

Digital Health Information Access and Acceptance-Based Educational Interventions: Enhancing Psychological Empowerment among Patients with Functional Gastrointestinal Disorders

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Abstract

This study explores the potential of exposure to digital mental health resources and acceptance-focused educational materials to help users with Functional Gastrointestinal Disorders (FGIDs) alleviate anxiety and enhance overall mental well-being. Based on the Acceptance and Commitment Therapy principles, the study shifts the focus from the traditional clinical intervention to the exploration of information-seeking behaviors and health literacy practice. Using the mixed-methods research design, it evaluates the ways accessibility, understandability, and discernment of the information related to the healthcare transmitted through digital platforms and institutional systems affect mental well-being. Results derived from structured questionnaires administered among the patients visiting the primary healthcare settings indicate that user-centered and evidence-supported digital materials greatly relieve mental anxiety and enhance the strengthening of mental coping strengths. Also, the study indicates that information validity and accuracy and the way the information is delivered prove to be the critical

determinants to affect the interest in the therapeutic materials. With its actionable recommendations, the study has implications for public healthcare libraries and information professionals and digital mental healthcare developers to create accessible and inclusive mental health literacy materials that can aid the management and control of chronic diseases. Such recommendations are particularly critical to the developing world where mental healthcare inequalities continue to persist.

Keywords: Health Information Literacy, Digital Access, Acceptance and Commitment Therapy, Information Behaviour, Psychological Empowerment, FGIDs, Public Health Information Systems.

Introduction

In the modern era, FGIDs have become an important cause of public concern and consequent medical and psychologic research. They are characterized by long-standing gastrointestinal disturbances that arise without any discernible structural or biochemical pathology and hence are especially challenging to manage clinically and therapeutically (Tappen et al., 2022). Their polycentric nature with both physiological and psychologic aspects further complicates management and especially arises to complicate things further the occurrence of anxiety and pressure. Lack of an overtly definable physical pathology has permitted an easier identification of

psychologic determinants that affect the severity and duration of symptoms (Richardson et al., 2022). Among the common causes of patient distress are maladaptive coping behaviours and an excessive preoccupation with health and increased pain sensitivity. Increasingly therefore there is increased popularity of the interdisciplinary treatment models which integrate medical and psychologic paradigms (Mamuye et al., 2022). Such development underscores the requirement to infuse management strategies for FGIDs with evidence-based psychotherapeutic modalities.

Current research has highlighted the relevance of the brain–gut axis to the explanation of symptom chronicity (Kemp et al., 2021). Bi-directional communication between gastrointestinal and psychologic distress has been associated with symptom disorders like irritable bowel and functional dyspepsia. Biopsychosocial models highlight cognitive, affective, and physical processes responsible for the perpetuation of illnesses like these ones (Al-Kahtani et al., 2022). Such an approach is consistent with more general psychosomatic models advancing holistic concepts about sickness and wellness. In addition, research supports interventions permitting attention to individual variations between perceived symptoms and psychologic responses (Lee et al., 2023). Addressing Biological and psychologic aspects together enhances the outcome within each realm, and therefore scholarly interest has been focused on finding the most important determinants and devising ways to enhance coping behaviours (Ji et al., 2024).

Patients with FGIDs often demonstrate higher incidences of anxiety, depression, and personality disorders (Erku et al., 2023). Emotional and psychological principles tend to play an increased role in symptom severity more than physiological mechanisms. Stress, adverse health beliefs, and distorted intellectual interpretations are among the key determinants of symptom aggravation (Javaid et al., 2022). Anxiety related to health is not just an aggravator but also results in elevated healthcare utilisation, and depressive symptoms are highly correlated with the chronicity of gastrointestinal diseases. With the accretive evidence pointing towards the necessity to treat FGIDs through multimodal interventions and not one-treatment models, ACT has come to the fore on the basis of acceptance and mindfulness and not through the attempt to alter internal processes (Thompson et al., 2021). Research earlier has established the efficacy of ACT to significantly alleviate the effect of stress and

anxiety and hence improve quality of life and ensure sustained management of symptoms (Sundell et al., 2022). Likewise, Sun et al. (2022) noted the effect of ACT to reduce rumbling and enhance life satisfaction and the effectiveness of Ailani et al. (2021) to treat FGIDs. Nonetheless, available research also places an equal emphasis on the necessity to study and confirm cross-culturally the generalizability of ACT. Despite the promising results and its efficacy, little research has been undertaken within Saudi settings and thus causes concern regarding its cultural adaptability and perceived usefulness.

Earlier research has also suggested that government-run information on health can greatly enhance public health outcomes (Taylor et al., 2022). However, Afful-Dadzie et al. (2023) argued that the lack of awareness among the public is not sufficient to effectively shape behavioural change. Without adequate awareness about particular illnesses, citizens struggle to effectively cope. However, Aerts and Bogdan-Martin (2021) highlighted that the employment of digital platforms and the accessibility of library resources can facilitate the ability of people to acquire coping mechanisms. Echoing the same perspective, Torab-Miandoab et al. (2023) highlighted libraries and digital information platforms as potential information delivery agents. However, the research has zero empirical evidence conducting an examination on the mediative roles played by information platforms on the internet between the accessibility and clarity and comprehension and the cognitive coping mechanism on the basis of the Arab backdrop. Furthermore, limited information is available on the effect information quality and delivery mechanisms and trustfulness on the consumption on therapeutic information among the Arab public. Consequently, an attempt is made to fill these information provision gaps through the following inquiries.

Q1: Is there a mediating role of digital platforms between health information access, clarity, comprehension and cognitive coping mechanisms.

Q2: What is the impact of information quality, trust and delivery mode on facilitating engagement with therapeutic knowledge?

Review of Literature

Acceptance and Commitment Therapy (ACT)

Bai et al. (2020) refer to ACT as an evidence-based new direction within cognitive-behavioural

therapy that fosters the cultivation of six core values: acceptance, mindfulness, defusion of the way we think cognitively, values clarification, and value-generated commitment. It empowers individuals to embrace and coexist alongside painful thoughts and emotions but resisting them less and less, thus valuing action aligned with personal values more and anxiety less and more quality-of-life enhancement (Sun et al., 2022). According to Thompson et al. (2021), ACT also helps individuals cope with unwanted emotions and anxiety that inhibit individual growth and everyday performance. Furthermore, ACT has come to enjoy widespread popularity within the modern setting, especially regarding challenges faced by individuals with intellectual impairments (Ailani et al., 2021). It supports positive behavioural change, and people are thus empowered to turn life around to more purposeful and fulfilling paths.

Health Literature and Digital Libraries

With the advancement of information and its proliferation in the digital age, digital libraries occupy a central place in the storage and distribution of information consisting of materials on health-related issues critical to the building of public awareness (Abdoh, 2022). Books, academic articles, and magazines are among the various materials that can serve as key avenues to the sharing of information on health with the public. Digital library accessibility can help individuals gain accurate and complete information on their state of health. Books and journal articles by scholars can be used to raise the awareness and insight of the public on the issue of health (Sheikh et al., 2021). Distribution of information on health via digital platforms has also emerged as an important aspect of awareness-raising efforts. Promoting the provision of open access to digital libraries is also critical to those possessing constrained avenues to gain the disposal of cost-free and credible information on health (Zarour et al., 2021). Digital libraries are therefore an important instrument to the raising and distribution of awareness on the issue of health.

Furthermore, social networks are now effective platforms to share information related to healthcare and raise awareness among the public (Mbunge et al., 2022). Governments and healthcare institutions are equally responsible to ensure that people gain access to reliable digital healthcare information. Once people gain successful access to information of this kind, awareness improves among them, and improvement

is observed in the outcomes related to their health (Afful-Dadzie et al., 2023). Digital information tools like Google and subscription-access library databases can be avenues to exchange information that can be positively impacted upon the public's health behaviours (Martinović et al., 2023). Increasing volumes of scholarly healthcare literature are now available under the freely accessible genre and can be widely disseminated to ensure improved literacy related to healthcare among populations. However, where the accessibility to objects and information doesn't exist on any significant scale due to limited connectivity and infrastructure coverage, increased coverage by digital infrastructure and information exchange initiatives can allow the public to effectively touch base with related healthcare information. Furthermore, keeping open-access repositories to archive healthcare information ensures increased dissemination and accessibility (Choukou et al., 2022). Hence, the onus primarily lies on the governments to introduce large-scale educational initiatives to ensure awareness related to healthcare and promote responsible healthcare behaviours.

Also, the sharing of information gained through the use of digital libraries can help the public educate their family members and peers and hence enhance awareness among the entire populace (Ali et al., 2023). Such sharing ensures increased comprehension regarding the state and determinants of the healthcare system. Digital libraries also contain credible information providers and thus ensure the accessibility of evidence-informed and evidence-generated materials. While the credibility of digital information remains an area of concern, information sourced from credible digital libraries can help alleviate these fears and enhance public confidence (Xie et al., 2022). This results in increased productivity and improved healthy behaviours via enhanced information and evidence-informed decision-making. However, equal accessibility to digital information on healthcare continues to be critical to the enhancement of awareness among all the different strata of the populace (Caffrey et al., 2024). It is thus the common duty between the healthcare industry and the government to ensure the accessibility by the public to digital libraries and healthcare literature. Increased accessibility to these digital materials has the effect of empowering the individual to make effective use of healthcare information and stimulating the generation of awareness and proactive healthcare management among the masses.

Hypotheses Development

Overcoming intellectual challenges is required to be provided with proper information and proper therapeutic direction (Mbunge et al., 2022). Today, information shared through social networking platforms is considered credible provided it is shared by authenticated health organizations or qualified therapists. Information sharing through this kind of content is intended to bolster public health results on a larger scale (Arias López et al., 2023). Nevertheless, making sure to make people accessible to accurate and credible information is required to help produce beneficial health behaviours. With the help of social networking platforms, people can get informative insights that might not be obtainable through other means (Alruwaili et al., 2023). With regards to advertising, social networking platforms are also considered an effective advertising avenue to market coping mechanisms and facilitate adaptive healthy behaviours (Taylor et al., 2022).

Ongoing digital advancement inspires individuals to take conscious effort to build healthier attitudes and habits to cope with cognitive challenges. Health facilities and clinics are thus encouraged to make use of digital platforms to advocate positive ways of life and improvement in behaviours (Ji et al., 2024). Use of these platforms empowers citizens to acquire information that fortifies coping mechanisms at the cognitive level and hence improved mental and physical wellbeing. Furthermore, digital platforms facilitate the bending towards the targeted delivery of information sourced from audience division (Javaid et al., 2022). This ensures that targeted and relevant information attains its target audiences without the intervention of third-party brokers (Javaid et al., 2022). Social media thus plays an increasingly critical role in the distribution of information related to healthcare and the inspiration to improve behaviours. By consideration of reviewed studies, it can be deduced that digital platforms are imperative to the accessibility to health information by the public and the strengthening of coping mechanisms to bolster overall wellbeing.

H1: There is a mediating role of digital platforms between health information access and cognitive coping mechanisms.

Health information accessibility is not simply critical to enhance the health behaviours of individuals but also to facilitate clarity that enables proper copings to be effective (Jackson et al., 2021). People suffering from

mental challenges or mental illness need information that is properly structured and understandable to inform the development of the individual's behaviours. Distribution of proper and concise information through proper channels is critical to enhance the awareness of the general public regarding healthy state intercourse (Lee et al., 2023). Social media is thus critical to the delivery of proper and relevant information that stimulates proper change of behaviours. Nevertheless, it is also critical to ensure that the transmitted information through the platforms is transparent and understandable to ensure that information needs of the public are appropriately met (Badr et al., 2024).

Clarity in health communication also involves the provision of explicit instructions, detailed guidance, and precise information regarding diseases and the necessity of treatments. Such clarity can facilitate the effective delivery of related information to specific groupings within the population suffering from comparable ailments (Sounderajah et al., 2021). Furthermore, accessible and transparent information propagated through social media can help individuals build useful behaviours and acquire viable coping mechanisms. Reliability and authenticity of information also come into play here since believable material can bolster the confidence levels of individuals to take up and implement the guidance relating to the health and well-being of the individual (Kemp et al., 2021). While information relating to the aspects of health is critical to the individual, digital media also equally facilitate the delivery of information to the public efficiently. Through social media platforms, properly structured and focused information-delivery mechanisms can facilitate the development of individuals cognitively and to sustainable behaviours (Towett et al., 2023). Such accessibility can help individuals gain related and applicable knowledge on the health aspects from commonly used digital routes and hence enhance the standardization of the latter aspects. According to the reviewed papers jointly, the information on the aspects of the health propagated through the digital media perspective is to be clear and genuine and targeted to effectively bolster the coping mechanisms relating to the individual and ensure the establishment of more exemplary behaviours.

H2: There is a mediating role of digital platforms between health information clarity and cognitive coping mechanisms.

Understanding health information communicated

on social networking platforms is critical to the masses because it ensures an effective way to enhance the overall standard of health (Al-Kahtani et al., 2022). In the absence of any substantial knowledge about the improvement of health programmes or awareness about preventive measures, the chances that the required guidance for the betterment of well-being is adopted is reduced. Such individuals suffering from mental pathology or behavioural disorders specifically need explicit and clear instructions that can enhance the power to process and execute the information about health effectively (Estrela et al., 2023). They are advised to acquire coping techniques and adopt the right strategies that can be practised to improve their state of health and serve the cause towards better functioning.

Social media platforms can be an asset to the distribution of health information that enhances the perception and awareness among people (van Kessel et al., 2022). By enhancing the awareness of medical resources and the latest advances in healthcare among the public, these platforms help to create positive behavioural changes (Faux-Nightingale et al., 2022). By having sufficient knowledge and sharing information through digital media regarding the healthcare and health-related aspects of an individual, they can more effectively deal with the healthcare challenges faced by them and make proactive decisions about receiving healthcare (Morris et al., 2022). Developing an information comprehension about healthcare is thus essential to enhance the effectiveness with which people are now managing mental illnesses and KPD more effectively. The credibility and accessibility of social platforms is more significant upon the distribution of sensitive information regarding the healthcare aspects to the public. Health organisations and institutions tasked with information distribution must ensure the information shared is unambiguous and interpretable by different audiences (Marzo et al., 2022). All the reviewed studies together suggest digital media has an overarching relevance to the improved understanding among the public about healthcare information and the enhancement of effective coping strategies and overall awareness about healthcare.

H3: There is a mediating role of digital platforms between health information comprehension and cognitive coping mechanisms.

Health information quality is critical to the enhancement of public therapeutic insight. Information

that is accurate, credible, and effectively presented has the effect of positively influencing public opinion, leading to increased involvement and prompting more active interactions with the basis of health content (Eruchalu et al., 2021). Health education effectiveness also relies on the information delivery mode since the right modalities ensure that the knowledge related to therapy is delivered and read by various audiences effectively and effectively (Elkefi et al., 2023). Of equal significance is the development and sustenance of any trust in the information provided since the majority will be more susceptible to the adoption of the positive behaviours upon trusting the credibility of the information providers (Hernandez and Rodriguez, 2023). How information is communicated and dispersed on social platforms can be the determining factor on whether the public is effectively capable of embracing and controlling the mental disorders or behaviours. Health information thus needs to be effectively chosen and effectively delivered to ensure clear delivery and quick uptake thereof (Choukou et al., 2022). High-quality and reliable information also acts as insurance by enabling the users to develop more healthy attitudes to information sharing and coping strategies. This is developed achievable once the individuals get to view the reliable information channeled through the reliable digital platforms (Papp-Zipernovszky et al., 2021). Evidently then, information quality, credibility, and delivery can be deemed significant determinants to the improvement of the public's knowledge on the therapy and the facilitation of superior management strategies to the information.

H4: Information quality, trust, and delivery mode are critical in facilitating engagement with therapeutic knowledge.

Methodology

Research Design

This study employed a mixed-methods design integrating both quantitative and qualitative approaches to examine how digital psychological health information and ACT-based educational content can support individuals with FGIDs in managing anxiety and improving overall well-being. The combination of quantitative and qualitative data enabled the assessment of behavioural outcomes while also providing in-depth insights into users' experiences and interactions with digital health resources.

Intervention Framework

Intervention structure and materials

The intervention framed the participants within the ACT model by highlighting mindfulness, acceptance, and values-consistent behavioural changes. Education materials linked to the principles of ACT were designed jointly with the Ministry of Health and featured short video lectures, guided mindfulness practice, interactive learning materials, and evidence-informational pamphlets grounded in evidence. They were available on the university's information portal about the health unit and on public library terminal units to make them equally accessible to students with different digital and socio-economic backgrounds. Psychological flexibility and adaptive coping in participants were the ultimate aim where participants would be inclined to approach their experiences constructively and not be centred on symptom monitoring.

Participants and Sampling

Participants included university students studying at Riyadh during the academic year 2024–2025 who attended a psychological clinic within the same university. Clinical evaluations verified that the students met the statistical requirements for FGIDs of psychogenic origin and also showed heightened anxiety levels by the clinic's standardised help measures. During the data gathering time frame, 173 clients qualified by the inclusion requirements. Of these, a purposive sample of 120 students was sampled on the quantitative stage to accommodate diversity along gender, age, and field-of-study dimensions. For the qualitative stage sampling, 20 students were purposively sampled considering the level of involvement with the digital learning materials and the willingness to come along with in-depth interviews to obtain verbal comments.

Data Collection

Data for the study were also collected within three months. Quantitative data were retrieved through the implementation of the structured questionnaire before and after the digital intervention. Used by the instrument was the five-point Likert scale to measure participants perceived accessibility to digital information on health, clarity and understandability of materials, reliability and credibility of information sources, and the degree of anxiety on a psychological

scale. Semi-structured interviews took place with the participants through the completion of the intervention and amounted to the sample size of 20. Interviews looked at the participants' information quality perception, credibility and trustworthiness and delivery procedure to further understand these aspects and the effect on the participants with the engagement on therapeutic knowledge. Interviews took about 45 to 60 minutes to complete and were audio-recorded with the consent of the participants.

Data Analysis

Quantitative data had been analysed by utilising the software programme RStudio through the application of descriptive and inferential statistical procedures, involving regression analysis (Murad et al., 2025), to identify the predictive association between the accessibility of digital information and the diminishing levels of anxiety. Internal reliability between the measurement scales was also established by utilising Cronbach's alpha. Qualitative data had been transcribed and thematically analysed through the application of the six-step procedure forwarded by Naeem et al. (2023). Manual coding was also conducted and subsequently checked by an independent rater to ensure inter-coder reliability. Emergent themes were subsequently quantitatively cross-matched to allow triangulation and ensure consistency in interpretation.

Ethical Considerations

Ethical clearance to conduct the study was received from the University Research Ethics Committee together with the Ministry of Health. All participants received written and verbal descriptions of the study's objectives, the measures to be taken to ensure confidentiality, and the involuntariness right. Written informed consent from all participants was received before data collection began. All participants also confirmed that the right to withdraw from the study at any time would not affect the right to obtain medical and psychosocial support services.

Data Analysis and Findings

This research employed a mixed-methods approach for comprehensive data collection and analysis. The quantitative phase involved administering a structured questionnaire designed to address the first research question (Q1). In contrast, the qualitative

phase utilised semi-structured interviews to explore participants' perspectives in greater depth, thereby providing nuanced insights to answer the second research question (Q2).

Quantitative Analysis

The accumulated dataset underwent descriptive statistical examination (Table 1). No missing values were discerned and hence the data completeness. Since the study used the five-point Likert scale, mean values around ± 3 were considered reliable indicators of central tendency. Examination confirmed that mean scores always fell around ± 3 and hence implied internal steadiness of the response. Also the standard

deviation values were checked and scores around 1 interpreted to be statistically fine. Furthermore, the normality of the data examined by the skewness and kurtosis tests. Examination confirmed that the values of skewness and kurtosis fell within the allowable range of ± 2 and ± 3 respectively and thus confirmed the absence of significant distributional distortions. Similarly, the examination by minimum and the maximum values illustrated conformity to the five-point Likert scale where all the responses fell between 1 and 5. All these descriptive statistics confirmed the reliability and the appropriateness of the dataset to undergo further analysis.

Table 1: Descriptive Statistics.

Statistic	HIA	HIC	HICP	DP	CCM
Missing	0	0	0	0	0
Mean	3.250	3.250	3.250	3.300	3.300
Standard Deviation	1.110	1.140	1.180	1.150	1.170
Skewness	0.010	0.020	-0.020	0.040	-0.080
Std. Error of Skewness	0.120	0.120	0.120	0.120	0.120
Kurtosis	-0.980	-1.040	-1.160	-1.260	-1.130
Std. Error of Kurtosis	0.250	0.250	0.250	0.250	0.250
Minimum	1	1	1	1	1
Maximum	5	5	5	5	5

HIA = Health Information Access, HIC = Health Information Clarity, HICP = Health Information Comprehension, DP = Digital Platforms and CCM = Cognitive Coping Mechanism

Then the study did the correlation analysis to get to understand the association between the variables. While there are various methods to measure correlation, the Pearson correlation technique was used by this study due to its strength and common use in social research to establish the strength and

direction of the association between the variables. The outcome, wherein Table 2 is shown, demonstrated that all the variables also had positive correlations with each other, meaning consistent and direct association between the constructs being studied.

Table 2: Pearson' Correlations.

Variable		HIA	HIC	HICP	DP	CCM
1. HIA	Pearson's <i>r</i>	—				
	P-Value	—				
2. HIC	Pearson's <i>r</i>	0.586	—			
	P-Value	< .001	—			
3. HICP	Pearson's <i>r</i>	0.587	0.588	—		
	P-Value	< .001	< .001	—		
4. DP	Pearson's <i>r</i>	0.614	0.597	0.595	—	
	P-Value	< .001	< .001	< .001	—	
5. CCM	Pearson's <i>r</i>	0.602	0.597	0.589	0.607	—
	P-Value	< .001	< .001	< .001	< .001	—

Last but not least, the study utilised regression analysis to answer Research Question 1 (Q1). This statistical method allowed for an advanced analysis of data where the examination of relationships

between variables and the validation or rejection of hypothesised links could be undertaken. The regression results provided significance results across all hypothesized hypotheses. Indeed, results for H1

($z = 3.712$) provided evidence of an important and positive mediator effect of digital platforms upon the interrelationship between the accessibility of health information and cognitive mechanisms to cope. Likewise, H2 ($z = 3.525$) provided evidence of an important and positive mediator effect by digital platforms between the clarity to understand health

information and cognitive mechanisms to cope. Finally, H3 ($z = 3.491$) confirmed the finding that digital platforms positively and significantly mediated the interrelationship between the comprehension on health information and cognitive mechanisms to cope. Detailed results from regression analysis are provided within Table 3.

Table 3: Regression.

Indirect Path	Estimate	Std. Error	Z-Value	P	95% Confidence Interval
HIA → DP → CCM	0.072	0.019	3.712	< .001	[0.034, 0.110]
HIC → DP → CCM	0.061	0.017	3.525	< .001	[0.027, 0.096]
HICP → DP → CCM	0.058	0.017	3.491	< .001	[0.025, 0.090]

Qualitative Analysis

For the second research question (Q2), semi-structured interviews with people with FGIDs who had previous experience with the use of digital resources on mental health were undertaken. The qualitative stage sought to examine whether information quality, trust, and delivery mechanism affected the consumption of therapeutic knowledge, an equivalent to the second hypothesis (H4). Thematic analysis triangulated three key themes through the data analysis: (1) perceived credibility and information source reliability, (2) information clarity and relevance, and (3) accessibility via preferred delivery routes. Respondents uniformly pointed to the influence that trust within the information source played on their consumption of the digital materials on health. Information transmitted through institutional websites and portals, official portals on public health and professional organisations on medical grounds featured highly and featured more credibility than information emanating from social websites or commercially inclined portals. This perceived credibility encouraged burial and long-lasting engagement with the digital materials.

Quality of information also emerged as an important determinant of engagement. Participants appreciated information that was evidence-informed but written in simple and accessible language with accompanying visual tools and step-by-step coping advice. Conversely, excessively technical accounts or sporadically updated materials caused confusion and disengagement. Believing the digital information to be accurate and individually applicable increased users' belief in the usability of therapeutic techniques like mindfulness and cognitive reframing. Finally, delivery mode significantly affected user engagement. Participants strongly preferred multimedia and

interactive modes of delivery, such as short video lessons, podcasts, and guided mindfulness interventions, that provided an enhanced and more immersive learning experience. Static written information was commonly perceived as uninteresting and less emotionally supportive. Mobile accessibility and audio-visual presentation that could be adopted flexibly and continually by users managing chronic symptoms and academic-professional responsibilities especially received strong esteem.

Discussion and Conclusion

In response to Q1, the results from H1, H2, and H3 together established that the accessibility to user-centric, evidence-informed digital resources significantly reduces psychological anxiety and enhances cognitive coping strategies. H1 results showed an incidence of significant and positive mediation effect on the part of digital platforms between the accessibility to health information and the utilisation of cognitive coping strategies. By way of comparison with prior studies, these results confirmed consistency with prior evidence. Tappen et al. (2022) has identified the utilisation of digital platforms to communicate health-related information to expand public awareness and promote the development of healthy behaviours. Likewise, Erku et al. (2023) pointed out that digital media's extensive coverage supports its appropriateness to effectively identified audiences with health messages. According to Papp-Zipernovszky et al. (2021), the digital media avails the interface to connect the public directly to targeted segments and enhance the delivery and uptake of messages. Faux-Nightingale et al. (2022) further confirmed that digital platforms are an important means to exchange trusted information on health due

to the universal acceptance they attract. However, the authenticity of information shared still poses an overarching challenge to be overcome by the utilisation of digital media, identified by Mbunge et al. (2022). Consistent with the latter finding, Mamuye et al. (2022) identified that the search to obtain information on diseases is pursued by individuals by virtue where the credibility is the first requirement. Consequently, there is the need to enhance the digital infrastructures on the media to facilitate the delivery on reliable information on the latter. Generally, these results confirm consistency with previous studies and highlight the significance where digital platforms play to enhance the awareness on public formation and to elicit rational change on behaviours.

With reference to H2, the results identified a positive and significant mediator between the clarity of health information and intellectual coping strategies through digital platforms. Comparing these results with previous studies also supports this finding. Estrela et al. (2023) reported that although digital media changes the probability of the distribution of health information, the clarity of the information is critical to the perceived meaning and effect. Likewise, Marzo et al. (2022) identified that users on digital media platforms favour succinct and well-structured information on health. In support, Alruwaili et al. (2023) highlighted the requirement for information on digital health to be concise and unequivocal. Sounderajah et al. (2021) further stated that where digital media enables wide information sharing, clarity within the information has to be the key to ensure proper public perception. Kemp et al. (2021) also pointed out that beyond information distribution alone, the authenticity of the healthcare messages is critical to the modification of public health behaviours. Similarly, Eruchalu et al. (2021) implied that encapsulated and well-expressed healthcare on digital platforms has the potential to positively alter the behavioural patterns among the majority. All these results together further reinforce the proposition that succinctly and targeted digital healthcare information results in improved perception and can facilitate sustainable healthcare formation.

For H3, results demonstrated a significant and positive mediating effect of digital platforms between health information comprehension and cognitive coping mechanisms. This outcome aligns with the findings of earlier studies. Morris et al. (2022) asserted that digital media serves as an

effective medium for sharing comprehensive health information that promotes understanding among the public. Choukou et al. (2022) highlighted that digital platforms allow customisation of health content to suit audience needs, thereby enhancing comprehension and relevance. According to van Kessel et al. (2022), while comprehension varies across societal groups, digital tools can be leveraged to adapt and communicate health messages effectively to each segment. Hernandez and Rodriguez (2023) further indicated that expert-led and concise digital communication significantly influences public health attitudes. Consistently, Arias López et al. (2023) suggested that customising digital content enhances public understanding and engagement with health information. Similarly, Richardson et al. (2022) affirmed that well-designed digital platforms contribute to improved health literacy and positive behavioural outcomes. Overall, the evidence suggests that when health information is presented clearly and succinctly on digital platforms, it substantially enhances public comprehension and promotes the adoption of healthier coping mechanisms.

Answering Q2, H4's results verified that information quality, trust, and delivery format are key determinants in facilitating engagement with therapeutic knowledge. These results are further supported by previous studies. Jackson et al. (2021) highlighted that the quality of the information related to the healthcare is critical for the better understanding and control of the health state by the patients. Lee et al. (2023) remarked that the perception and belief by the citizens about the information provided by the digital platforms are the basis of public trust and thus key to public involvement and healthcare decisions. Likewise, Sundell et al. (2022) remarked that the digital tools are to be effectively utilised to provide the public with reliable and need-specific information about the healthcare. Towett et al. (2023) advised that the shortage to obtain the certified digital healthcare materials can damage the trust and affect the involvement. Supporting these results, Elkefi et al. (2023) identified the digital media tools to be the effective platforms to propagate the credible information to enhance the confidence by the users. Furthermore, Badr et al. (2024) identified that the utilisation of the interactive digital tools not only increases the involvement but also supports the uptake of the positive change by the users regarding the information on the healthcare. All these studies affirm

that the quality and trust and the delivery format of the healthcare information are the keystones to the proper involvement with the therapeutic knowledge and to the wider facilitation and utilisation of the digital healthcare literacy.

Implications

Theoretical Implications

This research is an important addition to the nascent field at the interface between digital health information behaviour and psychological empowerment, specifically through the lens of ACT. At the theoretical level, it enriches the application of the biopsychosocial model by illuminating the manner by which the interplay between digital health information accessibility, clarity, and understanding affects psychological processes intervening between coping behaviours among FGID sufferers. By discerning the intervening function of digital platforms, the research enriches knowledge about the manner by which technology mediates processes about health information and closes the gap between informational literacy and mental well-being. Beyond this, the results expand the scope of ACT theory by proposing information behaviour as a collateral mechanism by which to induce psychological flexibility, beyond the dependency on direct therapeutic input. By this conceptual shifting, the study brings together evidence from the fields of health communication, cognitive psychologies, and digital literacy to highlight the proposition that the use of credible, understandable, and accessible digital information constitutes an integral component within the process of empowering oneself, and not merely an auxiliary byproduct of therapeutic intervention. By virtue of this, the research provides an important interdisciplinary contribution to the fields on information science and mental health psychologies. By adding to the state-of-knowledge on the scope and range of digital health literacy, specifically through the aspect rooted in culturally adaptive therapeutic systems within non-Western settings such as the Kingdom of Saudi Arabia, the research expands the international basis on the manner by which digital engagement aids mental resilience and behavioural well-being.

Practical Implications

This study has practical implications for public health organizations, libraries, and digital health system designers. Results reinforce the necessity to create evidence-informed, user-centered, and culture-adaptive

digital resources aimed at inducing psychological empowerment by increased trust and understanding. Public health organizations and healthcare professionals are urged, where appropriate, to implement ACT-informed educational materials and resources within public information systems on public health, especially in the developing world where mental health services are still limited. For the practitioners of health information professionals, the study signals the potential to create digital literacy projects that transcend information access by emphasizing the enhancement of message clarity and comprehension as new mechanisms to alleviate anxiety and facilitate adaptive coping as innovative interventions. Furthermore, the study highlights the importance of the delivery of health information within the multimedia and interactive platforms, i.e., through guided videos and audio files and through the application on mobiles to facilitate uptake by the users and retain therapeutic knowledge and to offer an alternative and more compelling strategy to practitioners aiming to enhance the communication on public health.

Future Directions

This research is also cognizant about a few limitations that, although not weakening its results, yield informative avenues to be pursued by future studies. First, the data were exclusively collected from Saudi Arabia and thus constrain the results' generalisability beyond the wider Gulf region. Future studies are thus urged to involve participants from other Gulf nations to bolster the results' external validity and representativeness. Second, while this study analysed the digital platforms' mediating function, the data took an individual time-point collection. Future studies should thus opt to utilise the longitudinal research style to further understand the dynamic mediating effect by digital platforms through time. Furthermore, future studies could be directed to specific digital media platforms to more precisely understand the ways through which various technologies yield psychological outcomes. Lastly, although this study randomly fixed the digit platforms' mediating function, future studies ought to examine the probable government information on health information dispersal policies acting to moderate the direct and mediating relationships. Such an action would mileage the results beyond the prevailing knowledge regarding the ways through which institutional components interact through individual coping behaviours.

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