Patterns and preferences of communication tools among clinicians in a psychiatric setting: A cross sectional survey

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Abstract-
Background: Communication platforms such as messaging services and social media (SM) have been embraced by healthcare professionals for various purposes. The patterns, purpose of use and, preferences for various tools needs to be explored.
Objectives: To explore the patterns and purpose of use for various communication tools and social media to identify the most preferred communication tool in a psychiatric setting.
Design/setting: An anonymous survey was set up on SPSS dimensions and emailed to all clinicians in Institute of Mental Health from Dec 2017 to Feb 2017.
Measurements: Descriptive statistics were employed to analyse demographics, utilisation patters, and preferences for SM and messaging services on three groups of clinicians based on seniority: Non Specialists, (NS), Early Career Psychiatrists (EP), and Senior Career Psychiatrists (SP).
Key Results: The overall response rate was 27%, constituting of Non Specialists (52.8%), Early Career Psychiatrists (24.5%), and Senior Career Psychiatrists (22.6%). 94.3% of clinicians utilised Whatsapp for personal communications. While 60.7% of NSs embraced Whatsapp for official communications, EPs and SPs preferred other mediums. Outside emergencies, SP were generally cynical about utilising messaging services for patient care. All groups agreed that identifiable patient information should not be shared through messages (69.8%). Facebook, Youtube, and Instagram were the most popular SM amongst clinicians. 34% of clinicians checked their emails twice a day, and 52.8% felt overwhelmed by the volume of emails they received daily.
Conclusion: There appears to be clear awareness regarding the ethical boundaries of communication tools with most clinicians still preferring to receive information through concise emails. A disparity in outlook is observed between junior clinicians who embraced technology better than the senior clinicians who were more cautious.

Index Terms- Communication, Doctor-patient relationships, Medical education-computer/web-based learning, Patient safety, Survey Research

I. INTRODUCTION

Communication tools have fuelled healthcare reformation by improving patient care (Hersh, 2002). Emails are prime modes of communication amongst organisations and healthcare professionals despite lacking an evidence base for its effectiveness(Atherton, Sawmynaden, Sheikh, Majeed, & Car, 2012). Although concerned about the implications of use, clinicians embrace this technology for communicating with patients (Gaster et al., 2003) and colleagues (M. H. Mobasheri et al., 2015). A Finnish study evaluating physician attitudes to official email communications reported general satisfaction despite concerns that critical information can be lost due to the length and volume of emails received daily (Karhula, Kauppila, Elonheimo, & Brommels, 2011). The communication landscapes within organisations took a rapid turn after the advent of social media (SM).

SM has enhanced social interactions, professional relationships through dissemination of key information. Clinicians, patients, and caregivers leverage the technology to extend medical support and thus improve health outcome (Desai, Ndukwu, & Mitchell, 2015; McGowan et al., 2012). SM is an ideal platform for clinicians to interact with peers, expand professional knowledge, and receive up-to-date information regarding clinical practices or research (Househ, 2013; Ventola, 2014). A longitudinal study in western Europe has shown a 57% increase in Facebook usage between 2009 to 2011 among healthcare professionals (Van de Belt, Berben, Samsom, Engelen, & Schoonhoven, 2012). Although patients receive support and information through SM, the ethical implications of such practices remain debatable (Ventola, 2014).

A 2011 survey found that 73.8% of clinicians utilised social networking, especially for personal purposes (95.1%), with Facebook (97.9%) being the most popular (Bosslet, Torke, Hickman, Terry, & Helft, 2011). Amongst Asian clinicians who use Twitter, 79% utilised the platform to access medical information, 71.4% of whom believed such services improved their clinical practice (Almaiman et al., 2015). Another study (Alsobayel, 2016) reported that 70.6% of healthcare professionals employed SM for professional development through networking and information exchange. SM use is also popular among medical students and junior clinicians (Hughes, Joshi, Lemonde, & Wareham, 2009; Sandars & Schroter, 2007; von Muhlen & Ohno-Machado, 2012). In a Spanish survey on paediatricians, 73% and 43% of respondents preferred YouTube and Facebook respectively (Gonzalez de Dios, Camino-Leon, & Ramos-Lizana, 2011). .

Despite the great benefits of SM, there exist social and ethical implications toward patient privacy and care efficiency. Sharing non-therapeutic relationships with a patient risks violating the professional aspects of the patient-clinician relationship. Information shared through SM could be released to

unauthorised third parties, thereby damaging the professional image of both clinician and organisation. Bosslet et al's(Bosslet et al., 2011) national survey reported that 5.1% of respondents have visited patients' or family members' profile, and 9% of respondents had received "friend" requests from patients. While respondents generally believed viewing and interacting with patients without breaching confidentiality was an acceptable practice, reports of unacceptable SM use have been documented elsewhere (Chretien, Greysen, Chretien, & Kind, 2009; Greysen et al., 2013). To ensure compliance to acceptable ethical standards, organisations and medical entities have actualized frameworks that address threats to clinical practice wrought by SM use (Guseh, Brendel, & Brendel, 2009; McMahon Sr, 2010).

Organisations seeking to leverage on communication platforms must understand the preferred communication tools of their staff. As the choice of tools vary amongst different clinicians. This approach not only maximises the potential of SM for rapid dissemination of information, but also helps to develop guidelines to restrict the usage of SM within organisations. To date, no studies investigating the patterns and preferences of a communication tool-using clinician in a professional and ethical context have been conducted in Asia. This study sampled the clinicians from a tertiary psychiatric hospital in Singapore.

II. MATERIALS AND METHODS

Ethics clearance was obtained for conducting the study both from the Institutional Review Board and Domain Specific Review Boards. All procedures were conducted per the approved study protocol.

A. Study sample

The anonymous survey was emailed to all clinicians in the Institute of Mental Health (IMH) Singapore. No sample size calculations were involved due to the lack of studies under similar settings, instead all clinicians were given an opportunity to participate.

B. Survey

The survey was created on SPSS dimensions software and piloted among 10 non-study team members. Revisions were made based on comments from the pilot. The final questionnaire consisted of the following domains, 1) Demographics (age, current position, and years of service) 2) Type of mobile device and operating system used, 3) Messaging services used; exploring the different messaging services, the frequency of usage, attitude, purpose of use, and acceptability of such use 4) Social media use; the type of SM, frequency of use, and attitudes of use 5) Use of work email: frequency, patterns, and preferences of use, and preferred email length. 6) Preferred mode of communications; the preferred tool for receiving official information, and the acceptability of a clinician's chat group.

C. Data collection

Through Microsoft Word's mail merge function, emails were merged with unique IDs to anonymise respondent identities. An official email was sent to the clinicians by a non-study team member. The email carried a onetime password which the participant used to access the survey. Participants were given an option to opt out from the survey and stop receiving further reminders. Upon completing the survey, the participant received an invitation to collect a $20 Starbucks's card. The survey was open for 2 months from Dec 2016 to Feb 2017, with 2 reminders sent monthly.

D. Statistical analysis

Descriptive statistics was used to summarise the demographic data. Comparison was made between differing seniority levels, classified as Non Specialist (NS; residents and medical officers), Early Career Psychiatrist (EP; associate consultants and consultants) and Senior Career Psychiatrist (SP; senior consultants).

III. RESULTS

The survey was sent to all clinicians in IMH (n = 196), of which 53 responses were obtained giving a total response rate of 27%.

A. Demographics of the respondents

Of the age groups, 34% of respondents fell under the 30-39 years age group (Table 1, 34%), followed by 40-49 years (30.2%), 21-29 years (20.8%), 50-59 years (13.2%) and 60-69 years (1.9%). Residents (1-3 years) and senior consultants contributed to 22.6% of responses (Table 1), 15.1% were medical officers, 11.3% were senior residents (4-5 years), 18.9% were consultants, 5.7% were associate consultants, and 3.2% were resident physicians. The groups Non Specialist, Early Career Psychiatrist, and Senior Career Psychiatrist contributed to 52.8%, 24.5%, and 22.6% respectively, with a median of 8 years of service in healthcare.

B. Type of mobile system

All respondents owned a mobile device, of which 50.9% used tablets (Table 1). Apple iOS utilisation was 52.8%, Android 41.5%, and more than one operating system was 5.7%. Of the tablet users, 66.7% preferred iOS, 18.5% Android, 7.4% Microsoft Windows, and 7.4 used multiple operating systems.

C. Patterns of use of messaging service

NS and EP agreed using messaging services for communicating patient's movements within the hospital to colleagues (Table 3, NS 73.9% EP 80%) while SP had a conflicting views with 55.5% disagreeing to any such use. Contrary to the general acceptance reported by NS (65.2%) and EPs (90%), more SPs (55.5%) did not use messaging services to discuss clinical matters (patient handover, blood test results, etc.) with colleagues. 44.4% of SPs utilised the services several times a week while 43.5% of NSs and 40% of SPs reported daily usage of the service. SPs employed messaging services for sharing urgent clinical matters (66.6%) while NS (agree 43.5%, disagree 47.8%) and EPs (agree 50%, disagree 50%) lacked a clear consensus. SPs tend not to use messaging services to discuss patient's social matters whereas EP (60%) and NS (43.5%) accepted using it. All 3 groups utilise the service to discuss patients' clinical matters with senior clinicians (NS 65.2%, EP

80%, and SP 55.5%). Similarly, 56% of NSs, 60% of EPs, and 66% of SPs used such services to access support groups when stressed about clinical work.

D. Attitude towards using messaging service for clinical purpose

All groups disagreed with using messaging services to discuss identifiable patient information (Table 4, NS 64.3%, EP 69.2%, SP 83.3%). EPs (38.5%) felt that non-identifiable data could be shared through messaging, NS's (35.7% neutral and equal number agreed) were ambivalent, and SPs (41.7% each agreed and disagreed) lacked a clear consensus. Regardless of seniority, the majority (NS 96.4%, EP 100%, SP 83.3%) felt that a group chat for colleagues to discuss non-clinical matters such as business meetings, lunch, chatting, etc., was acceptable.

E. Patterns and perceptions regarding SM use

Facebook was the most accessed SM (NS 76%, EP 75%, SP 87.5%) followed by YouTube (Table 5, NS 8%, EP 25%, SP 12.5%). Instagram was the 2nd most popular SM amongst NSs. Regardless of seniority, most clinicians reported using SM for more than 4 years (NS 96%, EP 83.3%, SP 62.6%). All 3 groups admitted that they were somewhat dependent on SM (NS 48%, EP 50%, SP 50%); 8% of NSs and 8.3% EPs admitted to heavy dependency. While the majority gave neutral responses (NP 46.4%, EP 46.2%, SP 58.3%), EPs felt that SM created more stress than benefit (NS 25%, EP 46.2%, SP 16.7%).

When asked if it is acceptable to "friend" a colleague on SM, the majority voted "Agree/strongly agree" (Table 5, NS 89.3%, EP 84.6%, SP 75%). All 3 groups agreed that it was acceptable to be friends with other hospital staff on SM (Table 2). 58.3% of SPs and 53.8% of EPs dismissed the idea of "friending" pharmaceutical representatives while NS were neutral (39.3%) or agreeable (46.5%).

F. Usagepatterns of emails for official communications

Contrary to SPs who access work email twice-hourly (Table 6), majority of NS (46.4%) and EPs (30.8%) access emails twice a day on weekdays. On weekends all 3 groups accessed work emails at least once a day (Table 6). The majority of clinicians reported using their mobile device (NS 75%, EP 92%, SP 83.3%) and not their tablet to access emails (NS 85.7%, EP 92.3%, SP 100%).

Majority felt overwhelmed by emails and the information that comes with it (NS 53.6%, EP 53.9%, SP 50%) and agreed that it is stressful to handle the volume of emails received daily (NS 53.6%, EP 53.9%, SP 41.7%). NSs/EPs (NS 53.6% EP 53.8%) and SPs (66.7%) felt that the most effective length of an email to hold their attention is between 51 to 100 words and less than 50 words.

G. Preferred mode of communication

For straightforward decision-making and non-clinical communication, emails were preferred over calls and messaging systems by 84.6% of EPs and 83.3% of SPs (Table 7). NSs help equal preferences for messaging services and emails. In contrast, 53.6% NSs preferred direct calls over emails and messages while

EPs (53.8%) and SPs (83.3%) preferred emails over other services. 53.6% of NSs voted for emails over department meetings, weekly education meetings, messaging for communicating policy, and other non-urgent work matters. EPs preferred department business meetings (30.8%), followed by emails (23.1%), weekly face-to-face briefing (15.4%), and the rest of the other services. Departmental business meetings and emails were equally preferred by SPs. When asked to rate their interest level for a hospital-wide clinicians chat group using a 5–point Likert scale, most clinicians inclined towards the notion that it is a bad idea (Table 9) or recorded a neutral response (SP 41.7%).

IV. DISCUSSION

Through this survey, we examined the patterns of use and attitudes towards adopting various platforms for official communication with an intention to improve communication processes at an organisation level. The finding that all clinicians owned a mobile phone is aligned with the reported penetration rates of 90% and 98.9% for Singapore (Todayonline, 2015) and the United Kingdom, respectively (Mohammad H Mobasheri et al., 2015).

The majority of respondents used Whatsapp for personal and professional communication. Despite this preference, Whatsapp was not favoured for work communication by EPs and SPs. Similar responses are recorded in previous surveys elsewhere, where clinicians preferred SM for personal over professional purposes (Bosslet et al., 2011; Wheeler, Said, Prucz, Rodrich, & Mathes, 2011). Whatsapp is endorsed clinically and academically as an inexpensive and efficient method for communication amongst clinicians for patient management (Gulacti, Lok, & Celik, 2016; Sidhoum et al., 2016; Wani, Rabah, AlFadil, Dewanjee, & Najmi, 2013). The disparity in responses between NSs favouring Whatsapp for official communication contrary to EPs and SPs preference for traditional methods such as emails is surprising, yet comprehensible given the changing trend in communication patterns among different age groups. The agreement to avoid this platform for sharing identifiable patient information was unanimous and demonstrated awareness towards the medico-legal ramifications of such practices. There existed a difference in opinion regarding sharing of non-identifiable patient information for clinical use among different seniority level with EPs alone favouring the idea. Although endorsed by international literature to be an efficient platform (Kamel Boulos, Giustini, & Wheeler, 2016), the clinicians felt apprehensive about adopting it. Hence, guidelines for the type of information that can be shared through such platforms might create a common understanding and improve clinical communications.

A previous survey conducted abroad has identified Facebook to be the most popular SM, a result that aligned with our current study (Bosslet et al., 2011). Clinicians were willing to "friend" fellow colleagues of different professional groups or grades but they were hesitant to do so with pharmaceutical representatives. The respondents were aware of the sensitivities of befriending pharmaceutical representatives in SMs. Organisations can leverage on the clinicians' interest in using SM by creating a

community within the organisation; for example, Facebook's Workplace. It will encourage better collaboration among the clinicians and non-sensitive information sharing such as hospital events or educational matters.

In the era of SM, emails remain the prime tools for workplace communication and are utilised by healthcare professionals for seamless patient care (Brauchli et al., 2004; Deodhar, 2002). In the healthcare setting, emails have undoubtedly revolutionised communication through information sharing, improved quality of care, and overall efficiency of the system (Car & Sheikh, 2004; Goodyear-Smith, Wearn, Everts, Huggard, & Halliwell, 2005). Sampson, Barbour, and Wilson (2016) conducted a thematic analysis of interviews among clinicians and evidenced the general positive attitude towards the medium in managing workloads and improving patient care. Our study demonstrated a general acceptance among respondents towards adopting emails for both clinical and non-clinical matters. Of concern was the overwhelming and stressful nature of daily email volume, previously noted as disadvantageous (Sampson, Barbour, & Wilson, 2016). Respondents preferred emails with 100 words or fewer, citing effectiveness in capturing their attention. Longer emails received minimal attention – an observation noted in previous studies among clinicians (Karhula et al., 2011). Despite this, clinicians at the forefront of patient care reported checking their emails every two hours each day. While this study is unable to determine the long-term implications of managing high email volumes on top of clinical work, the potential negative impact cannot be disregarded. Therefore, to ensure the delivery of important information, organisational strategies can include keeping email announcements short and succinct.

Another noteworthy observation is the positive response towards clinician chat groups. Such platforms can be utilised by organisations so long as ethical communication guidelines remain enforceable. The successful implementation of similar discussion forums have been documented in numerous studies (Abidi, Hussini, Sriraj, Thienthong, & Finley, 2009; Curran & Abidi, 2007; Stewart & Abidi, 2012), each one evidenced as an active, healthy knowledge and professional bonding platforms for clinicians.

Despite the enriching nature of the findings, respondents were sampled from a single, mono-discipline healthcare institution. Resultantly, the findings cannot be generalised to clinicians of other disciplines without further study. The quantitative nature of the survey also limits its ability to identify underlying rationales responsible for observed behaviours (e.g. why clinicians prefer certain platforms over others). Aside from examining the preferences of other professional groups that comprise the healthcare industry, mixed quantitative-qualitative approaches can be utilised to close the aforementioned gaps of such studies.

This study has highlighted clinician's preferences for official communication in Singapore. Clinicians are aware of patient's data confidentiality and are also mindful of the ethical implications when interacting on SM. In view of the continued improvement of patient care, healthcare institutions can leverage on existing communication platforms with strict guidelines on their usage.

APPENDIX

Table 1: Demographics of the survey respondents
Table 1 shows the age distribution with majority being 30 to 39 years old and the seniority level with senior consultants and residents forming the majority.

		Total (N, %)
What is your age group?		53(100.0)
21 to 29		11(20.8)
30 to 39		18(34.0)
40 to 49		16(30.2)
50 to 59		7(13.2)
60 to 69		1(1.9)
70 to 79		0(0.0)

		Total (N, %)
Seniority Categorization	**What is your current position?**	53(100.0)
Non-specialist (52.8%)	*Medical officer*	8(15.1)
	Resident (Year 1 to 3)	12(22.6)
	Senior Resident (Year 4 to 5)	6(11.3)
	Resident Physician (all grades)	2(3.8)
Early Career Psychiatrist (24.5%)	*Associate Consultant*	3(5.7)
	Consultant	10(18.9)
Senior Career Psychiatrist (22.6%)	*Senior Consultant*	12(22.6)

Table 2: Utilisation of messaging services by the doctors

	Non Specialist (N, %)	Early Career Psychiatrist (N, %)	Senior Career Psychiatrist (N, %)	Total (N, %)
Rank in order of frequency use, which of these services do you use for personal communication?				
	28 (100.0)	13 (100.0)	12 (100.0)	53 (100.0)
Phone SMS	0(0.0)	0(0.0)	1(8.3)	1(1.9)
WhatsApp	27(96.4)	12(92.3)	11(91.7)	50(94.3)
Others	1(3.6)	1(7.7)	0(0.0)	2(3.8)
Line	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Rank in order of frequency use, which of these services do you use for work/business communication?				
	28 (100.0)	13 (100.0)	12 (100.0)	53 (100.0)
Phone SMS	9(32.1)	3(23.1)	4(33.3)	16(30.2)
WhatsApp	17(60.7)	4(30.8)	3(25.0)	24(45.3)
Others	2(7.1)	6(46.2)	4(33.3)	12(22.6)
Line	0(0.0)	0(0.0)	1(8.3)	1(1.9)

Table 3: Purpose of employing messaging services for clinical use

	Non Specialist (N, %)	Early Career Psychiatrist (N, %)	Senior Career Psychiatrist (N, %)	Total (N, %)
You use messaging services to communicate with your colleagues on patient's location within the hospital.				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)
Disagree (or strongly disagree)	3(13.0)	2(20.0)	5(55.5)	10(23.8)
Neutral	3(13.0)	0(0.0)	1(11.1)	4(9.5)
Agree (or strongly agree)	17(73.9)	8(80.0)	3(33.3)	28(66.6)
You use messaging services to communicate with your colleagues on patient's clinical matters (e.g. handover, blood test results etc.).				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)

Disagree (or strongly disagree)	7(30.4)	1(10.0)	5(55.5)	13(31.0)
Neutral	1(4.3)	0(0.0)	1(11.1)	2(4.8)
Agree (or strongly agree)	15(65.2)	9(90.0)	3(33.3)	27(64.3)
You use messaging services to communicate with your colleagues on patient's urgent clinical matters.				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)
Disagree (or strongly disagree)	10(43.5)	5(50.0)	2(22.2)	17(40.4)
Neutral	2(8.7)	0(0.0)	1(11.1)	3(7.1)
Agree (or strongly agree)	11(47.8)	5(50.0)	6(66.6)	22(52.4)
You use messaging services to communicate with your colleagues on patient's social matters (e.g. family's presence, etc..).				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)
Disagree (or strongly disagree)	5(21.7)	1(10.0)	5(55.5)	11(26.2)
Neutral	8(34.8)	3(30.0)	1(11.1)	12(28.6)
Agree (or strongly agree)	10(43.5)	6(60.0)	3(33.3)	19(45.2)
You use messaging services to communicate with senior doctors on patient's clinical matters (e.g. seeking clearance for discharge, prescription, etc.).				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)
Disagree (or strongly disagree)	5(21.7)	1(10.0)	3(33.3)	9(21.4)
Neutral	3(13.0)	1(10.0)	1(11.1)	5(11.9)
Agree (or strongly agree)	15(65.2)	8(80.0)	5(55.5)	28(66.7)
You use messaging services to communicate with your support group when stressed about clinical work (e.g. difficult encounters with patients or their families, etc.).				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)
Disagree (or strongly disagree)	7(30.4)	4(40.0)	2(22.2)	13(30.9)
Neutral	3(13.0)	0(0.0)	1(11.1)	4(9.5)
Agree (or strongly agree)	13(56.5)	6(60.0)	6(66.6)	25(59.5)
If you do use messaging services to discuss clinical matters, how often do you use them?				
	23(100.0)	10(100.0)	9(100.0)	42(100.0)
Daily on working days	10(43.5)	4(40.0)	2(22.2)	16(38.1)
Several times a week	7(30.4)	3(30.0)	4(44.4)	14(33.3)
Once a week	3(13.0)	1(10.0)	1(11.1)	5(11.9)
Less than once a week	3(13.0)	2(20.0)	2(22.2)	7(16.7)

Table 4: Attitude/awareness towards engaging messaging service for clinical purpose

	Non-Specialist (N, %)	Early Career Psychiatrist (N, %)	Senior Career Psychiatrist (N, %)	Total (N, %)

It is acceptable to discuss clinical matters with identifiable patient data on messaging services (e.g. Patient Tan Ah Kow NRIC1234567A with schizophrenia now admitted to Ward XX).				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Disagree (or strongly disagree)	18(64.3)	9(69.3)	5(41.7)	37(69.8)
Neutral	3(10.7)	1(7.7)	0(0.0)	4(7.5)
Agree (or strongly agree)	7(25.0)	3(23.1)	7(58.4)	12(22.7)
It is acceptable to discuss clinical matters with non-identifiable patient data on messaging services (e.g. "OMG my borderline patient just cut himself again").				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Disagree (or strongly disagree)	8(28.5)	4(30.8)	5(41.7)	17(32.1)
Neutral	10(35.7)	4(30.8)	2(16.7)	16(30.2)
Agree (or strongly agree)	10(35.7)	5(38.5)	5(41.7)	20(37.8)
It is acceptable to set up group chats for colleagues for non-clinical matters (e.g. business meetings, lunch, chatting).				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Disagree (or strongly disagree)	0(0.0)	0(0.0)	2(16.6)	2(3.8)
Neutral	1(3.6)	0(0.0)	0(0.0)	1(1.9)
Agree (or strongly agree)	27(96.4)	13(100.0)	10(83.3)	50(94.3)

Table 5: Patterns of social media use among doctors and attitude and preferences of SM use for professional purpose

	Non specialist (N, %)	Early Career Psychiatrist (N, %)	Senior Career Psychiatrist (N, %)	Total (N, %)
Which social media do you access most often?				
	25 (100.0)	12(100.0)	8(100.0)	45(100.0)
Facebook	19(76.0)	9(75.0)	7(87.5)	35(77.8)
Twitter	1(4.0)	0(0.0)	0(0.0)	1(2.2)
Instagram	3(12.0)	0(0.0)	0(0.0)	3(6.7)
YouTube	2(8.0)	3(25.0)	1(12.5)	6(13.3)
How long have you been using social media?				
	25(100.0)	12(100.0)	8(100.0)	45(100.0)
1 to 2 years	0(0.0)	1(8.3)	0(0.0)	1(2.2)
2 to 4 years	1(4.0)	1(8.3)	3(37.5)	5(11.1)
More than 4 years	24(96.0)	10(83.3)	5(62.5)	39(86.7)
How dependent are you on social media?				
	25(100.0)	12(100.0)	8(100.0)	45(100.0)
Not at all	5(20.0)	2(16.7)	2(25.0)	9(20.0)
Somewhat	12(48.0)	6(50.0)	4(50.0)	22(48.9)
Moderately	6(24.0)	3(25.0)	2(25.0)	11(24.4)
Heavily	2(8.0)	1(8.3)	0(0.0)	3(6.7)
Do you think that communication through social media creates more stress than benefit?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Disagree (or strongly disagree)	8(28.6)	1(7.7)	3(25.0)	12(22.7)
Neutral	13(46.4)	6(46.2)	7(58.3)	26(49.1)
Agree (or strongly	7(25.0)	6(46.2)	2(16.7)	15(28.3)

agree)				
It is acceptable to be "friends" on social media between peers.				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or strongly disagree)	0(0.0)	1(7.7)	1(8.3)	2(3.8)
Neutral	3(10.7)	1(7.7)	2(16.7)	6(11.3)
Agree (or strongly agree)	25(89.3)	11(84.6)	9(75.0)	45(84.9)
It is acceptable to be "friends" on social media between senior and junior doctors with 1 job grade difference (e.g. AC and MO).				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or strongly disagree)	0(0.0)	0(0.0)	1(8.3)	1(1.9)
Neutral	5(17.9)	5(38.5)	2(16.7)	13(24.5)
Agree (or strongly agree)	23(82.1)	8(61.5)	9(75.0)	39(73.6)
It is acceptable to be "friends" on social media between senior and junior doctors with more than 1 job grade difference (e.g. SC and MO).				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or strongly disagree)	2(7.1)	0(0.0)	1(8.3)	3(5.7)
Neutral	9(32.1)	5(38.5)	3(25.0)	17(32.1)
Agree (or strongly agree)	17(60.7)	8(61.5)	8(66.6)	33(62.2)
It is acceptable to be "friends" on social media between RO and staff.				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or strongly disagree)	2(7.2)	2(15.4)	2(16.7)	6(11.3)
Neutral	6(21.4)	4(30.8)	4(33.3)	14(26.4)
Agree (or strongly agree)	20(71.4)	7(53.9)	6(50)	33(62.2)
It is acceptable to be "friends" on social media between doctors and pharmaceutical representatives.				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or strongly disagree)	4(14.2)	7(53.9)	7(58.3)	18(33.9)
Neutral	11(39.3)	3(23.1)	1(8.3)	15(28.3)
Agree (or strongly agree)	13(46.5)	3(23.1)	4(33.3)	20(37.7)
It is acceptable to be "friends" on social media between doctors and allied health/nursing colleagues.				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or strongly disagree)	0(0.0)	1(7.7)	1(8.3)	2(3.8)
Neutral	3(10.7)	4(30.8)	3(25.0)	10(18.9)
Agree (or strongly agree)	25(89.3)	8(61.6)	8(66.7)	41(77.4)
It is acceptable to be "friends" on social media between doctors and administration colleagues.				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Disagree (or	0(0.0)	1(7.7)	1(8.3)	2(3.8)

Table 6: Emails: the patterns and mode of use and effectiveness of E-mail for disseminating official information

	Non specialist (N, %)	Early Career Psychiatrist (N, %)	Senior Career Psychiatrist (N, %)	Total (N, %)
strongly disagree)				
Neutral	4(14.3)	5(38.5)	3(25.0)	12(22.6)
Agree (or strongly agree)	24(85.7)	7(53.9)	8(66.6)	39(73.6)
How frequent do you check your work email on weekdays?				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Less than half hourly	2(7.1)	3(23.1)	2(16.7)	7(13.2)
Half hourly	1(3.6)	1(7.7)	1(8.3)	3(5.7)
Hourly	2(7.1)	2(15.4)	2(16.7)	6(11.3)
2-hourly	4(14.3)	3(23.1)	6(50.0)	13(24.5)
Twice a day	13(46.4)	4(30.8)	1(8.3)	18(34.0)
Once a day	5(17.9)	0(0.0)	0(0.0)	5(9.4)
Less than one a day	1(3.6)	0(0.0)	0(0.0)	1(1.9)
How often do you check your work email on weekends?				
	28(100.0)	13(100.0)`	12(100.0)	53(100.0)
Less than half hourly	2(7.1)	1(7.7)	0(0.0)	3(5.7)
Half hourly	0(0.0)	1(7.7)	0(0.0)	1(1.9)
Hourly	0(0.0)	0(0.0)	1(8.3)	1(1.9)
2-hourly	1(3.6)	0(0.0)	3(25.0)	4(7.5)
Twice a day	2(7.1)	4(30.8)	3(25.0)	9(17.0)
Once a day	11(39.3)	4(30.8)	3(25.0)	18(34.0)
Less than one a day	7(25.0)	1(7.7)	1(8.3)	9(17.0)
Never	0(0.0)	0(0.0)	0(0.0)	8(15.1)
Do you access work e-mail on your mobile device?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Yes	21(75.0)	12(92.3)	10(83.3)	43(81.1)
No	7(25.0)	1(7.7)	2(16.7)	10(18.9)
Do you access work e-mail on your tablet?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Yes	4(14.3)	1(7.7)	0(0.0)	5(9.4)
No	24(85.7)	12(92.3)	12(100.0)	48(90.6)
How effective is work email for clinical policy matters?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
I delete without opening	0(0.0)	0(0.0)	0(0.0)	0(0.0)
I just glance at it	11(39.3)	2(15.4)	1(8.3)	14(26.4)
I read it quickly from start to end	14(50.0)	7(53.8)	9(75.0)	30(56.6)
I read it	3(10.7)	4(30.8)	2(16.7)	9(17.0)

thoroughly from start to end				
How effective is work email for education events matters?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
I delete without opening	0(0.0)	0(0.0)	1(8.3)	1(1.9)
I just glance at it	10(35.7)	4(30.8)	2(16.7)	16(30.2)
I read it quickly from start to end	15(53.6)	7(53.8)	9(75.0)	31(58.5)
I read it thoroughly from start to end	3(10.7)	2(15.4)	0(0.0)	5(9.4)
How effective is work email for hospital events matters?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
I delete without opening	2(7.1)	0(0.0)	0(0.0)	2(3.8)
I just glance at it	13(46.4)	6(46.2)	7(58.3)	26(49.1)
I read it quickly from start to end	10(35.7)	4(30.8)	5(41.7)	19(35.8)
I read it thoroughly from start to end	3(10.7)	3(23.1)	0(0.0)	6(11.3)
What do you think is the most effective length of an email to hold your attention?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Less than 50 words	10(35.7)	5(38.5)	8(66.7)	23(43.4)
51 to 100 words	15(53.6)	7(53.8)	4(33.3)	26(49.1)
101 to 200 words	2(7.1)	0(0.0)	0(0.0)	2(3.8)
I want all the fullest details	1(3.6)	1(7.7)	0(0.0)	2(3.8)
I feel overwhelmed by the e-mail and information that comes with it.				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Disagree (or strongly disagree)	4(14.3)	2(15.4)	3(25.0)	9(17.0)
Neutral	9(32.1)	4(30.8)	3(25.0)	16(30.2)
Agree (or strongly agree)	15(53.6)	7(53.8)	6(50.0)	28(52.8)
I feel stressful to handle the volume of official e-mails I receive every day.				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Disagree (or strongly	6(21.4)	3(23.1)	4(33.3)	13(24.6)

disagree)				
Neutral	7(25.0)	3(23.1)	3(25.0)	13(24.5)
Agree (or strongly agree)	15(53.6)	7(53.8)	5(41.7)	27(50.9)

Table 7: Preferred channel for communication for clinical and non-clinical information

	Non specialist (N, %)	Early Career Psychiatrist (N, %)	Senior Career Psychiatrist (N, %)	Total (N, %)
Which is your preferred channel of electronic communication for simple non-clinical work related communication and straight forward decision making?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
SMS/messaging	12(42.9)	1(7.7)	1(8.3)	14(26.4)
E-mail	12(42.9)	11(84.6)	10(83.3)	33(62.3)
Calls	4(14.3)	1(7.7)	1(8.3)	6(11.3)
Which is your preferred channel of electronic communication for simple clinical related communication and straight forward decision making?				
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
SMS/messaging	7(25.0)	2(15.4)	0(0.0)	9(17.0)
E-mail	6(21.4)	7(53.8)	10(83.3)	23(43.4)
Calls	15(53.6)	4(30.8)	2(16.7)	21(39.6)

In general what do you think is the best way of communicating policy and non-urgent work matters?			
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
Daily face to face briefing	0(0.0)	1(7.7)	0(0.0)	1(1.9)
Weekly face to face briefing	0(0.0)	2(15.4)	0(0.0)	2(3.8)
Department business meeting	6(21.4)	4(30.8)	6(50.0)	16(30.2)
Weekly continuous education meetings	2(7.1)	1(7.7)	0(0.0)	3(5.7)
SMS/Messaging	5(17.9)	0(0.0)	0(0.0)	5(9.4)
Email	15(53.6)	3(23.1)	6(50.0)	24(45.3)
Just call me	0(0.0)	2(15.4)	0(0.0)	2(3.8)
What do you think of a hospital-wide doctor chat group (e.g. WhatsApp) to disseminate information?			
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
1 (Good idea)	3(10.7)	2(15.4)	1(8.3)	6(11.3)
2	1(3.6)	1(7.7)	3(25.0)	5(9.4)
3 (Neutral)	10(35.7)	2(23.1)	5(41.7)	18(34.0)
4	4(14.3)	2(15.4)	0(0.0)	6(11.3)
5 (Bad idea)	10(35.7)	5(38.5)	3(25.0)	18(34.0)
What do you think of a doctor chat group (e.g. WhatsApp) based on seniority (e.g. Consultants) to disseminate information?			
	28(100.0)	13(100.0)	12(100.0)	53(100.0)
1 (Good idea)	3(10.7)	2(15.4)	1(8.3)	6(11.3)
2	5(17.9)	2(15.4)	4(33.3)	11(20.8)
3 (Neutral)	14(50.0)	5(38.5)	5(41.7)	24(45.3)
4	2(7.1)	1(7.7)	2(16.7)	5(9.4)
5 (Bad idea)	4(14.3)	2(23.1)	0(0.0)	7(13.2)

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