

Exploring the scope of sleep medicine in current medical teaching and utility of CD Based Learning Resource Material

Kuldeep Singh¹, Baldev Sharma¹, Sanjeev Misra², J S Bajaj³,
Department of Pediatrics¹, Director², All India Institute of Medical Sciences, Jodhpur,
Emeritus Professor, National Academy of Medical Sciences, New Delhi³

ABSTRACT

Background: Only recently health professionals have started recognizing sleep disorders as one of the commonest cause of morbidity. Only in the last 50 years have scientists and physicians attempted a systematic study of the physiology and disorders of sleep. The situation is changing in India too. About a decade ago the sleep medicine started developing but remained in the domain of Pulmonary Medicine. Through various societies, meetings, workshops it has now percolated to physiologists, neurologists, psychiatrists and allied specialists. However, there is still a gap in the awareness about sleep and its disorders among health professionals. Limited information is available regarding sleep education in current medical curriculum in India and globally.

Aims: (i) To find out the existence of a course or module on sleep medicine in any of Government medical colleges in India. (ii) To explore feasibility of using Learning Resource Material (LRM) on CDs for Continuing Medical Education.

Methods: As an outcome of Sleep Symposium held at National Academy of Medical Sciences (India) conference at AIIMS, Jodhpur, a survey was carried out among 100 Government Medical Colleges in India along with Resource Material consisting of didactic teaching material distributed through Compact Disc (CD) to explore utility of the method.

Results: Response rate from medical colleges was 41 %. Ninety five percent of medical colleges denied of having any structured course or module on sleep medicine. Fifty percent felt that such module should be included for both UG and PG while 70 % agreed for PG only. Regarding cost effective delivery methods for the content of such a module, majority responded in favour for an online or DVD based with one of the content experts as a resource person with his physical presence. All respondent were highly satisfied by the content of CD.

Conclusion: Sleep education is almost non-existent in most of medical schools in India. Survey elicited average response from academic community. However, sleep education has been perceived by 70 % participants to be included in PG curriculum. The content of PowerPoint presentations was considered highly satisfying and using multi-modal technology for sleep education is regarded to be an effective delivery method by majority. It can be concluded that there is felt but unmet need of a course on sleep medicine in our existing medical curriculum using information technology.

Key words: Sleep module, CD based CME, Continuing Education, sleep education

Correspondence : Dr Kuldeep Singh, Additional Professor, Department of Pediatrics
All India Institute of Medical Sciences, Jodhpur-342005, Email: kulpra@hotmail.com

Introduction

The sleep related problems are now being increasingly recognized in India. The first ever pan-African and Asian sleep-problem study has revealed that prevalence of sleep problems in the developing world are starting to mirror those seen in developed nations. Some 16.6 % of people in the developing countries surveyed reported experiencing insomnia and other severe sleep disturbances - not far off the 20 % rate recorded among adults in developed countries like Canada and the United States.

A study by Panda *et al* in 2012 reported prevalence of insomnia in 9% of the general population with about 30% reporting occasional insomnia (1). A higher prevalence of sleep disorders related to initiation and maintenance of sleep (28%) was reported in an urban population from north India. However, there is a lack of awareness both among health professionals and general public (2).

National Academy of Medical Sciences (India) organized a Regional Symposium on Sleep Medicine as part of its annual conference, NAMSCON 2013, held at All India Institute of Medical Sciences, Jodhpur on 25th October 2013. There was an enthusiastic response from the UG students in learning the newer concepts in sleep medicine and its scope in dealing with co-morbidities. The program evaluation showed high level of satisfaction to all parameters of

symposium (3). It was also felt that sleep medicine as a course can also prove to be a module aptly suitable for integrated teaching being promulgated by Medical Council of India as part of the Vision 2015 for implementing curricular changes for a competent medical graduate.

With the intention to explore the existence of a module on sleep in any of the Government medical colleges in India and also to find feasibility of distributing Learning Resource Material (LRM) in a cost effective manner through Compact Disc (CD) the present study was undertaken. This survey was also expected to be an enquiry to provide evidences for other suitable methods for effective CME.

Aims of the study

1. To explore existence of teaching on Sleep Medicine during medical training in Undergraduate or Post-graduate course.
2. To collect evidence for feasibility of CME through CD or other cost effective mode(s)

Methods

The content for Learning Resource Material was kindly provided by the National Academy of Medical Sciences (India) to be used for distribution through CD. The study was designed by one of the authors (JSB). The package content consisted of single CD with the instructions to use the CD, educational

objectives, and outline of the program, PowerPoint presentations of 12 content experts and the slide by slide text script of the talk delivered during the Live CME at NAMSCON 2013.

A list of MCI recognized government medical colleges and institutes were procured. Random selection of the colleges was done to include 100 medical colleges. A covering letter explaining the objectives of the study, the CDs with written instructions were sent by speed post to the Principals/Directors of the selected medical institutes with a request for a review of the content by them or their designated faculty member in their institute or college. The same content was also made available at shared google drive and linked to an online survey (*Lime Surveys*) to expedite the process. The contents can be accessed at <https://drive.google.com/folderview?id=0B-S E C H D v L O M V R 0 V D e l N F X 3 J H U z Q &usp=sharing>. As an incentive, the colleges were also offered to access the video DVD at a subsidized cost if they found the content of CD useful. Moreover, they were also provided a link for preview of symposium on Sleep Medicine at the website of National Academy of Medical Sciences (India) at <http://nams-india.in/namscon2013> with a link to *live video*. Email and telephone were used for reminding for survey completion and for clarifications.

The data obtained through surveys was entered into Microsoft® MS Excel sheet. The satisfaction indices (SI) of

responses were calculated by the formula:

$$SI = \frac{\{(a \times 1) + (b \times 2) + (c \times 4) + (d \times 5)\} \times 20}{N}$$

Where,

a,b,c,d are number of total responses for the Co-efficient 1, 2, 4 and 5

N=number of total responses.

The analysis was performed using SPSS Software Ver 17.0.

Results:

The survey was completed by 41 colleges and response sent either by post or through email/online. The majority of the respondents were from North India. Ninety five percent of respondent denied that there is any structured teaching for sleep medicine. However, 2 colleges confirmed having teaching in Sleep during UG/PG. But on telephonic clarification one college verified that the teaching is limited to a part of lecture during psychiatry classes and there is no separate instruction on sleep.

The responses of colleges are summarized in **Table 1**. The majority of responding colleges were from North India. The striking part of the study highlights almost non-existence of structured sleep medicine teaching both during undergraduate and post-graduate courses in the medical schools in India. The opportunity and scope the teaching module on sleep will offer is being stressed by the response of solo institute. On enquiring if “*you think that such an instructional module on Sleep Medicine needs to be included in UG and/or PG*”,

Table 1: Summary of responses from medical colleges

Parameter	Response	Percentage	Remarks
Response rate*	41/ 100	41%	Gujarat-9; Maharashtra-4; Rajasthan-10; UT- 3; Punjab- 2; UP-4; MP- 2; Karnataka-1; TN- 1; Chandigarh-1, Himachal (Shimla)-1, Bihar-1, Delhi-2
Does your Institute conducts any structured course or module, in any form, on "Sleep Medicine" in any of the departments/specialty:	Yes: 2 No: 39	Yes: 4.8 % No: 95.1 %	The respondent from one of the college (personal communication) confirmed having no separate lectures, but is taught as part of Psychiatry. The second college responded that Sleep Medicine is taught to UGs and PGs in the departments of Physiology, Internal Medicine, Pulmonary Medicine, ENT, Dental surgery and Psychiatry.
If Yes, topics and contents	Only 1	2.4%	<p>Topics covered for UGs include:</p> <ul style="list-style-type: none"> (a) Types of sleep (REM and NREM) (b) Brain areas controlling sleep (c) Stages of sleep and the normal sleep cycle (d) EEG correlates of the different stages of sleep (e) Specific sleep disorders like sleep disordered breathing; parasomnias, narcolepsy etc are covered in brief. <p>PG residents (physiology, pulmonary medicine and psychiatry) study sleep in greater detail to include aspects like neurophysiological correlates, neural circuits, sleep deprivation, polysomnography and sleep disordered breathing. Sleep disordered breathing is also covered in detail in departments of Dental Surgery and ENT.</p> <p>For UGs, the format of teaching is large group (using AV aids). For PGs, the format is via seminars and small group discussions and hands-on training in polysomnography and management of sleep-related disorders.</p> <p>College also frequently organizes CME events and guest lectures by eminent workers on sleep related topics.</p>

*Some colleges had more than 1 respondent; 15 responses were received through email/web

Table 2: Utility and content of sleep module

Parameter	Response	Percentage	
Do you think that such an instructional module on Sleep Medicine needs to be included in the UG: Yes/No PG: Yes/No Both: Yes/No	Yes Yes Yes	50% 70% 50%	
What should be the additional content, if any of such an instructional module	Yes, needed	40%	Details of methodology of polysomnography and its interpretation and modalities like actigraphy. Pathophysiology of sleep in other disorders like Heart Failure, obstructive airway diseases and psychiatric disorders may be included. Case based discussion, awareness program, quiz on topics. Module should be short and crisp. UG curriculum is already ' <i>too crowded</i> '. Practical guidelines for managing patients of OSA on mechanical modes.

Table 3: Satisfaction index for parameters

Parameter	Satisfaction index	Remarks
What, is your opinion, regarding the best delivery method(s) for a CME which may also be cost effective: a. Live CMEs with invited experts b. Showing Recorded DVDs with video script and availability of one resource faculty to be conducted in a single day of 6-8 hours duration. c. Recorded DVDs with video script distributed to student d. Online CME e. Other Mode (specify)	64 % 85% 72% 80%	Online using Skype, or any other <i>Anymeeting</i> like softwares. I think a combination of c and d
The learning objectives of the academic activity on Sleep Medicine appeared to me to be of immediate interest for my academic activities.	85%	
The content of the academic programme on Sleep Medicine dealt with issues I generally encounter in my academic assignments.	76%	✓
I found the transcripts provided of acceptable quality.	80%	
Email response to seek clarification on issues included in the DVD/CD shall facilitate learning.	84%	✓
The methods used in the CD encouraged me to take an active interest.	78%	
The Power Point Presentation of the subject content was of acceptable quality and relevant to the learning objectives.	74%	Some presentations need to be improved. Use more figures than text. Huge information that leads to sleep
Additional Information		Quality of presentations can be improved upon. There should be a link between the individual presentations and repetitions must be avoided. Power point presentation should be more precise & illustrative.

half agreed for either UG or both but 70 % suggested for post-graduates only (**Table 2**). The additional comments were, the contents should be crisp and short and should include patho-physiology of sleep in other disorders like heart failure, obstructive airway diseases and psychiatric disorders with use of case based learning. There was concern among the experts that our MBBS curriculum is already burdened with cognitive overloading.

There was high level of satisfaction with the contents of CD; using recorded DVD in presence of a content expert was perceived as highly satisfying followed by online mode. Suggestions for using more than one method were also desired to be productive and effective (**Table 3**). It was strongly desired that experts should be cautious in designing the content of such a mode in using more creativity in presentations avoiding text overcrowding and including illustrations profusely.

There was a strong felt need for including sleep in our current medical curriculum. Seventy percent feel that it should be included in both UG and PG while only 50 percent wish to include in UG only since they perceive that our MBBS curriculum is already '*too crowded*'.

Discussion:

In the present study the response rate was 41 % which appears to be a balanced and satisfactory reaction from

academia. In a survey by Rowe and Ilic for exploring knowledge transfer among academicians, elicited only 37 % response rate (4). They tried to improve the response rate by using strategies suggested by a Cochrane review (5). Further studies and a recent Cochrane review also confirm response rates may be improved by using the following strategies: monetary and non-monetary incentives, larger incentives, up front monetary incentives, postal surveys, pre-contact with a phone-call from a peer, personalized packages, sending mail on Friday, and using registered mail. Mail pre-contact may also improve response rates and have low costs (6). For this study the novelty used was a relatively new idea, telephonic pre-contact, use of email reminders and augmentation by an online response collection.

The survey indicated that sleep medicine is conspicuous by its absence or thin existence in current medical curriculum in India. The similar concerns were expressed by Bajaj and Kumar when they mentioned that '*the topic does not find place in teaching in India*' (7).

However, even if the lukewarm responses by medical schools are to be accounted toward sleep medicine, they amount to an untapped opportunity which exists for exploiting such module using modern technology.

The situation is no different globally. In a study by Mindell *et al*, surveys were sent to 409 medical schools across 12 countries (Australia, India,

Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea, Thailand, United States, Canada and Viet Nam). The response rate was 25.9%, ranging from 0% in some countries (India) to 100% in other countries (New Zealand and Singapore). Overall, the average amount of time spent on sleep education is just under 2.5 h, with 27% responding that their medical school provides no sleep education. Three countries (Indonesia, Malaysia, and Viet Nam) provide no education, and only Australia and the United States/Canada provide more than 3 h of education. Pediatric topics were covered for a mere 17 min compared to over 2 h on adult-related topics (8). The two most common barriers identified by the respondents, were insufficient time (32%) and lack of qualified staff (24%). Other barriers included lack of resources (17%), low priority (17%) and not relevant (7%). Among the Saudi Arabian 3rd and 4th Year medical students more than 80% had rated their knowledge in sleep medicine as below average. Only 4.6% of the respondents correctly answered $\geq 60\%$ of the questions (9).

The present study confirms that online CME will be best and one of the cost-effective delivery method. Respondents agreed for recorded DVD show in presence of expert to be most satisfying mode for a cost effective delivery. Though various pros and cons of face to face and online or DVD methods have long been a matter of debate (10,11,12), careful designing of content, faculty development for online delivery

technology and using adult learning principles will prove that improved technology may prove beneficial for teaching such a subject as sleep.

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