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Original Article

Surgery Section

WhatsApp'ening in Orthopaedic Training- A Cross-sectional Survey Assessing the Effectiveness in Communication between Orthopaedic Trainees in North-west United Kingdom Deanery

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ABSTRACT

Introduction: The North-west Orthopaedic Trainees Association (NWOTA) WhatsApp group is a group setup by the orthopaedic trainees and has been running for a number of years, distributing a wide range of information to orthopaedic residents within the North-west of England region.

Aim: To look at the aspects of multimedia communication within the WhatsApp group in Orthopaedic training.

Materials and Methods: This cross-sectional survey was Knowledge, Attitude and Behaviour (KAB) study, which assessed the various aspects of information posted within the NWOTA group via a questionnaire over a one month period in April 2020. The questionnaire was split into different domains of information posted within the group, and the residents were asked to rate the usefulness of this type of information from 1-10, with 10 being the most useful. The data collected was anonymised. A Mann-whitney U test was used to statistically analyse the results for significance. Microsoft Excel version 16.16.27 was used to calculate the results.

Results: Fifty-five trainees, out of a total of 63, within the deanery responded, with an average experience of 3.4 years working as a specialist registrar. The highest scoring topics were updates on unofficial announcements such as social events (mean score of 8.27), journal club advertising (8.24), and updates on deanery teaching (7.98). The topics scoring lowest were updates from more official announcements such as updates from the Training Programme Director (TPD) (6.24), updates on training (6.55) and finding out on-call registrars in different hospitals (7.16). Statistical analysis using the Mann-whitney U-test confirmed a significant difference (p-value <0.05) in responses, when assessing the association between each combination of variables, the significant differences were seen in the extreme scoring variables that scored particularly high or low.

Conclusion: The results showed that the orthopaedic trainees find WhatsApp to be a useful channel for communication of more unofficial announcements rather than official updates. With the advancements within social media and the increasing use of mobile phones, this may be an area for potential improvements within residency communications to improve speciality training.

Keywords: Multimedia, Smartphone, Social media

INTRODUCTION

Various means of communication over the years have been used to pass on information to residency trainees. With the growing influence of WhatsApp and other forms of social media, more information is delivered via these channels, compared with the more traditional method of multiple e-mails. With the growing use and development of smartphones, information can be disseminated easily and quickly to trainees [1]. In the field of orthopaedics, WhatsApp is commonly been used as a form of communication within the clinical team. Especially, with the ease and speed that multimedia images, in particular, x-ray images and images of wounds can be transferred to senior clinicians, to help with clinical decision-making. Studies have shown WhatsApp to be a useful tool in communication, as it speeds up decision-making, especially, when senior members of the clinical team are not present in the hospital [2,3].

Furthermore, study has also shown WhatsApp to be a more efficient form of communication in comparison to the hospital pager system. Therefore, freeing up more time to clinically assess patients [4]. In addition to providing effective patient care, it was also observed that WhatsApp is a good source of improving clinical knowledge among junior members of the team [5].

A study performed amongst Lebanese physicians (429 responses) showed high use of the application, with 50% being members of a professional WhatsApp group, where patient cases could be discussed, whilst remaining confidential. In addition, a further 72% had been consulted via colleagues on the application regarding clinical advice [6]. However, judicious use must be maintained when using WhatsApp in the clinical setting as the guidelines are vague due to the regulatory and ethical concerns related to patient confidentiality [1,7]. The use of WhatsApp has been shown to be beneficial in the use of a laboratory management system. In a study, multiple groups were created within the department and the results showed a significant improvement in the various aspects assessed, which included duty rosters, sharing images/information and obtaining senior support [8].

However, there is very little research assessing the use of WhatsApp as a form of interprofessional communication outside of the clinical setting as a means of distributing information to training residents. The aim of this study was to explore the views of the North-west Orthopaedic trainees that are/were members of the NWOTA WhatsApp group. The NWOTA group was setup by the orthopaedic trainees and has been running since 2017, providing information to the orthopaedic trainees within a singular deanery,

the North-west deanery (East sector), distributing wide-ranging information. The deanery comprises all orthopaedic trainees within the North-west of England region, with multiple deaneries spread across the country based on location. New incoming trainees are invited to join the group prior to starting their trauma and orthopaedic rotation as Specialist Trainee 3 (ST3). However, this is not a mandatory requirement for the residents and trainees are free to mute/leave the group. Furthermore, the group is not used to discuss individual clinical cases and the primary aim of the group is an easy means to supply information to trainees within the region.

The study was performed to assess the aspects of information disseminated to the trainees within this WhatsApp group that were found most useful by the trainees within the region. The communication methods of other deaneries/regions within the country can be variable, with a total of approximately 1000 orthopaedic residents nationally, however, the North-west deanery is one of the biggest deaneries nationally and therefore provides a good resident sample size.

MATERIALS AND METHODS

This cross-sectional survey was Knowledge, Attitude and Behaviour (KAB) study performed over a one-month period in April 2020. The questionnaire used in this study was created by reviewing all messages within the WhatsApp group over a one-month period in February 2020 and summarising the ten most common topics posted/discussed. This was created by the research team residents alone (who are also members of the WhatsApp group).

Inclusion and Exclusion criteria: All of the research team residents (who are also members of the WhatsApp group) were included and there were no exclusion criteria and all trainees were given the questionnaire.

Study Procedure

The questionnaire was then distributed to the orthopaedic trainees within the region to obtain their views on the usefulness of information distributed within the group. The questionnaires were handed out prior to the weekly resident Friday afternoon teaching sessions over a one-month period in April 2020 and a register of all resident trainees was used to monitor responses. Fifty-five trainees, out of a total of 63, within the deanery responded. The questionnaire could be filled on average within five minutes. The remaining trainees were not present during the teaching sessions when the questionnaire was distributed.

The scoring method was a simple 1-10 scale (1 being least useful and 10 being most useful information in the group). [Table/Fig-1] shown below is the questionnaire used to gather the information, trainees were asked to circle the most appropriate answer.

STATISTICAL ANALYSIS

Following collection of all the results, a Mann-whitney U-test was used to statistically analyse the results, to assess for significant differences in responses to the various questions posted. This statistical test was chosen due to the scoring categorical variables not being normally distributed within the sample group. Microsoft Excel version 16.16.27 was used to calculate the results.

RESULTS

A total of 55 questionnaires out of a possible 63 trainees within the region were filled out, showing a wide variety of results. Trainees average experience was 3.4 years working as a specialist registrar. The residents assessed ranged from first year residents (ST3) through to final year (ST8) [Table/Fig-2]. No trainee refused to fill out the questionnaire and the only reason this study did not have a 100% response rate is due to availability of the trainees during the data collection period. The two areas of information that scored the highest mean were the more informal areas of information posted within the group-updates on social events (8.27), and journal club advertising (8.24) [Table/Fig-3].

The complete breakdown of results can be seen below in [Table/Fig-4], this shows the frequency each response was selected per question as well as the percentage. Responses of updates on social events shows, 53% scoring a 10 and a further 27% scoring a 9 or 8 [Table/Fig-4,5]. Responses of advertising of journal club shows, 38% scoring a 10 and a further 42% scoring a 9 or 8 [Table/Fig-4,6].

Statistical analysis using the Mann-whitney U-test confirmed significant differences between the highest scoring questions (updates on teaching/journal club/social events) in comparison to the lowest scoring questions (updates from the TPD on training) with each significant comparison [Table/Fig-7].

The questionnaire also allowed to share trainees comments and overall view of the WhatsApp group. Some of the negative comments received were; some trainees had actually left the group, the group

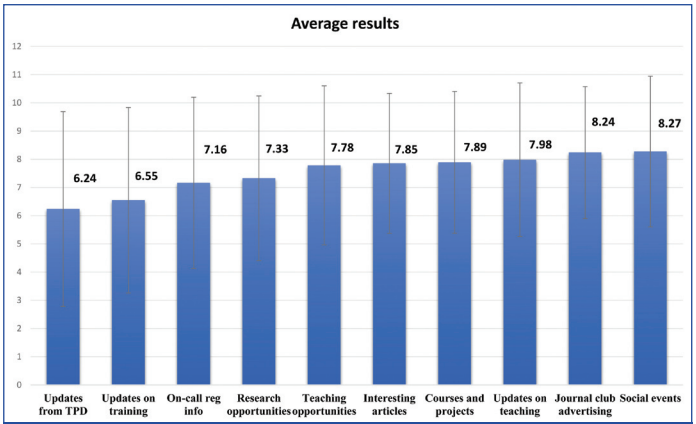
Question	Extremely unuseful	Very unuseful	Moderately unuseful	Mildly unuseful	Minimally unuseful	Minimally useful	Mildly useful	Moderately useful	Very useful	Extremely useful
Updates from Training Programme Director (TPD)	1	2	3	4	5	6	7	8	9	10
Updates on teaching	1	2	3	4	5	6	7	8	9	10
Updates on training	1	2	3	4	5	6	7	8	9	10
Courses and projects	1	2	3	4	5	6	7	8	9	10
Research opportunities	1	2	3	4	5	6	7	8	9	10
Finding out doctors on call at different hospitals	1	2	3	4	5	6	7	8	9	10
Interesting articles	1	2	3	4	5	6	7	8	9	10
Journal club advertising	1	2	3	4	5	6	7	8	9	10
Teaching opportunities	1	2	3	4	5	6	7	8	9	10
Social Events	1	2	3	4	5	6	7	8	9	10
Do you find the NWOTA group useful?	1	2	3	4	5	6	7	8	9	10
Do you find the NWOTA group intrusive?	1	2	3	4	5	6	7	8	9	10
Any comments?										

[Table/Fig-1]: Table showing example questionnaire provided to trainees.

had been muted therefore not immediately being notified of any posts within the group and a few trainees commented that the group should not be used as an official form of communication. On

Variables		Frequency
Gender	Male	46
	Female	9
Grade	ST3	8
	ST4	12
	ST5	10
	ST6	7
	ST7	8
	ST8	10

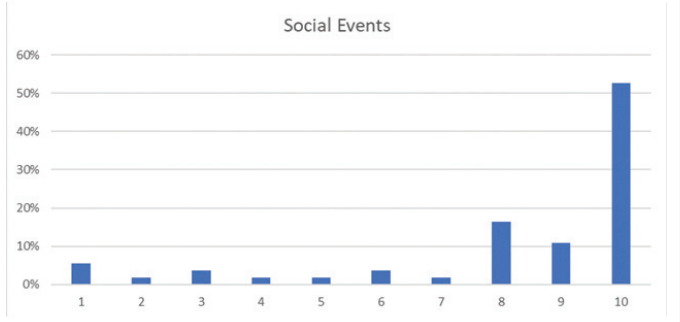
[Table/Fig-2]: Table showing trainee demographics.



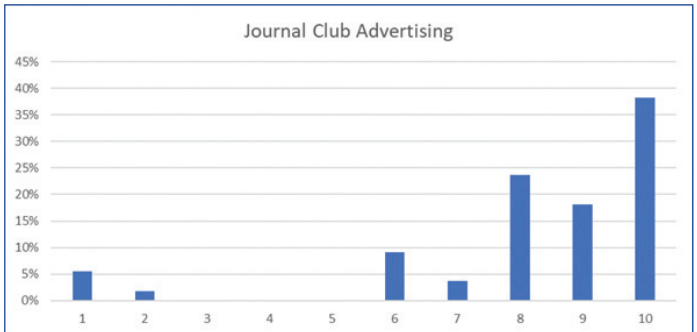
[Table/Fig-3]: Graph showing the average results of each of the questions on the questionnaire with standard deviation error bars.

Question	Responses									
	1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	6 N (%)	7 N (%)	8 N (%)	9 N (%)	10 N (%)
Updates from TPD	9 (16%)	2 (4%)	7 (13%)	0 (0)	3 (5%)	7 (13%)	2 (4%)	3 (5%)	6 (11%)	16 (29%)
Updates on teaching	3 (5%)	0 (0)	4 (7%)	0 (0)	4 (7%)	2 (4%)	2 (4%)	7 (13%)	8 (15%)	25 (45%)
Updates on training	5 (9%)	2 (4%)	8 (15%)	3 (5%)	3 (5%)	6 (11%)	3 (5%)	1 (2%)	5 (9%)	19 (35%)
Courses and projects	3 (5%)	0 (0)	0 (0)	3 (5%)	3 (5%)	5 (9%)	5 (9%)	7 (13%)	7 (13%)	22 (40%)
Research opportunities	2 (4%)	5 (9%)	2 (4%)	2 (4%)	2 (4%)	5 (9%)	4 (7%)	7 (13%)	7 (13%)	19 (35%)
Finding out doctors on call at different hospitals	3 (5%)	4 (7%)	4 (7%)	1 (2%)	2 (4%)	6 (11%)	4 (7%)	5 (9%)	7 (13%)	19 (35%)
Interesting articles	2 (4%)	2 (4%)	0 (0)	3 (5%)	0 (0)	6 (11%)	5 (9%)	10 (18%)	7 (13%)	20 (36%)
Journal club advertising	3 (5%)	1 (2%)	0 (0)	0 (0)	0 (0)	5 (9%)	2 (4%)	13 (24%)	10 (18%)	21 (38%)
Teaching opportunities	3 (5%)	3 (5%)	2 (4%)	0 (0)	1 (2%)	3 (5%)	7 (13%)	6 (11%)	7 (13%)	23 (42%)
Social events	3 (5%)	1 (2%)	2 (4%)	1 (2%)	1 (2%)	2 (4%)	1 (2%)	9 (16%)	6 (11%)	29 (53%)
Do you find the NWOTA group useful?	3 (5%)	1 (2%)	1 (2%)	2 (4%)	1 (2%)	5 (9%)	5 (9%)	9 (16%)	5 (9%)	23 (42%)
Do you find the NWOTA group intrusive?	19 (35%)	6 (11%)	5 (9%)	5 (9%)	2 (4%)	5 (9%)	1 (2%)	3 (5%)	5 (9%)	4 (7%)

[Table/Fig-4]: Table showing the breakdown of responses (Frequency and percentage) to each question posed on the questionnaire.



[Table/Fig-5]: Table showing the range of responses of updates on social events.



[Table/Fig-6]: Table showing the range of responses of advertising journal club.

	TPD	Training	On-call Reg	Research	Teaching opportunities	Articles	Courses	Updates teaching	Journal club	Social events
TPD	-	0.5768	0.0003	0.0001	<0.00001	<0.00001	<0.00001	0.0108	0.0074	0.002
Training	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0414	0.0293	0.0102
On-call Reg	-	-	-	0.8493	0.2937	0.3735	0.2983	<0.00001	<0.00001	<0.00001
Research	-	-	-	-	0.3843	0.4965	0.4009	<0.00001	<0.00001	<0.00001
Teaching opportunities	-	-	-	-	-	0.7872	0.9203	<0.00001	<0.00001	<0.00001
Articles	-	-	-	-	-	-	0.8729	<0.00001	<0.00001	<0.00001
Courses	-	-	-	-	-	-	-	<0.00001	<0.00001	<0.00001
Updates teaching	-	-	-	-	-	-	-	-	0.8887	0.4965
Journal club	-	-	-	-	-	-	-	-	-	0.3524
Social events	-	-	-	-	-	-	-	-	-	-

[Table/Fig-7]: Table showing p-value results of Mann-whitney U test of response to each question in comparison to another question.
p-value <0.05 considered significant

the other hand, some of the positive comments were that trainees felt that the group was an innovative method to deliver information to trainees, it was a simple method to share information and also incredibly easy to advertise to other trainees.

DISCUSSION

WhatsApp and other digital communication methods have revolutionised the way in which people interact and improve clinical knowledge [2,5]. Training programmes require means to communicate quickly, efficiently and effectively with their trainees. The use of WhatsApp for clinical purposes has been evaluated but its effectiveness for communication with regards to learning and logistics has not.

This study suggests that the majority of trainees find WhatsApp to be a useful method of communication and find it non intrusive, implying that they are still happy to be a member of the WhatsApp group. Trainees find that it is more useful for communicating the informal aspects between group members, reflected by the higher scores in these areas, such as social gatherings, and are less accepting of its use as an official line of communication between the trainees and the programme, reflected in the statistical analysis of the data. However, one of the reasons why formal notifications may have scored less favourably within this study is due to the wider variety of responses from the trainees questioned, as expected within a cohort of doctors when asked about official communication within a WhatsApp group. The results showed almost half of trainees scored less favourably to receive this formal information (scoring 1-3), approximately a third scored highly (scoring 8-10) and the rest were indifferent. As these questions in particular caused the most polarising views within the group, as a result, also had the lowest scores for usefulness overall.

There may be many other reasons for this, such as, an e-mail is a permanent record of formal communication that can be recalled and is reliably accepted as evidence of communication taking place within the workplace. Whilst WhatsApp is a reliable form of communication it's acceptance as a form of communication between medical professionals is not yet defined. Trainees may feel that an e-mail carries far more weight and authority with it compared to a WhatsApp message. Additionally, although not quantified in this study, many trainees have the group muted with some trainees also actually having left the group, due to the constant supply of information within the group and subsequently it is easy to miss possible important messages distributed within the group for those that do not regularly check their WhatsApp notifications.

WhatsApp is becoming more frequently used as a communication method between professionals [9]. The use of WhatsApp divides opinion with the benefits and potential risks often cancelling each other out. The NHS's reluctance relates to the need to maintain confidentiality and privacy of patients [10]. It is recognised however that the bleep system is outdated and newer methods of communication in the future may centre around the use of instant, secure, digital messaging applications, such as Forward and Pando [11,12]. This study however focuses not on the clinical aspects of patient care but rather its use in logistical aspects and the teaching programme in particular. In this setting, it appears useful and well accepted. It provides a rapid and instant method for any member of the group to send or receive messages contemporaneously without the need for a bleep or computer. A study exploring the use of WhatsApp in Israel found that 85% of doctors used WhatsApp atleast once a day for professional use, due to the ease at which information and multimedia can be communicated [13]. Given the vast majority of people carry a phone with WhatsApp installed it is a good way of disseminating large volumes of information quickly to a wide, targeted audience.

For more official announcements however, the support wanes a little and it appears people neither strongly favour or disfavour the use of WhatsApp for official messages from the training programme. This may be acting as a barrier to WhatsApp being accepted as a formal and recognised communication channel between trainees and their programme and it is unlikely to be overcome easily. The formality of these messages may be better served and represented by them being sent in an email to give them the correct weight of authority rather than just a quick WhatsApp message [14].

In addition, the information learned from this study allows TPDs and other senior resident trainers awareness of what information residents would be happy to receive via WhatsApp rather than other forms of communication. With focussed, targeted and thought out planning WhatsApp could become a useful tool for communication between the training programme and its trainees but its uses, protocols and acceptance all still have yet to be defined clearly in the literature. Furthermore, potentially there was room to expand upon each question, to be more specific and therefore providing more valuable information.

Limitation(s)

The wording of the questions was relatively brief and therefore trainees may have interpreted each question differently.

CONCLUSION(S)

In conclusion, present study suggests WhatsApp is an effective and accepted communication tool between members of our orthopaedic training programme. Its acceptance is highest for the more informal messages between trainees and support decreases for its use as a formal channel of communication between trainees and the training programme. The information learned from this study could be used in other regions nationally, showing what information is considered useful in residents' communication and tailoring WhatsApp communications accordingly.

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