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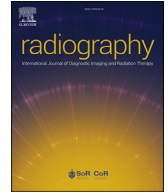
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Radiographers use of social media - SoMe in a Nordic perspective

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ABSTRACT

Introduction: Social media (SoMe) is widely used as a communication platform in everyday life. Also, healthcare professionals have embraced SoMe as a communication tool for both peers and patients. It is becoming an interactive tool for discussing professionals' issues and a place where learning and education occur. This study explores the specific patterns of SoMe use for radiographers' in the Nordic countries. The aim of this survey was to investigate radiographers use of social platforms in a professional setting.

Methods: A 29-item survey was prepared, and pilot-tested. The survey was produced in Danish a language that all Nordic countries master. In general, most Nordic languages are very similar. The survey was distributed by online platforms such as Facebook, LinkedIn, Twitter/X, and also distributed by newsletters by the Norwegian and Danish national radiographers societies. All data was collected anonymously. An Ethical Research approval was obtained from the University of Southern Denmark.

Results: A total of 242 respondents completed the survey (Denmark n = 183, Norway n = 48, Sweden n = 8, and n = 3 from other Scandinavian countries). The respondents included 186 females, 52 males and four were undisclosed. On average, the respondents spent approximately 2 h and 23 min daily on SoMe, with 27 min specifically dedicated to content relevant to radiographers. Facebook was the preferred platform with 93 % (n = 226). A total of 5.4 % (n = 13) respondents had experienced contact from patients and/or next of kin, while 92 % (n = 222) reported no such interactions and 2.9 % (n = 7) were undisclosed. A total of 52.8 % (n = 128) used SoMe in relation to courses, conferences, or online meetings. This shows that time spent on content relevant to radiographers imply that SoMe can be a relevant tool for reaching radiographers.

Conclusion: The survey demonstrates radiographers' use of SoMe for personal and professional interest, with Facebook as the preferred social media platform. SoMe were mostly used during courses, conferences, or online meetings with half of the respondent reported using SoMe platforms during working hours. These results underscore the untapped potential of SoMe in professional healthcare settings. Additionally, the study offers insight into current practices, facilitating comparisons to identify trends in SoMe usage within the radiographer community.

Implications for practice: The findings advocate for the strategic use of SoMe by radiographers', emphasizing professional networking and knowledge sharing. However, clear guidelines are necessary to ensure patient confidentiality and data security in these digital interactions.

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Introduction

SoMe is on the rise among both the general public and healthcare professionals. Annually, the number of global users on SoMe

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platforms such as Facebook with approximately 2,910, YouTube with 2,562, WhatsApp with 2,000, Instagram with 1,478, TikTok with 988, LinkedIn with 610, and Twitter/X with 436 million users and the numbers continues to rise.¹

Healthcare professionals increasingly utilise SoMe as a platform for communication and networking, establishing it as an important tool.^{2,3} It facilitates interaction between healthcare professionals

through involvement, sharing, generating, receiving, and communicating on social content. Lawson and Cowling found that SoMe integration into higher education curricula can be used for professional development.⁴ SoMe can be perceived as an augmenting tool enabling radiographers to interact with colleagues, peers, and even connecting with patients.

SoMe can be an instrument across radiography. Research indicates that SoMe platforms are important to increase the public knowledge about health,⁵ by creating a space to connect patients with healthcare professionals. These platforms provide an effective and creative environment for engaging and communicating with patients. The significance of SoMe as a communication tool with patients is highlighted by Halaska et al.⁶ who identified a substantial number of patients expressing the need for access to medical images. They sought a more profound understanding of their medical condition to establish a sense of control and empowerment. Scragg et al. found that radiographers actively engaged with patients using SoMe.⁷ Expanding beyond patient interactions, SoMe increases professional networking, which influenced the directions of research.⁸ The accessibility of SoMe platforms enables radiographers to connect with researchers and peers worldwide and contributes to collaboration and sharing of knowledge to increase the understanding of the radiography profession.

According to the principle of SoMe “participation inequality”, also known as the 90–9–1 rule, an overwhelming majority (90 %) of SoMe users assume a passive role as observers or readers without contributing, the group benefits from the SoMe but prefers no active engagement.^{9,10} A small proportion of 9 % engages to some extent or occasionally. The remaining 1 % accounts for nearly all the activity on SoMe, and includes the highly active users who all create, share, comment, and engage in discussions. An international survey investigated SoMe among healthcare professionals and found that 42 % identified as passive SoMe users, recognising benefits such as staying updated on recent research publications (66 %) and networking (49 %).¹¹ Turner et al. reported in 2022 that 60 % of 115 respondents used SoMe for continuous professional development (CPD) with Facebook as the preferred platform primarily due to accessibility and ease of navigation.¹² Furthermore, studies have investigated radiologists use of SoMe and found 85 % used SoMe in a mix of private and professional purposes,¹³ with Facebook being the most popular platform in general.^{13,14}

In the Nordic countries including Denmark, Norway, Sweden, Iceland, Greenland, and the Faroe Islands, no studies have been published regarding radiographers’ use of SoMe. Therefore, the aim of this survey was to investigate the use of SoMe by radiographers from the Nordic countries in relation to their clinical profession. The secondary objective was to understand the advantages and disadvantages using social platforms as a radiographer.

Materials and methods

Definition

SoMe refers to all forms of free online social communication platforms, where it is possible to create, exchange and share information between users.

The countries included Denmark, Norway, Sweden, Iceland, Greenland, and the Faroe Islands. Due to low number of radiographers in Iceland, Greenland, and the Faroe Islands these countries have been combined into one category to ensure anonymity. There are currently 2,500 active radiographers in Denmark,¹⁵ which includes the Faroe Islands and Greenland. Norway has 2,800¹⁶ and Iceland has 113 active radiographers.¹⁷ Precise numbers from Sweden are not available.

Study design and survey methodology

An online survey was utilised, and data were collected and stored using Research Electronic Data Capture (REDCap) a secure web-based database managed by the Danish Open Patient Data Explorative Network (OPEN).^{18,19}

The survey was developed from three themes identified in the existing SoMe literature. Items, response opportunities including scales were discussed and agreed upon by the author group. The survey included a combination of open and closed questions. The questions included dichotomous response options (yes/no), 10-point Likert scales (ranging from “extremely useful” = 1 to “not useful” = 10), 4-point agreement scales such as “strongly agree, agree, disagree, or strongly disagree” and “never, rarely, sometimes, or often”. When applicable “other” was available as an open free text option, to ensure that the respondents could provide a response if the options were not fully comprehensive. A free text question was available at the end of the survey asking;

“you are welcome to tell us about your experience if you have been contacted by patients and/or relatives on social media”. The free text answers were categorised using thematic analysis to group shared subject findings.

In March 2023, a pilot study was performed to assess comprehensiveness, ethical considerations, and validity of the items. Three Danish radiographers were included in the pilot, and minor changes were incorporated, such as spelling mistakes, assessment of the time to complete the survey, and structure of the items. It was possible to skip questions due to ethical concerns, and as a result, the response rate was below 100 % throughout the study.

Before the survey could begin, an introduction with information about the study aim, confidentiality, and ethical approval was provided. The survey link was open during a period of 10 weeks from late April to mid-July 2023. The survey link was distributed through SoMe profiles of the survey’s authors and by official channels from the Norwegian and Danish National Radiography Societies.

The survey included 29 items in three main sections. The survey was conducted in Danish, a language mutually intelligible across the included Nordic countries (Denmark, Norway, Sweden, Greenland, Iceland, and Faroe Islands). Section 1 included 15 items on personal use of SoMe, frequency, and purpose of SoMe. Section 2 contained seven items on personal information such as age, gender, demographic, radiography specialisation, and educational level. Section 3 included seven items on the type of content shared on social platforms, as well as advantages and disadvantages ([appendix](#)).

Participants

Nordic radiographers were invited to participate in the survey using SoMe platforms such as LinkedIn, Twitter, and Facebook. The Nordic Societies of Radiographers helped distribute the survey. All the authors shared the link on SoMe.

Statistics

The data were analysed using a combination of descriptive statistical analysis and chi-square tests. Categorical values were presented as numbers and percentages. Continuous variables were expressed as mean and standard deviation (S.D.). Comparisons by groups was performed using chi square test for categorical variables. Statistical analyses were performed by Stata version 18.0 (College Station, TX, USA). Values of $p \leq 0.05$ were considered statistically significant.

Ethical approval

The University of Southern Denmark Research Ethics Committee (22/77191) approved this project the 24th of January 2023. All data was anonymised.

Results

Demographics

The survey received a total of 242 responses from the following countries: Denmark n = 183 (75.6 %), Norway n = 48, (19.8 %), Sweden n = 8 (3.3 %) and three (1.3 %) from other Scandinavian countries. A total of 186 females (76.9 %), 52 males (21.5 %), and 4 preferring not to specify their gender (1.6 %).

The overall mean age was 37.7 (S.D. ± 0.85) years, females 37.2 (S.D. ± 0.95) years and for males 39.2 (S.D. ± 1.95) years. Table 1 shows a detailed overview of demographics. Out of the 242 respondents only three reported being a non-SoMe user.

Time spent on SoMe

The respondents estimated spending a mean of 2 h and 23 min daily on SoMe, with 27 min on content relevant to the radiography profession. Facebook was the preferred platform (93 %, n = 226), a detailed overview can be seen in Table 2. Other platforms included Discord, WhatsApp, Telegram, Imgur, Internet Relay Chat, BeReal, Teams and Skype.

Fig. 1 shows that most respondents (41.7 %, n = 101) actively engage on SoMe by creating original posts or content, commenting,

Table 1
Summary of participants demographics.

Variable	n	%
Mean age (years, SD)	37.7 S.D. ± 0.85	
Time per day using SoMe (mean)	2 h 23 min	
Gender		
Female	186	76.9
Male	52	21.5
Prefer not to state	4	1.6
Country		
Denmark	183	75.6
Norway	48	19.8
Sweden	8	3.3
Other	3	1.3
Experience		
Radiography student	49	20.4
0–2 years	21	8.8
3–5 years	36	15.0
6–10 years	43	17.9
11–20 years	38	15.8
More than 20 years	53	22.1
Current place of work		
Radiology	157	64.9
Radiation Therapy	3	1.2
Nuclear Medicine	14	5.8
Educational institution	21	8.7
Other	47	19.4
Employment status		
Management	12	5.0
Radiographer	151	62.4
University college/University	21	8.7
Other including student	58	23.9
Level of education in Radiography		
Diploma	17	7.0
Bachelor	126	52.1
Master/Master of Science/Ph.D	47	19.4
Other including student	52	21.5

Table 2
SoMe platforms characteristics.

Variables	n	%
Overall SoMe ^a		
Facebook	226	93.4
Twitter/X	31	12.8
LinkedIn	90	37.2
Messenger	223	92.2
Instagram	195	80.6
Snapchat	181	74.8
YouTube	155	64.1
TikTok	55	22.7
Pinterest	78	32.2
Reddit	38	15.7
Blogs (passive)	2	0.83
Blogs (active)	5	2.1
I dont use SoMe	3	1.2
Use of SoMe and Radiography ^a		
Facebook	134	55.4
Twitter/X	10	4.1
LinkedIn	44	18.2
Messenger	157	64.9
Instagram	92	38.0
Snapchat	96	39.7
YouTube	29	12.0
TikTok	9	3.7
Pinterest	6	2.5
Reddit	12	5.0
Blogs (passive)	1	0.4
Blogs (active)	2	0.8
I dont use SoMe for work	36	14.9
Have you received any education on use of social media?		
Yes	27	11.2
No	207	85.5
Missing/I dont know	8	3.30
My employer has defined how to use social media		
Yes	89	36.8
No	63	26.0
I dont know	90	37.2
Can social media be a useful tool for sharing information on radiography?		
Yes	193	79.6
No	17	7.0
I dont know	32	13.2
How often do you “like”, “share”, “post” or “re-post” on professional issues?		
Daily	11	4.6
Weekly	51	21.1
Monthly	54	22.3
Rarer	83	34.3
Never	38	15.7
I dont know/missing	5	2.1
When do you use social media in relation to work ^a		
Staff meetings	34	14.1
Professional meetings	43	17.8
Online meetings	56	23.1
Conferences/Congresses	22	9.1
Courses	50	20.6
Other	54	22.3
Do you use social media in the following settings? ^a		
In your own time	196	81.0
During working hours	124	51.2
During travel hours	145	59.9
Everywhere	110	45.5
I dont know/I dont use social media	10	4.1

^a Multiple responses allowed.

or reposting, while 66 (27.3 %) respondents are passive users. This demonstrates that active participation within the radiography profession contributes to accumulate knowledge. Fig. 2 shows that a substantial number of the respondents create general content monthly (30.2 %, n = 73), and almost half (48.3 %, n = 117) never produce radiography-relevant content. Lack of radiography specific SoMe content can potentially hinder the radiography profession's ability to exchange knowledge in an informal way.

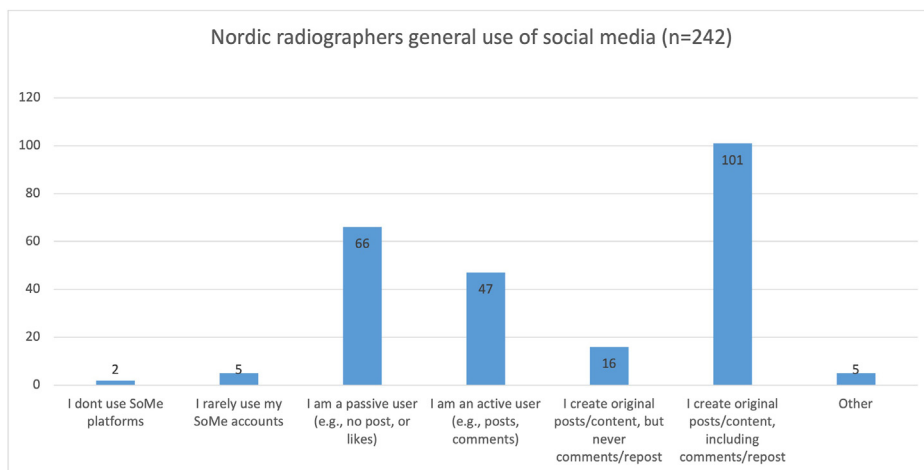


Figure 1. social media among Nordic radiographers.

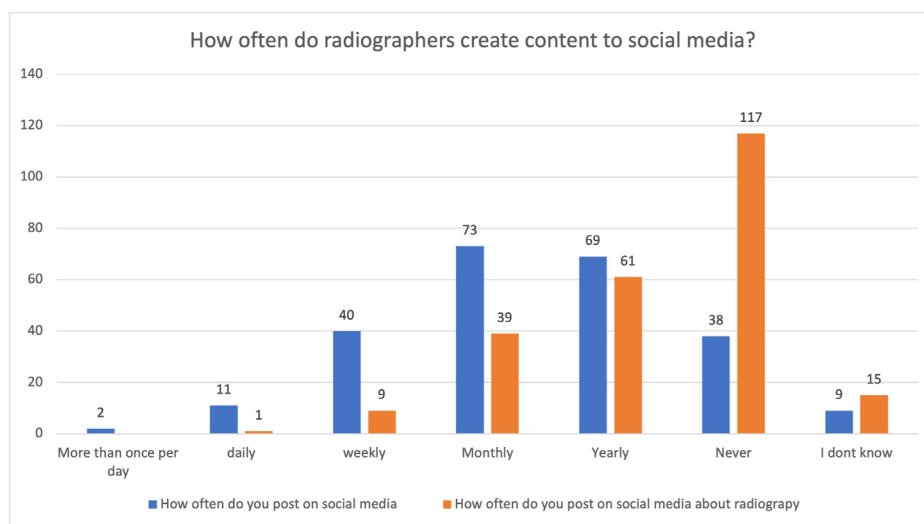


Figure 2. Social media activity among Nordic radiographers.

Opinion on SoMe use

In total, 199 respondents added a free text comment to the question “In your opinion, can social media be used to create knowledge about radiography?”. Of these, three respondents reported having no opinion on this matter, while five expressed negative concerns such as;

“Few of my contacts on social media have an interest in radiography”, “it is difficult using Social media because most often there is no feedback”, “totally overrated and superficial” and “typically very clichéd posts”.

Fifteen respondents reported scepticism;

“Difficult to make relevant posts on social medias ...”, “difficult due to radiography not being a profession as well known as e.g., nursing”, “only useful when done by a professional organ such as a hospital or clinic including references and with a clear neutral facts.

Most of the respondents (n = 176) reported being positive of the use of SoMe;

“Good for recruitment”, “useful to give information to colleagues and patients”, “useful for developing countries when access to literature is unavailable”, “good to show the difference between radiography and nursing”.

Radiographers reported they thought that SoMe will be used more in the future compared to today (n = 58, 24.0%), at the same level as today (n = 110, 45.5%), less (n = 12, 5.0%), and did not know (n = 62, 25.6%). Table 5 shows a score on the likelihood of respondents sharing photos in various clinical settings and the figure demonstrates that the respondents overall are unlikely to share photos from clinical practice.

Advantages and disadvantages using SoMe as a radiographer

Table 3 shows the respondents perception about advantages and disadvantages using social media and the findings showed mixed opinions among radiographers on professional SoMe use, reporting benefits like accessing scientific articles and event updates, and downsides such as time drain, colleague criticism, and patient interaction concerns. Trust in SoMe information differs,

Table 3
Advantages and disadvantages using social media.

Variables	≤35 years old (n = 126)		>35 years old (n = 110)		Chi2 p
	n	(%)	n	%	
I find scientific article using SoMe platforms					0.234
Strongly agree	5	(4.0)	11	(10.0)	
Agree	54	(42.9)	51	(46.4)	
Disagree	36	(28.6)	22	(20.0)	
Strongly disagree	24	(19.1)	22	(20.0)	
I dont know	7	(5.6)	4	(3.6)	
I read scientific articles using SoMe platforms					0.819
Strongly agree	10	(7.9)	14	(12.7)	
Agree	64	(50.8)	54	(49.1)	
Disagree	27	(21.4)	21	(19.1)	
Strongly disagree	20	(15.8)	17	(15.5)	
I dont know	5	(4.0)	4	(3.6)	
I trust information from SoMe platforms					0.484
Strongly agree	2	(1.6)	2	(1.6)	
Agree	27	(21.4)	20	(18.3)	
Disagree	51	(40.5)	56	(51.4)	
Strongly disagree	20	(15.9)	16	(14.7)	
I dont know	26	(20.6)	15	(13.8)	
I gain information about courses and conferences from SoMe					0.016
Strongly agree	18	(14.3)	20	(18.2)	
Agree	51	(40.5)	63	(57.3)	
Disagree	31	(24.6)	11	(10.0)	
Strongly disagree	19	(15.1)	12	(10.9)	
I dont know	7	(5.6)	4	(3.6)	
I get information from radiography societies via SoMe					0.903
Strongly agree	22	(17.6)	17	(15.5)	
Agree	59	(47.2)	58	(52.7)	
Disagree	20	(16.0)	14	(12.7)	
Strongly disagree	17	(13.6)	14	(12.7)	
I dont know	7	(5.6)	7	(6.4)	
I get information from my employer on SoMe					0.073
Strongly agree	8	(6.5)	6	(5.5)	
Agree	35	(28.2)	43	(39.5)	
Disagree	47	(37.9)	30	(27.5)	
Strongly disagree	25	(20.2)	28	(25.7)	
I dont know	9	(7.3)	2	(1.8)	
It is very time consuming creating content for SoMe					0.173
Strongly agree	3	(2.4)	4	(3.7)	
Agree	22	(17.6)	17	(15.6)	
Disagree	31	(24.8)	41	(37.6)	
Strongly disagree	12	(9.6)	12	(11.0)	
I dont know	57	(45.6)	35	(32.1)	
I am worried that patients will contact me on SoMe platforms					0.695
Strongly agree	6	(4.8)	4	(3.6)	
Agree	17	(13.6)	11	(10.0)	
Disagree	42	(33.6)	32	(29.1)	
Strongly disagree	45	(36.0)	46	(41.8)	
I dont know	15	(12.0)	17	(15.5)	
I am worried about negative comments from my colleagues on SoMe					0.395
Strongly agree	1	(0.8)	2	(1.8)	
Agree	12	(9.7)	12	(10.9)	
Disagree	39	(31.5)	43	(39.1)	
Strongly disagree	56	(45.2)	36	(32.7)	
I dont know	16	(12.9)	17	(15.5)	
I dont have time to create content on SoMe about radiography					0.219
Strongly agree	31	(16.8)	14	(27.5)	
Agree	48	(26.0)	16	(31.4)	
Disagree	69	(37.3)	15	(29.4)	
Strongly disagree	14	(7.6)	1	(1.9)	
I dont know	23	(12.4)	5	(9.8)	

underscoring the need for deeper insight into its pros and cons in radiography. When considering responses categorised as not likely (1, 2 and 3) between 86 and 93 % of the radiographers were unlikely to share any posts or images related to patients or colleagues.

There are no significant differences in the behaviour of SoMe between different participant age groups. The respondents did not report behaviours including posting patient data, unauthorised photo, SoMe use affecting patients interaction, or missing needed assistance due to SoMe engagement during work (Table 4).

Hashtag use

The hashtag “#” on SoMe is used to identify specific content or topics as well as to group related posts under a common theme, topic or event. Hashtags related to the radiography profession had limited use among the respondents, with most reporting their usage of radiography-related hashtags; always (n = 15, 6.2 %), sometimes (n = 28, 11.6 %), rarely (n = 35, 14.5 %) or never (n = 144, 59.5 %). Radiography relevant hashtags were reported as;

“#MRI”, “#radiography”, “#radiographer”, “#hospitalname”, “#co-authorname”, “#X-ray”, “#CT”, “#radtech”, “#medical-technologist”, “#radiology”, “#nameofradiographersociety”, “#healthcareworker”, “#reportingradiographer”, “#department-name”, “#EFRS”, “#radiographyJournal”, “#newknowledge”, “#imaging”, “#radiationprotection”, “#nuclearmedicine”, and “#sonographer”.

The reasons respondents reported using hashtags included targeting a specific group (n = 23, 9.5 %), increasing outreach (n = 33, 13.6 %), considering hashtag as a standard normal practice (n = 17, 7.0 %), and expectations from the employer (n = 2, 0.8 %), and 69.0 % (n = 167) reported don't know.

Patient contact via SoMe

The majority of respondents have not been contacted or use SoMe to contact patients and/or associated relatives (92.9 %, n = 222). A few (n = 8, 3.3 %) reported patients sending or receiving a friend request via SoMe (Fig. 3). One respondent reported being Facebook friends with a patient, and the patient had asked some questions about an upcoming scan.

Discussion

In this study 97.1 % (n = 235) of respondents used SoMe and 39 % (n = 73) created content about radiography monthly. We had 1.2 % reported to not using SoMe, other studies have also found similar results, e.g. a survey on Turkish radiology residents found that 5.7 % did not use any SoMe,²⁰ and a survey on healthcare professionals from the US reported between 8.8 and 15.9 % not using SoMe platforms.²¹

The popularity of specific types of SoMe platforms varies across countries, e.g., radiographers in the UK seem to favor Twitter/X,²² whereas WhatsApp is popular among radiographers in Saudi Arabia,^{23,24} and in France, Facebook is very popular.²⁵ However, preferences can differ as Panda et al. reported minimal use of Twitter/X in nuclear medicine,²⁶ while Waqas et al. found that neurosurgery trainees mostly utilized Facebook.²⁷ In this study the preferred SoMe platform was Facebook, with 93 % (n = 226) of the respondent as users. Lawson and Cowling highlight Facebook advantage due to the largest number of users.⁴ Differences in SoMe platform popularity among radiographers arises from regional and cultural preferences, e.g., UK favors Twitter/X, and France leans toward Facebook. Facebook emerged as the preferred SoMe platform for 93 % of the respondents, and the choice of SoMe may reflect the communication habits and preferences. Perhaps the familiarity, free of charge, and ease of access to Facebook appeal to the respondents from this study.

Overall, the Nordic respondents spend more than 2 hours daily on SoMe. It has previously been reported that spending 2 hours per day in an American study,²⁸ whilst another study found a median of 5 hours per week, and only 49.5 % of the respondents used Facebook.¹¹ Hijils et al. found that half of the radiographer respondent

Table 4
Observation on how SoMe is used among peers and colleagues

Variables	≤35 years old (n = 126)		>35 years old (n = 110)		Chi2
	n	(%)	n	%	p
Have you experienced SoMe post(s) by colleagues containing patient information					0.134
Very often			–		
Often	2	(1.63)			
Rarely	15	(12.2)	16	(14.7)	
Very rarely	90	(73.2)	69	(63.3)	
I dont know	16	(13.0)	24	(22.0)	
Have you experienced colleagues share photos of you in your work place without your consent					0.161
Very often	1	(0.8)	1	(0.9)	
Often	1	(0.8)	1	(0.9)	
Rarely	14	(11.4)	17	(15.6)	
Very rarely	91	(74.0)	64	(58.7)	
I dont know	16	(13.0)	26	(23.9)	
Have you experienced colleagues use of SoMe during working hours influence patient contact					0.075
Very often	1	(0.8)	3	(2.8)	
Often	7	(5.7)	10	(9.2)	
Rarely	37	(30.1)	29	(26.6)	
Very rarely	65	(52.9)	44	(40.4)	
I dont know	13	(10.6)	23	(21.1)	
Have you experienced colleagues use of SoMe during working hours has resulting in them not realizing that you need some help					0.123
Very often	2	(1.6)	4	(3.7)	
Often	21	(17.2)	17	(15.6)	
Rarely	40	(32.8)	23	(21.1)	
Very rarely	45	(36.9)	42	(38.5)	
I dont know	14	(11.5)	23	(21.1)	

Table 5
Ranking from a scale from 1 to 10, where 1 is lowest probability, and 10 is highest probability).

Ranking	Score
Sharing X-ray images on a mobile device with colleagues	1.9
Sharing an anonymised X-ray image on SoMe	1.6
Sharing anonymised X-ray image with patient consent	1.8
Sharing a photo from your clinical everyday life on SoMe	2.7
Post a patient comment said during examination	1.3
Sharing photos from professional meetings without asking permission	1.4
Sharing photos from online meetings without asking permission	1.2
Sharing photos from common areas in the work place	3.1
sharing photos of radiography students	1.4

used SoMe more than 3 hours daily,²³ Alanzi and Alshahrani reported 47.4 % of the respondents used SoMe multiple times a day.²⁴ A recent study from 2022 reported on average 5 hours per week, with some individuals dedicating more than 30 hours per week to SoMe.¹¹ An international survey found 79 % of the respondents used ≤1 hour per day on SoMe on professional issues.²⁹ These variations indicate both a regional and cultural SoMe difference among healthcare professionals, but also motivations behind usage and to the extent to which SoMe contributes to professional development and networking. Spending time on SoMe content of professional development or education may indicate an active approach to learn or keep up to date within the field. Also, a survey study from the US

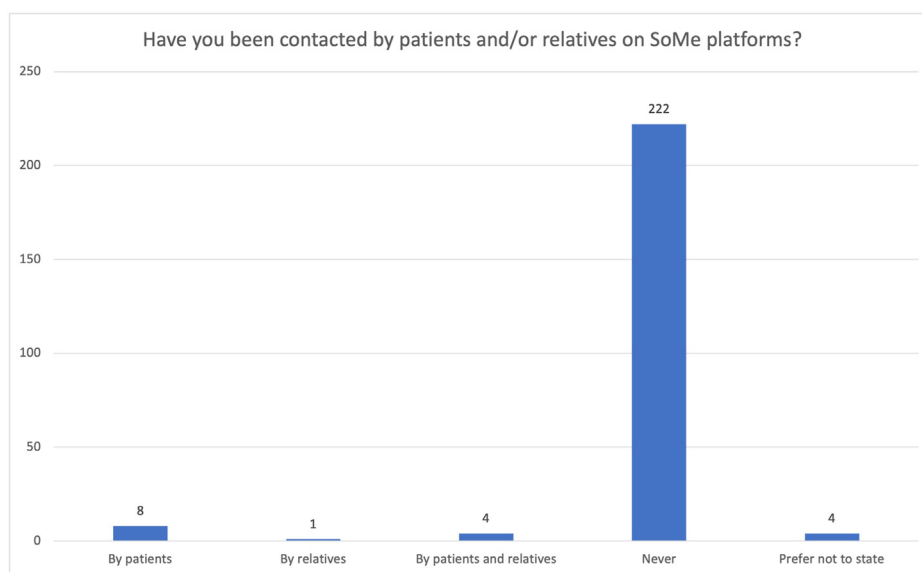


Figure 3. Experience of contact through Social Media platforms.

on 366 healthcare workers reported spending 1 hour on SoMe in 2017, and that healthcare workers below 40 years old were more involved in SoMe.²¹ Yet, in the current study, we found no difference between respondents ≤ 35 years old.

There is mixed evidence on the view of health care professionals using social media to create educational content and whether this is unprofessional behavior. A systematic review found a significant rise in unprofessional SoMe behaviour among healthcare professionals.³⁰

Garg et al. investigated risks associated with SoMe among emergency medicine residents, and found that awareness of risks encourages responsible posts on SoMe, with 26 % of the residents reported having posted identifiable patient information,³¹ indicating a significant and serious concern that warrants careful attention and responsible SoMe practices within the medical community. Another survey found 18 % of unprofessional content on SoMe,³² which is also a very high number and a cause for concern. The respondents reported that it is very unlikely for them to share and/or create SoMe content with patients, colleagues, or students. Similar results were seen in an Australian study investigating medical radiation practitioners where no participants reported unprofessional behaviour.¹² It is also worth noticing that if someone has posted unprofessional content on SoMe, one study finds that this will predict similar future behaviour.³² To put it differently, past action serves as a reliable predictor of future behavior.

Engagement with SoMe, whether as a passive, active, or highly active user, has the potential to facilitate sharing of knowledge. This includes the opportunity to communicate with patients, peers, stakeholders, or politicians about radiography-related topics. Our findings align with the SoMe 90-9-1 rule, demonstrating that individuals, regardless of their choice to be active or passive users, contribute to enhancing knowledge within the radiography community through their SoMe engagement. This can be seen by e.g., use of hashtag relevant for radiography. The number of different hashtags (25 individual hashtags) indicated that SoMe activity often occurs, even though 46 % ($n = 112$) agreed or strongly agreed not having time to post on SoMe. Studies have found the hashtag #radiology very popular.³³ Hashtags are used worldwide, and there can be both official and unofficial labels. Studies have found that hashtags increased visibility for a given topic, and hashtags for meetings should be provided by the organisers to have an impact.^{34,35}

Some of the respondents reported receiving Facebook “friend requests” from patients, a phenomenon not limited to radiography but also observed among other healthcare professionals.³⁶ SoMe provides a platform for actively engaging with patients.²⁹ While Twitter/X is one of the largest SoMe platforms for medical professionals globally,³⁷ its usage appears less widespread in Nordic countries. For instance, among our respondents, a total of 31 reported having a Twitter/X account, and 10 of them used it for radiography-related professional topics. Turner et al. emphasised Facebook as the most commonly utilized platform for continuous professional development across SoMe¹²

This study highlights the balance radiographers maintain on SoMe platforms, navigating between professional development and ethical boundaries, particularly concerning patient privacy. While platforms like Facebook are prominent for networking and learning, the reluctance to post medical content highlights a conscious, yet possibly informal, adherence to ethical standards. This suggests a need for explicit institutional guidelines and education on digital professionalism. As the digital and healthcare realms increasingly intersect, clear policies are essential to uphold professional integrity and patient trust.

In terms of SoMe rules in workplace settings, Scragg and colleagues found that practitioners operate within the frameworks of their employer, their professional body and the healthcare system, which all have their own rules about staff's use of SoMe, leading to confusion.³⁸ We found that 37 % knew the standards set by their employer, but unfortunately, 26 % had no knowledge of standards, regulations, or rules, and 37 % reported they were not aware of any rules. This finding indicates a relatively high percentage of respondents who were unaware of the regulations, and it emphasizes a need for communication of guidelines to avoid confusion.

Limitations and strengths

This is the first study of this kind in Nordic countries with a good sample size. There is a risk of overrepresentation of SoMe-active radiographers as the survey was distributed through online newsletters, private SoMe accounts, by the Danish and Norwegian Radiography national societies and by several social media platforms which gives a risk of selection bias. Furthermore, although Danish is understood in the Nordic countries included in this study, respondents may have preferred their native language for clarity and comfort, possibly with the risk of skewing the data towards those more fluent in Danish. This factor could impact the diversity of input and the applicability of findings across the broader Nordic radiography community. Caution is needed when generalising the results from the survey to the rest of the radiographic profession, as the survey involved Nordic countries with a majority of participants from Denmark and Norway. With 77 % of the respondents being female the sample reflected the typical gender composition in Nordic clinical departments. However, many other studies on professional issues have a higher female response rate.²³ Furthermore, it should be considered that not all respondents may disclose whether they have posted or shared content compromising the privacy of patients and/or colleagues.

Conclusion

The survey shows that radiographers use SoMe for both private and professional interests. Facebook was the preferred social media platform. SoMe was primarily used during courses, and half of the respondents reported using SoMe platforms during working hours, but time spent on SoMe with radiography content was very present. Nordic radiographers reported using SoMe in an ethical responsible manner, ensuring no risk of exposing patients or colleagues. These findings point to untapped potential for SoMe in professional healthcare settings.

Conflict of interest statement

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.radi.2024.01.015>.

References

1. Global social networks ranked by number of users 2023. 2023. cited 2023; Available from: <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>.
2. Moorhead SA, Hazlett DE, Harrison L, Carroll JK, Irwin A, Hoving C. A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *J Med Internet Res* 2013;**15**:e85.
3. von Muhlen M, Ohno-Machado L. Reviewing social media use by clinicians. *J Am Med Inform Assoc* 2012;**19**:777–81.
4. Lawson C, Cowling C. Social media: the next frontier for professional development in radiography. *Radiography* 2015;**21**:e74–80.
5. Farsi D. Social media and health care, Part I: literature review of social media use by health care providers. *J Med Internet Res* 2021;**23**:e23205.
6. Halaska C, Sach P, Sanfilippo K, Lin C-T. Patient attitudes about viewing their radiology images online: preintervention survey. *J Med Internet Res* 2019;**21**:e12595.
7. Scragg B, Shaikh S, Shires G, Hodgins JS, Mercer C, Robinson L, et al. An exploration of mammographers' attitudes towards the use of social media for providing breast screening information to clients*. *Radiography* 2017;**23**:249–55.
8. Bolderston A, Watson J, Woznitza N, Westerink A, Di Prospero L, Currie G, et al. Twitter journal clubs and continuing professional development: An analysis of a #MedRadJClub tweet chat. *Radiography* 2018;**24**:3–8.
9. Participation inequality. 2023 [cited 2023 27th of September]; Available from: https://en.wikipedia.org/wiki/Participation_inequality.
10. Nielsen J. The 90-9-1 rule for participation inequality in Social Media and online communities. 2006 [cited 2023 27th of September]; Available from: <https://www.nngroup.com/articles/participation-inequality/>.
11. Guerra F, Linz D, Rodrigue R, Kommata V, Kosiuk J, Chun J, et al. The use of social media for professional purposes by healthcare professionals: the #intEHRAct survey. *Europace* 2022;**24**:691–6.
12. Turner M, Morasi S, Mrsnik-Hamdi M, Shanahan M. Collaborative learning in the professional development of medical radiation practitioners. *Journal of Medical Radiation Sciences* 2022;**69**:156–64.
13. Ranschaert ER, Van Ooijen PMA, McGinty GB, Parizel PM. Radiologists' usage of social media: results of the RANSOM survey. *J Digit Imag* 2016;**29**:443–9.
14. Glover M, Choy G, Boland GW, Saini S, Prabhakar AM. Radiology and social media: are private practice radiology groups more social than academic radiology departments? *J Am Coll Radiol* 2015;**12**:513–8.
15. Radiografrådet. Medlemstal 2023. Available from: <https://allefagforeninger.dk/radiograf-radet/>.
16. Norsk radiograf forbund - Norwegian society of radiographers, in jubileumsma-gasin. 2023.
17. World Data Atlas. Iceland- radiographers. 2009. Available from: <https://knoema.com/atlas/Iceland/topics/Health/Human-Resources-for-Health/Radiographers>.
18. Harris PA, Taylor R, Monor BL, Elliott V, Fernandez M, O'Neal L, et al. The REDCap consortium: building an international community of software platform partners. *J Biomed Inf* 2019;**95**:103208.
19. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inf* 2009;**42**:377–81.
20. Ozutemiz C, Dicle O, Koremezli N. How Turkish radiology residents access information related to their profession in this social media and smartphone era. *Eur J Radiol Open* 2015;**2**:129–33.
21. Surani Z, Hirani R, Elias A, Quisenberry L, Varon J, Surani S, et al. Social media usage among health care providers. *BMC Res Notes* 2017;**10**:654.
22. Bolderston A, Watson J, Woznitza N, Westering A, Di Prospero L, Currie G, Beardmore C. Twitter journal clubs and continuing professional development: an analysis of a #MedRadJClub tweet chat. *Radiography* 2018;**24**:3–8.
23. Hijlis S-A, Alanzi T, Alanezib F, Alhodaib H, Althumairia A, Aljaffary A, et al. Use of social media for the improvement of radiation safety knowledge among Saudi Arabian radiographers. *International Health* 2022;**14**:280–7.
24. Alanzi TM, Alshahrani B. Use of social media in the Department of radiology at Johns Hopkins Aramco healthcare in Saudi Arabia. *J Multidiscip Healthc* 2018;**11**:583–9.
25. Bibault T, Leroy J-E, Blanchard P, Biau J, Cervellera M, Diaz O, Faivre JC, et al. Mobile technology and social media in the clinical practice of young radiation oncologists: results of a comprehensive nationwide cross-sectional study. *Int J Radiat Oncol Biol Phys* 2014;**90**:231–7.
26. Panda A, Sharma A, Dundar A, Packard A, Aase L, Kotsenas A, et al. Twitter use by academic nuclear medicine programs: pilot content analysis study. *JMIR Form Res* 2021;**5**:e24448.
27. Waqas M, Gong AD, Dossani RH, Cappuzzo JM, Rho K, Lim J, et al. Social media use among neurosurgery trainees: a Survey of north American training programs. *World Neurosurg* 2021;**154**:e605–15.
28. How much time does the average person spend on social media?. 2020 [cited 2023 27th of September]; Available from: <https://www.digitalmarketing.org/blog/how-much-time-does-the-average-person-spend-on-social-media>.
29. Morgan G, Tagliamento M, Lambertini M, Devnani B, Westphalen B, Dienstmann R, et al. Impact of COVID-19 on social media as perceived by the oncology community: results from a survey in collaboration with the European Society for Medical Oncology (ESMO) and the OncoAlert Network. *ESMO Open* 2021;**2**:100104.
30. Guraya SS, Guraya SY, Yusoff MSB. Preserving professional identities, behaviors, and values in digital professionalism using social networking sites; a systematic review. *BMC Med Educ* 2021;**21**:381.
31. Garg M, Pearson DA, Bondi MC, Runyon M, Pillow MT, Hopson L, et al. Survey of Individual and institutional risk Associated with the Use of social media. *West J Emerg Med* 2016;**17**:344–9.
32. Koo K, Bowman MS, Ficko Z, Gormley EA. Older and wiser? Changes in un-professional content on urologists' social media after transition from residency to practice. *BJU Int* 2018;**122**(2):337–43.
33. Kauffman L, Weisberg EM, Zember WF, Fishma EK. Twitter and radiology: everything you wanted to know about #RadTwitter but were afraid to ask. *Curr Probl Diagn Radiol* 2022;**51**(1):12–6.
34. Ziemba YC, Razzano D, Allen TC, Booth AL, Anderson SR, Champeaux A, et al. Social media Engagement at academic conferences: report of the association of pathology chairs 2018 and 2019 annual meeting social media committee. *Academic Pathology* 2020;**7**:2374289520934019.
35. Nawaz FA, Riaz MMA, Tsagkaris C, Faisal UH, Klager E, Kletecha-Pulkeret M, et al. Impact of #PsychTwitter in promoting global psychiatry: a hashtag analysis study. *Front Public Health* 2023;**11**:1065368.
36. Moubarak G, Guiot A, Benhamou Y, Benhamou A, Hariri S, et al. Facebook activity of residents and fellows and its impact on the doctor-patient relationship. *J Med Ethics* 2011;**37**(2):101–4.
37. Matalon SA, Kassin MT, Malayeri AA. Precision twitter: using twitter for professional advancement. *Radiographics* 2021;**41**(6):E169–70.
38. Scragg B, Shaikh S, Robinson L, Mercer C. Mixed messages: an evaluation of NHS trust social media policies in the north west of England. *Radiography* 2017;**23**:235–41.