular/ specific course should be able to perform on their first day of work by themselves, without direct supervision or in an independent manner' according to Association of American Medical Colleges [14, 20-22]. Owing to very high specificity of the core EPA's, they have to be considered as a small part of the entire list of clinical competencies or tasks allocable and expected to be mastered by the medical learner [23]. An EPA can be considered quite similar to the term 'competency' and 'milestone' but with subtle differences. EPA can be referred to as a professional unit of work and can be expected to be entrusted to a particular learner in order for it to be accomplished or to be achieved. A competency on the other hand, can be referred to as the extent of the ability of a learner to accomplish a task or a procedure or a part of it. Milestone refers to stages of development or perfection in carrying out the task or procedure or a part of the procedure with excellence - under supervision, without supervision or independence in carrying out the allocated task. Logically and practically speaking, an EPA can house multiple competencies and thereby integrally signifying multiple levels of competence as milestones [14, 19-22]. Speaking from within the medical education continuum, EPA's may prove of paramount importance and value when they are incorporated in clinical subjects to achieve their respective outcomes as compared to pre-clinical subjects as the latter involves a lesser degree of psychomotor and affective domain-based skills comparatively as compared to clinical subjects [23]. Though the EPA's have been lauded by Association of American Medical Colleges (AAMC) for their capacity to generalise and to be able nearly universally be applicable in context of both clinical as well as pre-clinical subjects with need-based modifications. Clubbing up of competencies and integration of milestones as suggested in EPA's can improve their stance in being able to address their overall outcomes as pointed out by many other study groups that CBME is a system too much focussed on the inputs and processes but not the outcomes and also for being too reductionist in its approach virtually ignoring the knowledge based cognitive component of the pre-clinical and clinical subjects in medical education [24-28].

Global Influence of WFME:

There is dual point of view about accreditation status and its outcomes in literature. Davis and Ringsted [17] place an argument that when educational institutions/schools go for accreditation, they are increasingly targeting themselves towards

inputs and processes. Here the outcomes are vague or are unaddressed according to them. Therefore, they infer that accreditation may help but little in achieving educational outcomes as only inputs and processes are involved in the picture. On the other hand, Zanten *et al.* [18] support the process of accreditation as they have inferred that the process supports the educational institutions/schools and has positive effects on both the medical learner as well as the educational body involved therein. A direct connection can be traced in between the accreditation status of an educational institution/ school and the overall quality of its learners in how they perform their clinical tasks [13].

In 2005, Simpson *et al.* [29] came to a conclusion upon comparison of 2003 WFME guidelines with those of Australian Medical Council that the main difference in between the two was that there were 3 sets of guidelines in WFME as compared to a single set of guidelines in Australian Medical Council. The National Assessment and Accreditation Council also has a single set of guidelines under its aegis.

This is evident as the role of WFME guidelines has been very well documented in framing of guidelines for other health professions as well. This can be noted in standards prepared for nursing and midwife education and published by the World Health Organisation in 2009 [30].

Similarly, Innes *et al.* [31] have mentioned the inspiring role of WFME guidelines in framing the guidelines for accreditation standards of the Councils of Chiropractic Education. Also, there is documentation of supporting role of WFME guidelines in influencing the development of standards for Ph.D. education in biomedicine and health sciences [32].

In 2011, it was Abdalla *et al.* [33] who pointed out that the WFME guidelines are having majority of process related standards, but there is paucity of standards which can be used to monitor progress of content as well as outcomes. Also, they mention that WFME guidelines show a deficiency of standards which may be used to monitor the aspect of social accountability of the medical learner therein. However, this lack of social accountability by Abdalla *et al.* [33] was clarified in the 2015 version of WFME guidelines.

In 2015, Karle *et al.* [34] suggested that even though the WFME standards and guidelines may be labelled as 'global', but for proper and near ideal execution of the same, they will need need-based modifications and changes which will be in concordance with the local needs of the population, regional, national as well as institutional requirements and stipulations. In a similar context, agreeing to Karle *et al.* [34], another study group, Ho *et al.* [35] have expressed the desire to acquire more clarity upon how to revise, modify and make amends if needed, to the global standards and guidelines by WFME so that the local, regional, national as well as institutional needs are met with.

Reforms and Challenges in LCME Accredited North American Medical Schools:

Pock *et al.* [36] in 2018 conducted a study in the form of a survey where they attempted to enlist both the curricular reforms as well as the challenges encountered in bringing about and execution of these reforms in North America. They sent their survey questionnaire to 166 LCME accredited North American medical institutions/ schools by enlisting educational Deans as points of contact. Out of 166 medical schools, they received a response from 60 medical schools with a response

rate of 36.14%. Responses were self-reported by the responding medical schools and were categorised into themes – organisational changes in the curriculum, curricular content-based changes. Changes in the methods of delivery of curriculum and changes involving progressive usage of information, communication, and technology. They reported the challenges which were mainly related to overcoming faculty resistance to recently developed faculty development programmes, securing adequate resourcing, and management of change as well as limited amount of curricular time to finish teaching the curriculum to the learners. The self-reported curricular changes/ innovations by were as follows: 16 medical schools reported structural/organisational changes, 1 reported resorting to three year medical school track programme, 5 schools shortened their pre – clerkship curriculum, 3 of them realigned their entrance examination or a part of it while 2 of them reported to incorporation of electives into their student curriculum and 1 school reported the use of bringing back old formats or structures into execution. On the theme of changes to curricular content, there were 10 medical schools which reported usage of newer or expanded forms of curricular content, 7 of them resorted to incorporation of early clinical exposure, equal number of medical schools reported to establishment of bringing about longitudinal changes, 3 medical schools reported the reinforcement of teaching basic sciences during the course of clinical years of the curriculum, 2 of them emphasised on the vitality of safety of the patients and quality of care provided therein while 2 of them reported resorting to expanded healthcare initiatives and wellness programme. On the theme of curricular delivery, there were 19 medical schools reporting fostering of enhanced curricular integration, 14 medical schools emphasised on increasing active learning hours in their curricula as well as decreasing their reliance on traditional didactic lectures, 6 of them resorted to either problem-based learning or team-based learning styles, 2 of the medical schools reported usage of pre clerkship boot camps. On the theme of changes to assessment, 7 medical schools reported developing and using a competency-based curriculum/assessment while 3 of them made usage of newer or altered forms of assessment tracking systems, 3 medical schools reported eliminating grade systems and resorting to pass/fail system of assessment. On the theme of increasing use of technology and informatics, 2 medical schools reported mapping their curricula to outcomes while one school emphasised on making use of enhanced and emerging technology.

Pock *et al.* [36] reported in their survey in 2018 the types of challenges encountered while bringing about and executing the curricular reforms in the medical institutions/schools accredited by LCME. They reported the encountered challenges under these themes - faculty resistance to change, programmes designed to bring about overall faculty development, meeting and competing for demands by faculty/paucity of faculty time, financial considerations/allocation of available resources, overall resistance by faculty and students, technology related challenges in execution, challenging tasks and attempts to finish teaching the curriculum to the learners in a limited amount of time for completion as well as regulatory issues and challenges in conducting their respective entrance examinations.

Challenges in Southeast Asian Medical Schools:

Rafi *et al.* [37] conducted a systematic review in 2021 and attempted to enlist the challenges encountered by the medical schools in lower middle income countries while executing and bringing about the curricular reforms with reference to the WFME standards. The scoping review included a total of 19 full text articles for mitigating the encountered challenges by such medical institutions/schools. Their systematic review aimed at simplifying the WFME guidelines in terms of their execution by the medical schools/institutions not only in the lower middle-income countries but all over the globe other than identification of challenges in execution of curricular reforms when compared to international standards of accreditation. Several study groups reported challenges in assessment as the prime area of WFME guidelines and documented lack of effective to the learner, lack of existence of a standard system in place to inform policy, practice, and assessment quality [38- 40].

Rehman *et al.* [41] reported that the challenges encountered in execution of curricular reforms were lack of participation by faculty in programme management activities, evaluation processes, mission statement, programme designing endeavours, curriculum committee rosters, student activities and organisation as per WFME prescriptions with inability to provide opportunities for inculcation and development of active learning programmes and processes among learners was a big challenge faced. Bavdekar *et al.* [42] reported lack of a strong disciplinary environment as well as research culture in the medical schools/institutions as a difficulty faced in execution of curricular reforms. Ali *et al.* [43] reported that the biggest challenge faced by medical schools/institutions in bringing about curricular reforms was a lack of awareness on how to implement community oriented medical curriculum. Shah *et al.* and Anwar *et al*. [44, 45] reported that shortage of pedagogical skills and opportunity to improve these skills as well as insufficient attempts for bringing about development on organisational, professional as well as instructional fronts was a notable issue and threat to curricular reforms in medical schools. Akhlaq *et al.*, Anwar *et al.*, Aurore *et al.,* Anwar *et al.*, and Faiza *et al.* [46-50] reported that inefficiency of management information system, technical competence, poverty of online evaluation and assessment systems, technical prowess, contextual knowledge associated in conjunction with rapid response services provided by the main stakeholders, interest and attitude towards medical research among not only the students but also the faculty as well as development and promotion of research culture among health care institutions as a whole were big time challenges faced by lower middle income countries medical education bodies. Other challenges include shortage of medical education department and qualified medical educationists by Latif *et al.* [50], insufficient international collaboration in disease control and management, lack of formulation policies and management systems as well as poor allocation of resources for optimal functioning of a medical institution by Almansour *et al.* [51] and Ghiasipour *et al.* [52] and low quality integration of medical curricula documented by Bhat [53].

Structural Barriers Faced by the Medical Learner:

In 2020, Meeks *et al.* [54] conducted a survey which sought to collect information about the structural barriers to student disability disclosure by including LCME accredited medical institutions. Out of 141 medical schools, responses were received from 98 medical institutions which gave a response rate of about 70%. There was considerable variation amongst the included medical schools in their structural framework for student disability disclosure and it was found that about 65% of the medical schools maintained such a framework which was in accordance with the AAMC considerations whilst remaining 35% medical schools did not. The AAMC considerations [59] which were considered as ideal were to first assign a specialised 'Disability Services Professional' (DSP) who has had focussed and specialised training in handling and carrying out disability services and requirements for abiding by the disability law for the medical institution. Secondly, it was mandatory to avoid any conflict of interest in this selection process. Thirdly, it was expected to confirm that the selected DSP has a liaison at associate or associate dean level in the said medical institution where referral to other specialist educators can be brought about. Fourthly, in scenarios where the disability services were handled by a centralised campus office, a specific staff or faculty with specialised training in handling disability services and abiding by the disability law was directed to carry out his work alongside the medical learners. Meeks *et al.* [55] reported this diversional finding as major obstacle for the mental as well as overall student welfare as disclosing disabilities is crucial to the learner and maintaining its confidentiality and dignity is the responsibility of the designated official and the medical school as a whole. Any diversion from this near ideal scenario can be considered as harmful for the learner's self-respect and dignity.

Linguistic Competence of the Medical Learner:

In a study by Ortega *et al.* [56] in 2019, it was suggested that to bring about global linguistic competence for the medical learner, there should be a special provision in the curricula for languages viz both English and Spanish. Greater emphasis was laid upon the latter as English and Spanish are spoken worldwide. The approaches presented in the study in order to bring about global linguistic competence were two fold - firstly, to evolve Spanish language courses and its selective application as medical Spanish so that it may meet the best practices guidelines. Secondly, a partnership model along with medical interpreters to help and teach the medical learners about implementation and integration of Spanish language in undergraduate medical curricula.

Healthcare Needs of Minorities amidst Social Stigma:

Healthcare needs of the older Lesbian, Gay, Bisexual and Transgender (LGBT) patients were pointed out to be specially included in the medical curricula by Cannon *et al.* [57] in order to decrease the gaps in knowledge, information and experience as well as problems and issues related to the older LGBT group as well as make this vulnerable minority group of people feel more protected and stress free about their existence. Addressing special competencies and objectives within the medical curricula directed towards healthcare needs of such minority groups which are sensitive

and vulnerable was expressed of paramount importance in order to make the medical learner culturally competent.

Discussion:

This study attempts to collect information regarding the present status of accreditation - both generalised as well as medical education specific and tries to hint at improvement of all the accreditation bodies to strive harder for achieving recognition from the WFME. It also tries to shine over the pros and cons of the existing status of medical education accreditation and the global views and perspectives about achieving the good of the medical learner and the global population as a whole. It tries to go over documented curricular reforms as well as difficulties encountered in executing these changes and reforms and points out certain requirements which may be further taken up by global medical education experts for betterment of already existing accreditation systems in vogue.

Conclusion:

Overall, the better the accreditation systems strive to improve themselves, the more focussed towards medical education they will turn out to be, the better the overall - clinical as well as societal outcomes will turn out to be. Not only the healthcare needs of the society are on the line but also the grooming of the medical learner needs to be strengthened and enriched on all counts if the education system 'accredited' by numerous agencies globally are to chisel out the best of him/her.

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***Author for Correspondence:**

Dr. Gaurav Mishra, Dean, Faculty of Interdisciplinary Health Sciences, Department of Radio-diagnosis, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (Deemed to be University), Sawangi, Wardha-442001 (Maharashtra) India
Email: drgvmishra@gmail.com Cell: 9171391739

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