

ORIGINAL ARTICLE

Using WhatsApp® in our clinical practice: a pilot study[☆]

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KEYWORDS

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Abstract

Objective: To evaluate the use of WhatsApp as a clinical tool and determine the perception of orthopaedic surgeons of its usefulness.

Material and methods: Orthopaedic surgeons attending a scientific meeting were invited to complete an anonymous and structured survey on the use of the application in the clinical setting.

Results: A total of 41 (38%) surveys were correctly completed. Of the respondents, 100% had been either senders or receivers of clinical information via the application. Ninety-three percent had used the application to consult in relation to a clinical case. Of the respondents, 78% belonged to a WhatsApp group in which clinical information is shared: 71% agreed that communication between clinicians through WhatsApp is a useful tool for making therapeutic decisions.

Conclusion: The use of WhatsApp for clinical purposes by orthopaedic surgeons is widespread. Most consider it a useful tool in therapeutic decision making.

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PALABRAS CLAVE

Comunicación;
Tecnología;
Medios de
comunicación;

El uso del WhatsApp® en nuestra práctica clínica: estudio piloto

Resumen

Objetivo: Evaluar el uso del WhatsApp como una herramienta clínica y determinar la percepción de los cirujanos ortopédicos sobre su utilidad.

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Red social;
Sistemas de
comunicación
hospitalaria;
Información

Material y método: Se invitó a los cirujanos ortopédicos asistentes a una reunión científica a completar in situ una encuesta anónima y estructurada sobre el uso de la aplicación en el ámbito clínico.

Resultados: En total 41 (38%) encuestas fueron correctamente completadas. La totalidad de los que respondieron habían sido emisores o receptores de información clínica a través de la aplicación. El 93% había utilizado la aplicación para consultar con relación a un caso clínico. El 78% pertenecían a un grupo de WhatsApp en el cual se compartía información clínica. El 71% se mostró de acuerdo con que la comunicación entre clínicos a través del WhatsApp es una herramienta útil para la toma de decisiones terapéuticas.

Conclusión: El uso del WhatsApp para fines clínicos de los cirujanos ortopédicos está generalizado. La mayoría de estos lo consideran una herramienta útil en la toma de decisiones terapéuticas.

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Introduction

Lately we have increased our use of mobile applications for the control of medication, health surveillance, appointment reminders and treatment, together with the use of social network applications for support groups and medical service provision. Smart phones have therefore posed something of a revolution because they now act as pagers, personal computers, cameras, videoconference units, audio recorders, and data and telephone storage devices.¹ Much has been published on specific mobile telephone applications for health, for example in orthopaedics,^{2,3} but what about the use of applications not aimed at healthcare?

When we analyse the use of applications not related to medicine in specific search engines, we observe that there has been a trend in publications on instant messaging applications becoming increasingly useful for our day to day lives as clinicians. This trend is particularly noticeable with the use of WhatsApp (Fig. 1).

WhatsApp is an application designed to transfer text, voice and images, freely for smart phones that use the operating systems of Android, iOS and Windows and which have

been compatible with the Blackberry and Nokia operating systems since 2016.¹ Without the need for videoconference teams or costly computer networks, clinicians in the developing world have found a practical usage in clinical and administrative environments, due to its ubiquitous and easy usage.¹

In orthopaedics its clinical use has been reported in inter-professional communication and coordination,⁴⁻⁸ in control of clinical postoperative evolution^{9,10} and in the development of concordance on fracture classifications.¹¹ However, in our environment there were no studies which researched the level and type of WhatsApp usage in daily clinical practice. Nikolic,¹² in one survey, reported that there was an 84.7% use of WhatsApp as a hospital communication tool and where 100% of respondents shared clinical information. We hypothesized that the figures would be similar in our environment.

The aim of our study was to assess the use of WhatsApp as a clinical tool and to determine orthopaedic surgeons' perception of its usefulness.

Material and method

Recruitment

At the 15th Upper Limb Surgical Pathology Conference in Valencia (Spain), participants (N=108), all of whom were orthopaedic surgeons or residents in the speciality, were requested to complete an anonymous structured survey consisting of 5 elements. The survey was tested on 2 members of the medical staff of the author's hospital, the results of which were not included in the findings. In the first page of the survey there was a brief description of the it, with details on anonymity and the intention to publish the identified data (Appendix B, supplementary material).

Sample

To demonstrate at least 90% usage of WhatsApp as a clinical tool among all participants with an error margin of 8% (<10%

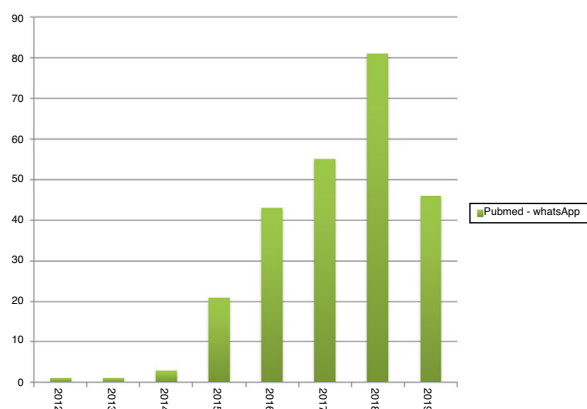


Figure 1 Number of publications per year related to WhatsApp.

Source: PubMed.

expected proportion) for 95% CI, a minimum of 36 completed surveys was necessary.

Data collection

The surveys collected data on the following: Part one: 1) demographic data of the respondents, 2) use of applications in clinical practice. In this second item the respondents were shown a list of applications which were proposed as a response. Their objective was to assess whether the clinicians perceived WhatsApp as a clinical tool when they were not directly asked about it. Part two comprised 4 items directly relating to the use of the application in clinical practice. The first 3 questions were designed to quantify the use of the application. It was assumed that all participants were familiar with the application and those who were not users would respond "no" to the 3 questions. The fourth item was a statement which aimed to determine the perception of usefulness of the application as a clinical tool.

Statistical analysis

Statistical analysis was carried out using the SPSS v. 22 software programme. The nominal and categorical variables were shown as absolute and relative frequencies; the numerical ones as median and interquartile range (IQR). To determine whether there was an association between age and the application's usefulness as a clinical tool the Kruskal-Wallis test was applied, and for this the fourth questions of part two was divided into: disagree (disagree/somewhat disagree), neutral and agree (somewhat agree/agree). For all analyses *p* values under .05 were considered statistically significant.

Results

In total 41 (38%) surveys were correctly completed, for a precision of 7.3%. Of them, 30 (73%) participants were specialists (orthopaedic surgeons) and 11 (27%) were residents. The median age was 37 (IQR 21.6) years. Among specialists, 44% had over 10 years of experience, whilst 20% had less than 5 years of experience. Within the pre-established list of selectable applications the surgeon could use for their clinical decisions or for study, only 44% selected WhatsApp.

When they were asked directly about their use of the application, 100% of respondents had been the sender or receiver of clinical information through the application. 93% had used the application to consult clinical cases. 78% of the respondents belonged to a WhatsApp group where they shared clinical information.

To the statement: "communication between clinicians through Whatsapp is a useful tool for taking therapeutic decisions", 46% of the respondents agreed, 25% somewhat agreed, 22% were neutral, 5% somewhat disagreed and 2% disagreed. The median age of the groups in agreement was 39.6 years (IQR: 17.7), of the neutrals 38.2 years (28.6) and of those who disagreed 34.9 years (28.6). Age was not associated with this response (*p* = .940).

Discussion

The present study was based on a voluntary survey which required cautious interpretation of results. However, it provides an approach to reality on contemporary themes such as the use of social networks and instant messaging, since online communication has increased and it is almost inevitable that it will again begin to have an influence in medical practice. No additional regional or national knowledge was available and for this reason we decided to conduct this study as a pilot study on which a national scale study could be based to quantify the current use of WhatsApp by orthopaedic surgeons.

There is a generalised use of WhatsApp by orthopaedic surgeons for clinical purposes: in our study we were able to substantiate 100% of use in the group which we consider representative in the regional area, despite the fact that when asked indirectly only 44% of them select it as a clinical tool. It has been used to share clinical information and for taking therapeutic decisions, and when it was confirmed that it was a useful tool for communication between clinicians with this latter purpose in mind, 71% of respondents were in agreement. It seems clear that the role of this application in clinical practice is established and that a detailed study of the benefits offered over more traditional forms of communication (i.e. pagers, voicemail) would bring results. This would be particularly useful to see if it adapted to unique challenges faced by multidisciplinary teams, where the staff can only be available intermittently or to optimize the interaction of the team in healthcare centres of varying types.

In orthopaedics Whatsapp has been known for its clinical usage in interprofessional communication and coordination,⁴⁻⁸ clinical control of postoperative evolution^{9,10} or assessment of concordance of fracture classifications.¹¹ For Fernández-Valencia et al.,⁷ the application may be used as a valuable tool to coordinate surgical teams. Giordano et al.¹¹ obtained plain x-rays and computed tomographies of 13 cases of fractures of the tibial plateau and sent them to 6 observers through the application to determine the type of lesion, according to the Schatzker and Luo classification, and to confirm whether computerised tomography had changed the classification. The inter and intraobserver agreement was excellent ($.75 < \kappa < 1.0$) in all survey questions. They proposed the systematic use of the application to facilitate faster documentation and to obtain the opinion of an experienced consultant when they were not on call.

Despite its generalised use, there are some privacy implications. In the study by Nikolic et al.,¹² the majority of participants knew that consent was required for the taking of a photograph with a mobile telephone and for sharing it through this application. However, only half considered that it was necessary to document the consent. The use of clauses in consent forms should be generalised where it is specified that clinical images or data of patients may be used for this purpose, because capturing images of people or distributing them through WhatsApp may be considered a personal data treatment included in the area of the application. If it concerns diseases, this is sensitive personal data. Unless it is a public and common illness, revelation consti-

tutes transfer of data. As a result, this may be considered private information and its diffusion may be prosecuted by law, as set out by the Organic Law on protection of civil right to honour, personal and family privacy and image.¹³ When sending a message from the application a WhatsApp server is routed which may or may not be in the same country as the receiver, and the server tries to send the message to the recipient. When the smart phone of the recipient is available, i.e. it has an Internet connection, the message is resent and eliminated from the server. If, after one month, the message has not been resent, it will be eliminated from the server. The safety of the data during transmission from the server and to the recipient has always been considered as a problem with WhatsApp, with reports of hacker programmes into user accounts. This was resolved in April 2016 and now, when the most recent version of WhatsApp is used, all the messages including texts, images, video, audio and files sent for chat communications or group chats, are end-to-end encoded. In other words, the photographs, videos and voicemail are encoded on being sent and are only deciphered when they reach the receiver's device. The level of encryption is such that it has become a problem for the security agencies, which are unable to access encoded messages.¹ This all means that the loss or filtration of data will almost definitely result from loss of the device, or through the sending of information by error or with intent. In order to provide correct data management, consent from patients and from chat group participants should be based on¹⁴:

- The treatment of data which is *pertinent* to its objective.
- The purpose should be *established and personal data holder informed* that it will be treated by the person in charge of the file.
- The holder of the data *expressly agreeing* to the treatment of the data for this specific end.
- The person in charge of the file or anyone who intervenes in data treatment has the duty of *professional secrecy*.
- The personal data *may not be transferred to third parties without the consent* of their owner, unless express authorisation has been given.

This study has been limited by its descriptive nature and its methodology based on the survey. Also, the small group of respondents could limit the generalization of national and temporary trends. For example, the study comprised orthopaedic surgeons in the city, the majority probably working in university hospitals. It is possible that surgeons in local or non university hospitals would have different opinions on the role of the application in the clinical environment. Also, in this initial pilot study phase no distinction was made between respondent gender, as this was not relevant to the questions. A broader survey base embracing a more diverse group of surgeons from the whole country would be necessary to consider conclusions as definitive in national trends and for their analysis by subgroups. Although no national conclusions may be reached, this study shows that the orthopaedic surgeons surveyed use WhatsApp to share clinical information and believe it is a useful tool when taking therapeutic decisions, regardless of their age.

Conclusions

There is a generalised use of WhatsApp for clinical purposes by orthopaedic surgeons. Most of them consider it to be a useful tool when taking therapeutic decisions.

Level of evidence

Level of evidence V.

Ethical liabilities

Protection of people and animals. The authors declare that for this research no experiments were carried out on human beings or animals.

Data confidentiality. The authors declare that no patient data appear in this article.

Privacy and informed consent rights

The authors declare that no patient data appear in this article.

Conflict of interests

The authors have no conflict of interests to declare.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.recot.2019.09.003>.

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