Original Article

Developing a professional guideline for the use of cyberspace by health-care professionals in Iran: a mixed methods study

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Abstract

The present study aimed to compile and develop a professional guideline for health-care providers in Iran regarding cyberspace usage. This was a mixed-methods study, conducted in three phases. In the first phase, the principles of ethics in cyberspace were collected through a review of the literature and available documents, and were then subjected to content analysis. In the second phase, the views of experts on medical ethics, virtual education, information technology and medical education, as well as clinical sciences experts and representatives of medical students and graduates were evaluated using the focus group method. In the third phase, the draft was evaluated by various stakeholders. Finally, after receiving the comments, the necessary modifications were applied to the guideline.

The professional guideline for the use of cyberspace by health-care professionals comprised 30 codes in 5 domains, including the general regulations domain, care and treatment, research, education, and personal development.

This guideline presents the various ways professionalism can be maintained in cyberspace interactions. Adherence to the principles of professionalism in cyberspace is required to protect and preserve the public trust in health-care professionals.

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Introduction

In recent years, there has been an ever-growing trend of using cyberspace in medicine (1). Cyberspace is characterised by the ability for the virtual presence of, and interaction between, people through 'icons, waypoints and artificial realities' in the virtual world (2). The process of teaching, learning, patient education and therapeutic care through online communities has become rather common, and therefore cannot be separated from cyberspace (3). Health-care professionals (HCPs) can use online social media to engage the public in health activities, involve them in decision-making, and facilitate their access to medical information and services (4). The results of recent studies suggest that HCPs are using digital media and social networking all the time more, for instance in virtual triage or assessments, therapeutic care via online platforms, and building online learning communities.

Despite the growing interest in cyberspace and the virtual world, various concerns regarding the principles of professional conduct remain unsolved, even as they may result in unexpected ethical dilemmas (5, 6). Studies have found that professional misconduct in cyberspace may have detrimental effects on the relationship of HCPs with patients and colleagues, threaten the future of their careers (7), and also damage the general public's trust in the medical profession and staff (8). In order to address such concerns, ethical standards need to be developed for different professions (9 - 11). Teaching professionalism has been one of the most important priorities of the health sector in recent decades (12); nevertheless, unethical and unprofessional behaviors such as blurring the boundaries between professional and personal spheres on user profiles, publishing selfie images with cadavers in cyberspace, and non-anonymous distribution of patients' photos on social media have dramatically damaged the reputation of HCPs (13, 14) and decreased the public's trust in health-care professionals (15, 16). Attention to medical commitments in this vast online space with diverse virtual capabilities underlines the necessity of developing a guideline to direct health-care professionals and learners toward observing professionalism in cyberspace.

Various guidelines have been developed about the professionalism of HCPs in Iran in recent years (17 - 20), but information regarding ethical codes within the cyberspace remain rather limited. Furthemore, even though there are a few clear-cut

lapses in professionalism that have been published online by HCPs, many more circumstances currently fall into a grey zone and further discussion among different stakeholders is required before reaching a specific consensus. To ensure stakeholders' commitment to implementation of the professional guideline in practice, it is important to involve them them in the development of the the guideline (17). Moreover, since affected professionals may aspire to design an institutional guideline for improving the professional development of HCPs, this paper could be of interest to international readers and stakeholders to gain insight and draw conclusions regarding how such guidelines can be designed, modified, and applied within their own institutional context. This study aimed to compile and develop a cyberethics guideline for health-care professionals in Iran.

Methods

The aim of this study was to compile and develop a professional guideline for the use of cyberspace by health-care professionals in Iran. This study was conducted in three phases, including a review of the literature, exploring the perspectives of experts, and assessing the views of stakeholders. The details of these methods are presented in Table 1.

Table 1. Details of the phases of developing a professional guideline for the use of cyberspace by HCPs

Phase 1: Reviewing the literature
- Reviewing the literature using content analysis
- Categorizing concepts and converting concepts to professional codes
Phase 2: Exploring the perspectives of experts
- Determining the inclusion criteria for experts
- Inviting experts from different fields of medical ethics, virtual education, information technology, clinician and medical education, as well as representatives of medical students and graduates
- focus group sessions
- Analyzing and modifying the draft according to the views of experts
Phase 3: Assessing the views of stakeholders
- Issuing a formal announcement for receiving stakeholders' comments and modifying the draft
- Approval and dissemination of the guideline

Phase 1: Literature Review

In this phase, a review of the literature was conducted, comprising of two steps. A narrative review of the literature was conducted using the following keywords in Eric, PubMed, SID and Google Scholar between 2005 and 2017: (cyberethics) OR (cyber ethical behavior) AND (Health-care professional*) OR (Medical sciences professional*) AND (Guideline) OR (Guide). The purpose of this search was to find out whether there are existing guidelines that could help to develop or validate professional behaviors in cyberspace for

health-care professions. Languages were limited to English and Persian (Figure 1). Gray literature was identified for conference abstracts, and by searching other databases of information retrieval research accrued over the years, including material such as guidelines set out by the American Medical Association (AMA), Canadian Federation of Medical Students (CFMS), Canadian Medical Association (CMA), Flurida State University (FUS), Australian and New Zealand Medical Associations (AMA and NZMA), Indiana University, etc. The search strategy was initially developed by one author (M.K.), while review and analysis were carried out by two other authors (M.KM. & Z.J.). Data extraction was performed by one reviewer (Z.J.) and verified by two reviewers (M.KM. & M.K.). Thematic content analysis was applied to assess the retrieved documents and continued until data saturation was achieved and no new data emerged.

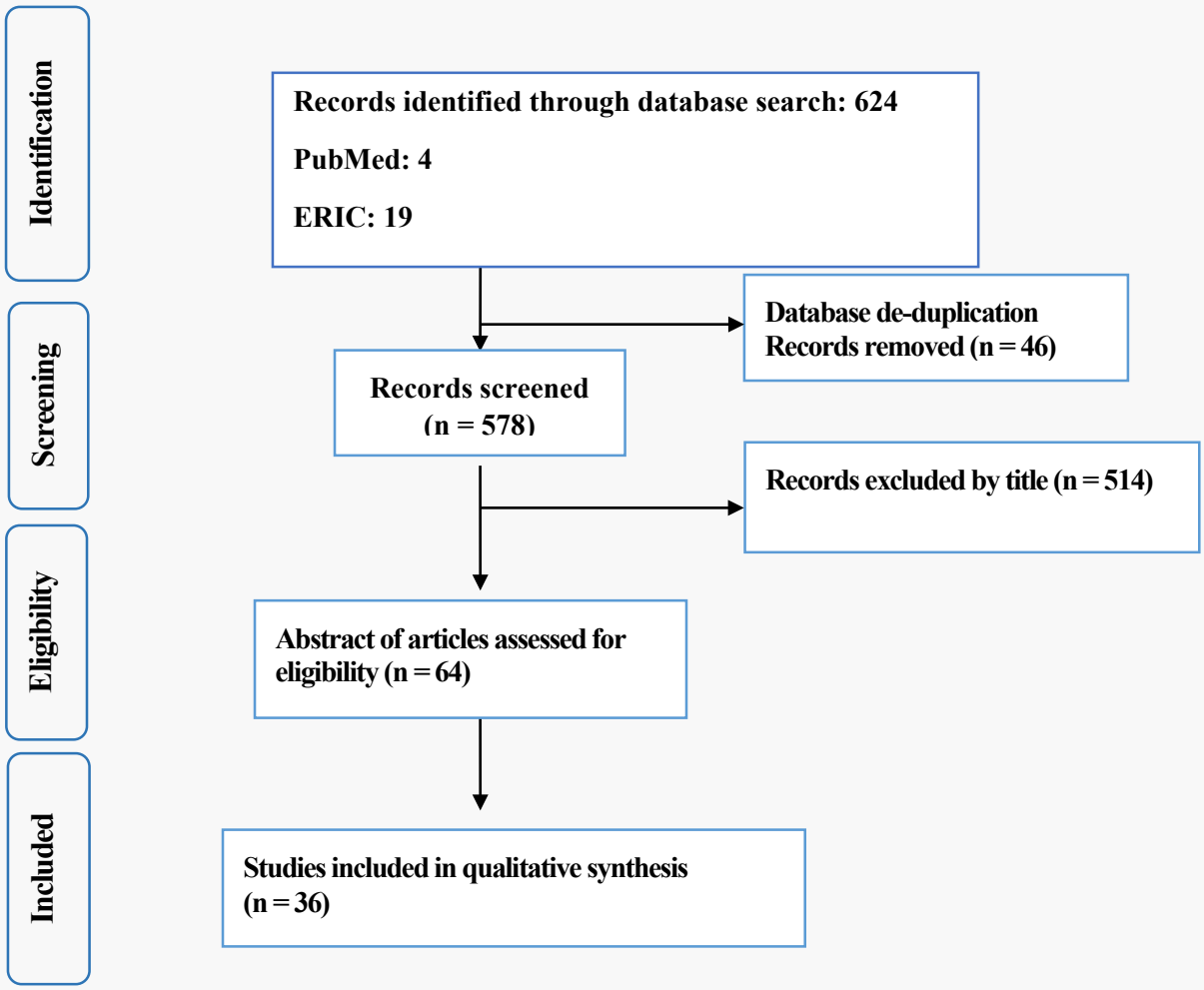

Figure 1: An overview of the literature searches and retrieving articles

The emerged meaning units of literatures were coded based on the concepts of professional ethics in cyberspace inductively. Then, the extracted codes were analyzed primarily grounded in the data by a task force that consisted of three experts (a medical ethics expert, a medical education expert, and a clinician) (22). Members of the task force were selected based on their experiences in the field of cyberethics. This process created a total of 146 initial codes. After summarizing relevant concepts, 43 extracted codes were obtained, which were classified into five categories: general regulations, care and treatment, research, education, and personal development.

Phase 2: Exploring the perspectives of experts

In this phase, the experts' perspectives were evaluated through focus group sessions. Nine experts, who were from different fields of medical ethics, e-learning, information technology and medical education, as well as a clinician participated in the sessions. In addition, one student who had spent more than 4 semesters in university and one early graduate were also invited to join the focus group. The experts had a minimum of five-years' experience in research or educational activities in the mentioned fields. The experts' views were evaluated in four focus groups, and an experienced moderator led the group discussions. During these sessions, the participants discussed the clarity, validity, importance and applicability of each comment. All focus groups were tape-recorded and transcribed. Analysis of the focus group data was conducted by a member of the research team (M.KM) using directed content analysis based on five domains of the prior phase. To verify the extracted codes, they were sent to the experts who had attended the focus groups. Several reminder emails were sent for one month to prevent attrition. After receiving the comments of ten experts, the task force revised the codes accordingly.

Phase 3: Assessing the views of stakeholders

Based on reviews of the literature and focus group results, the task force generated 30 ethical codes in five main domains that HCPs should consider prior to using the cyberspace. To receive the views of a variety of stakeholders including faculty members, managers, educational planners, etc., several announcements were posted on the official website of the university. Thirty-six stakeholders returned a survey form in which they provided their comments qualitatively via an academic email. The stakeholders were asked to present the reason as to why they thought an item was not acceptable or

applicable. The comments were summarized by the task force to revise the final draft of the guideline. The final draft of the "Professional Guideline for the Use of Cyberspace by Health-Care Professionals" was presented and approved at Tehran University of Medical Sciences (TUMS). After approval, the guide was disseminated via the TUMS website and emailed to all faculty members.

Ethical Considerations

Participation in the project was voluntary, but encouraged through incentives such as certifications and gifts. Each participant provided consent to take part in the project, and confidentiality of the responses was mentioned at the beginning of each meeting. The project was approved by the research ethics committee of Tehran University of Medical Sciences under license number 94-03-74-29906.

Results

The guideline was formulated in 5 domains including general regulations of professional conduct in cyberspace (10 codes), care and treatment (11 codes), research (3 codes), education (3 codes), and personal development (3 codes). Table 2 presents a summary of the professional guideline for the use of cyberspace by health-care professionals that can be used as a framework.

Table 2. A professional guideline for the use of cyberspace by HCPs

Category	Codes
General regulations of professional conduct in cyberspace	
1	Commit to upholding the dignity of the medical profession and preserving and protecting public trust in medical professionals: • Never publish personal images in violation of medical values on professional medical websites, including personal images indicating involvement in unlawful activities. • Maintain an appearance and attire in line with the values of the medical profession. • Prevent spreading rumors, slandering, and propagating any untruthful information in cyberspace causing damage to public trust in medical professionals, and consider honesty and truthfulness in presenting information.
2	Refrain from using unethical and aggressive words and propagating any discriminatory or insulting expressions against different ethnicities, genders, cultural and religious beliefs, etc. in cyberspace.
3	Avoid making judgments and decisions about different topics raised in online environments before making sure of the accuracy of the published information.
4	Respect copyright laws in online environments, avoid any kind of deceitful act or plagiarism in cyberspace, and assume responsibility for the materials published in the cyber world.
5	Keep the information updated and ensure it's security in cyberspace and act responsibly in this regard.
6	Confirm the identity of users before making contact with them and avoid baseless trust.
7	Avoid invading the privacy of others, including their mailbox, user interface of digital media software, etc.

8	Treat colleagues with patience, respect and sobriety according to ethical principles and cultural values and norms and commit to keeping the secrets of colleagues and organization in cyberspace.
9	Take responsibility for informing colleagues, students and other people of the negative consequences of inaccurate or improper content uploaded on the Internet and warn them in private to protect their dignity.
10	Try to use valid medical professional websites to present information, interact with colleagues, and exchange medical information.
Care and treatment	
11	Consider confidentiality in one's attempts to upload patient information or group discussions in digital medical networking and other online public media and remove any information revealing the identity of patients.
12	Prevent profit-making advertisements for medical and pharmaceutical companies known as service providers in cyber environments.
13	Answer people's questions frankly and promptly upon participation and activity in virtual counseling programs.
14	Consider patients' interest as top priority when providing counseling, and refrain from using patients' information to pursue one's interests.
15	Take responsibility for health-care recommendations and activities in the online environment and accept the consequences.
16	Introduce oneself by one's name, role and professional position and avoid magnifying one's capabilities in cyberspace such as public digital media.
17	Seek the permission of patients or their families before establishing an electronic contact with them in cyberspace.
18	Prepare a confidential backup file of the correspondence with patients in cyberspace in accordance with the terms and conditions of the university.
19	When interacting with patients or their families in cyberspace, pay attention to cultural and online social norms and values and consider the limits of professional relationships.
20	When establishing online social relationships with children or vulnerable individuals, beware the possibility of misinterpretation of the relationship or the presented information and act cautiously.
21	Try to improve and enhance the quality and accuracy of the information presented on the websites of health-care centers in keeping with one's duties.
Research	
22	Do not use the results of articles and materials published on the Internet before assessing their reliability and level of evidence.
23	Avoid virtual collaboration and cooperation with unfamiliar organizations to prevent information theft from research centers.
24	Before entering patients' information into patient data banks in cyberspace, make sure of the safety of the environment and users' access level.
Education	
25	Share knowledge and information with colleagues and students in cyberspace (under the constraints indicated elsewhere in this guideline).
26	Try to make the best use of cyberspace to promote the interaction of teachers and learners, and educational and specialized institutions.
27	Accept responsibility and try to compensate if an error occurs in publishing educational materials on the Internet.
Personal Development	
28	Consider time management in the use of cyberspace and establish a balance between virtual and real life.
29	Have a purposeful plan for checking educational material in cyberspace and pay attention to its possible effects on individuals mental, psychological and physical health.
30	Pay attention to the management of emotional relationships when establishing professional interactions in cyberspace.

Before starting the analysis, we knew that a high score and a low score in the ethical climate variable and its dimensions means a robust and a weak moral atmosphere, in the organization, respectively. Contrary to the scoring interpretation in the organization's ethical climate variable, there

is an inverse relationship between the intention to leave the service score and participants' genuine intention to leave. In other words, a rising intention to leave the service score represents a low genuine intention to leave the service and vice versa. In the first step, we found that the participants' scores were at a moderate level in all dimensions of the ethical climate, except the rules and regulations dimension, which was at a low level. Also, the total score of ethical climate was within the moderate range (73.93 ± 12.53). Furthermore, the mean and standard deviation of intention to leave the service in pre-hospital emergency staff was 12.54 ± 4.52, which is also in the moderate range. Mean, standard deviation, maximum and minimum scores, number of questions, score ranges, and score categorizations of the ethical climate and its dimensions are presented in Table 2. We investigated the relationship between ethical climate and its dimensions, and the intention to leave scores. The results of the correlation assessment revealed a significant positive correlation between the total scores of ethical climate and intention to leave the service (r = 0.148, *P* = 0.017). It can be concluded that with an increase in the total score of ethical atmosphere of the organization, the intention to leave the service decreases. Moreover, an evaluation of the relationship between the ethical climate dimensions and the intention to leave the service scores revealed that there is a significant positive correlation between the total intention to leave the service score and care & attention (r = 0.299, *P* = 0.000) and independence (r = 0.290, *P* = 0.000) dimensions of the ethical climate. These results show that as the care & attention and independence dimensions of ethical climate develop and improve, employees' intention to leave the service decrease.

We found that there was a statistically negative correlation between the intention to leave the service score and the law dimension of the ethical climate in the organization (r = - 0.138, *P* = 0.039). This finding indicates that increasing the law dimension of the ethical climate can increase the intention of the pre-hospital emergency staff to leave the service.

Discussion

The ever-increasing concerns about HCPs' activity in cyberspace highlight the need for ethical guidelines on their appropriate presence in online environments (23). Many researchers have pointed the necessity of developing a guideline for professional conduct in cyberspace (24, 25).

Therefore, this study was conducted to develop a guideline for health-care professionals in cyberspace in Iran. The development of such a guideline does not signify total adherence to its provisions; however, as the first step toward achieving professionalism in cyberspace, it is necessary to agree on the accepted rules and standards in order to maintain public trust in the medical profession. Furthermore, without a standard of conduct in cyberspace, the application and presentation of the principles of professional conduct in the curriculum may be considered arbitrary (26).

In the present study, the professional guideline for the use of cyberspace by HCPs encompassed five domains, including general regulations, care and treatment, research, education, and personal development codes. These domains were suggested based on the challenges and concerns regarding the use of cyberspace by HCPs (7, 27).

One of the major concerns pertaining to the decline of professionalism in cyberspace is the dissemination of patients' pictures and private information on social media, which may indicate an invasion of privacy as well as a breach of the principle of confidentiality in the online world. Publishing selfie images with cadavers or patients, distributing patient information on social media, and uploading group discussions of health-care team members in digital medical networking without maintaining anonymity are examples of unprofessional behaviors in cyberspace. As a rule, disclosure of trivial information may not seem to violate the principle of confidentiality or lead to the disclosure of patient information, but a combination of these details may be enough to reveal the identity of patients or their family members and relatives. Moreover, many people underestimate the identifiability of individuals in putatively anonymized data, especially when information is combined with other databases. Therefore, this guideline includes several codes related to confidentiality. A review of similar studies also shows that the criteria of professionalism in cyberspace require that the HCPs maintain patients' confidentiality in online environments and refrain from publishing any incorrect or scientifically invalid material threatening the dignity of the medical profession (6, 28). Dike et al. reported that in communication with patients, utmost caution must be exercised to protect the patients' confidentiality as much as possible (23). Moreover, the use of publically available digital media for interactions with patients or others may lead to the violation of

confidentiality and damage the HCPs' professional dignity and reputation (29).

Health-care professionals are required to respect other individuals' rights in all digital and online relationships and should conduct themselves professionally in their interactions (30). According to the results of our study, some of the critical principles in cyberethics include: maintaining a respectful relationship with one's colleagues in line with professional norms and values, keeping the secrets of colleagues and the organization in cyberspace, refraining from use of unethical and aggressive words, and avoiding propagation of any discriminatory or insulting expressions against different ethnicities and genders, as well as the cultural and religious beliefs of patients. Von Muhlen and Ohno-Machado's survey showed that the use of negative language describing patients was evident in 57% of clinical cases (31). This finding demonstrates the necessity of better preparation of health-care professionals to communicate respect through appropriate interactions in cyberspace. As shown by one study, unprofessional relationships in cyberspace can be irrevocably severed because of a breach of trust and respect (32). Therefore, respect for appropriate communication can be viewed as a component of professional practice in cyberspace.

Ease of information exchange and lack of tangible control in online social media may keep HCPs from adhering to ethical principles when sharing and publishing individual patient information, which may cause problems for patients, their relatives, or even the health-care team (33). Applications of the cyberspace may vary from educational purposes to information and experience exchange or even research, and it is therefore essential to use valid medical professional websites to present information, interact with colleagues, and exchange medical information. Work interaction groups are being commonly used in social networking by health-care professionals to communicate availability for consultation or teaching. There are, however, challenges associated with some of these platforms because they may not be secure and messages may get sent to the wrong recipients, thus compromising privacy. The use of uncontrolled and open-access social networking to share patient information may expose professionals to violation of ethical standards and the law (34). Based on our findings, checking the safety of the environment and users' access level to information is a key point to the observance of cyberethics. This is important not only in sharing patients' information, but also with regard to the information, images and professional

identities of health-care professionals. Employers may use this information to screen potential employees, and this may affect the health-care staff's professional future. Based on Grobler and Dhai's study, inappropriate content can affect one's professional standing (35).

It is also notable to mention that other guidelines have been developed and proposed by different organizations and institutions. However, in 2010, only 13 out of 132 American medical schools had specific social media guidelines (36). In 2009, a guideline was proposed by Guseh et al., suggesting four main principles regarding patient-physician interactions on Facebook: "Avoid accepting patient friend requests"; "Avoid adding private information gathered online to a patient's medical record"; "Restrain from disclosing personal information online"; and "Understand privacy settings to ensure that content meant for private access does not become public" (37). The American Medical Association (AMA) has also designed a social media-related guideline that addresses the importance of professionalism in cyberspace while discussing the potential benefits and drawbacks. Similar to the guideline proposed in the present study, AMA emphasizes the importance of patient privacy and maintaining appropriate boundaries that separate personal and professional interactions (36, 38). Moreover, The Council on Ethical and Judicial Affarirs recommend the addition of several principles to those articulated by the AMA. For instance, some of the principles outlined in that guideline are: "When using the Internet for social networking, physicians should use privacy settings to safeguard personal information and content to the extent possible, but should realize that privacy settings are not absolute and that once on the Internet, content is likely there permanently", and "When physicians see content posted by colleagues that appears unprofessional, they have a responsibility to bring that content to the attention of the individual, so that he or she can remove it and/or take other appropriate actions. If the behavior significantly violates professional norms and the individual does not take appropriate action to resolve the situation, the physician should report the matter to appropriate authorities" (39). The American Psychological Association has also published a study that assists medical doctors to adhere to professionalism in online spaces by setting proper physician-patient boundaries as a core element in order to ensure the public's trust in this profession (40).

One strong point of the present study was the presence of representatives of students and

graduates in the focus groups that helped receive their views and perspectives. The researchers believe that, considering the serious disagreements on some examples of unprofessional behavior in cyberspace, the method used for compiling this guide can benefit readers of other countries to reach an agreement on the minimum necessary to maintain public trust. In other words, more than the content of this guide, the way it has been compiled is useful for international readers. The guideline can be used by HCPs for self-assessment of their practice and in striving for excellence in terms of their presence in cyberspace. Moreover, this guideline has paved the way for designing a tool to assess professional behaviors in cyberspace.

One of the major limitations of this study was that public views were not reflected in the guideline. Furthermore, there was no survey following implementation of this guideline and assessing the reactions of stakeholders, and the survey data were based on a single-center design. It is emphasized that discussion on the content of this guideline should be included in faculty development programs and also in the formal curriculum of health-care learners to transfer the attitude and insight into professional commitment in cyberspace to them.

Conclusion

Adherence to the principles of medical professionalism in cyberspace, just like the real space, is essential for maintaining public trust in the profession. After reviewing the existing literature and exploring the views of experts, a framework was suggested in five domains of cyberethics conduct, including general regulations, care and treatment, research, education, and personal development. This framework characterizes the various ways in which professionalism can be applied in interactions between HCPs and other individuals in cyberspace.

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Conflict of Interests

The authors report there are no competing interests to declare.

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