BMC Medical Education

RESEARCH

Open Access

Perceived impact of physiotherapy-related debates on the social platform "X" on physiotherapists' professional development and knowledge acquisition: a cross-sectional study

Maryam Alasfour[1*], Zainab Lajami[1] and Abdullah Algashami[1]

Abstract

Background In Saudi Arabia, the social media platform "X" (formerly known as "Twitter") is widely utilized by healthcare professionals. This study aimed to assess the perceived impact of physiotherapy-related debates on X on the professional development and knowledge acquisition of physiotherapists.

Methods A cross-sectional, online survey-based study was conducted among licensed physiotherapists in Saudi Arabia. The study followed established international reporting guidelines, including the Strengthening the Reporting of Observational Studies in Epidemiology, Checklist for Reporting Results of Internet E-Surveys, and Checklist for Reporting Results of Internet E-Surveys.

Results A total of 188 physiotherapists participated, with the majority ($n=143$;76.1%) actively using X. Many participants indicated positive impacts on their perspectives or approaches to physiotherapy, enhancement of their critical thinking skills, and acquisition of new knowledge or insights ($n=73$; 51.0% agreed, $n=26$; 18.2% strongly agreed). Furthermore, participants reported gaining knowledge of research findings ($n=45$; 31.5% agreed, $n=44$; 30.8% strongly agreed) and new treatment techniques ($n=48$; 33.6% agreed, $n=42$; 29.4% strongly agreed). Additionally, 30.1% ($n=43$) agreed and 6.3% ($n=9$) strongly agreed that these debates influenced their professional development, whereas 46.2% ($n=66$) remained neutral.

Conclusions Physiotherapy-related debates on the social media platform X positively impacted physiotherapists' perspectives by enhancing critical thinking and knowledge acquisition. Such online debates may serve as valuable tools for professional development in physiotherapy practice.

Keywords Professional development, Knowledge acquisition, Social media systems, Physiotherapy, Cross-sectional studies, Critical thinking, Health education

*Correspondence:
Maryam Alasfour
malasfour@moh.gov.sa
[1]Physical Therapy Department, Riyadh First Health Cluster, King Saud Medical City, Ministry of Health, 7790 Imam Abdulaziz bin Mohammed bin Saud, Alisha, Riyadh 12746 3617, Saudi Arabia

Background

The term "debate" refers to a structured discussion on a specific topic, especially when several people with differing opinions [1]. Hence, professional debates can be considered teaching tools [2], and within physiotherapy, they cover a wide array of topics that reflect diverse perspectives and evolving practices in the profession [3]. Such debates are instrumental in fostering critical thinking and engaging physiotherapy students in addressing complex issues [4]. Additionally, the use of debates as a pedagogical tool in health professions education, including physiotherapy, has demonstrated effectiveness in facilitating the learning of new content and skills [5].

The integration of digital tools into healthcare education has significantly transformed how professionals acquire knowledge and engage in professional development [6, 7]. Knowledge sharing and transmission now extend to the online environment, including social media platforms such as "X" (formerly Twitter), which is the most commonly used platform for healthcare communication [8–10]. X serves as a global digital forum where users disseminate posts, participate in debates and discussions, and stay informed about news and current events. Beyond information categorization, this platform facilitates knowledge sharing that transcends traditional conference settings [11]. Healthcare professionals increasingly perceive social media platforms as effective and innovative tools for learning [12, 13]. In Saudi Arabia, X is particularly popular among healthcare providers for professional development [10]. However, although the literature extensively examines X's application among clinicians and healthcare providers, data specifically addressing its use by physiotherapists remain limited. Hebron [14] highlighted that X offers physiotherapists numerous benefits, including health promotion, collaboration, community engagement, research dissemination, and opportunities for continuous professional development. Similarly, Clode et al. [15] emphasized X's role as an electronic information resource supporting physiotherapists' continuous professional development. In academia, X post counts are increasingly recognized as a significant metric for measuring scholarly impact across diverse audiences. Consequently, scholars are utilizing online platforms to acquire and disseminate real-time knowledge [16]. Notably, "tweetations" are now being cited in some academic journals, such as the *Journal of Medical Internet Research*.

Recently, X has experienced a notable rise in physiotherapy-related debates among practitioners [17]. These discussions have encompassed various topics, including the validity of scientific research findings and the effectiveness of specific treatment approaches. Despite the increasing role of social media in healthcare education, there remains a significant gap in the literature concerning the impact of professional debates on practicing physiotherapists. Although previous studies [18–21] have explored the use of social media as a learning tool among healthcare students, no empirical evidence currently examines how debates on platforms such as X contribute to professional development and knowledge acquisition among physiotherapists in Saudi Arabia. This study seeks to address this gap by focusing on licensed physiotherapists in Saudi Arabia.

Study aims and hypothesis

The aim of this study is to assess the perceived impact of physiotherapy-related debates on X on the professional development and knowledge acquisition of physiotherapists. We hypothesized that physiotherapy-related debates on X have a perceived positive impact on the professional development and knowledge acquisition of licensed physiotherapists.

Objectives

The objectives of this study were to identify the impact of physiotherapy-related debates on X on physiotherapists':

1. perspectives, particularly concerning critical thinking skills and knowledge acquisition.
2. knowledge acquisition, specifically regarding topics, research findings, and new treatment techniques; and.
3. professional development.

Methods

Study design and setting

A cross-sectional survey was conducted between April and July 2024. The study adhered to international reporting guidelines, including Strengthening the Reporting of Observational Studies in Epidemiology, Checklist for Reporting Results of Internet E-Surveys, and Checklist for Reporting Results of Internet E-Surveys, to ensure comprehensive and standardized reporting (Additional File 1).

Participants

Sample size

According to the literature [22], the number of registered physical therapists in Saudi Arabia is estimated to be between 8,500 and 9,000. Assuming a proportion of 0.8, a 5% margin of error, and a 90% confidence interval, a sample size of 171 physical therapists was determined to be adequate for this cross-sectional study.

Eligibility criteria

Inclusion: Licensed physiotherapists registered with the Saudi Commission for Health Specialties (SCFHS) and actively practicing in Saudi Arabia.

Exclusion: Physiotherapy students, interns, and physiotherapists who are not registered with the SCFHS.

Recruitment

Participants were recruited using a convenience sampling approach through physiotherapy-related groups on social media platforms, including WhatsApp (Meta Platforms, Menlo Park, CA, USA), Telegram (Telegram Inc., Dubai, United Arab Emirates), and X (X Corp., Bastrop, TX, USA). The recruitment message included a study overview, a consent form, and a link to the survey.

Survey instrument

A structured questionnaire was developed based on a comprehensive review of the literature. The search strategy included terms such as "physiotherapy debates," "social media," "professional development," "knowledge acquisition," "critical thinking," and "Twitter." The search was conducted across multiple academic databases, including PubMed, Scopus, Google Scholar, and Web of Science. Items were then drafted based on the key themes identified, focusing on social media usage, engagement in debates, perceived professional impact, and barriers to participation. The initial questionnaire contained 40 items, which were subsequently refined based on expert feedback and pilot testing. Three expert academic physiotherapists validated the questionnaire to ensure face and content validity. The questionnaire was piloted with 10–15 licensed physiotherapists to confirm clarity, usability, and reliability, resulting in a Cronbach's alpha coefficient of 0.851.

The final version of the questionnaire included 31 items (Additional File 2) and was divided into the following sections:

Demographic Information: Age, sex, years of experience, and educational level.

Platform X Usage: Time spent, interaction types, and engagement levels.

Perceived Impact: Impact of debates on knowledge acquisition, critical thinking, and professional development.

Challenges and Suggestions: Barriers to participation and recommendations for improvement.

Administration

The survey was conducted as a closed survey, accessible only to a predefined group of participants invited through targeted physiotherapy-related social media groups, including WhatsApp, Telegram, and X. This approach ensured that only licensed physiotherapists practicing in Saudi Arabia, who were identified by the investigators, could participate. Access to the survey was restricted via an invitation link, preventing random visitors from accessing the questionnaire.

The survey was hosted on SurveyMonkey (Momentive, San Mateo, CA, USA), which was accessible via both mobile and desktop devices. A cover letter provided participants with an overview of the study's purpose. The questionnaire included closed-ended and multiple-choice questions, such as "yes/no" questions and Likert-type questions rated on a 5-point scale. The estimated completion time for the survey was 10–15 min.

SurveyMonkey's built-in tracking features, which rely on Internet Protocol addresses and cookies, were used to identify unique respondents while ensuring anonymity. This method prevented duplicate responses from the same participant. Response rates were calculated as the percentage of unique visitors who completed the survey relative to the total number of unique visitors who accessed the survey link. SurveyMonkey's tracking ensured accurate reporting while maintaining respondent confidentiality.

Flow and participation

Participants who responded "No" to the question, "Do you have an active account on X social platform?" were excluded from further sections related to debates on X. However, their responses were retained for inclusion in the analysis of general usage patterns, which is part of a broader objective explored in a separate study.

Participants who did not consent to the study by selecting "No" on the consent form were automatically disqualified, and the survey was terminated immediately to ensure adherence to ethical research practices and voluntary participation.

Participants who responded "No" to the question, "Are you registered with SCFHS?" were also excluded from further participation SCFHS registration was a prerequisite for eligibility in the study.

This approach ensured that only eligible and consenting participants contributed to the core analysis while maintaining transparency, ethical compliance, and focus on the target population.

Ethical considerations

This study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the King Saud Medical City Institutional Review Board (No. H-01-R-053). Participation was voluntary, and all responses were anonymized. No personally identifiable information was collected, and data were stored securely and used exclusively for research purposes.

Statistical analysis

The study employed descriptive statistics to summarize the data, presenting counts and proportions (%) where appropriate. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS,

Version 28; IBM Corp, Armonk, NY, USA), ensuring robust and reliable results. Missing values were addressed using mean or median imputation, by replacing them with the mean or median of the non-missing values for the respective variable. Only 10 participants had missing values for a few items.

Associations between demographic variables (age, sex, years of experience, and educational level) and the perceived impact (knowledge acquisition and professional development) were examined using chi-square tests for categorical associations and t-tests or analysis of variance for continuous variables. Missing data for continuous variables were handled using mean imputation to ensure a comprehensive analysis and maintain dataset integrity. A p-value of <0.05 was considered statistically significant.

Results

The study surveyed 193 participants; however, 5 were excluded due to refusal to participate ($n=1$) or due to them not being SCFHS-registered physiotherapists practicing in Saudi Arabia ($n=4$). Consequently, 188 participants were included in the study, resulting in a response rate of 97.4%. The survey achieved a completion rate of 94.7%, with 178 out of 188 participants completing all required sections. Most physiotherapists ($n=143$; 76.1%) reported having an active X account. Participant characteristics are presented in Table 1.

For the analysis of the impact of debates on X, only the 143 participants with active accounts were included, as the remaining 45 participants without accounts did not meet the inclusion criteria for this aspect of the study.

Table 1 Participants' characteristics

Item ($n=188$)		n (%)
Age (years)	20–30	66 (35.1)
	31–40	79 (42.0)
	41–50	31 (16.5)
	51–60	12 (6.4)
Sex	Female	109 (57.9)
	Male	79 (42.0)
Years of experience as a physiotherapist	0–5	69 (36.7)
	6–10	46 (24.5)
	11+	73 (38.8)
Highest level of education obtained	Bachelor's degree	132 (70.2)
	Master's degree	43 (22.9)
	Doctor of Philosophy (PhD)	13 (6.9)
Main workplace	Academic institution	19 (10.1)
	Governmental hospital	113 (60.1)
	Private clinic	31 (16.5)
	Private hospital	25 (13.3)
Active account on X	No	45 (23.9)
	Yes	143 (76.0)

N = total sample, n = number of participants, (%) = percentage of the total sample, X = Social Platform "X"

Impact of physiotherapy-related debates on X on physiotherapists' perspectives

A noteworthy proportion of physiotherapists reported positive impacts from debates on X, including changes in their perspectives or approaches to physiotherapy ($n=52$; 36.4% agreed and $n=21$; 14.7% strongly agreed), enhancement of their critical thinking skills ($n=60$; 41.9% agreed and $n=24$; 16.8% strongly agreed), and acquisition of new knowledge or insights ($n=68$; 47.6% agreed and $n=27$; 18.9% strongly agreed). However, a notable proportion of respondents (30–35%) remained neutral regarding these aspects (Table 2).

Perceived impact of physiotherapy-related debates on X on physiotherapists' knowledge acquisition

A substantial proportion of respondents agreed or strongly agreed that they had gained knowledge about research findings ($n=45$; 31.5% agreed and $n=44$; 30.8% strongly agreed) and new treatment techniques ($n=48$; 33.6% agreed and $n=42$; 29.4% strongly agreed) from debates on X (Table 3).

Perceived impact of physiotherapy-related debates on X on physiotherapists' professional development

Regarding the implementation of information obtained from debates on X, 59 respondents (40.6%) agreed or strongly agreed that they had incorporated such information into their practice, whereas 31 respondents (21.7%) disagreed or strongly disagreed. A substantial proportion ($n=54$; 37.8%) of the participants remained neutral regarding this aspect.

Concerning the influence of debates on patient communication, 55 participants (38.5%) agreed or strongly agreed that debates enhanced their communication with patients, whereas 21 participants (14.7%) disagreed or strongly disagreed. A considerable proportion ($n=57$; 39.9%) of the participants maintained a neutral stance.

Similarly, 55 respondents (38.5%) agreed or strongly agreed that the debates had influenced their practice by improving patient outcomes or aiding in the development of better treatment strategies, whereas 32 respondents (22.4%) disagreed or strongly disagreed. A notable proportion (39.2%) remained neutral on this matter.

Finally, concerning engagement in collaborative projects or research resulting from debates, 48 participants (33.6%) agreed or strongly agreed, whereas 57 participants (39.9%) disagreed or strongly disagreed. A notable proportion ($n=38$; 26.6%) of the participants remained neutral (Table 4).

Associations between demographic variables and the perceived impact

No significant associations were found between the demographic variables (sex, age group, educational level,

Table 2 Perceived impact of physiotherapy-related debates on X on physiotherapists' perspective and critical thinking

Item (*n* = 143)		*n* (%)
I have changed my perspective or approach to certain aspects or a particular topic of physiotherapy as a result of following or viewing debates on X	Strongly disagree	8 (5.6)
	Disagree	12 (8.4)
	Neutral	50 (34.9)
	Agree	52 (36.4)
	Strongly agree	21 (14.7)
Following debates on X has significantly enhanced my critical thinking skills by exposing me to diverse perspectives and challenging me to analyze and evaluate different viewpoints	Strongly disagree	3 (2.1)
	Disagree	14 (9.8)
	Neutral	42 (29.4)
	Agree	60 (41.9)
	Strongly agree	24 (16.8)
I have gained new knowledge or insights about physiotherapy through following debates on X	Strongly disagree	1 (0.7)
	Disagree	10 (7.0)
	Neutral	37 (25.9)
	Agree	68 (47.6)
	Strongly agree	27 (18.9)
Overall	Strongly disagree (3 points)	1 (0.7)
	Disagree (4–6 points)	4 (2.8)
	Neutral (7–9 points)	39 (27.3)
	Agree (10–12 points)	73 (51.0)
	Strongly agree (13–15 points)	26 (18.2)

N = total sample, *n* = number of participants, (%) = percentage of the total sample, X = Social Platform "X"

Table 3 Perceived impact of physiotherapy-related debates on X on physiotherapists' knowledge acquisition

Item (*n* = 143)		*n* (%)
From debates on X, what specific topics have you learned or gained more knowledge about?	Musculoskeletal disorders	107 (74.8)
	Neurological disorders	8 (5.6)
	Not applicable	25 (17.5)
	Pediatric physiotherapy	3 (2.1)
From debates on X, I have gained knowledge about research findings	Disagree	12 (8.4)
	Neutral	42 (29.4)
	Agree	45 (31.5)
	Strongly agree	44 (30.8)
From debates on X, I have gained knowledge about new treatment techniques	Strongly disagree	1 (0.7)
	Disagree	13 (9.1)
	Neutral	39 (27.3)
	Agree	48 (33.6)
	Strongly agree	42 (29.4)
Overall	Disagree (3–4 points)	2 (1.4)
	Neutral (5–6 points)	47 (32.9)
	Agree (7–8 points)	48 (33.6)
	Strongly agree (9–10 points)	46 (32.1)

N = total sample, *n* = number of participants, (%) = percentage of the total sample, X = Social Platform "X"

and years of experience) and outcomes of knowledge acquisition or professional impact (Table 5).

Discussion

Main findings and comparison with existing evidence

This study assessed the perceived impact of physiotherapy-related debates on X on the professional development and knowledge acquisition of physiotherapists. Quantitative data were collected from licensed physiotherapists with diverse demographic and professional backgrounds, revealing a positive impact, particularly in enhancing critical thinking and knowledge acquisition.

The acquisition of knowledge through debates on X is an anticipated benefit, as sharing information is one of the most prevalent activities within the global digital physiotherapy community [23]. The platform facilitates knowledge sharing by providing access to diverse perspectives and opinions, which, in turn, inform clinical decision-making and support professional development [24]. These findings align with evidence from other

Table 4 Perceived impact of physiotherapy-related debates on X on physiotherapists' professional development

Item (*N* = 143)		*n* (%)
I have implemented information obtained from debates on X in my practice	Strongly disagree	6 (4.2)
	Disagree	25 (17.5)
	Neutral	54 (37.8)
	Agree	45 (31.5)
	Strongly agree	14 (9.1)
Following or interacting with physiotherapy-related debates on X has influenced my practice by enhancing patient communication	Strongly disagree	7 (4.9)
	Disagree	24 (16.8)
	Neutral	57 (39.9)
	Agree	40 (27.9)
	Strongly agree	15 (10.5)
Following or interacting with physiotherapy-related debates on X has influenced my practice by improving patient outcomes or developing better treatment strategies	Strongly disagree	7 (4.9)
	Disagree	25 (17.5)
	Neutral	56 (39.2)
	Agree	42 (29.4)
	Strongly agree	13 (9.1)
I have engaged in collaborative projects or research as a result of following or interacting with physiotherapy-related debates on X	Strongly disagree	18 (12.6)
	Disagree	39 (27.3)
	Neutral	38 (26.6)
	Agree	38 (26.6)
	Strongly agree	10 (7.0)
Overall	Strongly disagree (4–5 points)	5 (3.5)
	Disagree (6–9 points)	20 (14.0)
	Neutral (10–13 points)	66 (46.2)
	Agree (14–17 points)	43 (30.1)
	Strongly agree (18–20 points)	9 (6.3)

N = total sample, *n* = number of participants, (%) = percentage of the total sample, X = Social Platform "X"

Table 5 Associations between the demographic variables and perceived impact of debates on X

Item	t- test	F- test	Chi-square	*p*-value
Sex and knowledge gain	0.82	--	--	0.41
Age and knowledge gain	--	0.68	--	0.57
Years of experience and knowledge gain	--	0.10	--	0.90
Educational level and knowledge gain	--	0.10	--	0.90
Sex and professional impact	--	--	2.87	0.24
Age group and professional impact	--	--	2.44	0.89
Years of experience and professional impact	--	--	1.90	0.75

Chi-square tests for categorical associations and t-tests/analysis of variance for continuous variables, A p-value of < 0.05 was considered statistically significant

healthcare fields. Among public health professionals, discussions with colleagues on X have been shown to positively influence professional development [25]. Similarly, social media is widely regarded as a valuable tool for enhancing knowledge, creativity, critical thinking, and problem-solving skills among healthcare quality personnel [26]. Additionally, 33% of healthcare fellows have reported gaining knowledge from social media, with X being the most frequently used platform for accessing colleagues' opinions and staying updated on developments [27].

The enhancement of critical thinking reported in this study aligns with previous research demonstrating that exposure to diverse viewpoints encourages healthcare professionals to question assumptions, consider alternatives, and engage in reflective discourse. For example, a quantitative study among new graduate physiotherapists identified social media as an effective tool for informal learning but also highlighted concerns about the credibility of information encountered online, emphasizing the importance of critical thinking in evaluating sources [28].

Despite its benefits, integrating online content into clinical practice requires caution. Concerns about the quality and reliability of information shared on social media are well-documented, with some questioning the clinical relevance of such discussions. Consistent with this study's findings, physiotherapists frequently used X as an electronic resource for continuous professional development; however, the direct application of online

content to practice was less common. This reluctance may stem from apprehensions regarding the lack of quality assurance associated with information shared on social networking [15] platforms.

In addition to these challenges, physiotherapy educators face broader technological advancements that require attention. A notable trend involves the use of artificial intelligence (AI) chatbots, such as ChatGPT, in education and clinical practice. AI tools offer unique opportunities, such as personalized learning experiences and real-time support for decision-making. However, their integration presents challenges, including ethical considerations, biases in training data, and concerns about over-reliance on technology [29]. Compared with traditional social media platforms, AI tools represent a distinct set of challenges, underscoring the need for a balanced approach to adopting digital innovations in physiotherapy education. Future efforts should explore how social media and AI technologies can complement each other to create dynamic and effective learning environments.

Further, the inferential analysis revealed no significant associations between the demographic variables (age, sex, years of experience, and educational level) and knowledge acquisition and professional development outcomes. This suggests that the observed benefits of debates on X are broadly consistent across different demographic groups. Owing to its accessibility and informal nature, X may serve as an equitable platform where physiotherapists with varying levels of experience and education can engage in meaningful professional interactions. These findings align with studies emphasizing the egalitarian potential of social media platforms, where diverse healthcare professionals can participate in peer-to-peer learning and collaborative problem-solving, irrespective of their background [30, 31].

Although these findings highlight the inclusive nature of social media as a learning tool, they also suggest that other factors, such as individual motivation, frequency of engagement, or specific debate topics, may play a more critical role in determining outcomes. Prior research supports this notion, indicating that factors like active participation and the relevance of content to clinical practice significantly influence learning outcomes on digital platforms [32, 33]. Future research could focus on these contextual factors to better understand the mechanisms driving professional growth in digital environments.

Implications for education and research

Social media platforms, such as X, are valuable tools for physiotherapy education and professional development. From an educational perspective, incorporating structured debates into formal training programs could amplify critical thinking, promote evidence-based practice, and provide a platform for engaging with diverse viewpoints. Professional organizations and academic institutions could leverage X to host moderated discussions, webinars, and case-based debates, thereby facilitating continuous professional development. These initiatives could bridge the gap between theoretical knowledge and clinical practice by encouraging reflective learning and collaborative problem-solving.

From a research standpoint, this study underscores the need to explore the long-term effects of social media engagement on clinical decision-making and patient outcomes. Future research could investigate factors such as engagement frequency, debate topics, and individual learning styles to better understand the mechanisms underlying professional development in digital environments. Furthermore, interdisciplinary studies examining how healthcare professionals across various fields use social media for knowledge sharing and collaboration could provide insights into optimizing these platforms for broader educational and professional purposes. By addressing these areas, future efforts can enhance the integration of social media into healthcare education and practice.

Strengths and limitations

This study is among the first to explore the impact of physiotherapy-related debates on licensed practitioners, addressing a significant gap in the literature. However, several potential biases may have influenced its findings. The reliance on self-reported data introduces the risk of social desirability bias, and the recruitment process via social media platforms may have favored more active online participants, potentially excluding less-engaged physiotherapists. Additionally, the subjective nature of the survey questions and the prevalence of neutral responses may indicate variability in interpretation or limited engagement. The cross-sectional design offers only a snapshot of perceptions, limiting the ability to draw causal inferences or explore long-term implications. Furthermore, the generalizability of findings is constrained by the focus on licensed physiotherapists in Saudi Arabia, as cultural and professional contexts may vary in other regions. Future research should address these limitations through mixed-methods approaches, broader recruitment strategies, and longitudinal studies to examine the sustained impact of social media debates on professional development and knowledge acquisition.

Conclusions

This study demonstrates that physiotherapy-related debates on X significantly influence physiotherapists' perspectives on various approaches. These debates serve as a valuable tool for enhancing critical thinking skills,

providing new knowledge, and supporting continuous professional development.

Abbreviations

IRB	Institutional Review Board
SCFHS	Saudi Commission For Health Specialties
SPSS	Statistical Package for the Social Sciences

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12909-025-06760-4.

Additional File 1: International reporting checklists.

Additional File 2: Study questionnaire.

Acknowledgements

The authors express their sincere gratitude to all participants who contributed to this study. Their willingness to share their time and experiences has been invaluable to this research. The authors also extend their heartfelt thanks to their colleagues for their invaluable assistance in distributing the questionnaire via social media platforms. Their efforts in reaching out to participants and ensuring a diverse and representative sample were crucial to the success of this research. In particular, the authors wish to acknowledge Dr. Fayaz Khan, Ms. Wafa Hakami, Sarah Aljarrash, Wala Muslim, Rifan Almohanna, and Majd Bajnaid for their meticulous assistance of this paper. Their attention to detail and insightful feedback significantly enhanced the quality of this work.

Author contributions

MA conceived and designed the study. MA, ZL and AA undertook the data collection and analysis. MA and ZL drafted the manuscript. MA and AA reviewed the manuscript. The authors read and approved the final manuscript.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability

The datasets generated and/or analysed during the current study are not publicly available due to ethical restrictions as the data contain potentially identifying participant information. However, are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki. IRB approval for data collection was obtained from King Saud Medical City, Riyadh First Health Cluster, Ministry of Health (IRB number: H-01-R-053). Written informed consent was obtained from all participants prior to their participation in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 14 October 2024 / Accepted: 24 January 2025
Published online: 30 January 2025

References

1. Debate PCU. Cambridge dictionary. https://dictionary.cambridge.org/dictionary/english/debate
2. Chew QH, Seet XY, Sim K. Use of debate as a pedagogical tool in psychiatry residency teaching: a cross-sectional study. Adv Med Educ Pract. 2021;12:871–7.
3. Praestegaard J, Gard G. Ethical issues in physiotherapy–reflected from the perspective of physiotherapists in private practice. Physiother Theor Pract. 2013;29:96–112.
4. Strawbridge JD, Barrett AM, Barlow JW. Interprofessional ethics and professionalism debates: findings from a study involving physiotherapy and pharmacy students. J Interprof Care. 2014;28:64–5.
5. Ang RX, Chew QH, Sum MY, Sengupta S, Sim K. Systematic review of the use of debates in health professions education–does it work? GMS J Med Educ. 2019;36.
6. Rossettini G, Turolla A, Gudjonsdottir B, Kapreli E, Salchinger B, Verheyden G, et al. Digital entry-level education in physiotherapy: a commentary to inform post-COVID-19 future directions. Med Sci Educ. 2021;31:2071–83.
7. Ødegaard NB, Myrhaug HT, Dahl-Michelsen T, Røe Y. Digital learning designs in physiotherapy education: a systematic review and meta-analysis. BMC Med Educ. 2021;21:48.
8. Pershad Y, Hangge PT, Albadawi H, Oklu R. Social medicine: Twitter in healthcare. J Clin Med. 2018;7:121.
9. Markham MJ, Gentile D, Graham DL. Social media for networking, professional development, and patient engagement. Am Soc Clin Oncol Educ Book. 2017;37:782–7.
10. Alsobayel H. Use of social media for professional development by health care professionals: a cross-sectional web-based survey. JMIR Med Educ. 2016;2:e15.
11. Allen CG, Andersen B, Chambers DA, Groshek J, Roberts MC. Implement Sci. Twitter use at the. 2016 Conference on the Science of Dissemination and Implementation in Health: analyzing# DIScience 16, 13;2018. pp. 1–9.
12. Fahimi F. Social media: an innovative and effective tool for educational and research purposes of the pharmaceutical and medical professionals. Iran J Pharm Res. 2018;17:801–3.
13. Maloney S, Tunnecliff J, Morgan P, Gaida JE, Clearihan L, Sadasivan S, et al. Translating evidence into practice via social media: a mixed-methods study. J Med Internet Res. 2015;17:e242.
14. Hebron C. Physiotherapy past, present and future. Embracing the digital age: physiotherapy and social media. Pain Rehabil-The J Physiother Pain Assoc. 2018;45:3–6.
15. Clode NJ, Darlow B, Rouse J, Perry M. What electronic information resources do physiotherapists prefer to use to support their CPD? Physiother Res Int. 2021;26:e1881.
16. Mohammadi E, Thelwall M, Kwasny M, Holmes KL. Academic information on Twitter: a user survey. PLoS ONE. 2018;13:e0197265.
17. Mondal H, Mickael M-E, Matin M, Hrg D, Smith MA, Matin FB, et al. The power of #physiotherapy: a social media hashtag investigation on X (formerly Twitter). Explor Digit Health Technol. 2024;2:135–44.
18. Deaves A, Trainor K, Grant E. Do final year undergraduate physiotherapy students value Twitter as an educational tool? A mixed methods study. Physiotherapy. 2017;103:e72.
19. Ganesh GS, Mishra M, Dalei NN, Khan S, Ranjan R, Dhiman S. Role of social media tools in online teaching: perception of physiotherapy students and knowledge translation. Bull Fac Phys Ther. 2022;27:7.
20. Rizal R, Steven A, editors. The Impact of Social Media to Students' Critical Thinking skills. Asian Conference on Education 2012 and Official Conference Proceedings; 2012.
21. Chretien KC, Greysen SR, Chretien J-P, Kind T. Online posting of unprofessional content by medical students. JAMA. 2009;302:1309–15.
22. Alhowimel AS, Alshahrani AA, Abulaban AA, Althobeit AM, Alenazi AM, Alshehri MM, et al. Saudi Arabian physical therapists' knowledge, attitudes, and clinical practice in diabetes prevention and management. Diabetes Metab Syndr Obes. 2023;16:2967–77.
23. Merolli M, Busuttil M-L, Wåhlin C, Green A. Global communication practices of physiotherapists on Twitter. Eur J Physiother. 2019;21:20–6.
24. Campbell L, Quicke J, Stevenson K, Paskins Z, Dziedzic K, Swaithes L. Using Twitter (X) to mobilize knowledge for first contact physiotherapists: qualitative study. J Med Internet Res. 2024;26:e55680.
25. Hart M, Stetten NE, Islam S, Pizarro K. Twitter and public health (part 1): how individual Public Health professionals Use Twitter for Professional Development. JMIR Public Health Surveill. 2017;3:e6795.
26. Alanzi T, Al-Habib DK. The use of social media by healthcare quality personnel in Saudi Arabia. J Environ Public Health. 2020;2020:1417478.

27. Larsen DM, Boscardin CK, Sparks MA. Engagement in free open access medical education by US nephrology fellows. Clin J Am Soc Nephrol. 2023;18:573–80.
28. Ma TW, Leung L, Martin R, Mandrusiak A, Forbes R. A great tool to open your eyes: new graduate physiotherapists' perceptions and use of social media for learning. Physiother Theor Pract. 2024:40:2038–50.
29. Rossettini G, Cook C, Palese A, Pillastrini P, Turolla A. Pros and cons of using artificial intelligence chatbots for musculoskeletal rehabilitation management. J Orthop Sports Phys Ther. 2023;53:728–34.
30. Rolls K, Hansen M, Jackson D, Elliott D. How health care professionals use social media to create virtual communities: an integrative review. J Med Internet Res. 2016;18:e166.
31. Moorley C, Chinn T. Using social media for continuous professional development. J Adv Nurs Wiley Online Libr. 2015;71:713–7.
32. Chan TM, Dzara K, Dimeo SP, Bhalerao A, Maggio LA. Social media in knowledge translation and education for physicians and trainees: a scoping review. Perspect Med Educ. 2020;9:20–30.
33. Gagnon M-P, Ngangue P, Payne-Gagnon J, Desmartis M. M-health adoption by healthcare professionals: a systematic review. J Am Med Inf Assoc. 2016;23:212–20.

Publisher's note