

## WHATSAPP AS A SENSITIZER IN MEDICAL EDUCATION

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### ABSTRACT

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#### BACKGROUND

Instant messaging system in social media facilitates communication. Most of the medical students after entering this professional course are not serious about the study and analysis of the medical subjects resulting in the less score in exams. Considering the difficulties of the students, the present study was conducted to sensitize the students and evaluate the effectiveness of WhatsApp medium in learning.

#### MATERIALS AND METHODS

This is an interventional study conducted in sixty-one 1<sup>st</sup> MBBS students who have scored less than thirty five percent marks in 1<sup>st</sup> internal assessment in Physiology. Both boys and girls were included in the study. The WhatsApp group by name "Study Group" was created. The question bank was prepared by peer review. All the students were sensitized by conducting the regular question answer session on important topics. The participation of every student was observed by the record keeper. The effectiveness was observed by comparing the score in second and third internal assessment with first internal assessment examinations.

#### RESULTS

There was the active participation of all the students. There was statistically very highly significant difference of mean score of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> internal assessment marks ( $P < 0.001$ ). The effectiveness of WhatsApp was observed equally in both male and female students. There was a significant improvement of marks scored in the 2<sup>nd</sup> and 3<sup>rd</sup> internal assessment as compared to 1<sup>st</sup> internal assessment.

#### CONCLUSION

The constant availability of facilitator and learning anytime anywhere has made WhatsApp a new and convenient tool for sensitizing the 1<sup>st</sup> MBBS students in teaching and learning activity.

#### KEYWORDS

WhatsApp, Sensitization, Teaching-Learning Tool.

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#### BACKGROUND

Chalk and board, and textbooks are considered as the best tools for teaching and learning purpose. In this e-world the students' preference is changing from text books to smart phones for knowledge. With advancing technology and availability of internet, information is now available with one click. Teaching a smart generation of medical students has always been a challenging issue. To deliver subject contents at their pace and mode of learning by understanding their practices of learning subjects becomes the priority for a medical teacher. Medical sciences involve teaching lot of scientific facts and concepts. This leaves very little time for discussion using interactive teaching method.

There is an increasing trend of using 'WhatsApp' as a channel of instant communication amongst students. It is a natural tendency for all to check their WhatsApp messages frequently throughout the day or at the buzz of incoming message.<sup>1</sup>

WhatsApp is a free messenger application that works across multiple platforms like iPhone and android phones, and this application is being widely used among undergraduate students to send multimedia messages like photos, videos, audios along with simple text messages.<sup>2</sup>

As WhatsApp is user friendly, this tool can be used as platform for discussion.<sup>3</sup>

There is also an emerging evidence that these Apps have a significant potential to support the learning process and has major implications on pedagogies, allowing direct access to lots of online resources, more focus on student's creativity, autonomy, and responsibility on one's own learning.<sup>4,5</sup> Hence considering the changing preferences by new generation various studies are conducted on using the smart phones for effective teaching learning sessions.<sup>3,6,7</sup> but very less studies are conducted to assess the learning by using the social media.

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A unique feature of this application is the option to create a group. The one who makes the group becomes the admin of that particular group, who can add and remove the group members. All participants in the group have equal rights and they can exit the group if they want.

In our college, after discussing with the students who scored less than thirty five percent marks in first internal assessment, it was observed that these students are not understanding how to read and analyse the medical subjects and which part of the syllabus is desired to know. As social media tools are gaining attention in medical education as well, we thought of using WhatsApp to improve the interaction between students and teachers for motivation and learning<sup>8</sup>. This study was conducted to evaluate student's learning in must to know area of Physiology by using the social media "WhatsApp" as a platform.

### **Aims and Objectives**

1. To sensitize the students by delivering the content from must to know area in Physiology through question answer session.
2. To assess the effectivity of social media like WhatsApp in understanding the Physiology.

### **MATERIALS AND METHODS**

#### **Inclusion Criteria**

- The students who scored less than thirty five percent marks in first internal assessment examination.
- The students who are using the WhatsApp media for communication.

#### **Exclusion Criteria**

- The students who are taking the help of online coaching to learn Physiology were excluded from the study.

This is an interventional study conducted in the department of Physiology at Mahadevappa Rampure Medical College Kalaburagi. All the participants in the study were using android phones with Internet facility. The students were already using WhatsApp for social conversation and therefore it was easy to implement this modality of teaching learning.

After the first Internal Assessment the students who scored less than 35 percent marks were the participants of this study. The total number of students was sixty-one, among these thirty-seven were boys and twenty-four were girls. All the students were willing for the participation in the study. The written consent was obtained by the students. Student's response was through a WhatsApp group in the name "Study group".

The students were informed about the scheduled time for which they have to be online and about their response for each session. All the 61 students who scored less than 35 marks consented to participate in the study. The study was implemented over a period of seven months from November 2017 to May 2018. Institutional Ethics Committee approval was obtained for implementation of the study.

We created a single WhatsApp group by name "Study group". All the sixty-one students were in a study group. The students were divided into two batches i.e., Batch A and Batch B. Each batch comprised 31 and 30 students respectively. The students were divided in two batches randomly which include both boys and girls in each batch, all of them have less than 35% marks. As we were posting the twenty-five questions daily, each student in one group use to get one question to answer and each student will get a chance to answer on alternate day. As we have divided in two batches the students were alert on alternate day to answer.

The division in two batches was made to participate all the students and indulge the participation of all students. The question bank of short answer questions was prepared and reviewed by the peers. Both the batches were informed to text the answers, diagrams and flowcharts wherever necessary.

Daily twenty-five questions were released. Each batch had record keepers turn by turn who use to keep the records of students who has not answered or delayed answering. The questions were allotted to particular student daily who was supposed to answer on that day. There was a communication among all 61 students because all were added in a single WhatsApp group one batch of students use to answer other batch use to read the answer, comment on answer and if anybody has doubts, the faculty and the other students also use to clarify the doubt.

To avoid the disturbance in the academic hours, the faculties use to release the questions daily at 5:00 PM. The students use to read the questions and twenty-five students use to answer the questions. The remaining five students and the students from other batch use to discuss the answers or ask the queries regarding the answers. The faculties use to go through the answers and discuss the queries. Each faculty was allotted for a particular day. Thus by 9: 00 PM all the answers with queries will be posted on the WhatsApp group. The record keeper used to keep the record of students and their participation in the group. The next day the other batch use to answer the questions in the same manner. On Saturday and Sunday, the questions were not posted. The students were asked to post the answers particular to the question without consuming much of time. Thus, twenty-five questions were discussed on each day from must to know area of Physiology in detail which gave the detailed knowledge and understanding regarding the topics. Each batch has participated on alternate day actively and use to comment on the answers for next day. All the students had responded the answers within the first hour of the release of questions.

The care has been taken to avoid other posts on the group. Only motivating posts by faculties were allowed.

The results of second internal assessment were observed. Though some of them scored more than 35% marks, they were willing to participate for the second session. Thus, statistical analysis has been done after the results of third internal assessment.

**RESULTS**

After the results of second and third internal assessment the data was analysed to compare the score of three internal assessment.

Statistical data was analysed by using IBM SPSS version 20.0 software. In the study quantitative data analysed by paired and unpaired t-test for statistical significance. If  $P < 0.05$  is considered as significant.

Variables	Mean ± SD	Mean ± SD	Paired t-test	P-value & Significance
Comparison of means of IA-I and IA-II	28.67 ± 7.37	34.63 ± 9.58	t = 4.256	P = 0.000 VHS
Comparison of means of IA-I and IA-III	28.67 ± 7.37	45.36 ± 6.98	t = 12.26	P = 0.000 VHS
Comparison of means of IA-II and IA-III	34.63 ± 9.58	45.36 ± 6.98	t = 7.653	P = 0.000 VHS

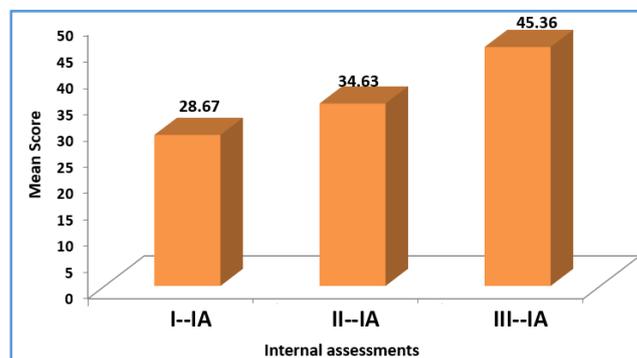
**Table 1. Comparison of Mean Marks Scored by Students in Three Internal Assessments**

NS= not significant, S=significant, HS=highly significant, VHS=very highly significant.

The table no. 1 shows that there was statistically very highly significant difference of mean score of 1<sup>st</sup> and 2<sup>nd</sup> internal assessment marks ( $P < 0.001$ ). There was a significant improvement of marks scored in the II internal assessment as compared to 1<sup>st</sup>.

There was statistically very highly significant difference of mean score of 1<sup>st</sup> and 3<sup>rd</sup> internal assessment marks ( $P < 0.001$ ). There was a significant improvement of marks scored in the 3<sup>rd</sup> internal assessment compared to 1<sup>st</sup>.

There was statistically very highly significant difference of mean score of 2<sup>nd</sup> and 3<sup>rd</sup> internal assessment marks ( $P < 0.001$ ). There was a significant improvement of marks scored in the III internal assessment compared to 2<sup>nd</sup>.



**Figure 1. Simple Bar Diagram Representing Mean Internal Assessment Marks with Different Sessions**

Internal Assessments	Males	Females	Unpaired t-test	P-value & Significance
	Mean ± SD	Mean ± SD		
IA-I	28.13 ± 7.78	29.50 ± 6.59	t = 0.698	P = 0.488, NS
IA-II	35.02 ± 8.93	34.4 ± 10.07	t = 0.386	P = 0.701, NS
IA-III	46.59 ± 7.94	43.45 ± 4.52	t = 1.728	P = 0.089, NS

**Table 2. Gender Wise Comparison of Mean Marks Scored by Students in Three Sessions of Internal Assessment**

NS= not significant, S=significant, HS=highly significant, VHS=very highly significant.

The table no. 2 shows that there was no statistically significant difference of mean score of internal assessment marks among girls and boys in 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> internal assessment marks ( $P > 0.05$ ).

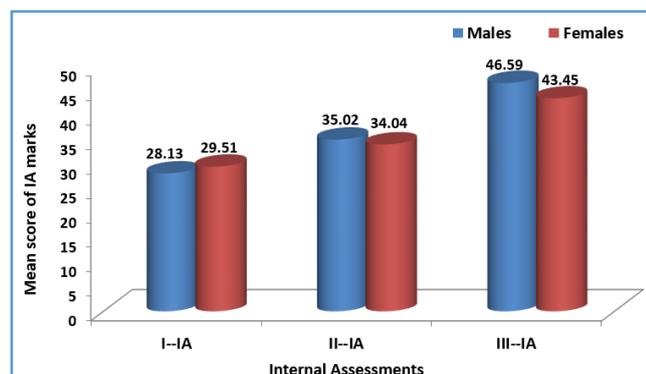
**DISCUSSION**

Our study set up was a private medical college and thereby the socioeconomic status as a barrier in students possessing a smart phone was nullified.

In the present study, two batches of 31 and 30 students were created on WhatsApp group and question answer sessions were conducted. It was observed that more interactions in the forms of questions, answers, sharing of learning material were present in the WhatsApp "Study Group" as compared to the didactic lectures.

To assess whether it is the only response on group or the actual learning has taken place, we have compared the next consecutive internal assessment exam results which has shown the significant improvement in most of the students.

James M. Marshal<sup>9</sup> established that people remember only 10% of what they read, 20% of what they hear, 30% of what they see and 50% of what they hear and see. WhatsApp combines images, texts and audio all in one and in addition to this in our study it involved discussion on topics



**Figure 2. Multiple Bar Diagram Represents Sex wise Comparison of Mean IA Marks**

with the faculties also, which made the percentage even higher than 50%. Most of the studies<sup>1,10,11</sup> found the use of WhatsApp user friendly.

According to Indian Medical council the goal of teaching of undergraduate students is to prepare them to function as community first level physician.<sup>12</sup> For this they should have the thorough knowledge of basic sciences and of various other subjects. In our study the topics which were discussed are from 'must to know' area in Physiology the part of basic science.

Rambe and Chipunza<sup>13</sup> also observed that WhatsApp supports knowledge sharing between students, and between students and teachers. Bansal and Joshi<sup>14</sup> also observed in their study that 82% students were eager to post videos, audios, texts on the problems and were also learning from other's posts. In the present study the same enthusiasm was observed, the students started to post the animations for understanding the mechanism for their friends.

Another study done by Aicha Blehch Amry<sup>15</sup> showed that WhatsApp learning was favoured by female students as they found it easy to interact with their teachers as compared to face to face learning. In contrary to this the study conducted by Qudsia Anwar Dar in the department of ophthalmology shows that males students ranked it better as compared to female students.<sup>16</sup>

But in this study, it has been observed that there is no statistically significant difference between the scores of males and females which shows that there is the equal use and preference of social media by female and male students. As the use of mobile is increasing and technology is shared by both or as it was the "study group" for understanding the subject both girls and boys might have contributed equally.

The study conducted by Lewis Raiman<sup>10</sup> in clinical subjects for medical subjects found that if there are multiple WhatsApp groups and larger group sizes the impact on the degree of engagement and participation of students remains unclear. To avoid this conflict, we had a single group. Though we have a large group this limitation was overcome by assigning specific question to each group member to indulge his participation. The participation of each student was observed by the record keeper.

The study conducted by Padmavati V<sup>1</sup> was an interventional study to assess the effectiveness of WhatsApp in community medicine. They found the statistically improvement in results similar to our study, but they observed the poor online response which is contrary to our study. The poor response in the group can be improved by

Students in few studies reported that the mobile application helped them to learn physiology on the go. They also felt relieved of the guilt that they are not wasting time in the mobile being online.<sup>7</sup>

In our study WhatsApp has sensitized the students regarding the studies and motivated them through the question series. This can be implemented before conducting the didactic lectures by posting the question series or objectives of didactic lecture on WhatsApp in day to day basis.

sensitization and motivation of students by posting the inspirational posts in between the sessions and by keeping a record keeper.

In an interventional study the effect of WhatsApp in increased score is biased. In the study conducted by Padmavati et al<sup>1</sup> and our study, the student was approaching to the final exams, may be this has influenced in increasing the concentration and study rather than only because of WhatsApp. But the students' feedback in present study, we found that students are motivated more and the short questions which were framed to answer and discuss on WhatsApp has sensitized them about what they must know. Students also approved that their level of knowledge upgraded and helped adding on their existing knowledge.

Another recent cross-sectional study by Imrana Z<sup>6</sup> was performed on 86 final year medical students wherein 59.6% of participants had a satisfying experience in terms of improvement in knowledge and 88% said that they were motivated for more learning and was helpful in medical education. Hence, they concluded that social media tools help in health education and has a beneficial influence on undergraduate medical students. Social media tools can be integrated into education as important learning tool for enhancing the interactive learning.

Glad Mohesh<sup>7</sup> determined the perceptions of WhatsApp learning methodology as a M-learning tool to teach physiology in 1<sup>st</sup> year MBBS students and found that 100% the participants liked the WhatsApp based M-learning program, 96% of them agreed that this application had helped them to learn physiology on the go and 93.5% positively reported relevance of information shared on physiology.

A similar interventional study by Mohankrishnan K<sup>11</sup> evaluated use of WhatsApp to enhance medical education in Indian medical school and investigated the impact of WhatsApp messenger in their curriculum from the perspective of students. Their study suggested that WhatsApp intervention has produced significant higher performance level than using didactic lectures alone.

This shows that though M-learning cannot replace the conventional learning, it can definitely be a supplement for a learner to learn anything, anytime and anywhere.

Most of the students in our study consented that these discussions were source of motivation.

Students also agreed that the relevant curriculum was covered in discussions which has sensitized them to prepare for their examinations.

## CONCLUSION

- The students positive attitude towards WhatsApp learning gives an assurance that it can be a part of the medical curriculum in the near future.
- The constant availability of facilitator and learning anytime anywhere has made WhatsApp a new and convenient tool for teaching learning activity.
- WhatsApp can sensitize the students regarding their must to know area in curriculum.

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