

Original Research Paper

Effectiveness of Integrated Bioethics Module in Undergraduate Medical Students: a comparison

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ABSTRACT

Background: The General conference of UNESCO adopted the Universal Declaration on Bioethics and Human Rights since 2005. A set of bioethical principles were set out by 191 member states, and they were mandated to promote, disseminate, and elaborate them into practical purposes. Later the UNESCO Bioethics Core Curriculum sets out to introduce the bioethical principles of the Universal Declaration on Bioethics and Human Rights to university students.

Methodology: Bioethics integrated course was taught 2 years for 2012 MBBS batch from their 3rd semester according to the prepared module. 94 students enrolled into the course. A cross sectional prospective comparative course evaluation study was conducted. The confidence level was graded using pre-test and post test scores on their bioethical course objectives. The results were compared with 2011 MBBS batch who hadn't bioethics course.

Results: 94 students in 2012 and 86 students in 2011 MBBS batch participated in the study. The confidence level of course attended batch has increased greatly from their pre-test/course level. The mean score in remembering ethically issues has hiked to 8 from 2. The confidence level of senior batch (unattended batch) was comparatively reduced from attended batch. The need for bioethics course was equivocally pronounced by both the batches.

Conclusions: The increased confidence levels in course attended students shows the effectiveness of integrated bioethics course in the curriculum. The curriculum includes innovative teaching methods, which aids for this success. The curriculum has evolved with every hurdle and brainstorming to resolve the encountered problems each time to this unique level.

Key words: bioethics, medical students, integrated bioethics module, curriculum.

Introduction

The Indian health care system is progressing by leaps and bumps, throwing a multitude of ethical challenges at the healthcare professionals [1]. This ethical stress brings the importance of bioethics

in the medical curriculum and will uplift the medical professionals to deal with these issues [2]. Although the west has been teaching ethics to the healthcare professionals in a sporadic manner [3], the studies done by exploring the local health care has found lacunae in ethical areas [4]. This led to setting up of network of bioethics centers under the Universal Declaration of Bioethics and Human Rights since 2005 [4]. The mandate was to empower healthcare professionals in bioethics by including bioethics in their medical curriculum. These laid to the foundation of unique integrated model of bioethics into the curriculum, including regular assay of undergraduate health care professionals' education [2,4]. This module continues in step with the medical course culminating in written examination and viva voice at the end of the course. This study is an interim report on the program of the students who have undergone 2 years of bioethics sessions according with the horizontal (subject-wise) curriculum vertical integration [4].

Bioethics in medical practice is the balance between benefit and harm, with four key principles in its centre – autonomy, beneficence, non-maleficence and justice. Learning bioethics will help medical professionals for ethical clinical decisions, advanced technologies in treatment, moral research and if necessary to make changes in law and regulations [5]. This study determines the effectiveness of integrated teaching module conceptualized by the authors by using various methods of this module.

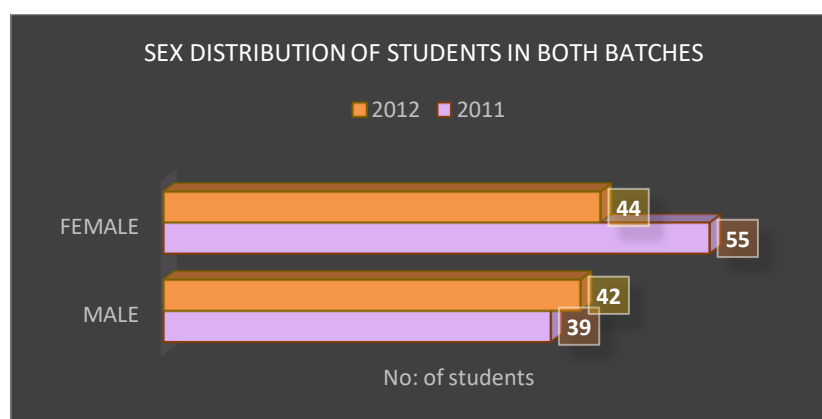
Methodology

We performed the case-based reviews of three IRB records of implementation research related to public health interventions using the inclusive self-help groups (ISHG), trained malaria volunteers and the nutrition support groups. For each research project reviewed at the IRB, the analysis informed the project description, and a brief account on ethical considerations without revealing the actual title of the research projects and partner organizations (INGO A, B and C) to observe anonymity and confidentiality in line with Helsinki declaration. The methodology in constructing case studies followed Gopinchandran *et., al* (2016) [16]. Ethical challenges in this study referred to ethical issues related to implementation research that needed to take into account during the IRB review process that were difficult to deal with, in the absence of clear guidelines or known precedents [4]. The IRB (DMR) exempted the review of this research. The administrative authorities provided permission to review the records for further analysis.

Results

There were 94 students in 2012 MBBS bioethics course attended batch and 86 students in 2011 MBBS batch. All the students were consented to participate in the study. Sex distribution of responders were given in figure 1.

Figure1. Sex distribution in both batches

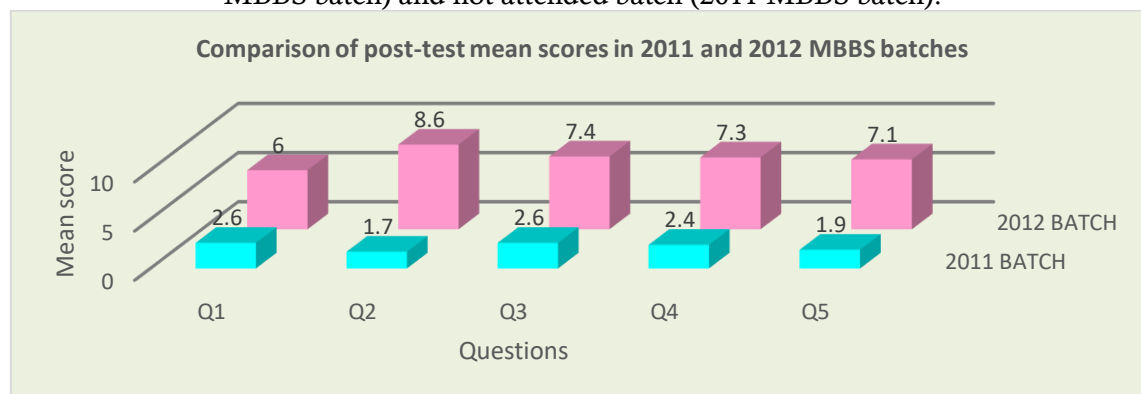


The confidence level table of mean scores of the pre- and post- test of the course attended batch (2012 MBBS batch) was depicted in table 1. The mean scores obtained under each score is shaded differently (Table 1). The post-test scores obtained by 2011 and 2012 were graphically represented under figure 2.

Table 1: Confidence table for the bioethics course attended batch – 2012 MBBS

Title	PRE-TEST										POST TEST									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
I am confident to identify ethical problem																				
I can understand and remember basic ethical principles																				
I can reflect on moral issues from perspectives of all stake holders																				
I am aware of the rights and laws pertaining to basic bioethical issues																				
I am able to morally justify an ethical decision taken																				

Figure 2: Comparison of post-test scores obtained by bioethics course attended batch (2012 MBBS batch) and not attended batch (2011 MBBS batch).



Students need for bioethics in their curriculum was enquired. 100% (n=94) students in course attended batch (2012 MBBS) and 90% (n=77) students in senior batch (2011 MBBS) were agreed for the need for bioethics course in their curriculum (Figure 3).

Discussion

It was not an arduous task for the team, to draft this curriculum as the UNESCO Bioethics core curriculum stands as a template for all those wishing to do the same. Since 2011, the work began in various medical colleges in India. The basic challenge was maintaining the tempo in bioethics right through the four and half years of medical education course. Short courses have been adopted

by various universities which evaporated, with the ending of the courses. Hence first ever unique curriculum, that trudges every step of the way, of the medical student was planned.

The overall scores of students in 2012 batch who had bioethics course shows major improvement in their confidence levels from pre-test (before course) to post-test (after course) scores. Similar supporting evidences were seen in the work of Asghari et al and Barman et al. Barman et al stated that there was much improvement in ethical dilemma in disclosure of patient condition and clinical case discussion after 6 months of bioethics course to undergraduate students in India [6]. In Asghari et al course evaluation study, among undergraduate medical students in Iran also noticed significant improvement from pre-course to post-course mean scores [7].

The 2012 course attended MBBS batch's' confidence level was drastically increased from a score of 2 to 8 in understanding and remembering ethical principles. This is attributed to the fact that it was long term course outcome using innovative teaching methods. Similarly, Goldie et al also noticed a 3-year bioethics course in medical students of UK had better course outcome. Goldie et al as well as Asghari et al appreciated small group teaching had better outcome than lecture type teaching. More over longer course duration (entire medical curriculum) will be more successful – suggested by Asghari et al [7-8]. The traditional didactic lectures would not be effective in bringing about the attitudinal change required, rather thought provoking and sensitive awareness would giggle their mind towards adopting the right attitude. Hence, the curriculum includes 80% innovative teaching methods that aids active learning for long lasting results.

There are many laws related to medical ethics especially concerning abortion, end of life decisions, moral researches and transplantation. This was well taught in their curriculum. Therefore, the improvement in confidence level pertaining to laws will definitely help those students while practising. The bioethics course evaluation of 3rd semester undergraduate students after 6 months training found that students were facing difficulties/contradictions especially in abortion laws and paediatric consent [6].

The medical students find, the medical curriculum cumbersome in itself and addition, of this new subject could be the proverbial 'straw-on-the camel's back'. Allocation of time and staff was an issue, that reached an 'impasse'. This led to the evolution of 'dedicated and discipline specific' bioethics classes. This demarcation resolved the issues, leading to most classes having, a bioethics component, i.e., ethical aspects in every lecturer/bed side class for every subject.

The comparison of mean scores between the course attended and unattended batches show major differences. The lesser confidence level of senior batch students was invariably because of the lack of bioethics course. Although until 2005 there were no separate course incorporated to medical education in India, the medical students were empowered with moral values, which they gained from their experienced teachers. Greenberg et.al noticed residents in paediatric emergency division in Canada had little or no formal ethical teaching but rather it was informally taught by mentors. Few students mentioned about bioethicist consultation whenever necessary. The study also concluded with importance of formal ethical training for medical residents in Canada [9].

As the course attended batch found the integrated curriculum fruitful, they all agreed for the need for the integrated bioethics course in their curriculum. The 90% senior batch students who doesn't had the course had opted 'yes' for the implementation of bioethics course in their curriculum. This says that the students definitely thought of ethical issues and to solve them while they came across with more situations during clinical postings. Likewise, evaluation of bioethics awareness among undergraduates and interns found the need for bioethics teaching in their classes [10]. Barman et.al also concluded with stressing the importance of ethics as a part of curriculum [6].

Implementation of new course into the medical curricula was not that easy as many students as well as faculty members consider less significant to bioethics during initial stages. But later acceptance opened the gate way to the bioethics integrated medical course [11]. Now this curriculum has been validated and implemented by stalwarts in the field. The initial hurdles have been thwarted and is now, well seton the road to completion [4]. Therefore, course evaluation and students' regular assessment was integral part in renovating the curriculum. El Tarhouny and others proposed 12 steps of ethics implementation in curriculum in which critical thinking, interactive sessions, students assessment and course evaluation were highlighted [12]. More interactive sessions, small group discussions, ethical clinical dilemma solving were the most

preferred teaching methods by both students and faculty [9]. Not only in undergraduate medical students, interns, postgraduate residents, dental students, nurses also require to strengthen their ethical values [13-14]. So, our present study shows the effectiveness of bioethics course and students were intended to know more about bioethics.

As our sample size was small, we used minimal statistical analysis. Therefore, the large sample size is required to represent a population. Instead of retro pre-test, a pre course evaluation might produce more accurate results. Since it's a course evaluation study, the level of knowledge in bioethics was not assessed.

Conclusions

The road to making ethically excellent healthcare is possible by sowing ethical seeds early. This had been visualized and is now being realized. The horizontally and vertically integrated undergraduate bioethics curriculum that has been seamlessly integrated into the four and half years of medical education, is here to stay and shall shine as a beacon to be adopted by many. This is truly indigenous, relevant and sensitive to our needs which is the highlight of this curriculum.

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