Original Article

Analysis of Information and Health Literacy Policies in Pandemics: A Case Study of COVID-19

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Abstract

Introduction: The global community, during the COVID-19 pandemic, faced a vast amount of information and risks due to low levels of health literacy. Governments responded differently to the pandemic crisis based on formulated policies and their societal conditions. The present research focuses on analyzing information and health literacy policies in pandemics to present a model and identify and prioritize factors affecting the formation and implementation of the mentioned policies.

Methods: This qualitative research was conducted using semi-structured interviews with key informants. Extracted codes were designed based on expert opinions, and an initial conceptual framework was developed according to the policy triangle (content, context, process, and actors). Finally, the identified issues and the conceptual framework were validated using the Delphi-quantitative method.

Results: The results indicate that the content of information and health literacy policies focuses on goal-setting, planning, law formulation, and amendments and updates. The process of information and health literacy policies in pandemics was categorized into managerial, educational, dissemination, sharing, evaluation, and monitoring processes. Economic, political, social, and cultural aspects were identified as influential context, and multiple actors were identified as policymakers and facilitators of information and health literacy policies in pandemics.

Conclusion: The developed model can be a suitable and useful tool for increasing the awareness of health managers and policymakers about the strengths and weaknesses of past policies regarding information and health literacy policies in pandemics. It also provides a suitable perspective for policymaking and identifying factors influencing the implementation of enacted policies.

Introduction

Today, in light of the massive amount of information, communication systems are facing severe crises due to media sensationalism and information uncertainty worldwide. During epidemic diseases, the need for information inevitably increases, particularly in cases where the crisis is unprecedented, and people lack information about the disease's nature and preventive measures. During such times, governments, organizations, and people seek assurance in understanding the problems and choosing appropriate responses. Governments require evidence-based policymaking to demonstrate to people that decisions are made based on rational and informed judgments, ensuring public interests.[1] The world has faced the critical challenge of lack of accurate information during epidemic diseases, including the newly emerging COVID-19, in such a way that the dissemination of accurate information coincided with the dissemination of rumors, which had a significant impact on the audience's mentality and decision-making regarding the use of prevention and treatment approaches.[2] In this regard, dissemination of credible and up-to-date information have been significant issues in various countries during pandemics.

Information is a tool for decision-making, policy-making, and planning, and it reduces doubt and uncertainty. Limited availability of information affects planning and policies, and their success or failure in the absence of sufficient information and scientific certainty is subject to chance and probability.[3] Access to credible health information requires skills and capabilities that need attention. Health literacy is one of the fundamental tools for improving community health and enhancing the quality of health services, garnering attention from

policymakers.[4] Health literacy refers to individuals' ability to acquire, process, understand, and use essential health information needed for appropriate health care decisions. Thus, health literacy comprises a set of skills, capabilities, and capacities in various dimensions that differentiate it from health knowledge.[5] Information dissemination centers, by collecting and organizing credible information, provides the necessary knowledge and facilities to improve community health literacy. This knowledge and capability can effectively influence individuals' health status amid various disease outbreaks, preventing the deterioration of individuals' health conditions.

Identifying the gaps and meeting the existing scientific research needs, removing the obstacles to applying the achievements, and providing services based on scientific evidence are necessary to develop health policies and programs.[6] An overview of the issue and its related crises shows that most of the problems in this field were caused by hasty, unsystematic, and poor policies that caused a lack of coordination and unanimity among various institutions to respond and control the COVID-19 crisis by appropriate planning and correct and fast decision-making.[7] Identifying the existing information and health literacy policies, determining how to explain and implement these policies, and understanding the effects of implemented policies on the behavior and attitudes of people (policymakers, managers, their supporters, and other beneficiaries of the health system) in the COVID-19 pandemic as the recent outbreak has a significant role in adopting detailed policies for the future of the health systems in similar pandemics.

The health policy triangle framework,[8] with four dimensions of content, context, actors, and process, is one of the conventional methods for analyzing existing health policies.[9] It is necessary to understand how the policymaking process in information and health literacy has been, how the policy contents have been formed, how contextual variables such as social, economic, cultural, and traditional variables have influenced policymaking processes and policy content. It should also be clarified who is involved in the policymaking process and how these individuals/organizations influence or are affected by policies. Studying policy formation, both retrospectively and prospectively, is crucial for comprehending the successes and failures of significant policies. This can contribute to refining future policy processes and outcomes.[10]

Continuous success in information and health literacy policymaking requires the establishment of specific management and organizational structures in official health organizations for periodic monitoring and evaluation of program implementation and required research. Policymakers need access to appropriate information at the right time for evidence-based decision-making.[11] After appropriate policymaking, coherent strategies and plans should be predicted to deal with such crises. The necessity of attention by policymakers and managers of information and health organization to increase public awareness and structured participation in their health is essential for active and informed participation in health, health care, and a key action to reduce health inequalities.[12] Identifying information and health literacy policies, as well as the attitudes of individuals (policymakers, managers, their supporters, and other stakeholders in the health system) during the COVID-19 pandemic play a significant role in adopting precise policies for the future health system in similar pandemics. The analysis of these policies in the context of the pandemic has not been studied. This research aims to identify information policies focusing on health literacy, using the policy triangle to examine various factors during the pandemic.

Numerous studies have been conducted in the field of information and health literacy, but according to searches conducted by the researcher, the majority of these studies have focused on the area of control policies and prevention of epidemic diseases. In the study by Amraei et al, control policies of Iran, South Korea, China, and Germany in dealing with COVID-19 have been examined. Their study showed that the deployment of a comprehensive, coordinated, and cohesive set of policies and actions, accurate understanding of the situation and conditions by officials away from political emotions, transparent information, and increasing public awareness of the crisis and the economic and social effects of the COVID-19 pandemic can be the key to the country's success and victory in dealing with this disease.[13] Yazdi Feyzabadi et al also highlighted the most prominent preventive policies and strategies of selected countries, including education and information, extensive testing and screening, contact tracing, quarantine of affected and suspected cases, as well as adherence to physical distancing.[14] Woo examined Singapore's political capability and response to the COVID-19 pandemic. One of the key political factors was trust and political legitimacy in the strong initial response to COVID-19. Emphasis on trust and transparency in information during the SARS crisis was also evident.[15] Desson et al demonstrated that France, with the help of data-driven policies, became more transparent and cohesive, leading to centralized decision-making to effectively coordinate healthcare resources nationwide during the coronavirus outbreak.[16] The findings of Tavosi et al study showed that to control the infodemic of COVID-19, policies are needed for the information shared on social networks and the role of governments in controlling it, which requires proper policymaking by the Ministry of Health.[17] Studies have also examined health literacy and policies to promote health literacy, including research during pandemics, especially COVID-19. Nakhaee identified the most important challenges in health literacy policy-making, including lack of coordination and coherence and involvement of

various stakeholders.[12] Abel and McQueen also examined critical health literacy in pandemics, highlighting the need for individuals to increase awareness of various information, advertisements, skills to evaluate available information, understanding and urgency of individual and social actions, and their reasons and consequences.[18] Seng et al investigated influential factors in health literacy in infectious diseases and introduced websites, web-based applications, and mobile applications as important tools for disseminating information related to infectious diseases.[19] In the study by Park and Yoon countries like the Netherlands, USA, UK, and Australia were among those that shared the most information about the COVID-19 pandemic. This study suggests increased scientific collaboration in sharing study results and research, especially during crises.[20]

Based on the results of reviews, the importance of information and health literacy policies has been emphasized in various issues, but the analysis of these policies in pandemic conditions has not been studied separately. Therefore, given the importance of providing reliable information to the general public and improving their level of health literacy to prevent the spread of COVID-19 and other similar diseases, this research seeks to analyze information and health literacy policies during the COVID-19 pandemic and similar pandemics and provide a policy model.

This research was conducted qualitatively using the semi-structured interview method with key informed individuals, including officials and policymakers in the field of information and health literacy policies at the Ministry of Health of Iran, the Health and Treatment Commission, officials of the Coronavirus Combat Headquarters, opinion leaders, and researchers in the field of health literacy policy-making, officials and experts responsible information and health literacy at medical universities across Iran.

The expert's feedback was received at their workplace or virtually via Skype. The average interview time was 30 to 45 minutes. Interviews were conducted using purposive and snowball sampling methods with 25 individuals who met predefined criteria such as willingness to collaborate with the research group, education and experience related to the subject, experience in decision-making or relevant policymaking, and expertise in the subject area. After each interview, the files were added to the MAXQDA content analysis software. Then, using the Framework Analysis method through techniques such as thematic analysis, coding, and summarization, the data were organized and analyzed. Extracted codes were designed based on the modification of expert opinions and the initial conceptual model based on the policy triangle (content, context, process, and actors). In the next stage, the validity of selected information and health literacy policies during COVID-19 was quantitatively evaluated using the Delphi method. In this method, a questionnaire

with closed questions covering the policy dimensions (content, context, process, and actors) identified in the previous study phase was used. The Likert scale with five options (very high, high, medium, low, and very low) was used for data analysis. After collecting the responses, the acceptance criterion for each option, based on the cumulative very high and high opinions for each category, was 75% or more agreement among experts. Scores between 50% to 75% were re-evaluated, and those with less than 50% agreement were excluded from the study. The content validity of this tool was reviewed and confirmed by the research team.

In this research, Thematic analysis of the interviews led to the extraction of 1535 codes in the form of 16 main themes and 142 sub-themes, which, after deliberation with experts, ultimately revealed 108 sub-themes in the form of 15 main themes and in four categories based on the policy triangle (content, context, process, and actors). Content analysis of interviews led to the identification of 108 sub-themes in the form of 15 main themes based on the policy triangle framework (content, context, process, and actors). Policies related to each dimension of the policy triangle were analyzed in order. The content of information and health literacy policies during pandemics, according to interview data and the opinions of expert panel members, was categorized and identified into 4 main themes titled "Content Targeting," "Content Planning," "Regulations and Standards in Content," and "Content Modification and Updating," along with 14 sub-themes. Table 1 presents the titles of the main and sub-themes regarding the content of information and health literacy policies during pandemics.

The first main theme in the content of selected impactful information and health literacy policies during the COVID-19 pandemic is "Content Targeting." Most participants in the interviews stated that targeted policymaking can facilitate and strengthen successful information, promote health literacy, and ensure effective information dissemination. For example, one interviewee stated:

"Because our goal of information dissemination and improving health literacy is for the entire community, so it's not just about individuals who are aware through websites and blogs. There are also people whose literacy is not high enough to use these facilities effectively." (Participant 6)

The second main theme in the content of selected impactful information and health literacy policies during the COVID-19 pandemic is "Content Modification and Updating." According to the opinions of most participants, modifying and updating information and health literacy policies is essential for preventive measures and necessary strategies during epidemics. For example, one participant stated:

"If policymakers are receptive to criticism and feedback, we will have a flawless policy. Problems arise from lack

Table 1. Content of information and health literacy policies

Main themes	Sub- factors	Percentage of collective agreement
Content Targeting	Producing content based on the information needs of different segments	100
	Identifying and producing content based on new educational needs	90
	Preparing a comprehensive content bank	85
Content Planning	Developing a documented program in policymaking	80
	Preparing scientific content regardless of political bias	85
	Providing culturally and linguistically appropriate health information content in the community	80
	Incorporating relevant curriculum into schools and universities	80
	Developing informative content in health centers	80
	Using evidence-based documents in content preparation	75
Regulations and Standards in Content	formulating a unified response policy	80
	Transparency and credibility of content	85
Content Modification and Updating	Accepting criticisms, feedback, and content revisions	95
	Informing specialists and policymakers of the latest scientific findings in content preparation	80
	Utilizing successful experiences in content preparation	80

of acceptance of feedback and criticism. Policymakers should be demanding and receptive to criticism." (Participant 14)

Another main theme in the content of selected impactful information and health literacy policies during the COVID-19 pandemic is "Regulations and Standards in Content." According to most participants, there should be laws and regulations to create a unified and cohesive communication system, which is trusted by the public and has a standardized response mechanism. One participant mentioned:

"There was no uniform procedure for dealing with news and rumors, and there was no oversight. Most actions were taken hastily and without scrutiny." (Participant 2)

The last main theme in the content of selected impactful information and health literacy policies during the COVID-19 pandemic is "Content Planning." Planning is crucial in every national crisis, especially in a pandemic that affects all elements of society. Participants emphasized the need for developing preventive strategies and planning for health promotion, reflecting a thoughtful, effective, educational, and evidence-based approach. For example, one interviewee commented:

"If we want to reach an appropriate model, first, we need to have a clear plan for crisis situations. There is no guarantee that right now, as we speak, something worse than COVID-19 will not happen. Do we have a clear and reliable plan? Is this model valid and reliable?" (Participant 1)

According to interview data and expert panel members' opinions, contextual elements influencing policies concerning health information and literacy initiatives during pandemics can be categorized into four main areas: social, economic, political, and cultural. Additionally, 30 sub-themes have been identified under these main categories. The categorized contextual factors and sub-themes are reported in Table 2.

According to the second category of findings in this study, the first main factor in the context affecting information and health literacy during the COVID-19 pandemic is "social factors." According to the statements of the interviewees, some individuals do not take the disease seriously from a social standpoint and, with incorrect news and information, contribute to increased public indifference and trivialization of the risks and adverse consequences of the disease. For example, one interviewee stated:

"Some people trivialized it socially and said we got it several times and talked in gatherings and infected others" (Participant 22).

Economic factors are another main issue in the context affecting information and health literacy policies during pandemics. For most countries, when healthcare systems were not financially and economically prepared to deal with the outbreak of a pandemic, COVID-19 came as a surprise. For example, one interviewee stated:

"The spread of COVID-19 quickly affected people's lives, and many became unemployed, worrying about how much and how they could earn, which affected their acceptance of health policies" (Participant 25).

Political factors are another main issue in the context affecting information and health literacy during the COVID-19 pandemic. In fact, one of the main reasons for hiding the emergence of the coronavirus disease and its spread worldwide is political factors. In this regard, one interviewee stated:

"If political issues are such that people do not trust, it can definitely have a negative impact. Building trust and media literacy is essential" (Participant 8).

The last main factor in the context affecting information and health literacy policies during the COVID-19 pandemic is "cultural factors." In each country, individuals have unique health literacy needs from a specific cultural context, and communication should be culturally

Table 2. Context of information and health literacy policies

Main themes	Sub-factors	Percentage of collective agreement
Social	Urgency and enthusiasm for receiving information	80
	Community anxiety and stress	80
	Oversimplification of the pandemic	90
	Willingness to participate in the subject	90
	Emotional and social needs of different groups	85
	Communication skills	85
	Media literacy skills	90
	Motivation for learning in society	80
	Unfamiliarity with the disease	85
Economic	Financial and Economic growth	80
	Insufficient investment in resources	80
	Financial feasibility of policy implementation	95
	Priority of the issue	85
	Income level and livelihood	85
	Cost of training	80
	Costs during quarantine	80
	Lack of trained people to manage information	85
	Sanctions	80
	The amount of government support	95
Political	Existence of a committee or task force with full executive power	95
	Commitment of policymakers	80
	Maintaining and increasing trust in information sources	95
	International pressure	80
	Protection of information and privacy during communication	81.8
	Decentralized management	80
	Coordination between information agencies	80
Cultural	Power to change attitudes and behaviors in society	90
	Cultural infrastructure	90
	Use of traditional and Islamic medicine	90.9
	Spiritual values	

compatible and trustworthy. In fact, participants have stated that understanding cultural context and providing appropriate information ensures that health-related messages are properly communicated. For example, one interviewee said:

"*Culture is important beforehand. For behavior change and acceptance of guidelines, people's cultural understanding and attitude must be ready*" (Participant 19).

The process of information and health literacy policies during pandemics, according to the interview information and opinions of the expert panel, identified and categorized the main process as management process, educational process, and information dissemination process, sharing process, and evaluation and monitoring process, along with 42 sub-categories. Table 3 presents the main and sub-categories titles related to the process information and health literacy policies during pandemics.

In the third category of results of this study, the first main factor in the effective processes affecting information and health literacy during the COVID-19 pandemic is "management process." The management process emphasizes the necessity of fair access to create health communication and literacy, especially during pandemics. According to the opinions of the interviewees, the lack of access by vulnerable communities during the formulation of policies or health programs is not only unfair but also endangers community health. An interviewee stated:

"*Attention should be paid to the capabilities and resources available to individuals in cities and villages, and fair access for all members of society should be provided*" (Participant 21).

The "educational process" is the second main factor in the effective processes affecting information and health literacy policies during the COVID-19 pandemic. The adoption of educational and health literacy policies is one of the most important infrastructures for the excellence of any country, which can be one of the most important

Table 3. Process of information and health literacy policies

Main themes	Sub- factors	Percentage of collective agreement
Management process	Fair access to information	85
	Rapid adaptation to emerging needs and development of new technologies	95
	Appropriate responsiveness to user levels	90
	Fast and effective response with information updates	85
	Reporting and documentation in various institutions	85
	Transparency of responsibility, role and performance in organizations	85
	Standardization, comparison, and development of approved protocols	85
	Use of experts in protocol development	90
	Protocol sufficiency to prevent unauthorized access	75
	Transparent and continuous communication with the public	95
	Control or disclosure decision-making	80
	Prediction and pre-pandemic planning	90
	Integration of ministry systems	85
Educational process	Evaluating and diagnosing the educational and communication needs of the community	80
	Cultivation and adjustment of community beliefs	85
	Empowerment courses in organizations	80
	Necessary training in promoting media literacy	90
	Expansion of distance learning	80
	Using of a variety of media	85
	Design and implementation of health literacy enhancement campaigns	90
Information dissemination process	Information dissemination based on scientific consensus	90
	Introduction of specific sources for providing valid information	80
	Updating information on health websites	80
	Dissemination of understandable information (charts and visual information)	90
	Face-to-face visit and inform	90
	Collaboration with content producers on social networks	80
	Emphasize uncertainty of delivered information	75
	Correcting, completing or denying the news, if needed	95
	Continuous representation of successful trends in the face of crisis	85
	Behavioral analysis and proper information transmission	90
	Formation of telephone and online teams to address public ambiguities	85
	Establishment of health section in libraries	90
Sharing process	Constructive international interactions	80
	Intra- and inter-organizational interactions for coordination and information updates	90
	Interaction between experts and policymakers	95
	Facilitation of communication methods between people and stakeholders	90
	Sharing and utilization of results of expert research	90
	Necessity of holding continuous press conferences	80
Evaluation and monitoring process	Data quality (accuracy, timeliness, and completeness)	100
	Proper implementation of guidelines	90
	Update policies	95
	Survey, receipt of suggestions, and implementation of reforms	95

tools for dealing with challenges such as pandemics. For example, one interviewee stated:

"Beliefs, attitudes, and values of a strong and cohesive culture have a significant impact on behaviors and actions taken in that society. Therefore, correcting beliefs and modern learning methods should be emphasized in policymakers' programs" (Participant 22).

The main factor "information dissemination process" is another influential process on information and health literacy policies during the COVID-19 pandemic. The

information dissemination process should be based on scientific consensus to maintain public trust, especially when credible information is available based on scientific sources and there is consensus. However, during an epidemic, due to the need to convey timely and accurate information, this process may face challenges. For example, one interviewee said:

"COVID-19 requires a global consensus. We shouldn't deny people who are more educated and capable, and information dissemination should be based on scientific consensus of scientists and experts" (Participant 12).

The main factor "sharing process" is another influential process on information and health literacy policies during the COVID-19 pandemic. The importance of conversations and international interactions in health literacy during pandemics is clear because both the disease and the evidence needed for solutions quickly cross global boundaries. Lack of coordination and international interactions as a major challenge during the global COVID-19 pandemic had an impact and interrupted information updates and health literacy. In this regard, an interviewee stated:

"International communications and interactions lead to rapid updates and sharing of information related to the disease. During this time, international interactions must be strengthened to overcome the disease" (Participant 14).

The "evaluation and monitoring process" is the last main factor in the effective processes affecting information and health literacy policies during the COVID-19 pandemic. Effective evaluation and monitoring during the COVID-19 pandemic were necessary for the proper implementation of guidelines and the quality of data and information. Organizations needed to improve their human resources and processes to better capitalize on their assets and information. In this regard, one interviewee stated:

"It is necessary to constantly evaluate and monitor policies and identify strengths and weaknesses through surveys. We should use criticisms and suggestions to improve and enhance policies" (Participant 6).

Based on the study findings, influential stakeholders in information and health literacy during the COVID-19 pandemic are divided into two main categories: "information and health literacy policymakers" and "facilitators information and health literacy," as shown in Table 4.

In the fourth category, the results obtained from the interview analysis indicate that policy-makers in health literacy and information dissemination are those who have political responsibilities or influence political decisions. For example, the following interview highlights the most influential actors in health literacy and information dissemination during the COVID-19 pandemic:

"It seems like in many health areas, the Ministry of Health is the main responsible entity. The most important group that provides health education is there, and all health policies are seen there..." (Participant 11)

Table 4. Actors of information and health literacy policies

Main themes	Sub- factors	Percentage of collective agreement
Information and health literacy policymakers	World Health Organization	85
	Ministry of health and related organizations	100
	Ministry of education and training	95
	Ministry of culture and Islamic guidance	75
	Ministry of interior	80
	Islamic consultative assembly	85
	National Anti-Corona Headquarter	95
	Islamic republic of Iran broadcasting	95
	Government officials	80
	Scientists and experts	85
	Municipalities and Rural Administrations	80
Facilitators information and health literacy	Universal health centers in hospitals	95
	National media	90
	Social media	95
	Local health centers	90
	Educational centers	90
	Military centers	80
	Campaigns	90
	Charitable organizations	81.8
	Libraries	90
	Mosques	81.8
	Famous and influential people	85

The main concept "Facilitator of Health Literacy and Information Dissemination" is identified as a group that played a significant role in health literacy and information dissemination during the COVID-19 outbreak, and they are the ones who facilitate the implementation of adopted policies. According to the research findings, one of the most important facilitators of health literacy and information dissemination during the COVID-19 outbreak was "Social Media." However, alongside the significant benefits in information dissemination and increasing health literacy, challenges such as rumors and fake news circulated on social media were also prevalent during this period. In this regard, an interviewee stated:

"Social media should also promote health and be invested in, and health literacy should be increased." (Participant 3)

Based on the data obtained from the interviews, the opinions of the expert team, and the research team, an initial conceptual model was developed based on the policy analysis triangle (content, context, process, and actors). The figure below illustrates the conceptual model of health literacy and information dissemination policies during pandemics. As seen in the figure, the policy triangle is placed at the center and core of the model, and the main dimensions of the policy triangle, including content, context, process, and actors, are specified. The main concepts developed in this study are identified in each dimension of the policy triangle.

Figure 1 shows the conceptual model of information and health literacy policies during pandemics in Iran. As seen in the figure, the policy triangle is at the core of the model, with the main dimensions of the policy triangle including content, context, process, and actors clearly defined. The primary categories identified in this study are specified in each dimension of the policy triangle, and the subcategories are included within each main category.

In this study, the main content category includes, targeting planning, regulations, and updating. The main context category includes social, political, economic, and cultural factors affecting information and health literacy policies. The main process category includes management processes, educational process, information dissemination process, sharing process, evaluation, and monitoring process. In the main actor's category, individuals and organizations influencing the policies are introduced as policymakers and facilitators of information and health literacy policies. Overall, the resulting model from this study shows that multiple factors can influence information and health literacy policies during pandemics in Iran.

Discussion

During epidemic diseases, the demand for information increases, and people seek to understand and choose the right response to address issues. In fact, health literacy
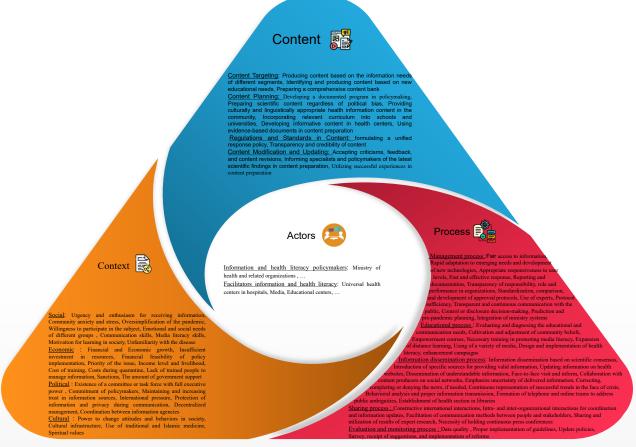

Figure 1. Conceptual model of information and health literacy policies during pandemics

and information dissemination policies are influential in the success or failure of overcoming pandemics. Policy-makers need to employ various fields such as medicine, economics, management, psychology, sociology, anthropology, political science, history, communication sciences, and also collaborate with intra-sectoral and inter-sectoral organizations to establish a comprehensive system and create an effective structure. The issue of coronavirus was such that it encompassed all political, economic, cultural, social, and security structures of societies.[21]

Since the emergence of the coronavirus, various actions have been taken by healthcare professionals and governmental agencies to increase awareness, improve knowledge, disseminate information, and strengthen preventive measures to control the disease. However, many countries worldwide were not successful in implementing health literacy and information dissemination policies.[22] This study presents a relatively comprehensive analysis based on evidence and findings available regarding health literacy and information dissemination policies during pandemics. The current study attempted to critique and examine all important and influential factors in this policy using one of the most widely used and well-known conceptual frameworks for policy analysis, the policy analysis triangle. This study aimed to analyze health literacy and information dissemination policies during pandemics and provide a policy model based on the perspectives of Iranian experts. In this research, based on the coding of interviews, 108 sub-themes emerged in the form of 15 main themes and in four categories according to the policy analysis triangle (content, context, process, and actors).

The first category of findings showed that the content of information and health literacy policies during pandemics in Iran is analyzed in five main categories in order of importance: targeting, updating, regulations, and planning. Comparing the qualitative findings of this study showed that the subcategory "content based on the informational needs of different groups" in the main category of content targeting and "accepting criticisms, opinions, and amendments" in the main category of content updating had the highest validity based on experts' opinions. Other research aligned with the present study stated that a sufficient understanding of the community's informational and educational needs is crucial in policymaking.[23]

According to the second category of findings, the factors influencing information and health literacy policies during pandemics in Iran include cultural, social, economic, and political factors, in order of importance. Among the subcategories in contextual factors, "spiritual values" in the cultural context, "financial feasibility of policy implementation" and "the amount of government support" in the economic context, and "existence of a committee or task force with full executive power" and "maintaining and

increasing trust in information sources" in the political context gained the highest importance in the quantitative validation phase. Other studies also emphasized the importance of budget allocation, monitoring budget sharing, financial feasibility of regulations, financial law formulation, financial transactions, taxation in the digital space, proper budget utilization, and specified guidelines in managing digital content policies in Iran,[24] which can be particularly significant during a pandemic. Moreover, without public cooperation and trust, solving the issues arising from crises and internal and external pressures is impossible.[25] The third category of results indicated that evaluation and monitoring processes, sharing processes, management processes, information dissemination processes, and educational processes were the most emphasized in the influential processes on information and health literacy policies during pandemics in Iran. Subcategories "evaluation and monitoring of data quality," "update policies," and "survey, receipt of suggestions, and implementation of reforms" in the evaluation and monitoring process had the highest validity based on expert consensus. In the sharing process, "interaction between experts and policymakers" had the highest importance in the management process, "rapid adaptation to emerging needs and development of new technologies" and "transparent and continuous communication with the public" were crucial, and in the information dissemination process, "correcting, completing or denying the news, if needed" was of the highest importance based on collective expert agreement. Other studies also highlighted the importance of monitoring the dissemination of accurate and reliable information for planning to control the coronavirus in the community.[26,27]

The fourth category of interview analysis results showed that the influential actors are policymakers and facilitators of information and health literacy policies in Iran. "The Ministry of Health and related organizations" were the most important, followed by "Ministry of education and training" and "Islamic republic of Iran broadcasting" as policymakers of information dissemination and health literacy policies during pandemics in Iran, based on expert opinions. "Social media" and "Universal health centers in hospitals" were identified as the most important facilitators of information and health literacy policies. According to a study, the National Coronavirus Headquarters in Iran stated that the Ministry of Health, Treatment, and Medical Education is the official information dissemination authority in the treatment and health domains, and in cooperation with Islamic republic of Iran broadcasting, it is responsible for public education on disease symptoms, the necessity of social distancing, and enhancing sensitivity towards adhering to health protocols.[28]

Conclusion

Based on the research findings information and health literacy policies in content include content goal setting,

content planning, content regulations, and the need for modification and updating. In these policies, attention to individuals' information needs, abilities, culture, language, and literacy levels is important, and search skills, evaluation skills, and critical skills should be included in educational programs. The fields of social, economic, political, and cultural context were identified as influential context factors in information and health literacy policies during pandemics. Different social, economic, political, and cultural situations require different policies because the issues they face are different. In this study, social, economic, political, and cultural context s were identified as influential factors in the mentioned policies based on various articles.

According to the research findings, the process of information and health literacy policies in pandemics was categorized into management, educational, dissemination, sharing, evaluation, and monitoring processes. The evaluation and monitoring process was reported as one of the most influential factors in information and health literacy policies during pandemics. The evaluation and monitoring process reduces side effects to society in information dissemination and proper guideline implementation. However, the evaluation and monitoring process should be such that it is not perceived as unwanted surveillance and values people's opinions.

Multiple actors were identified as policymakers and facilitators of information and health literacy policies during pandemics. According to the findings, the main actor is the Ministry of Health, Treatment, and Medical Training in the country. It is worth mentioning that vulnerable populations and behaviors resulting from low health literacy and misinformation affect people's attitudes and trust in information and health literacy policies during pandemics in prevention and disease spread efforts. On the other hand, the diversity of information sources and the popularity of social networks have made attention to digital infrastructures and acceptance of a systemic perspective, apps, campaigns, and other social network facilities essential. In this regard, information and health literacy policymakers can have fruitful collaborations with content creators on social networks.

In conclusion, based on the findings of this study, this research can be an opportunity for policymakers, experts, and officials in information and health literacy to consider the findings identified as influential factors in this area during pandemics in their future planning and policymaking.

It is crucial to acknowledge that the findings from this review may not be universally applicable to diverse countries. Consequently, it is imperative to consider each country's unique context and conditions when interpreting and applying the findings of the current review.

Qualitative nature of the study and the central role of the researcher in data generation limit the repetition and generalizability of the study results.

Research Highlights

What is the current knowledge?

- There is no suitable framework and model tailored to the local conditions of each country for information and health literacy policy during a pandemic.

What is new here?

- This study presented and analyzed the policymaking framework for information and health literacy during pandemics with the constituent dimensions of the policy analysis triangle.

Author's Contribution

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Competing Interests

We wish to confirm that no known conflicts of interest are associated with this publication.

Data Availability Statement

The datasets are available from the corresponding author on reasonable request.

Ethical Approaval

The study protocol and all experiments comply with the Declaration of Helsinki and were approved by the Ethics Committee of the Iran University of Medical Sciences (Decision date: 08.03.2022, Decision No: 1400.1160). All participants filled out written informed consent forms.

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