

COMMENTARY

Virtual teamwork in healthcare delivery: I-O psychology in telehealth research and practice

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Repercussions from the COVID-19 pandemic will be widespread and resonate for years, particularly within one major epicenter: healthcare delivery systems. The current pressure to “return to normal” in healthcare organizations leads to these questions: What was so great about normal? Are “normal” practices worthy of a return? The operation of postpandemic healthcare organizations will differ dramatically from old ways of organizing and delivering care, and some innovations generated or adopted during the peripandemic phase will persist. One such transformation involves the rapid adoption of telehealth and the creation of virtual healthcare teams on a scale unimaginable just months ago. In addition to using virtual teams to provide non-COVID-19-related care, virtual healthcare teams conduct tele-triage, remote monitoring of patients, and support family interactions for patients critically ill with COVID-19 who would otherwise be isolated from their loved ones. Practical resources have been quickly assembled to guide healthcare teams through the process of finding, adopting, and implementing telehealth (e.g., the American Medical Association’s Telehealth Playbook, 2020), but these resources are the very minimum of what will be needed to maximize quality and value in virtual healthcare teams. Industrial-organizational (I-O) psychologists are poised to inform and shape this new reality and to advance the science of teams along the way.

Virtual healthcare teams share commonalities with those studied in the broader organizational literature. Fundamentally, they are two or more people that interact together through synchronous and asynchronous technologies while working toward shared and valued goals. What we know about virtual teams (see recent reviews by Gilson et al., 2015; Maynard et al., 2017) and other foundational areas of I-O psychology can inform the creation of virtual healthcare teams and telehealth practice. However, virtual healthcare teams are different from other virtual teams in several critical ways. These teams have extreme asymmetry in knowledge, lack of parity in personal consequences for the outcome of team interactions, language barriers, and wide variation in time scales for interactions across team members ranging from infrequent episodic participation in a team from the patient side to rapid switching between numerous teams from the healthcare worker side. These differences, among many others, create opportunities to study virtual healthcare teams that can further inform gaps in our understanding of virtual teams in this context and more generally. In this commentary, we discuss how the science of teams and virtual teams can guide efforts to create and develop effective virtual healthcare teams and identify several opportunities where research on virtual healthcare teams can advance the science of the field.

Creating and developing virtual healthcare teams in practice

The creation and development of virtual healthcare teams can be supported by the science of team composition (e.g., Bell et al., 2018), process (e.g., Marks et al., 2001) and training and development

interventions (e.g., Lacerenza *et al.*, 2018) that are known to affect team performance. Team composition considerations include identification of team members with the requisite knowledge and skills needed for each team and clarification of team goals, tasks, and roles/responsibilities across the anticipated life span of the team. Team task analysis (Arthur *et al.*, 2005) can inform workflow redesign efforts to account for the respective types of technologies used, geographic dispersion of team members, and synchronous or asynchronous nature of interactions. This analysis will benefit new teams (e.g., in a new inpatient COVID-19 care unit) and teams with relatively stable membership (e.g., in an outpatient clinic setting) when well-routinized tasks and roles/responsibilities change with the adoption of telehealth technologies. Virtuality may help healthcare teams overcome the common compositional challenge of gathering all team members together, particularly when physical distance (due to spatial, temporal, or configurational dispersion, see O'Leary & Cummings, 2007) is of concern. For example, the use of technology can ensure caregivers and other family members—critical members of the healthcare team—participate in the team when visitor restrictions limit their physical presence within a facility.

A rapid shift to virtual teamwork necessitates just-in-time training initiatives to ensure virtual healthcare team members develop new knowledge, skills, and abilities necessary to fulfill their respective roles and responsibilities and achieve team goals. Much of this training will focus on the individual technical skills necessary to engage with telehealth technologies, but training on team process dynamics (e.g., engaging in effective technology-mediated communication with patients and other team members) is also necessary. Team training is an effective strategy to improve teamwork in health care (e.g., Hughes *et al.*, 2016; Weaver *et al.*, 2014); however, traditional teamwork skills may be insufficient for virtual teams (Berry, 2011). Needs assessments, critical incidents, and observations of team interactions can inform specific virtual teamwork training and development needs. Virtual healthcare teams may conduct team debriefs to discuss teamwork and performance and identify opportunities to improve action processes such as coordination, communication, and planning, which are well studied in the virtual teams literature (see Maynard *et al.*, 2017).

Advancing the science of virtual teams

The study of virtual healthcare teams presents several opportunities to apply different methodological approaches to advance our understanding of virtual teams. First, health care is a relatively novel industry in which to conduct virtual teams research, as indicated in the focal article (Rudolph *et al.*, 2021) and previous work (Gilson *et al.*, 2015). Second, research on virtual healthcare teams will take place primarily in field-based versus laboratory-based settings, which may improve the ecological validity of research findings when applied in practice. Opportunities for simulation-based research abound in health professions education as medical institutions look to adapt curricula to develop student competency in telehealth delivery. Third, the rapid transition to telehealth due to the COVID-19 pandemic presents a significant opportunity for longitudinal research to study healthcare teams with a prior (and, perhaps long-term) history of face-to-face (FTF) interactions that now take place with some extent of virtuality. Moving beyond between-group FTF vs. virtual team designs to longitudinal field-based studies of the FTF to virtual transition will advance the state of the field and create opportunities to explore within-team changes in composition, processes, and outcomes over time.

From a measurement perspective, the study of virtual healthcare teams presents a significant opportunity to advance our understanding of virtual team processes. Communication in physician–patient dyads has been well studied within in-person settings (e.g., Ong *et al.*, 1995) and is of growing interest during telehealth encounters (Henry *et al.*, 2017). Video and audio recordings of interactions among the broader virtual healthcare team create opportunities for in-depth analysis of team processes through conversational flow, voice pitch, and emotional coding. One specific area of interest is whether virtuality improves psychological safety and participation by removing

the physical (in-person) presence of the hierarchy within medical teams. Sensor-based measurements can also inform team dynamics as they emerge within and across performance episodes (Rosen et al., 2015). Researchers may build upon existing coding schemes and work toward the creation of automated team process measurement to provide meaningful and timely feedback for individual and team development.

The study of virtual healthcare teams provides an opportunity to examine different conceptualizations and dimensions of virtuality, a concept currently under debate in the field (Maynard et al., 2017), and its effects on team processes and performance within single and across multiple performance episodes. For example, in the inpatient setting, teams engaging in virtual rounding or teams working within inpatient COVID-19 care units will exhibit variations in functional diversity (e.g., clinical expertise), technology used (e.g., videoconferencing, telephone), and geographic dispersion (e.g., locally within the hospital with some in/out of the patient room) throughout the duration of a patient's hospitalization. Identifying variations of these dimensions of virtuality as they emerge over time in practice may further inform meaningful conceptualizations of the construct and create opportunities to study how the extent of virtuality affects team processes and outcomes. Further, we may advance our understanding of how contextual factors and mobility influence virtual team processes and performance. For example, anecdotes from telepsychiatry appointments during the COVID-19 pandemic suggest that patients may feel more comfortable during the appointment within their own home and that psychiatrists gained a better sense of the patient's home environment. These experiences may shape team interactions and ultimately treatment strategies to improve patient outcomes.

Finally, there is an opportunity to move beyond subjective satisfaction and experience indicators of virtual team performance to more objective outcomes. One of the most important outcome areas of interest in health care is if the transition to virtual healthcare teams and delivery will improve, maintain, or negatively affect patient outcomes. Further, little is known about the influence of virtual team interactions on the mental and emotional well-being of individual team members over time. The COVID-19 pandemic has amplified the intensity of working in the healthcare environment; understanding how participation in virtual healthcare teams affects cognitive work demands, provider stress, and work engagement can further inform the success of virtual team endeavors.

I-O psychology has built the foundations of the science of virtual teams over the past 2 decades. Efforts to leverage the scientist practitioner model of I-O psychology can help to optimize virtual teamwork in healthcare delivery both during and after the COVID-19 era. The healthcare industry needs researchers to expand the boundaries of what is known about how to compose, support, and manage effective virtual teams as well as practitioners versed in the science of teamwork who are prepared to guide the way in practice.

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