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Research Paper

Opportunities and Challenges of Information Dissemination in Public Relations of Iranian Medical Universities during the COVID-19 Pandemic: The Role and Function of Virtual Space

Meisam Dastani[1], Hadi Shamsi Sani[2], Seyed Ali Sedehei[3]*

1. PhD in Knowledge and Information Science, Social Determinants of Health Research Center, Gonabad University of Medical Sciences, Gonabad, Iran.
2. MSc. in Social Science Research, Gonabad University of Medical Sciences, Gonabad, Iran.
3. MSc. in Sociology, Gonabad University of Medical Sciences, Gonabad, Iran.

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Crisis management,
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ABSTRACT

Aims Given the critical role of public relations (PR) in crisis management, especially during the COVID-19 pandemic, this study aimed to identify the opportunities and challenges of virtual communication in PR departments of Iranian medical universities.

Materials & Methods This This descriptive-analytical study was conducted in a cross-sectional manner in January 2020. Data were collected using a researcher-made questionnaire (29 items in 7 indicators, five-point Likert scale). After confirming the content validity with the experts' opinion, the reliability of the questionnaire was confirmed with Cronbach's alpha of 0.849. The research population consisted of PR managers from medical universities; therefore, sampling was conducted through a census, and data were collected electronically and analyzed using the Python programming language. The analysis included descriptive statistics and Pearson's correlation test between indicators.

Results The results of the present study, which was conducted on 41 cases, showed that social media platforms were the most frequently used tools for COVID-19 communication (mean=4.74). Virtual platforms provided effective opportunities for accurate (mean=4.57) and rapid (mean=4.02) information dissemination. However, significant challenges were identified, such as misinformation, a lack of interdepartmental coordination, and conflicting goals between PR departments and media outlets. PR infrastructures, including software, hardware, and human resources, were found to be insufficient. A strong positive correlation was observed between staff skill level and available infrastructure ($r=0.655$, $P<0.001$), while readiness for crisis management was positively associated with other supportive indicators. In contrast, the challenges of virtual space showed a negative correlation with both preparedness and staff competency.

Conclusion Despite satisfactory performance in leveraging digital tools, PR departments in Iranian medical universities face structural and resource-related limitations that hinder sustained effectiveness. Addressing these challenges through infrastructure development, interdepartmental coordination, and continuous staff training is essential. Establishing an integrated communication system and supportive national policies will strengthen public trust, improve crisis communication, and mitigate the impact of misinformation in future health emergencies.

Corresponding Author:
Seyed Ali Sedehei, MSc.
Address: Gonabad University of Medical Sciences, Gonabad, Iran
Tel: +98 51 57223401
Email: ali.sedehi1400@gmail.com

مقاله پژوهشی

مقایسه فرصت ها و چالش های اطلاع رسانی در روابط عمومی دانشگاه های علوم پزشکی ایران در دوران همه‌گیری کووید-۱۹: نقش و کارکرد فضای مجازی

میثم داستانی[۱]، هادی شمسی ثانی[۲]، سید علی سده ای[۳*]

۱. دکتری علم اطلاعات و دانش شناسی، مرکز تحقیقات عوامل اجتماعی موثر بر سلامت، دانشگاه علوم پزشکی گناباد، گناباد ایران.
۲. کارشناسی ارشد پژوهشگری علوم اجتماعی، دانشگاه علوم پزشکی گناباد، گناباد، ایران.
۳. کارشناسی ارشد جامعه شناسی، دانشگاه علوم پزشکی گناباد، گناباد، ایران.

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چکیده

هدف با توجه به نقش کلیدی روابط عمومی در مدیریت بحران‌ها، به‌ویژه در شرایط فراگیری ویروس کووید-۱۹، مطالعه حاضر با هدف شناسایی فرصت‌ها و چالش‌های اطلاع‌رسانی در فضای مجازی توسط روابط عمومی دانشگاه‌های علوم پزشکی کشور انجام شد.

مواد و روش‌ها: این مطالعه توصیفی-تحلیلی به‌صورت مقطعی در دی‌ماه ۱۳۹۹ انجام شد. داده‌ها با پرسشنامه محقق‌ساخته (۲۹ گویه در ۷ شاخص، طیف لیکرت پنج‌درجه‌ای) جمع‌آوری شد. پس از تأیید روایی محتوایی با نظر خبرگان، پایایی پرسشنامه با آلفای کرونباخ ۰.۸۴۹ تأیید شد. جامعه پژوهش مدیران روابط عمومی دانشگاه‌های علوم پزشکی بودند، بر همین اساس نمونه گیری به صورت سرشماری بوده و داده‌ها به صورت الکترونیکی جمع‌آوری شد و با زبان برنامه نویسی پایتون تحلیل شد. تحلیل شامل آمار توصیفی و آزمون همبستگی پیرسون بین شاخص‌ها بود.

یافته‌ها در مطالعه حاضر که با مشارکت ۴۱ نفر انجام شد، نتایج نشان داد بیشترین استفاده از ابزارهای فضای مجازی در بحران کرونا، مربوط به شبکه‌های اجتماعی (میانگین=۴/۷۴) بوده است. فضای مجازی فرصت‌هایی برای اطلاع‌رسانی دقیق (میانگین=۴.۵۷) و سریع فراهم کرده، اما چالش‌هایی نظیر انتشار اطلاعات نادرست، عدم هماهنگی میان واحدها و تفاوت در اهداف اطلاع‌رسانی با رسانه‌ها نیز مشهود بود. همچنین، زیرساخت‌های نرم‌افزاری و سخت‌افزاری و نیروی انسانی ناکافی از جمله موانع مهم در کارایی روابط عمومی‌ها بودند. همبستگی مثبت بین مهارت نیروی انسانی و زیرساخت‌ها($r=۰/۶۵۵$ $p>۰/۰۰۱$) و همچنین رابطه مثبت میان آمادگی در بحران با سایر مؤلفه‌ها مشاهده شد، در حالی‌که شاخص چالش‌ها با آمادگی و مهارت همبستگی منفی داشت.

نتیجه‌گیری: روابط عمومی دانشگاه‌های علوم پزشکی عملکرد مناسبی در بهره‌گیری از فرصت‌های فضای مجازی داشته‌اند، اما برای استمرار این اثربخشی، رفع ضعف‌های ساختاری، تقویت منابع انسانی، به‌روزرسانی زیرساخت‌ها و ارتقای هماهنگی میان‌بخشی ضروری است. طراحی یک نظام یکپارچه اطلاع‌رسانی و سیاست‌گذاری کلان در حوزه اطلاع‌رسانی سلامت می‌تواند زمینه‌ساز اعتماد عمومی و مدیریت مؤثر بحران‌های آتی باشد

کلیدواژه‌ها:
روابط عمومی،
اطلاع‌رسانی سلامت،
فضای مجازی،
کووید-۱۹،
مدیریت بحران،
دانشگاه علوم پزشکی،
شبکه‌های اجتماعی

نویسنده مسئول:
سید علی سده ای
نشانی: دانشگاه علوم پزشکی گناباد، گناباد، ایران.
تلفن:۰۰۹۸۵۱۵۷۲۲۳۴۰۱+
پست الکترونیکی: ali.sedehi1400@gmail.com

Introduction

The spread of the COVID-19 pandemic has emerged as a significant health challenge in all countries worldwide since late 2019 and has affected the lives of all members of society. Controlling a pandemic requires immediate and extensive measures by governments to communicate with the public and change people's behavior to combat the rapid spread of the disease [1]. With the global outbreak of the COVID-19 pandemic, the need to inform and raise awareness about this disease among various population segments for self-care is of great importance. Therefore, access to health information facilitates health education and promotes a healthy lifestyle. Supporting individuals' access to health information has led to a shift in the philosophy of disease treatment, contributing to national health development [2]. Moreover, the demand for health information and content has increased worldwide over the last decade, and this information has often influenced people's health-related behaviors and decisions [3,4]. For a new disease like COVID-19, effective communication is crucial for informing the public about the latest status and outbreak information, encouraging people to take preventive measures to minimize disease transmission, and reassuring them that the government is capable of managing the situation [5,6].

In crises, accurate, transparent, and timely information is one of the most essential pillars of crisis management. Experience has shown that proper awareness and effective communication with audiences can play a crucial role in mitigating the consequences of political, social, and security crises, particularly those caused by natural and health disasters. In such situations, continuous and appropriate communication with different audience groups is of great importance, because transmitting messages tailored to the characteristics and needs of each group can directly affect their behavior. Accurate communication and providing reliable information help reduce rumors and prevent public anxiety, thereby increasing social trust and support among people during crisis management [7,8].

Meanwhile, public relations, as the most critical communication method for organizations, has the main task of collecting, processing, and disseminating information. If this role is played correctly, opportunities are created to enhance the credibility and development of the organization, but if it is ineffective, public trust is severely damaged [9,10]. In crises, such as the COVID-19 pandemic, the importance of this issue has become more apparent than ever. In such situations, public relations professionals must apply the principles of effective communication, understand the needs and concerns of stakeholders, and convey their messages in a timely and effective manner by utilizing various communication channels [11,12]. Moreover, Hong emphasizes that the ability of governments to answer citizens' questions and provide reliable information directly affects the promotion of public trust in them [13].

International studies have demonstrated that during the COVID-19 pandemic, people's dependence on social media and the Internet for news and information has increased significantly [14,15]. This situation has placed public relations in a position where, in addition to their traditional information-dissemination tasks, they have had to use new communication tools. Santoso et al. [16] believe that the COVID-19 pandemic has presented public relations with a serious challenge in terms of creativity, innovation, and the use of new technologies, requiring them to establish closer relationships with the public and provide up-to-date information. Therefore, public relations professionals, as communication professionals, must be able to understand the attitudes, beliefs, and concerns of their audiences and design their communication strategies in a way that allows for the rapid and accurate collection and dissemination of information [17-19].

In Iran, the health system structure has an extensive network of rural and urban health centers and medical universities, all of which operate under the supervision of the Ministry of Health and Medical Education [20].

In this system, public relations plays a pivotal role in disseminating information, shaping public opinion, and fostering social trust. The COVID-19 pandemic highlighted that, in addition to their responsibility for providing official information, public relations departments within the Ministry of Health and Medical Education, as well as medical universities, have a dual responsibility in managing rumors, combating fake news, and encouraging public participation. On the other hand, the expansion of social media and changing media consumption patterns in the country have compelled these units to move beyond traditional methods and enhance their capacity for accountability and transparency by utilizing new technologies [21].

Accordingly, given that public relations at medical universities in the country play an essential role in health crisis management, and also considering the extensive role of cyberspace and social networks in disseminating news and information, the main research question is: What are the opportunities and challenges for public relations at Iranian medical universities during the COVID-19 pandemic, with an emphasis on cyberspace and social networks?

Materials and Methods

The present research followed the protocols of a descriptive-analytical study, aiming to examine the opportunities and challenges of information dissemination in the public relations of medical universities in the country during the COVID-19 pandemic, with an emphasis on cyberspace.

The research population consisted of all public relations managers of medical universities in the country (61 universities of medical sciences). Accordingly, due to the limitations of the statistical population, the census method was used for sampling.

Data Collection Tool

Due to the conditions of the COVID-19 pandemic and the impossibility of face-to-face communication, the questionnaire was designed and implemented electronically on the Porsline system (porsline.ir). After design, the questionnaire was sent to the public relations managers of the medical sciences universities via email and messengers in January 2020. The research team carried out the necessary follow-up to increase the response rate and guide participants.

Data Analysis

The collected data was analyzed using the Python software and statistical libraries, such as Pandas, SciPy, and Seaborn. In the first step, descriptive statistics (mean, standard deviation, and distribution of responses) were calculated for each question and each indicator. Additionally, to analyze the relationships between indicators, Pearson's correlation coefficient was calculated.

Results

A total of 41 people from the research community participated in completing the questionnaire for this study, which accounted for 67.2% of the research community's participation rate. Among them, 80.49% were males. In terms of educational qualifications, 41.46%, 39.02%, and 19.51% held bachelor's, master's, and PhD degrees, respectively. In addition, 31.71% of the participants had 1 to 5 years of work experience, 31.71% had 6 to 10 years of work experience, 21.95% had 11 to 15 years of work experience, 9.76% had 16 to 20 years of work experience, and 4.88% of the participants had more than 20 years of work experience.

Table 1 indicates the challenges and opportunities facing public relations in the cyberspace of Iranian medical universities.

According to Table 1, the "Use of Cyberspace Tools in Information" index indicates that public relations at medical universities made the most use of social media for public relations during the COVID-19 crisis (mean = 4.74, standard deviation = 0.45), followed by daily news conferences in cyberspace (mean = 4.40) and the Webda news website (mean = 4.19). This finding suggests a notable emphasis on social media as the primary information channel.

In the "Cyberspace Opportunities in Crisis Communication" index, the highest average was related to the accurate reflection of information and news in cyberspace (mean = 4.57), which confirms the importance of cyberspace in the correct transmission of information. The lowest average in this index was related to rapid reflection of information (mean = 4.02), which, despite being high, was evaluated as lower than other opportunities.

In the "Challenges and Threats of Cyberspace" index, the highest average is assigned to the item "High expectations of the media from public relations in responding to rumors" (mean = 4.29, standard deviation = 0.64), which indicates additional pressure on public relations. In contrast, the publication of inappropriate information by various university units (mean = 2.02) and materials published by patients' relatives on personal pages (mean = 2.69) are considered significant challenges to reducing public trust.

In the “Coordination between PR, media, and other sectors” indicator, monitoring of social media channels and networks by PR has the highest average (mean = 4.50), indicating proactive activity in countering misinformation. However, coordination of local and national media with PR has a lower average (mean = 2.52), suggesting a gap in interaction between information institutions.

In the "Public Relations Preparedness and Capability in Crisis" index, the highest average belongs to the readiness to respond to the public 24 hours a day (average = 3.86), and the lowest average belongs to the forecasts necessary to deal with crises (average = 4.10), which, although an acceptable value, points to the need to strengthen preventive planning.

In the "Human Resource Skills and Expertise" index, public relations staff were rated at a relatively favorable level in terms of cyberspace information skills (mean = 3.83) and media literacy (mean = 3.69); however, there is still room for improvement.

Table 1. Opportunities and challenges of cyberspace information.

Index	Question	Average	SD
Using cyberspace tools in information dissemination	To what extent do you provide information related to the spread of the COVID-19 crisis through the public relations news website (Webda)?	4.19	0.89
	To what extent do you provide information regarding the spread of the COVID-19 crisis through social media?	4.74	0.45
	Using virtual space, it is possible to hold daily news conferences.	4.40	0.70
Cyberspace Opportunities in Crisis Communication	Cyberspace is suitable for correctly reflecting information and news.	4.21	0.75
	Cyberspace is suitable for precisely reflecting information and news.	4.57	0.50
	The existence of cyberspace is suitable for the rapid reflection of information and news.	4.02	0.75
	In times of crisis, news media seek relevant information from the university's virtual news channels.	4.10	0.69
Cyberspace challenges and threats	Units involved in crisis management publish various information packages in cyberspace without coordinating with public relations.	2.71	1.15
	There are differences between the strategies of university administrators and public relations regarding how to provide information.	2.48	1.11
	The methods of informing managers about the crisis are imposed on public relations.	2.43	1.04
	Various university units publish inappropriate information in cyberspace.	2.02	1.16
	Many rumors are spread online by the news media.	3.24	1.25
	News media have high expectations of public relations to respond to rumors.	4.29	0.64
	Photos, videos, or news from affected environments, such as hospitals, are published by various individuals (including outsiders and clients) without coordination with public relations.	2.31	1.16
	False information is being published by relatives of patients involved in crises on their personal social media pages.	2.69	1.26
	Different content presented by different experts from university departments leads to public distrust in public relations.	2.76	1.25
	Experts in various fields publish content and news through their personal pages on the Internet.	2.48	1.25
	National and local media outlets communicate directly with managers and experts in various fields of the university to receive news without coordinating with the public relations department.	2.43	1.11
	The goal of university public relations differs from that of the news media in providing information during a crisis.	3.02	1.33
Coordination between public relations, media, and other departments	There are differences between the Ministry of Health's public relations strategies and those of university administrators for informing.	3.76	0.79
	Local and national news media have the necessary coordination with public relations to publish news.	2.52	1.15
	Public Relations monitors various channels and social networks regarding responses to rumors.	4.50	0.55
Public relations preparedness and capability in a crisis	Public relations is prepared to respond to people 24 hours a day.	3.86	0.87
	Public relations has made the necessary forecasts for dealing with crises.	4.10	0.98
Public relations, human resources skills, and expertise	Public relations staff possess the necessary skills and expertise to provide information in cyberspace during a crisis effectively.	3.83	0.85
	Public relations staff have sufficient media literacy to provide information in cyberspace when faced with a crisis.	3.69	0.81
Public relations infrastructure and resources	Public relations has sufficient human resources to provide information in cyberspace when facing a crisis.	2.55	1.19
	Public relations, when faced with a crisis, has the appropriate software capabilities to provide information in cyberspace.	2.98	1.07
	Public relations, when faced with a crisis, has the appropriate hardware facilities to disseminate information in cyberspace.	2.81	1.04

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Finally, the "Public Relations Infrastructure and Resources" index indicates that information software facilities (mean = 2.98) are in a better condition than hardware facilities (mean = 2.81) and sufficient human resources (mean = 2.55); however, in general, these indicators indicate a severe weakness in the infrastructure in the field of public relations in crises.

Table 2 presents the results of the Pearson correlation test between the leading indicators of the study. This table involves the correlation coefficients (r) and significance values (p-values) for each pair of indicators. Correlation coefficients indicate the

intensity and direction of the relationship between variables, and p-values indicate the level of significance of these relationships. The results of the Pearson correlation test between the leading indicators are also noted in Figure 1.

Table 2 and Figure 1 indicate a positive and significant correlation between specific indicators. In particular, the strongest correlation was observed between "human resource skills and expertise" and "infrastructure" (r=0.655, p<0.001), which indicates that increasing the individual and collective capabilities of public relations staff is directly related to improving infrastructure. Moreover, the positive relationship between "crisis preparedness" with "skills" (r=0.503, p<0.001) and "infrastructure" (r=0.445, p=0.003) indicates the importance of synergy of these factors in effective crisis management. In contrast, the "cyberspace challenges and threats" index showed a negative or insignificant correlation with some of the components, which indicates the inhibiting effects of challenges on the desired performance of public relations.

Table 2. Pearson correlation matrix between the leading research indicators.

Index 1	Index 2	Correlation Coefficient (r)	Significance Value (p-value)
Using cyberspace tools in information dissemination	Cyberspace Opportunities in Crisis Communication	0.343	0.0260
Using cyberspace tools in information dissemination	Cyberspace challenges and threats	0.042	0.7920
Using cyberspace tools in information dissemination	Coordination between public relations, media, and other departments	0.200	0.2037
Using cyberspace tools in information dissemination	Public relations preparedness and capability in a crisis	0.217	0.1676
Using cyberspace tools in information dissemination	Public relations, human resources skills, and expertise	0.420	0.0056
Using cyberspace tools in information dissemination	Public relations infrastructure and resources	0.305	0.0496
Cyberspace opportunities in crisis communication	Cyberspace challenges and threats	0.070	0.6601
Cyberspace opportunities in crisis communication	Coordination between public relations, media, and other departments	0.325	0.0355
Cyberspace opportunities in crisis communication	Public relations preparedness and capability in a crisis	0.474	0.0015
Cyberspace opportunities in crisis communication	Public relations, human resources skills, and expertise	0.252	0.1075
Cyberspace opportunities in crisis communication	Public relations infrastructure and resources	0.143	0.3672
Cyberspace challenges and threats	Coordination between public relations, media, and other departments	0.354	0.0215
Cyberspace challenges and threats	Public relations preparedness and capability in a crisis	-0.180	0.2538
Cyberspace challenges and threats	Public relations, human resources skills, and Expertise	-0.273	0.0803
Cyberspace challenges and threats	Public relations infrastructure and resources	-0.013	0.9349
Coordination between public relations, media, and other departments	Public relations preparedness and capability in a crisis	0.315	0.0420
Coordination between public relations, media, and other departments	Public relations, human resources skills, and expertise	0.315	0.0420
Coordination between public relations, media, and other departments	Public relations infrastructure and resources	0.325	0.0358
Public relations preparedness and capability in a crisis	Public relations, human resources skills, and expertise	0.503	0.0007
Public relations preparedness and capability in a crisis	Public relations infrastructure and resources	0.445	0.0032
Public relations, human resources skills, and expertise	Public relations infrastructure and resources	0.655	0.0000

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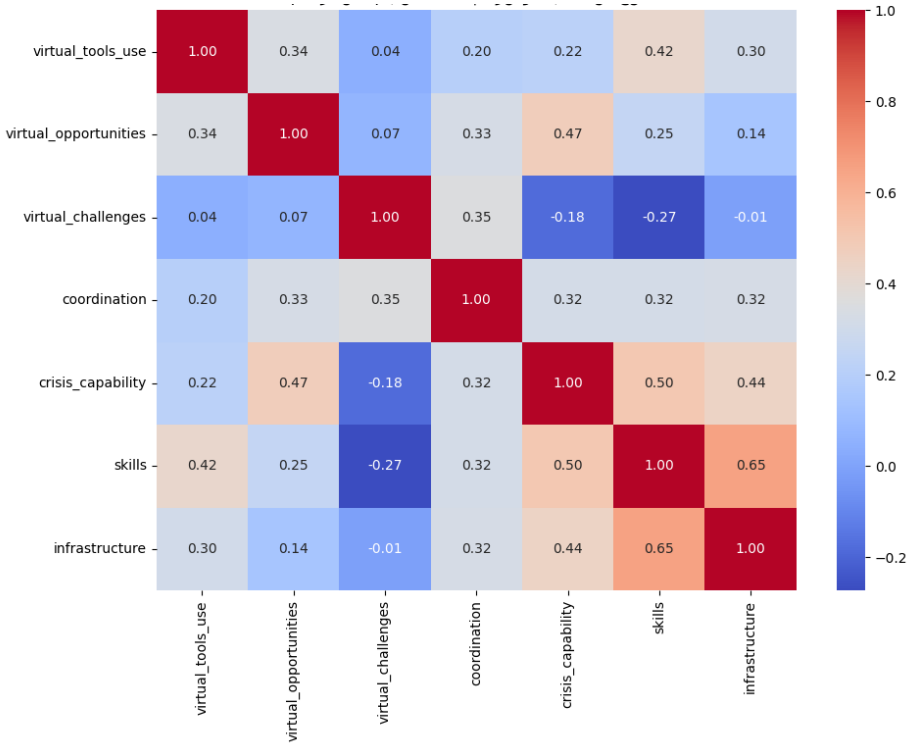

Figure 1. Heatmap matrix of Pearson correlation between indicators.

Table 2 and Figure 1 indicate a positive and significant correlation between specific indicators. In particular, the strongest correlation was observed between "human resource skills and expertise" and "infrastructure" ($r=0.655$, $p<0.001$), which indicates that increasing the individual and collective capabilities of public relations staff is directly related to improving infrastructure. Moreover, the positive relationship between "crisis preparedness" with "skills" ($r=0.503$, $p<0.001$) and "infrastructure" ($r=0.445$, $p=0.003$) indicates the importance of synergy of these factors in effective crisis management. In contrast, the "cyberspace challenges and threats" index showed a negative or insignificant correlation with some of the components, which indicates the inhibiting effects of challenges on the desired performance of public relations.

Discussion

The COVID-19 crisis has presented new opportunities and challenges for public relations in terms of information dissemination. Undoubtedly, this pandemic is not the first crisis in the world, and it will not be the last. The behavior of people, government officials, and experts in various fields will determine the method of solving the problem and managing the crisis [22]. Identifying strengths and weaknesses in crisis management and leadership is a crucial issue that must be addressed in crises, and based on this, a model and method for managing future crises should be developed. Accordingly, the primary objective of this research was to identify the challenges and opportunities in public relations within the country's medical universities regarding the virtual dissemination of COVID-19 news and information.

The results indicated that the primary media for disseminating information in the cyberspace of public relations at medical universities were social network channels and pages, as well as public relations news websites of medical universities. Moreover, the results demonstrated that cyberspace provides a significant opportunity for public relations to deliver fast, accurate, and comprehensive information. In this regard, it can be stated that the dissemination of news during crises should incorporate the characteristics of speed, transparency, and openness in dissemination [23], which appears to be facilitated by leveraging the characteristics of cyberspace. Moreover, Atarodi et al. reported that people use mass media and social networks to receive information related to self-care against COVID-19; however, the rate of using virtual networks to obtain information was significant [24].

The results also found that public relations is vulnerable to challenges, such as the spread of misinformation, rumors, and a lack of interdepartmental

coordination. A lack of coordination between academic units, the media, and even top-level managers results in contradictory messages, ultimately eroding public trust. These inconsistencies are due, on the one hand, to the lack of a unified information framework, and on the other hand, to the conflicting organizational goals during a crisis. The media's role in a crisis is to prevent the spread of rumors and disseminate accurate news, which is particularly important in a timely manner to prevent rumors from spreading, while also gaining public support and trust [25]. Misinformation is rapidly circulating and spreading in the media, and the fight against fake news will likely continue as long as the virus is widespread. For this reason, as soon as some questions or rumors are spread, the news media, as a source of information, should prevent the reinforcement of rumors and false news by finding evidence-based answers and helping to ensure transparency and the dissemination of accurate news [26]. Accordingly, the primary issue regarding health communications and the coronavirus crisis is managing news and countering the spread of rumors and misinformation at the global level [27]. Additionally, the emergence of crises and their associated messages, both positive and negative, presents a special agenda for the news media, altering their priorities and expectations. Therefore, in the first step of crisis management, the news media should establish trust with the audience and influence public opinion, aiming for accurate and timely news coverage of the pandemic crisis [28]. These findings are consistent with a study on the subject of COVID-19 infodemics that emphasizes the need for "preventive public relations" to inform government and private institutions related to the crisis and suggests that by depoliticizing scientific phenomena and forming a fact-checking desk, fake news can be confronted and national trust can be rebuilt [29]. In this regard, one of the essential steps in planning is to determine the agenda and strategy for communicating with the media with the aim of gaining the trust of the audience.

There are also challenges in coordinating public relations with other units and organizations. However, the most significant lack of coordination in this criterion has been related to the differences in information goals between public relations and news media, as well as the lack of coordination with other units during the crisis. In this regard, it can be claimed that each situation has its own specific conditions and requires a strategic communications plan that helps the organization maintain its credibility during the crisis. Establishing good relations with the media can facilitate working with them during a crisis [30]. In this context, public relations should be aware of the duties of the news media and maintain close contact with them. In fact, the news media are looking for news and reports, and one of the essential sources of news is the public relations of health centers or medical universities. Public relations also has an urgent need to announce and publish news and reports to the news media. This mutual need requires that their relationship be friendly and mutually beneficial.

Continuous and two-way communication with provincial networks of the Islamic Republic of Iran Broadcasting (IRIB), the press and mass media, as well as managing the information base and communication between the university president, students, professors and staff, and compiling and implementing communication letters are also other public relations activities of universities, which indicate their efforts to reach the desired point, namely establishing intra- and extra-organizational communications [31]. Undoubtedly, human resources are the most valuable asset of any organization, meaning that employees who work in the organization help each other to achieve organizational goals. Human resources can be considered a strategic factor in an organization [31]. Given the importance of public relations in crises, paying special attention to sufficient human resources in public relations is crucial. Moreover, given the need for up-to-date software and hardware infrastructure to carry out news reporting in public relations, equipping public relations professionals with the latest equipment is crucial.

From a human resource perspective, the results indicate that although the staff possess an acceptable level of media literacy and expertise, the lack of a sufficient workforce and poor access to software and hardware facilities have limited the operational capacity of public relations, especially during crises. This finding underscores the importance of both structural and human investment in public health communications. In this regard, Golabdoost et al. (2021) presented a public accountability model at Tehran University of Medical Sciences, Iran, indicating that the establishment of specialized public relations departments in the health field can play a decisive role in increasing accountability and public trust in crises [21].

In addition, the results of the correlation analysis showed that components such as "human resource skills" and "technological infrastructure" play a key role in improving information performance. The high correlation between these two components indicates that staff skills cannot be practical without adequate

infrastructural support. Moreover, the positive relationship between the crisis preparedness index and other positive components suggests that the level of public relations preparedness is a function of a set of supporting factors, such as training, equipment, and preventive planning. In contrast, the challenges index has a negative correlation with preparedness and skills, which confirms the destructive effect of cyberspace threats on the quality of public relations performance.

Conclusions

The present study demonstrates that public relations in Iranian medical universities has shown acceptable performance in utilizing cyberspace opportunities; however, the continuation of this effectiveness requires removing structural barriers, strengthening inter-unit coordination, updating infrastructure, and providing continuous training for human resources. Additionally, it is essential to design macro-policy frameworks in the field of health information in a manner that acknowledges the role of public relations as an official communication channel between the university and the community, while also preventing interference with the performance of other units.

The implementation of an integrated information system, increasing interaction between public relations and the media, and review of public relations support structures can lead to increased public trust, better crisis management, and reduced damage caused by the spread of false information in cyberspace.

Operationally, it is essential to design a national crisis communication protocol with clear guidelines for how to disseminate news, respond to rumors, and coordinate across departments. It is also recommended that regular training programs and skill-building workshops be held for public relations personnel to enhance their ability to manage future crises. Finally, in order to strengthen communication preparedness in future crises, it is essential to adopt a comprehensive, data-driven, and forward-looking approach to health public relations management.

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