



# WHATSAPP ASSESSMENT FOR COMMUNICATION AND ORGANIZATION OF GROUP WORK IN RESIDENT PHYSICIANS

VALORACIÓN DE WHATSAPP PARA LA COMUNICACIÓN Y ORGANIZACIÓN DEL TRABAJO GRUPAL EN MÉDICOS RESIDENTES

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## ABSTRACT

**Introduction:** New communication technologies allow new opportunities to optimize medical work. **Objective:** To determine the assessment of WhatsApp for communication and organization of group work among resident physicians during a healthcare management course. **Methods:** Descriptive, prospective, cross-sectional study. The population consisted of 140 resident physicians who participated in a healthcare management course in 2019 and 2020. A non-probability convenience sample of 132 participants was obtained. We applied the instrument to assess WhatsApp for regulating group work, through the dimensions "WhatsApp for organizing group work" and "WhatsApp as a communication system for group work", with a reliability of 0.92. Based on the scores assigned to this dimension by the participants, we divided them into three groups: low, medium and high rating. **Results:** Resident physicians from eight specialties participated: psychiatry, internal medicine, otolaryngology, clinical pathology, cardiovascular surgery, anatomic pathology, legal medicine and pediatric ophthalmology. The average age was 33.37 years. 86.4% of residents use WhatsApp daily. Activity planning and sending text messages and brief instructions had favorable scores. Both dimensions scored 47.36% in the low rating group, 46.35% in the high rating group and 39.3% in the medium rating group. The global result showed a predominance of the high and low rating groups. **Conclusions:** The majority of resident physicians use WhatsApp as a non-formal communication tool, helpful for sending messages, developing group tasks and planning activities. Additionally, resident physicians and professors consider WhatsApp to be a useful app, and it could facilitate knowledge acquisition.

**Key words:** Telephone; Communication; WhatsApp (source: MeSH NLM).

## RESUMEN

**Introducción:** Las nuevas tecnologías de comunicación permiten nuevas oportunidades para optimizar el trabajo médico. **Objetivos:** Determinar la valoración de WhatsApp para la comunicación y organización del trabajo grupal en médicos residentes durante el desarrollo del curso de gerencia en salud. **Métodos:** Investigación descriptiva, prospectiva y de corte transversal. La población estuvo conformada por 140 médicos residentes matriculados en el curso de gerencia en salud durante 2019 y 2020. Se empleó una muestra no probabilística por conveniencia conformada por 132 participantes. Se utilizó el instrumento para valorar WhatsApp en la regulación del trabajo en grupo mediante la dimensión WhatsApp para la organización del trabajo grupal y como sistema de comunicación para las tareas grupales, contiene una confiabilidad de 0,92. Los resultados se establecieron en 3 grupos; bajo, medio y alto. **Resultados:** Participaron ocho especialidades médicas; psiquiatría, medicina interna, otorrinolaringología, patología clínica, cirugía cardiovascular, anatomía patológica, medicina legal y oftalmología pediátrica. La edad promedio fue 33,4 años. 86,4% utiliza WhatsApp en forma diaria. La planificación de actividades, envío de mensajes e instrucciones cortas obtuvieron puntuaciones favorables. Las dos dimensiones mostraron 47,4% para grupo bajo; 46,5% grupo alto y 39,3% grupo medio. El resultado global evidenció un predominio del grupo alto y bajo. **Conclusión:** La mayoría de médicos residentes utiliza WhatsApp como una herramienta de comunicación no formal, útil para el envío de mensajes, desarrollo de tareas grupales y planificación de actividades. Asimismo, WhatsApp es considerado un aplicativo útil para los médicos residentes y los profesores permitiendo la adquisición de conocimientos.

**Palabras clave:** Teléfono; Comunicación; WhatsApp (fuente: DeCS BIREME).

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## INTRODUCTION

The arrival of Web 2.0 and diverse technologies have been able to transform the way in which people communicate and collaborate among themselves, which has produced the emergence of WhatsApp, which is considered as an application available for its use on smart phones and is classified as one of the most popular communication platforms in the XXI century<sup>(1)</sup>. It can be used to send accessible learning materials, since people are exposed to diverse communication tools, such as social media and applications for smart phones<sup>(2)</sup>. Diverse research have demonstrated that WhatsApp is widely used for its accessibility and ease of use in communication. Likewise, its favorable impact on its use within the education sector has been written about, such as combined learning and ease of communication, being an application that is very much used for information exchange among students<sup>(3)</sup>.

During the last decades, information and communication technologies have been successfully integrated in all sectors, however, in education its implementation has occurred slowly and with difficulty since professors do not have competencies for its use and, in some cases, due to fear of lack of security, with students being the key piece for its integration in the Era of Knowledge<sup>(4)</sup>. The WhatsApp application is the most used in the world, with over 40 thousand million messages exchanged each day<sup>(5)</sup>. The first reports on its use for education purposes originate in early 2017, in the process of teaching medical students and in the training of resident physicians in pathology, where results on its use and rapid access to lectures through this application were reported as satisfactory<sup>(6,7)</sup>.

The use of applications and social media as a tool in the learning-teaching process produce benefits to students given the opportunity to share academic content and promote an environment in which to develop debates over diverse topics, as well as exchange opinions, knowledge, instructions and even clinical experiences. When we compare the traditional in-person interventions, those done through social media have the advantage that the participant is not required to attend the on-site sessions and they offer unlimited access to intervention materials as many times as needed<sup>(8,9)</sup>.

The new ways of learning and teaching require a change in learning methods in the role of the professor and the students. Until a few years ago, the professor appeared as an active agent in the

teaching-learning process, while the student was considered a passive agent. However, due to greater market demands, methodological innovations in the curriculum design and in learning planification are required since students should acquire digital competencies within their training stage and should be competent in the mastery of systems based on symbols, ways to interact with the information in digital format and through communication networks<sup>(4,10)</sup>.

Management education in diverse programs of second specialization present obstacles that limit access in its educational development, where learning opportunities do not develop taking into account the collaborative work nor student integration due to factors such as the commute from their respective hospitals to the university, work permits from their employer to attend classes, shifts programmed on class days and the little or no use of technology support tools, causing a minority of in-person participation since the medical resident considers the hospital as its greatest source of learning.

Despite the great use of WhatsApp as a source of communication among professors and students, it is not yet researched enough. However, reports described by Bouhnik y Deshen, consider WhatsApp as an extraordinary tool of communication with educative and academic potential<sup>(11)</sup>. These tools and their diverse applications may help professors and students improve their communication in a simpler and faster way, generating more flexible learning-teaching processes favoring the motivation and interest of students and professors<sup>(12-14)</sup>, and develop diverse courses without interfering with the medical resident's own activities. For this reason, the present research has as a purpose to determine the value of WhatsApp for the communication and organization of medical resident's group work during the development of the health management course.

## METHODS

### Design and area of study

A descriptive, prospective, cross-sectional study was performed, during the development of the health management course during the period of 2019-2020.

### Population and sample

The study population was formed by 140 resident physicians registered in the health management course during the period of 2019-2020. Resident

physicians with absence greater than 30% in learning sessions and those who declined to participate were excluded. A non-probabilistic sample by convenience was obtained made up of 132 resident physicians.

### Variables and instruments

The variables of the present study include: age, gender, medical specialty, academic semester and workplace collecting information through survey technique and the development of a questionnaire, an instrument used to assess WhatsApp in the control of group work designed by Vilchez, Reche y Marín<sup>(15)</sup>.

The instrument is made up by a primary section, that is made up of general information of the participants, contains 30 questions, through a Likert scale, with values from completely disagree to completely agree. We only studied the dimensions "WhatsApp for the organization of group work" and "WhatsApp as a communication system for group works". Results are established through recodification with three groups: low, medium, high. The instrument has a construct validity through exploratory factorial analysis with a total variance of 59,36% and reliability of 0,92 according to Cronbach's alpha.

### Procedures

The data process was performed through the printed version of the questionnaire that was applied to each medical resident that voluntarily participated in the study. The obtained results are assigned a number for each answer which corresponds to a specific value in a variable. Later, a database was developed in Microsoft Excel version 2010 for de codification process.

### Statistical Analysis

Summary measures for the qualitative variables with frequencies, percentages were presented and for

quantitative variables with median and standard deviation. The data were processed through the use of the statistical software IBM SPSS Statistics for Windows, version 22.0.

### Ethical aspects

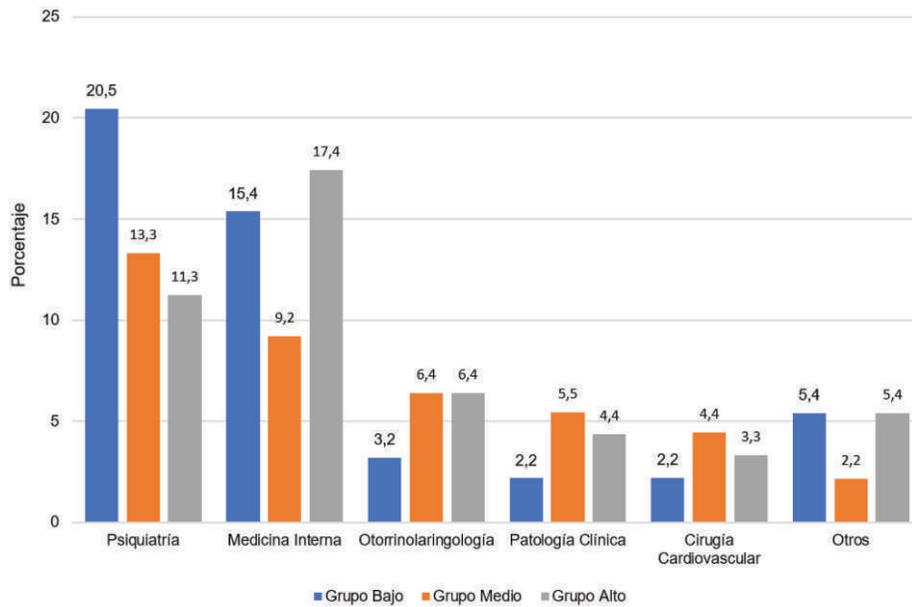
The bioethical principles applied were picked up by the Helsinki Declaration, keeping participant confidentiality during the study implementation.

## RESULTS

In the current research, after the analysis prior to the information collection, eight resident physicians were excluded, which means the sample was made up of 132 participants that developed the health management course distributed in eight medical specialties: 33,3% (44) corresponded to psychiatry, 31,1% (41) to internal medicine, 11,4% (15) otorhinolaryngology, 8,3% (11) clinical pathology, 6,8% (9) cardiovascular surgery, 4,5% (6) pathological anatomy, 3,8% (5) legal medicine and 0,8% (1) pediatric ophthalmology. The average age was 33,37 DE±6,3. Likewise, 54% (71) were men and 46% (61) women. With respect to the use frequency of WhatsApp, 86,4% (114) used the application daily, 12,9% (17) between 3 or 4 times a week and only 0,8% (1) uses it 1 or 2 times a week.

The results corresponding to the dimension "WhatsApp for the organization of work group", in the questions related to the solution of complex homework, error correction in the development of activities and knowing the members of the group, they obtained intermediate scores, while questions regarding activity planning and coordination of delivery dates, they obtained favorable scores.

With respect to the score for the high group,



Source: Compilation.

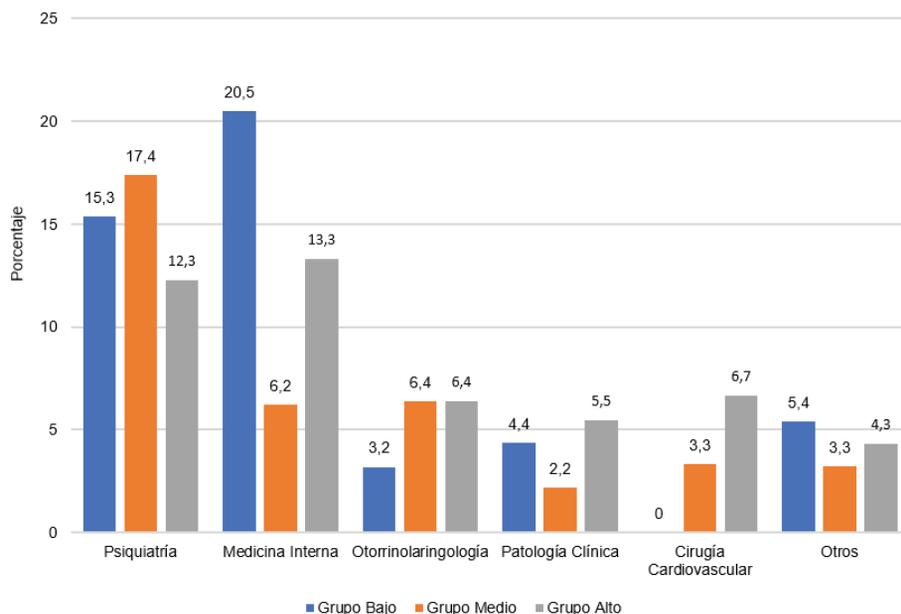
**Graphic 1.** Results from the dimension for organization of group work.

17,4% presented in internal medicine and 6,4% in otorhinolaryngology, while low scores corresponded 20,5% in psychiatry and 15,4% internal medicine. (Figure 1).

On the other hand, the results for use of “WhatsApp as communication system for group work”, all the questions obtained favorable scores, of which it can be emphasized that it is considered as adequate to send messages and/or short instructions, allow to finalize materials, necessary resources to carry out

group reunion, facilitate planification, remember meetings to work in groups and useful in informing the entire group on activities developed. The corresponding scores of the high group are 13,3% in internal medicine, 12,3% psychiatry and 5,5% in clinical pathology. While the medium group presented as 17,4% in psychiatry and the low group presented 20,5% in internal medicine and 15,3% psychiatry.

“WhatsApp as a system of communication for group



Source: Compilation

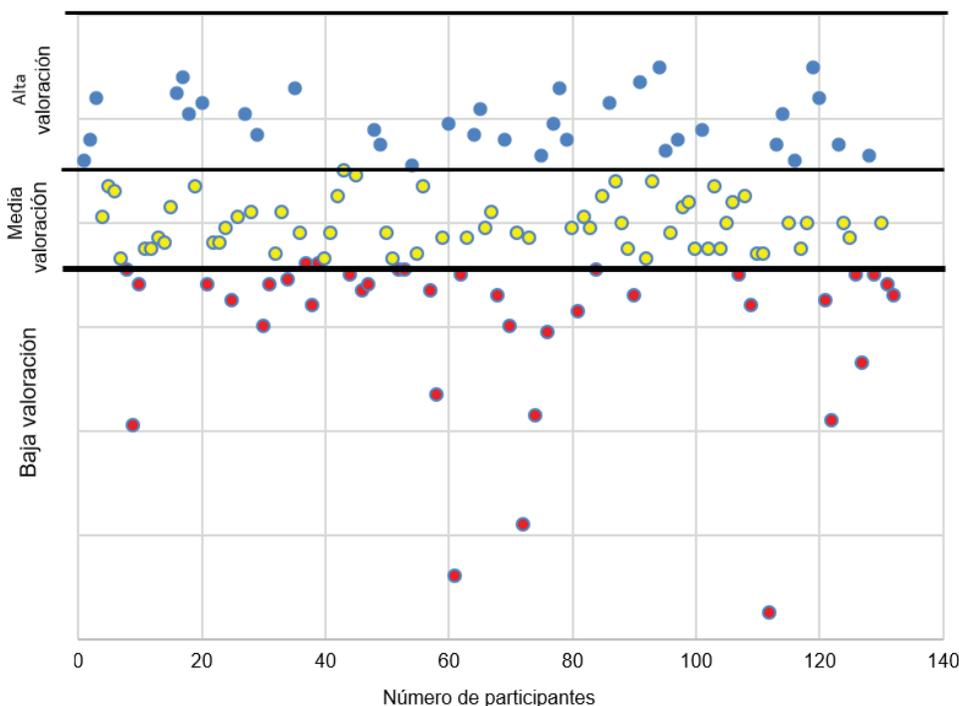
**Graphic 2.** Results of the communication system for group work dimension.

works.”

The comparative analysis of the studied dimension obtained the following scores, 58 points  $DE \pm 9,8$  in the dimension “WhatsApp for the organization of group work”, 61 points  $DE \pm 8,6$  in the dimension

“WhatsApp as a communication system for group works”. The analysis of the values in both dimensions showed similar results, 47,4% for the low group, 46,4% high group and 39,3% medium group.

The analysis of global results has allowed observation



Source: Compilation

**Graphic 3.** Global results of the use of WhatsApp in the regulation of group work.

of 35% (46) participants belong to the high and low group, 30% (40) to the medium group, with the answers very similar in this group while the other value groups show more dispersed answers. (Figure 3).

## DISCUSSION

The use of WhatsApp as a communication tool between students and professors allows a better integration of the teaching process during undergraduate and graduate school within universities dedicated to human medicine teaching<sup>(16,17)</sup>. According to the review of diverse publications, it is the first time that this type of research is performed on the use of WhatsApp as a communication tool between resident physicians and professors. The results showed that it can be considered a useful tool for resident physicians within the teaching and learning process since it allows to generate learning opportunities, group work through a registry of discussion, among other advantages<sup>(7)</sup>.

The research regarding the use of WhatsApp during the process of training the medical resident are very disperse and the majority are performed according to the experience of the researchers and the viability for its development. The participants in our research were resident physicians of eight specialties in clinical and surgical areas, while other research have been performed within the specialty of anesthesiology with similar samples during a period of three weeks<sup>(5)</sup>. Likewise, the research performed by Shaw and Tan, with resident physicians in the specialty of general surgery was performed during eight weeks with the participation of 46 resident physicians<sup>(18)</sup>. These differences are produced due to communication tools such as WhatsApp, which are not officially integrated within the study plans of the universities responsible for training medical specialties.

The daily use frequency of WhatsApp was mainly due to the residents having an average age that corresponds to the generation named “digital natives”. Likewise, its easy access and availability



suggest that the technology integrates easily to the learning processes<sup>(19)</sup>. We must reiterate that the daily use of these applications for clinical use, such as its incorporation to the clinical practice, are considered key elements for resident training<sup>(20,21)</sup>.

The development of applied activities in a course leads to the resolution of complex tasks and error correction, same that were not considered favorable, while the experiences with resident physicians of the surgical specialty allowed to improve the participation in the joint task and activities review, in contrast to doing it under the e-mail modality<sup>(18)</sup>. On the other hand, the role assignment, activity planification and coordination performed by the members of the group that use WhatsApp are considered important, since it leads to believe leadership exists, which enables group work. Of course, although the questions of our research about leadership did not include these indicators, we consider that the results coincide with those described by Martinez de la Cruz<sup>(22)</sup>.

The method of course development in the present study was mixed. For this reason, the planification of certain activities, as the establishment of delivery time of diverse activities, are key. However, some researchers have shown their concern about the probability that some students do not send their material within the established delivery time, despite that our results showed favorable results. This could be present in cases where assistant activities of the medical resident are of a greater time demand<sup>(23)</sup>. An interesting alternative could be the implementation of reminder messages that could be sent by professors and therefore reduce the lack of task or applicative activities.

A recent research of similar characteristics performed in the same university with students of master's in health management, made up by doctors, nurses, odontologists, obstetricians and other professionals, described findings of low value for group work in the dimension WhatsApp for the organization of group work. While in our research in the same dimension we obtained high value. Likewise, in the dimension "WhatsApp as a system of communication for group work", the results corresponding to high value were greater than those described by Quispe et al. These differences could be due to the differences in the study population and the application time in our study was performed in a course, while the findings

described before corresponding to a master plan of study<sup>(24)</sup>.

According to the global result analysis, we have been able to determine a high value and low value prevalence for group work. The high value complies with the development of mixed learning method of the management course, avoiding the commute from the hospital to the university, time that could be used in medical specialty assistant activities, such as patient care, procedures, among others.. It's important to note that research performed with residents of other specialties have described very favorable opinions, with high satisfaction indices. These differences are due to the novelty and originality of WhatsApp use and this could have benefits in knowledge acquisition<sup>(5)</sup>. Finally, the low value shows similar results in a research performed with post-graduate students and this could be attributed to proper aspects of the courses' nature<sup>(24)</sup>, since it has to do with a course that corresponds to management and not a specialty, not to mention that connectivity problems that public hospitals have, a place where the resident physicians activities occur.

Among the limitations found are internet connection problems which public hospitals have and therefore difficult communication and message sending. Likewise, the participation of only eight medical specialties, as well as the use of WhatsApp is not integrated officially within the learning process of the Program of Second Specialty in Medicine, which could be applied to the other medical specialties.

## CONCLUSION

Today, information technologies and applied communication in medical education allow that the majority of participants of clinical specialties use WhatsApp as an informal communication tool for the sending of messages, coordinating group Works, exchanging information, articles, short instructions, reminder message delivery, group work development and plan academic activities with an immediate participant and professor response. However, it is not exempt of limitations for the development of complex activities. Finally, WhatsApp is considered a useful application for resident physicians and professors, widely used in group work, facilitating access to knowledge.

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