A PILOT STUDY TO EVALUATE WHATSAPP AS A SUPPORTIVE MEDIA TOOL FOR TEACHING AND LEARNING AMONGST RESIDENT DOCTORS WORKING IN INTENSIVE CARE UNIT

Anaesthesiology

Dr. Pradip Kumar Bhattacharya

Associate Professor, Anaesthesiology / MS Chirayu Medical College & Hospital Bhopal-Indore Highway, Near Bairagarh, Bhopal

ABSTRACT

Background and Objective: WhatsApp is a user-friendly instant messaging application for smartphones through which text, images, video and audio messages can be exchanged without any additional charges. Although its efficacy as a tool for academic purposes has been published in various medical and other educational journals, studies analyzing its use in Intensive Care Unit (ICU) patients and ICU education have never been published. Observing the success of this software as a media tool-in patient management and medical education, we prospectively planned a pilot project in our ICU to study its utilization, acceptability and applicability as a teaching and learning tool.

Methods: It is a small pilot study in which evaluation of WhatsApp as a media tool for learning amongst resident doctors working in ICU was done with respect to the patient management and outcome. Its impact on quality parameters was also observed. After creating a WhatsApp group between residents and faculty, all cases admitted in ICU were discussed through WhatsApp as a communication tool. A real-time exchange of patient problems, advisory instructions and teaching materials were the key instructions for both sides to follow. Data generated from formative assessment, focused group discussion and feedback was collected and evaluated.

Results: Obvious improvements were seen in participation of focus group discussion, percentage gain in formative assessment, subjective remarks given by faculty and feedbacks from family members and also the feedback given by the quality department in the form of improvement in quality indicator data.

Conclusions: WhatsApp can be used as a teaching and learning media tool for ICU residents, but proper methods of application are needed to get the maximum benefits.

KEYWORDS

WhatsApp, Intensive Care Unit, Resident doctors, Teaching Learning media tool, Feedback.

Introduction

WhatsApp (from the English phrase "What's up?" meaning "What's new?") is an instant messaging application for smartphones. The app was created by Brian Anton and Jan Koom, both Yahoo employees. WhatsApp Messenger (WhatsApp, Inc., California) has grown in popularity, with over 800 million monthly active users, making it the most popular instant messaging application worldwide[1].

WhatsApp Messenger is a proprietary, cross-platform instant messaging subscription service for smartphones and selected feature phones that uses the internet for communication via text message, images, video and audio media messages.

WhatsApp messenger has the following collaborative features[2]
1. Multimedia
2. Group Chat
3. Unlimited Messaging
4. Cross Platform Engagements
5. Offline Messaging
6. No Charges involved
7. Pins and Users Name

From a medical student's perspective, barriers to communication with faculty present unique obstacles to learning. Clinical clerkship is largely unstructured with topics determined by presenting conditions of patients at the bedside and interests of the teacher.

However, the use of WhatsApp can provide a solution to this by providing subtle structure to an erratic environment. There is already evidence to suggest that students are willing to use instant messaging for academic purposes[3] highlighting a shift in perception who use these platforms primarily for social purposes[4].

The advantages of instant messaging between a group of students and their faculty include rapid arrangement of ad-hoc teaching, the identification of interesting patients, and a platform to discuss cases and ask for additional support during busy hours. One of the main benefits of this technology is the positive effect on student relations with faculty. Instant messaging can build student-doctor and student relationships in a controlled environment[5].

Overall, WhatsApp has become a shared platform that enhances accessibility, encourages cooperation, and intensifies motivation to take an active part in academic assignments[6,7].

The overall scope of the study was focused on WhatsApp technology, which is presumed to have great potential for supporting ICU learning.

The Aim and Objectives of the study are to evaluate
1. The utilization of WhatsApp as a medium for teaching, learning and managing patients in Intensive Care Unit by resident doctors
2. To evaluate acceptability of WhatsApp as a teaching and learning platform[3].
3. To evaluate application of subject knowledge transferred through WhatsApp in patient care.
4. To assess the improvement in overall clinical performance of resident doctors.
5. To assess the level of satisfaction among resident doctors, ICU Consultants and family members of patients.

Material and Methods

It was Pilot study conducted at Chirayu Medical College & Hospital, Bhopal. The resident doctors already working in ICU were asked to voluntarily participate in this study, if they were well-acquainted with smartphones and their operation. Permission from an institutional ethics committee was taken. Before selection, each resident doctor's knowledge about WhatsApp was understood and tested by a person from the IT (Information Technology) department dealing with hospital software. A total number of 10 resident doctors were selected out of 15 who were working in mixed ICU on six or twelve hour's rotation duty. Round the clock they work under the cover of one faculty member.

Experimental Design
Sample Design: Pilot sudy

Sample Size: A total number of 10 resident doctors were selected for this study
Study Period: Nov. 2015 to Feb. 2016

Study Area: Intensive Care Unit of Chirayu Medical College & Hospital, Bhopal

Inclusion Criteria:
a. Resident doctors working in ICU for more than 6 months
b. Resident doctors who are well-acquainted with the use of smartphones
c. Resident doctors who qualified based on the testing done by the IT

department

d. On first come, first served basis

Exclusion Criteria:
a. Resident doctors working in ICU for less than 6 months
b. Resident doctors who are not acquainted with the use of smartphones
c. Resident doctors who fail to qualify based on the testing done by the IT department
d. Latecomers

Whenever a new patient arrives in the ICU, patient details are transferred by the resident doctors to the faculty. After getting patient details from the resident doctor, focused study material including management details were sent through WhatsApp by the faculty for resident's immediate reference and management. WhatsApp was used from both sides without any limitations. This study was continued for four months.

Evaluation Formats: Formative assessment, subjective remarks by faculty, feedback by residents, teacher's feedback, family satisfaction and quality Indicators of ICU are attached with Annexure.

Data Collection
Data collection tools, namely focus group discussion, formative assessment through pre- and post-test questionnaires, subjective evaluation by faculty and feedback forms from residents themselves, teacher's feedback, and feedback from patients attendants were used in our study. Three formative assessments were taken at the end of November, December and January. Feedback forms were developed using the five points liker scale (strongly agree, neutral, disagree, and strongly disagree). Resident, teacher and family satisfaction feedback forms were collected at the end of the study.

Formative assessment questionnaires were in the form of MCQ's (Multiple Choice Questionnaires), based on the type of patients admitted in ICU during the past month. Active participation in focus group discussion was evaluated before and at the end of the study.

Overall Performance was evaluated with the help of feedback forms provided by faculty, satisfaction gained by the patient's family members and finally the data provided by the quality department in the form of ICU quality Indicators.

Looking at the amount of percentage gain which was apparent in each stage of the observation process, it was determined that statistical evaluation was not required.

Results
In our study data was collected through questionnaire feedback forms. A descriptive analysis was carried out to evaluate utilization of WhatsApp as a medium for teaching, learning and managing patients in Intensive Care Unit.
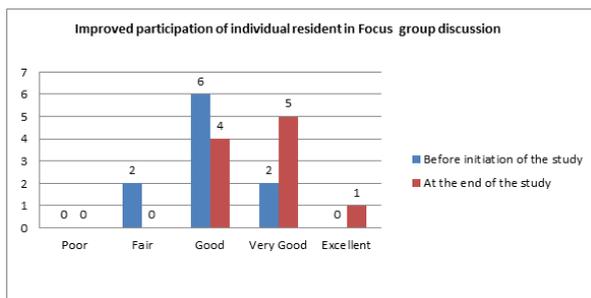

Figure 1: Participation in Focus Group Discussion

It was observed that before initiation of the study, six residents were good and two resident doctors were very good in participation of focus group discussion conducted by faculty. At the end of the study, we saw that there was overall improvement of >20% in participation of all resident doctors. (Figure-1)
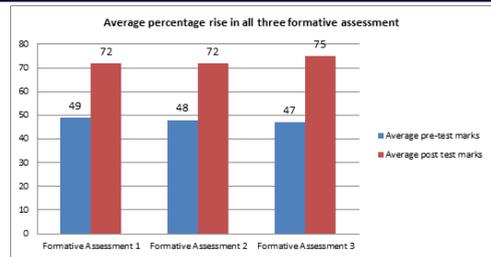

Figure 2: Average percentage rise in Formative Assessment

On comparing pre- and post-test marks of formative assessments, a 25% average increase was observed. (Figure-2)
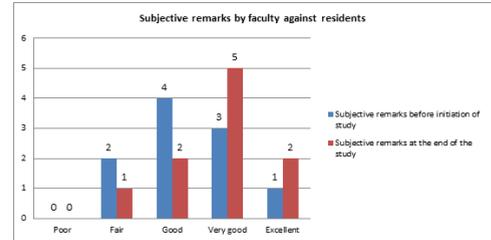

Figure 3: Subjective remarks by faculty against residents before and at the end of the study.

It was observed that, before initiation of the study three residents were rated as very good, whereas at the end of the study five residents were rated as very good by the faculty. (Figure-3)
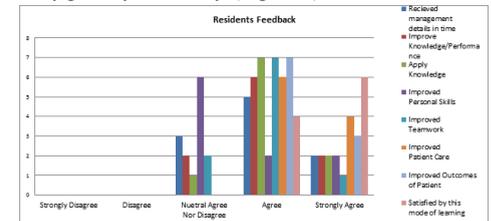

Figure 4: Residents Feedback

It was evident that majority of the residents agree that this mode of learning has improved their knowledge, team work, patient care abilities and patient outcome. All the residents were satisfied by this mode of learning, and it is useful for patient management in ICU. (Figure-4)
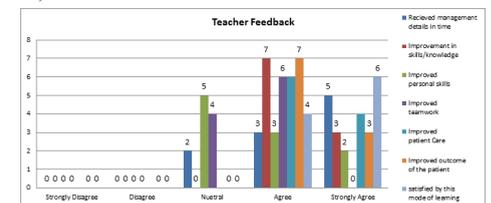


Figure 5: Teachers Feedback

Teacher's feedback results showed that all teachers strongly agree that WhatsApp has better acceptability than theoretical learning and has improved the approach to patient management and attentiveness of residents working in ICU. (Figure-5)
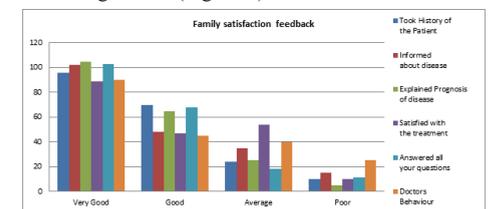
Figure 6: Family satisfaction feedback

Family satisfaction feedbacks showed that 68% (89+47/200*100) of the patient attendants were satisfied with the treatment and 67% (90+45/200*100) said that the doctors' behavior was good and they

answered all their questions regarding their patient. (Figure-6)
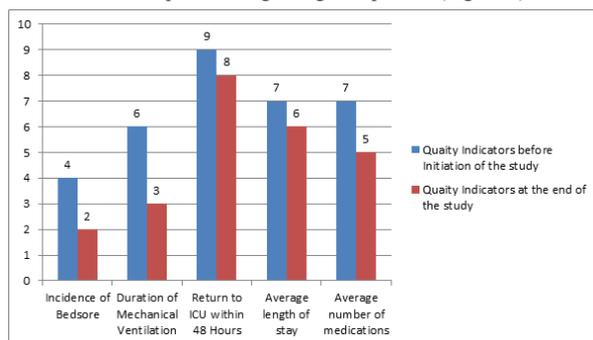
Figure 7: Quality Indicators before and the end of the study.

It was observed that incidence of bedsore, duration of mechanical ventilation, return to ICU within 48 hours, average length of stay and average number of medications has decreased at the end of the study. (Figure-7)

DISCUSSION
When educational benefits were concerned, students found WhatsApp to be beneficial as it provides immediate feedback to the problem creates opportunity to learn during work, provides deeper clarity on issues through teachers' suggestions, encourages revision and better understanding of previously learned topics, offers direct learning from patients' problems; and fosters quick availability of learning as and when required. Most of the students agreed that WhatsApp creates an innovative way of learning. Findings of this study also support this as students find that learning through WhatsApp is making their lives easier since they can learn anytime and anywhere, contributing to the overall success of teaching and learning.

Rajasingham (2009) concluded that with increasing sophistication in information technology, educational paradigms are challenging conventional teaching methods[8]. Previous researches conducted by Bere et al,2012[2]; Bouhnik and Deshen[9], 2014; Demirbilek ,2010[10]; Cochrane and Bateman.2010[11]; showed that many educational stakeholders have positive attitude towards adoption of Mobile learning in educational institutions. Results of our study also justify the conformation made by the aforementioned researchers, since the majority of our residents were satisfied with this mode of learning.

In this study nearly 80% of residents agreed that WhatsApp has improved their knowledge and skills and also that learning through WhatsApp is a collaborative experience and it has increased their interactivity with the teacher and patient family members. In our study, 60% of the residents strongly agree that WhatsApp has helped to improve patient care and ICU outcome.

Residents considered WhatsApp mobile learning activities to be an interactive space that enhanced the sense of involvement through quick sharing of knowledge. Our study also reveals that it has improved teamwork within our intensive care unit.

Strijbos and Fischer in 2007[12] argued that universities must work to integrate cooperative and collaborative learning in the educational system to benefit the cognitive and social outcomes of learning communities and help students to share knowledge through online groups. Our study also satisfies the above argument that learning through WhatsApp should be implemented in Intensive Care Units.

According to Rovai (2002)[13,] students need cooperative and collaborative learning activities to construct and share knowledge. As per our observation, WhatsApp proves to be an excellent tool for sharing information and knowledge which leads to improved patient care and management in ICU.

Cheung et al. (2008)[14] in their research related to social interactions in online learning communities using mobile devices found that social presence is   a principle factor influencing students motivation to engage in social interaction of sharing knowledge. Our study also emphasizes that residents were motivated to engage in sharing knowledge through WhatsApp.

According to Gillingham and Topper, 1999 instant messaging is considered an effective tool for learning and teaching through social interaction[15]. In our study, we observed an average rise of 25% in resident's subject knowledge after post-test formative assessment. Our study also suggests that WhatsApp as a tool makes the learner more engaged with their patient care activities.

Tillema and Orland- Barak 2006indicated in their research that collaborative teamwork is used to stimulate professional to develop and renew their knowledge and keep abreast of new developments in their fields[16]. Our study also suggests an instant knowledge gain evaluated through formative assessment and feedback from teachers and patient outcome which shows significant improvement within our Intensive Care unit.

Findings of the study support that learning and teaching through WhatsApp is making their lives easier since they can learn anywhere and anytime and can share knowledge and views. It also demonstrates that receiving patient's management details in real time leads to improved patient care and outcomes which are justified by the quality indicators observed after the study.

CONCLUSIONS
The scope of instant messaging is well known but has yet to penetrate the healthcare environment formally. Capitalizing on this widely used technology can aid in the communication and ultimately learning experience of medical residents. The wider potential of such technology is exciting and can provide the possibility of a purpose-built instant messaging service for healthcare professionals going beyond the advantages of medical education.

This research was conducted to find utilization of WhatsApp as a medium for teaching learning and managing patients in Intensive Care Unit by resident doctors. The findings indicate that there is a wide acceptance and definite improvement in residents' performance with respect to their knowledge and ability to manage patients in ICU, as obtained through feedbacks from teachers and patients family members. Both the residents and teachers were satisfied by this mode of learning and teaching. All these resulted in overall improvement in patient care, management and outcome in ICU.

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