Positioning digital well-being in health information behaviour

Leyla Dewitz

Abstract

Introduction. This paper provides an overview of research on digital well-being with the goal of identifying open questions for future research by positioning digital well-being as a health information behaviour practice. Outlining the current debate on digital well-being contributes to how we understand the health information behaviour of people who actively or passively use information through technology to maintain their health or manage illness.

Methods. A scoping review was undertaken covering various domains, including library and information science (LISA), human-computer interaction (ACM digital library), philosophy, and psychology (APA PsycINFO). To map the current discussion, works that include definitions of digital well-being and/or health information behaviour were selected. In total, twenty-five papers and two monographs were included in the analysis.

Analysis. The analysis comprised a close reading of definitions of digital well-being and health information behaviour in the selected texts. In addition, key areas of research on digital well-being were identified by clustering them with respect to health information behaviour to provide a conceptual framework as a basis for discussion.

Results. The results show three aspects of digital well-being that are influenced by health information behaviour practices and vice versa: (1) learning digital well-being, (2) quantifying digital well-being, and (3) gaining (digital) well-being by using technology.

Conclusion. Digital well-being practices are influenced by health information practices and vice versa, as both practices involve stimulating individuals’ interactions towards health. Individuals’ behaviours towards supporting or inducing digital well-being are health information behaviours. There is a need to further empirically investigate the reciprocal causation between digital well-being and health information behaviour through the lens of health information behaviour research.

Keywords: health information behaviour, digital well-being, scoping review
**Introduction**

Technologies are shaping and changing the way we work, build relationships, communicate with each other, and spend our free time. The concept of digital well-being asks what it means to live a life that is *good* for a person in a world where social media, smartphones (apps), wearables, and other technologies increasingly permeate our everyday lives and the way we interact with information. Questions of self-regulation, autonomy, abstinence, mindfulness, and self-determination are becoming increasingly central when it comes to the *healthy* use of technologies (Cecchinato, et al., 2019). Tech companies provide us with solutions (apps) on how to build a healthy relationship with technology through time limits, the promise of higher self-efficacy experiences, and finding pleasure in self-control by measuring and quantifying one’s technology use and habits (Monge Roffarello and De Russis, 2019).

This contribution focuses on whether individuals’ digital well-being practices are connected with health information behaviour practices. Outlining the current debate on digital well-being helps to better understand the health information behaviours of people who, for example, actively or passively use information by means of technologies to either maintain their health or manage illness. This paper seeks to contribute to the overarching research question:

**RQ:** *What does the concept of digital well-being mean in the context of health information behaviour?*

This paper provides an overview of research on digital well-being with the goal of identifying open questions for future research by positioning digital well-being as a health information behaviour practice.

**Method**

To achieve this, a scoping review was undertaken covering various domains, including library and information science (LISA), human-computer interaction (ACM digital library), philosophy, and psychology (APA PsycINFO). Scoping reviews are used to map the existing literature to identify research gaps and summarize knowledge on a particular research topic. There is an emphasis on including a variety of literature, unlike systematic reviews where studies chosen for inclusion are defined before the searches. In a scoping review, the focus is on a narrative presentation of the literature rather than a detailed synthesis of content (Nyanchoka, et al., 2019). To map the current discussion, works that include definitions of digital well-being and health information behaviour were selected. This allows to identify the main aspects of digital well-being and related health information practices. The analysis comprised a close reading of definitions of digital well-being and health information behaviour in the selected texts. In addition, key areas of research on digital well-being were identified by clustering them with respect to health information behaviour practices to provide a conceptual framework as a basis for discussion. In total, 27 relevant texts were included in the analysis with the exception of two monograph (e.g. Johnson and Case, 2012; Wilson, 2022), which have been identified through the author's familiarity with the research field.

**Digital well-being**

Well-being can be understood as self-efficacy experiences that constitute a good life, such as feeling positive rather than negative about life, having valuable interpersonal relationships, and feeling a sense of meaningfulness. Resilience and self-regulation when coping with (critical) life events are also associated with well-being and a state of physical and mental health. These health-promoting protective factors clearly focus on health—not just the absence of illness—and its resources (Diener, et al., 2018).

As a theoretical concept, digital well-being is understood as a practice and state of physiological and psychological well-being while using technology. Digital well-being also means generating, maintaining, and experiencing well-being in digital settings and through the *healthy* use of technology. Therefore, digital well-being comprises both a desirable state to achieve in one’s relationship with
technology as well as the impact that technologies have on people’s quality of life. Current debates on the use of the term digital well-being have conceptualized what a good life can mean in a society that is becoming increasingly digital (Burr and Floridi, 2020). Gui, et al., (2017) describe digital well-being as a state that needs to be maintained against implicit negative influence by digital stressors. The purpose of technology should be to help people in achieving their goals and improving their lives rather than decreasing their quality of life (Beattie and Daubs, 2020). Thus, negative consequences are juxtaposed with digital well-being, i.e., the overuse of technology is a risk factor for maintaining digital well-being. Preventing overuse and developing a healthy approach to technology is therefore included in the definition of digital well-being (Büchi, 2021).

Vanden Abdeele (2020) defines digital well-being as a dynamic experiential state and an ‘optimal balance between the benefits and drawbacks obtained from mobile connectivity’ (p. 938). Therefore, digital well-being can mean learning a stable, harm-preventative, and future-oriented technology literacy focused on maintaining health (Fu, et al., 2021). Although digital well-being can be achieved with a good sense of self-regulation (Cecchinato, et al., 2019), resilience and mindfulness (Rich, 2020), autonomy (Almourad, et al., 2021), controlled pleasure (Vanden Abeele, et al., 2022), and abstinence and self-determination (Dennis, 2021b), there is a lack of concrete scientific concepts that explain how this can be practically achieved for an individual. Technology companies offer solutions (pre-installed settings in devices and apps) that help regulate device usage or offer information about healthy use, thereby bringing about a positive change in behaviour. This, however, can lead to an even stronger connection with the devices: the regulation of technology through using technology (Beattie and Daubs, 2020).

**Health information behaviour**

Health Information Behaviour is the sum of (un)intentional human behaviours associated with health-related interactions with information. Information Science distinguishes between the umbrella term health information behaviour and the term health information seeking behaviour, the latter being the active search for or acquisition of information (Johnson and Case, 2012). Health information seeking behaviour is a purposeful action and refers to a set of interactions that reduce uncertainty about one’s health status, but also refers to how individuals construct a personal sense of health, i.e., medical decision-making, behaviour change, or preventative behaviour in respect to a specific illness (Lambert and Loiselle, 2007; Longo, 2005). An informed individual plays an active role in health communication and health decision-making. Being (un)informed about health can be seen as a health risk/promotion activity, a coping strategy, or a psychosocial adjustment to health (Soroya, et al., 2021).

Health information behaviour encompasses all of a person’s interactions—whether passive, active, serendipitous, or avoidant—regarding health information (Kelly, et al., 2014). Exploring information behaviour from a holistic perspective opens up the possibility of looking at all (health-related) behavioural interactions that people have with information, not just the active ones (e.g., Wilson 2022). This allows for the greatest possible openness—recognizing that information behaviour is a dynamic construct that is intertwined with multiple interactions. In this contribution, the term will be used in this more inclusive sense.

Health information behaviour research does not discuss digital well-being, but rather people’s online health information behaviour. Ghahramani and Wang (2020) understand health information tracking as a ‘micro-aspect of health information behaviour, which include putting health information from various related sources together and use mental judgement […] to come up with anticipated outcomes’ (p. 1278). Digital well-being applications are part of a health-safety activity in that they are installed by users to enhance their quality of life, regardless of whether they are effective. Tracking and learning about health through a variety of health and well-being apps is a personal (meaningful) information experience that extends an individual’s information environment (Fu, et al., 2021).

Although health information behaviour research does not focus on the concept of digital well-being specifically to date, papers with respect to people’s health interactions, like Ghahramani and Wang
(2020) and Fu, et al., (2021), can serve as an example of how information science researchers already explore people’s health practices related to digital well-being.

**Positioning digital well-being in health information behaviour**

Based on the literature reviewed, the concept of digital well-being covers three main aspects: (1) \textit{learning} (digital) well-being for technology use; (2) \textit{quantifying} (digital) well-being by means of technology; and (3) \textit{gaining} (digital) well-being by using technology.

**Learning digital well-being for technology use** refers to all digital well-being practices and strategies that are individually performed (online or offline) to learn purposeful interactions with technology and experience and maintain digital well-being. Learning how to promote digital well-being is connected to health information literacy (Fu, et al., 2021; Yue, et al., 2021). Learning self-regulation, resilience, autonomy, and self-determination helps to gain control (Cecchinato, et al., 2019).

Individuals’ self-regulation strategies include detaching from technology to maintain well-being and preventing excessive use (Nguyen, 2021). These digital well-being skills can be stimulators for health information behaviour practices and indicators of health information literacy.

**Quantifying digital well-being by means of technology** may help people gain well-being (control, resilience, and self-regulation) by using apps that track their practices. Individuals can develop their own strategies assisted by technologies aimed at preventing excessive use (Almourad, et al., 2021). These are mainly propagated by technology companies like Google (https://wellbeing.google/), Apple (https://apps.apple.com/lu/app/zario-digital-wellbeing/id1588086410?l=de) or operating systems such as Android (https://www.android.com/digital-wellbeing/), and include apps to monitor and quantify self-optimization for behaviour change (Monge Roffarello and De Russis, 2021). Individuals use apps or device-based digital well-being settings actively (or passively) to enhance, regulate, or simply observe their own technology use (Dennis, 2020). People use these applications to become aware of their (un)healthy behaviour; collecting data from these interactions gives people the feeling of being in control of the habits that impact their health (Ghahramani and Wang, 2020).

**Gaining (digital) well-being by using technology** refers to promoting, generating, or sustaining well-being in technology and is also part of \textit{positive computing} (Lee, et al., 2019). This includes, for example, assistive technologies that enable and promote social, societal, and individual connections to the world with the help of technology (Almourad, et al., 2021), as well as assistance through robotics (Dennis, 2021a), smart objects (Okoshi, 2020) and e-health services (Fu, et al., 2021). The use of these technologies and the need to consider their ethical implications will become more prevalent in the future. Gaining (digital) well-being by using technology is linked to designing technology that takes the negative effects that technologies could have on people’s lives into account. This involves designing ethical technologies that do not have adverse effects on users’ health and that protect their digital well-being (Smits, et al., 2022).

**Health information behaviour and digital well-being framework**

The theoretical foundation of this framework is based on the digital well-being framework of Vanden Abeele (2021), which emphasizes that digital well-being is influenced by context as well as person and device-specific factors.
The framework (figure 1) visualizes the connections between digital well-being and health information behaviour as a basis for further discussion. Individuals’ digital well-being practices are clustered according to three core aspects: (1) learning, (2) quantifying, and (3) gaining (digital) well-being. These digital well-being practices are influenced by context as well as person and device-specific factors (Vanden Abeele, 2021). Health information behaviour practices are also influenced by personal, contextual (Longo, 2005), and device-specific factors (Ghahramani and Wang, 2020). By adding all possible scenarios of health information practices to the framework, health information behaviour is visualized as a dynamic construct that is intertwined with active, passive, serendipitous, and avoidant interactions. Existing models of health information behaviour only cover active information interactions, such as information seeking with respect to a specific physical illness (e.g., Longo, 2005; Lambert and Loiselle, 2007). In order to include all possible (un)intentional health information interactions, current ideas and approaches in information behaviour research were transferred to this framework so that it could provide a holistic perspective on health information behaviour (e.g., Wilson 2022). The framework (figure 1) provides a basis for discussion and needs to be empirically validated within studies and adapted and modified further. Existing health information seeking behaviour models are not adequate to cover all the (un)intentional (passive or active), serendipitous, and even avoidant behaviours that people may experience in their interactions with health information.

The following table (table 1) gives examples of how digital well-being and health information behaviour can influence each other.
Table 1: Examples of digital well-being and health information behaviour.

<table>
<thead>
<tr>
<th>Digital well-being (practice)</th>
<th>Health information behaviour</th>
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<tbody>
<tr>
<td>Learning digital well-being for technology use</td>
<td>People interact with health information to learn how to use technology in a healthier way to maintain their (psychological or physical) health or manage an illness. Conversely, digital well-being practices stimulate health information behaviours, e.g., through multiple active, passive, serendipitous, and avoidant information interactions that may arise with digital well-being practices. Digital well-being practices, like learning digital well-being for technology use, also benefit health information literacy (e.g., Fu, et al., 2021).</td>
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<tr>
<td>Quantifying digital well-being by means of technology</td>
<td>Quantifying digital well-being by means of technology is connected to health information behaviour practices as it embraces active (tracking, reflecting, and changing) as well as passive (tracking and observing/monitoring) information interactions towards own health data/information. Further, health information practices are influenced by quantifying one's own digital well-being, e.g., tracking health can impact people’s immediate and future health information interactions and, therefore, future health decision-making (e.g. Ghahramani and Wang, 2020).</td>
</tr>
<tr>
<td>Gaining (digital) well-being by using technology</td>
<td>Gaining (digital) well-being by using technology is influenced by health information behaviour, e.g., assistive technologies provide people access to information environments and promote overcoming information barriers to maintain their health. Likewise, health information behaviour may influence whether a person gains well-being through using technology, which is also related to health literacy (e.g. Almourad, et al., 2021).</td>
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</table>

**Conclusion**

A scoping review was undertaken to contribute to the research question of what the concept of digital well-being can mean in the context of health information behaviour.

Digital well-being practices are influenced by health-related information interactions and vice versa, as both practices involve stimulating individuals’ interactions towards health, e.g. learning, quantifying, and gaining (digital) well-being via technology use. This leads to the conclusion that behaviours towards generating, supporting, or inducing digital well-being are health information behaviours. The investigation of the two main concepts involved (health information behaviour and digital well-being) provides initial insights into how these are interrelated. The digital well-being concept, inter alia, focuses on individuals’ (coping) efforts at maintaining health and managing illness through the use of technology. People who achieve digital well-being are likely to be more aware of their interactions with health information, which benefits their health literacy.

Digital well-being is not yet studied in the field of health information behaviour, but it would fill a gap by serving as a fruitful concept to better understand the health concerns of people living in the 21st century in the context of technology use. Currently, the focus of health information behaviour research is primarily on how people actively obtain information on a particular illness. Health information behaviour research must broaden its perspective by examining the continuum of (mental and physical) health. Health does not only mean the absence of illness; therefore, it is necessary to see health prevention as a research domain of health information behaviour as well. This is crucial, as
digitization will create new health needs that are not always associated with a specific illness and people need to handle these to maintain their well-being.

This contribution argues that there is a need to empirically investigate individuals’ digital well-being through the lens of health information behaviour research because, in the future, health information literacy and digital sovereignty will become key drivers to empower informed health decisions. Health information literacy can be systematically supported when we know more about how people interact with health information in their lives and how this is affected or influenced by their digital well-being. On this basis, future research should address this gap to seek to understand how individuals master their health with respect to their health information interactions and to what degree digital well-being plays a role in this. To accomplish this, the framework on health information behaviour and digital well-being (figure 1) should be validated and adapted through empirical research. The author will continue to elaborate on the framework based on qualitative case studies with different user groups. This would contribute to a better understanding of the reciprocal causation between digital well-being and health information behaviour.

About the author

Leyla Dewitz is a researcher at the Berlin School of Library and Information Science at Humboldt-Universität zu Berlin, Germany. Her research focuses on digital well-being and health information behaviour of vulnerable groups and methodological approaches to participatory research designs. She can be contacted at leyla.dewitz@hu-berlin.de
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