Leadership Amid Healthcare Digitalizing: Technostress and Innovation Management

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Abstract

Global healthcare organizations have been rapidly transitioning to digital use including electronic health records, telemedicine platforms, AI applications, and advanced digital communication technologies (Hanelt et al., 2021). While these new technology-driven approaches serve to both increase operational efficiency and clinical decision-making and improve patient outcomes, they generate technical demands driving technostress among healthcare providers (Ragu-Nathan et al., 2008; Tarafdar et al., 2007). Technostress has been correlated with reduced employee well-being, decreased performance and reduced innovative work behaviour (Ayyagari et al., 2011). In this regard, digital leadership is seen as a key organizational capability that can reduce this technological stress in the workers and enable innovation and adaptability of staff (Claassen et al., 2021; Cortellazzo et al., 2019). This article provides a conceptual synthesis on technostress, digital leadership, innovation climate and innovative work behaviour in a context of digitalization of healthcare. Based upon Job Demands–Resources theory (Bakker & Demerouti, 2017), Conservation of Resources theory (Hobfoll, 1989), Social Exchange Theory (Blau, 1964), and Organizational Climate Theory (Amabile, 1996; Hülsheger et al., 2009), the present study proposes that digital leadership mediates between technostress and innovative work behaviour and innovation climate moderates the effect. The paper informs practice by contributing theoretically to assimilation while offering implications for healthcare leadership in the field from which it can draw future empirical directions to research in such digitally transforming healthcare settings.

Keywords: Technostress; Digital Leadership; Innovation Climate; Healthcare Digitalization; Innovative Work Behaviour; Organizational Innovation.

1. Introduction

Digital transformation including electronic health records, telemedicine, artificial intelligence diagnostics, and digital communication technologies is transforming health care across the globe (Hanelt et al., 2021). These advancements have significantly advanced the efficiency, precision and access to healthcare. However, in addition to these benefits there are psychological and organizational issues that the healthcare workforce might encounter when it comes to technology use (Ragu-Nathan et al., 2008) or technostress. Technostress is described as the strain resulting from a technological overload, complexity, uncertainty, and the intrusion of technology into personal and professional boundaries (Tarafdar et al., 2007). In the healthcare domain, digitalization increases cognitive load, documentation requirements, workflow interruptions and can reduce professional autonomy and job satisfaction (Golz et al., 2021). These pressures can impact employee wellness and creativity negatively. Leadership is the key to whether digital transformation will be stressful or innovative. Digital leadership can empower employees through technological competency, strategic vision, employee empowerment and facilitation of innovation, helping employees in adapting to technological change and at the same time encourage creativity and organizational innovation (Claassen et al., 2021; Cortellazzo et al., 2019). Thus, the synergy between supportive innovation climate and digital leadership promotes digital transformation and transforms technological challenges into opportunities to learn in an organisation which fosters innovation. This article examines the role of digital leadership in alleviating technostress and creating innovative work practices among healthcare workers in fast (digitalising) healthcare systems.

2. Technostress in Healthcare Digitalization

As healthcare organizations adopt new and advanced digital systems, the problem of technostress has escalated. Staff stress and dissatisfaction due to technological overload, incessant software updates, system complexity, and constant connectivity. For healthcare professionals, these challenges can reflect the high volume of electronic documentation needed, digital workflow design changes, and ongoing learning of new technologies. There is a good deal of evidence suggesting technostress leads to burnout, low job satisfaction, diminished productivity, psychological strain (Borle et

al., 2021). In healthcare, however, low digital competencies, poor usability, and insufficient technical support all add to the level of stress (Golz et al., 2021). In addition, excessive demand on technology might deplete the cognitive resources needed for creativity, thereby it could also inhibit innovative work behaviour. But technostress doesn't always give us bad results. Technological challenges drive professional development, agility, and creative problem-solving when you are in the proper organizational context. So, the context in which leadership support plays a role as well as organizational climate determines whether technostress ends up debilitating or developmental.

3. Digital Leadership as a Strategic Organizational Resource

Digital leaders can lead the transformation of the enterprise and help the entire employee workforce to adapt and partner as employees to innovate (Westerman et al., 2014). The best digital leaders often:

- Build the technological skill sets of the staff.
- Foster development, mentorship, and psychological support.
- Promote experimentation and innovation.
- Enhance knowledge sharing and collaboration.

Digital leadership positively influences innovation performance, staff motivation, and the success of digital transformation (Claassen et al., 2021; Cortellazzo et al., 2019). Technostress is a job demand that might impose stress on the members of the team (Job Demands–Resources (JD-R) theory), with leadership support being a job resource that buffers stress effects and motivates (Bakker & Demerouti, 2017). Similarly, Conservation of Resources theory suggests that supportive leadership enables employees to conserve resources both psychological and professional in order to survive technological stress. Thus digital leadership mediates in the development of technostress and innovative work behaviours through the adaptation of technological stressors to learning, adaptation, and innovation opportunities.

4. Innovation Climate in Healthcare Organizations

Innovation climate is the perceptions of employees about the value of creativity, experimentation, collaboration, and knowledge-sharing in an organization (Amabile et al., 1996; Patterson et al., 2005). A positive innovation climate increases psychological safety, openness to change, and promotes collaborative problem solving. Evidence for organizational climate and innovation outcomes is consistent (Hülsheger et al., 2009). In the healthcare environment, supportive innovation climates lead to enhanced clinical innovation, workflow streamlining, interdisciplinary collaboration, and may even enable innovations to enhance quality. The innovation climate may also moderate the effect of technostress. But when employees feel the organization truly supports innovation, technological issues are seen more as gains than losses. Weak innovation climates, on the other hand, can multiply stress and stymie innovation.

5 Innovative Work Behaviour in Healthcare Contexts

Innovative work behaviour (IWB) is defined as the generation, promotion, and implementation of new ideas in organizational roles (Scott & Bruce, 1994; Yuan & Woodman, 2010). Innovation underlies patient outcomes and service quality, operational efficiency, and clinical effectiveness in healthcare. Technostress has affected innovative behaviour, decreasing cognitive capacity, motivation, and psychological well-being. On the other hand, strong leadership and a positive innovation climate can promote creativity and enhance collaboration and experimentation. Digitalization of healthcare especially demands innovative solutions from those serving patients as frontline practitioners who adapt to technology for patient care. Identifying factors that facilitate innovative work behaviour will be critical in the management of health services performance in a digital world.

6. Integrated Theoretical Framework

There are interdependent theoretical perspectives that support the contextualization of technostress, digital leadership, innovation climate, and innovative work behaviour.

JD–R theory.

The Job Demands–Resources model posits that job demands demand sustained physical or mental effort; it is when these demands cannot be met adequately by resources that strain occurs (Bakker & Demerouti, 2017; Demerouti et al., 2001).

Technostress is perceived as one of the significant job demands of health care organizations undergoing a digital transformation as healthcare providers are managing both high levels of technological overload along with technology system complexity and the pace of the digitalization (Tarafdar et al., 2007). Conversely, digital leadership functions as a job resource that offers direction, support and skills, buffering the adverse effect of technostress and promoting motivation and creativity (Bakker & Demerouti, 2017).

Conservation of Resources (COR) Model.

Conservation of Resources theory indicates that people search for, conserve and hoard beneficial psychological and situational resources and experience problems when resources are threatened or used up (Hobfoll, 1989). Technological needs also could activate the cognitive and emotional resource of employees, leading to stress and reduced employees' innovation capacity (Ayyagari et al., 2011). Yet in supporting leadership and developing an innovative climate, we have the potential to re-use or even reinforce these resources to stimulate learning, resilience and psychological safety which are required to stimulate innovative work behaviour.

Social Exchange Theory.

According to Social Exchange Theory, workplace relationships are reciprocal exchange between leaders and employees (Blau, 1964). So, Cropanzano & Mitchell (2005) state: When leaders support employees, walk them through the technical aspects of transforming into digital enterprises and even lift them up in their roles so they can participate more, they will reciprocate with greater engagement, commitment, and new product contributions. Within healthcare settings, good goodwill in the form of supportive digital leadership builds trust and creative job behaviour that together form a larger professional culture.

Organizational Climate Theory.

It emphasizes employees' mutual perceptions of organizational policies, practices and procedures (Schneider et al., 2013). An innovation-friendly climate shapes employees' understandings of technological demands. When a climate encourages an environment of experimentation, brainstorming and imagination, it is much easier to regard the technological challenges as opportunities rather than threats (Amabile, 1996; Hülsheger et al., 2009). That may be, it shows that innovation climate moderates the effects of technostress on innovative work behaviour. Such theoretical frameworks represent a cohesive account of the relationship between digital leadership and innovation climate and innovation outcomes in advanced healthcare. The model elucidates how leadership and contextual resources relieve technostress and promote innovative work behaviour through the framework of JD–R, COR, Social Exchange, and Organizational Climate perspectives.

7. Practical Implications for Healthcare Organizations

Leadership Development.

So, the organizations of healthcare necessarily have to invest in these digital leadership skills of technological literacy, emotional understanding, and change management. The research supports the fact that it is likely that good digital leadership is enabling a technological adjustment, minimizing staff defensiveness towards digitalisation, and improving innovation performance (Cortellazzo et al., 2019; Claassen et al., 2021). Effective leaders with an eye on digital competencies are equipped to provide visionary direction, cultivate employee buy-in, and ensure consistent innovation in evolving healthcare ecosystems that are undergoing digital transformation.

Employee Support Systems.

Providing continuous training along with mentoring or technical assistance and psychological support can effectively reduce technostress in health workers. Organisational support mechanisms (e.g. digital skills training and technical help resources) relieve (and buffer) stress from technology, and improve employees' health and productivity (Ragu-Nathan et al., 2008; Tarafdar et al., 2010). Furthermore, accurate instruction helps them get comfortable using digital tools and hence motivate creative working habits.

Enhancing Innovation Climate.

Organisations need to foster an innovation climate by providing an atmosphere of psychological safety, cross-disciplinary work, and experimentation. A friendly environment for innovation supports employee input on new ideas and creative thinking, better solutions to problems and helps in the acceptance of newer technology (Amabile, 1996; Hülsheger et al., 2009). These kinds of environments are particularly important in health environments where innovation is more relevant since it supports health care and it has a direct influence on both care quality and operations.

Technology Implementation Strategies

These user-friendly technological systems, participatory technology design, and communication strategies can reduce technostress and promote adoption of innovative technologies. Involving employees in technology implementation processes not only increases acceptance but also reduces resistance to these changes and allows employees to adopt digital tools in innovative ways (Ayyagari et al., 2011; Hanelt et al., 2021). Effective communication about technology changes also reduces doubt and increases company preparedness for digital transitions.

8. Future Research Directions

An important direction for future research is longitudinal investigation into the relationship between technostress and innovation outcomes, particularly if it is a relationship that changes over time and particularly in fast-paced digitalizing healthcare settings. Longitudinal designs enable a more sophisticated investigation of causal relationships between technological demands, leadership support, and employee innovation at the organizational level (Bakker & Demerouti, 2017; Tarafdar et al., 2015). These processes are essential to modeling the dynamic nature of digital transformation of healthcare organizations. There remain a number of issues that emphasize the need for further exploring sector-specific healthcare innovation models that can include a broad and unique approach to healthcare systems such as technological, regulatory, and clinical complexities (Hanelt et al., 2021). These differences in patient safety concerns, professional autonomy, and interdisciplinary collaborative demands mean that context-sensitive innovation frameworks are thus needed among different healthcare settings compared to other sectors. A relevant research line is also studying the impact of multi-level leadership for the digital transformation.

The combination of leadership behaviors at the individual, team, and organization levels may manifest differently in relation to digital adoption, technostress experiences, and innovation outcomes (Cortellazzo et al., 2019; Claassen et al., 2021). Multilevel research designs may help to provide wider and more expansive insights on the role of leadership in the achievement of digital transformation. Notably, cross-cultural research is warranted to examine the role of culture-specific experiences on digital leadership effectiveness or employee reaction to technological change, as well as climate influences on innovation (Tarafdar et al., 2015). The globalization of digital healthcare technologies, however, implies that comparative international research can add to the broad generalizability of theory. Finally, future research needs to explore the impact of emerging AI-driven healthcare technologies on employee and leadership well-being and on innovation behaviour. AI-enabled clinical decision systems, predictive analytics, and telehealth platforms are rapidly transforming healthcare workplaces, producing both opportunities and stressors (Ayyagari et al., 2011; Hanelt et al., 2021). Data derived from quantitative empirical investigations of digital leadership, innovation climate and technostress variables are the most important to confirm conceptual associations and to strengthen theoretical constructs of innovation in digitally transforming healthcare institutions.

9. Conclusion

Healthcare digitalization has a transformative impact on clinical processes, administrative systems, and patient care delivery worldwide (Hanelt et al., 2021). The emergence of technologies such as electronic health records, telemedicine, and artificial intelligence have the potential to increase health care efficiency and quality but simultaneously, technological requirements have increased, leading to new technological strain for healthcare workers (Ragu-Nathan et al., 2008; Tarafdar et al., 2007). Evidence-based practice indicates technostress can negatively impact individual employee well-being, job satisfaction and performance outcomes (Borle et al., 2021). What's more, if technological demands are too high, people's cognitive and emotional resources needed for creativity and innovative work behaviour may be consumed (Ayyagari et al., 2011) Yet consequences of technostress are not inevitable. From the Job Demands–

Resources model, leadership support may be seen as a key organisational resource that offers protection against stress effects and inspires people to do something about it (Bakker & Demerouti, 2017).

One aspect of digital leadership that is integral to the wider scheme for helping healthcare professionals through digital transformation is not only to encourage innovative behavior (Claassen et al., 2021; Cortellazzo et al., 2019), in addition to technological competence, strategic vision and employee empowerment. In addition, a supportive innovation climate facilitates employees' experience of psychological safety and organizational support for creative ideas; thus, allowing innovation in the context of technological pressures (Amabile et al., 1996; Hülsheger et al., 2009). Based both on Conservation of Resources theory and Social Exchange Theory, leaders ought to provide employees sufficient technological guidance, emotional support, and opportunities for growth to create engagement and innovative contributions (Hobfoll, 1989; Blau, 1964). Thus, both digital leadership and the innovation climate are complementary processes by which technological pressures become the prime catalysts of innovation in an organization. For this reason continuous innovation in healthcare systems that evolve digitally requires intentional connections between leadership development and employee support system development, as well as the culture of an organization that supports innovation. Developing digital leadership skills and an innovative culture might assist organizations in preventing technostress and enabling their workforce's creativity within a digital landscape.

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