Rumpun Ilmu	:	Ilmu Kedokteran Umum
Bidang Kepakaran	:	Medical Sciences
Jenis Riset	:	Dasar

LAPORAN AKHIR
SKEMA PENELITIAN DASAR

SCOPING REVIEW: KOMUNIKASI RISIKO DALAM SITUASI WABAH DI KONTEKS LAYANAN PRIMER

TIM PENELITI :

Ketua : Nurul Qomariyah, dr., MMedEd

Anggota : 1. Ns. Nurul Kodriati, S.Kep., M.Med.Sc. Ph

Mahasiswa Terlibat : 1. Risca Mokoginta (2000034006)
2. Anazd Nezab Vitha Ranie (2000034018)
3. Mupidah (2000029151)
4. Rheananda Rhere Fitrajaya (1900029089)
5. Shafa Sabilla Rahma (1900029190)

KEDOKTERAN
KEDOKTERAN
UNIVERSITAS AHMAD DAHLAN
JULI 2024

COVER LETTER
LAPORAN KEMAJUAN PENELITIAN TA. 2023/2024

Ketua Peneliti	:	Nurul Qomariyah, dr., MMedEd
Judul Penelitian	:	Scoping Review: Komunikasi risiko dalam situasi wabah di konteks layanan primer
Hari, Tanggal Review	:	Jumat, 03 Mei 2024

No.	Kriteria (Indikator Penilaian)	Komentar Reviewer	Isi Perbaikan
1.	A. Ringkasan penelitian berisi: (i) latar belakang penelitian, (ii) tujuan penelitian, (iii) tahapan metode penelitian, (iv) luaran yang ditargetkan, (v) uraian TKT penelitian yang ditargetkan serta (vi) hasil penelitian yang diperoleh sesuai dengan tahun pelaksanaan penelitian.	ok	ok
2.	B. Kata kunci maksimal 5 kata kunci. Gunakan tanda baca titik koma (?) sebagai pemisah, dan ditulis sesuai urutan abjad.	ok	ok
3.	C. Hasil pelaksanaan penelitian berisi: (i) kemajuan pelaksanaan penelitian yang telah dicapai sesuai tahun pelaksanaan penelitian, (ii) data yang diperoleh, (iii) hasil analisis data yang telah dilakukan, (iv) pembahasan hasil penelitian, serta (v) luaran yang telah didapatkan. Seluruh hasil atau capaian yang dilaporkan harus berkaitan dengan tahapan pelaksanaan penelitian sebagaimana direncanakan pada proposal. Penyajian data dan hasil penelitian dapat berupa gambar, tabel, grafik, dan sejenisnya, serta pembahasan hasil penelitian didukung dengan sumber pustaka primer yang relevan dan terkini.	belum dicantumkan kemajuan, analisis dan pembahasan serta luaran	sudah dilengkapi
4.	D. Status luaran berisi identitas dan status ketercapaian setiap luaran wajib dan luaran tambahan (jika ada) yang dijanjikan. Jenis luaran dapat berupa publikasi, perolehan kekayaan intelektual, hasil pengujian atau luaran lainnya yang telah dijanjikan pada proposal. Uraian status luaran harus didukung dengan bukti kemajuan ketercapaian luaran sesuai dengan luaran yang dijanjikan. Lengkapi isian jenis luaran yang dijanjikan serta mengunggah bukti dokumen ketercapaian luaran wajib dan luaran tambahan melalui portal penelitian.	belum ada luaran, dan status juga belum dicantumkan	masih berupa draft naskah publikasi
5.	E. Peran Mitra berupa realisasi kerjasama dan kontribusi Mitra baik in-kind maupun in-cash (untuk Penelitian Terapan dan Pengembangan). Bukti pendukung realisasi kerjasama dan realisasi kontribusi mitra dilaporkan sesuai dengan kondisi yang sebenarnya. Bukti dokumen realisasi kerjasama dengan Mitra diunggah melalui portal penelitian.	ok	ok

6.	F. Kendala Pelaksanaan Penelitian berisi kesulitan atau hambatan yang dihadapi selama melakukan penelitian dan mencapai luaran yang dijanjikan.	ok	ok
7.	G. Rencana Tahapan Selanjutnya berisi tentang rencana penyelesaian penelitian dan rencana untuk mencapai luaran yang dijanjikan jika belum tercapai.	Perlu ditingkatkan searching artikel dan pembahasan hasil serta penyusunan artikel jurnalnya	sudah dilengkapi
8.	H. Daftar Pustaka disusun dan ditulis berdasarkan sistem nomor sesuai dengan urutan pengutipan. Hanya pustaka yang disitasi/diacu pada laporan kemajuan saja yang dicantumkan dalam Daftar Pustaka.	tidak sesuai panduan	sudah disesuaikan

Penilaian/Review Luaran Penelitian

No.	Komponen	Kriteria	Komentar Reviewer
1.	Identitas Luaran	Lengkap / Tidak lengkap	
2.	Status Luaran	Memenuhi / Tidak	
3.	Bukti Status Luaran	Ada / Tidak	
4.	Bukti Luaran / File	Ada / Tidak	
5.	URL / Link Luaran	Dapat diakses menuju luaran/tidak	

PENELITIAN DANA INTERNAL UAD
TAHUN AKADEMIK 2023/2024

A. DATA PENELITIAN

1. Identitas Penelitian

a. NIY/NIP	:	19780115201208011090965 3
b. Nama Lengkap	:	Nurul Qomariyah, dr., MMedEd
c. Judul	:	Scoping Review: Komunikasi risiko dalam situasi wabah di konteks layanan primer
d. Lokasi Penelitian	:	UAD Yogyakarta
e. Lama Penelitian	:	8 Bulan
f. Tanggal Mulai	:	07 Desember 2023
g. Tanggal Rencana Selesai	:	31 Juli 2024

2. Skema Penelitian

a. Skema Penelitian	:	Internal - Penelitian Dasar
b. Jenis Riset	:	Dasar
c. Tingkat Kesiapterapan Teknologi (TKT)	:	1
d. Tujuan Sosial Ekonomi (TSE)	:	14.02-Public health
e. Bidang Kepakaran	:	Medical Sciences
f. Bidang Fokus	:	Kesehatan, Obat, dan Pangan
g. Tema Penelitian	:	kebencanaan
h. Topik Penelitian	:	Kesiapsiagaan masyarakat dan Intervensi sosial menghadapi bencana alam
i. Renstra Penelitian	:	Program Studi
j. Rumpun Ilmu	:	Ilmu Kedokteran Umum

B. SUBSTANSI PENELITIAN

Data Mitra

a. Nama Mitra	:	
b. Alamat Mitra	:	

C. ANGGOTA PENELITIAN

1. Anggota Internal

Nama Anggota Internal	:	1. Ns. Nurul Kodriati, S.Kep., M.Med.Sc. Ph

2. Anggota Mahasiswa

Nama Anggota Mahasiswa	:	1. Risca Mokoginta (2000034006) 2. Anazd Nezab Vitha Ranie (2000034018) 3. Mupidah (2000029151) 4. Rheananda Rhere Fitrajaya (1900029089) 5. Shafa Sabilla Rahma (1900029190)

3. Anggota Eksternal

Nama Anggota Eksternal	:	-

LAPORAN AKHIR PENELITIAN

JUDUL PENELITIAN

Scoping Review: Komunikasi risiko dalam situasi wabah di konteks layanan primer

RINGKASAN

Background: All countries around the globe are facing health challenges caused by Infectious disease outbreaks. Healthcare workers in primary care are the first responders during health emergencies. They should be able to communicate risks effectively according to the context of society.
Objective: To identify the latest data regarding the implementation of risk communication conducted by healthcare workers during outbreaks in primary health care.
Method: This scoping review was conducted using Arksey and O'Malley's five-stage framework guideline. The selection process of eligible literature was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR).
Result: Total five articles were analyzed. Effective risk communication provides protection to the community and also protects the healthcare workers. Risk communication strategies used are very diverse. Meanwhile, there are many factors that hinder their effectiveness. Identified factors include low public trust, gaps in the development and implementation of communication strategies (media, channels, language), which hinder accessibility for vulnerable groups (Latino), a tendency for weakened cross-sector collaboration as the outbreak prolongs, top-down policies that are not deeply rooted in the community, and a lack of competence and training for healthcare workers. The development of risk communication models shows efforts towards community-based risk communication.
Conclusion: The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.
Description of the research TKT: The targeted output of this research is a nationally accredited journal, SINTA 3."

Keywords: risk communication; primary health care; review; health workers; outbreak

HASIL DAN PEMBAHASAN PENELITIAN

Search strategy

PICOTS framework (Table 1) was used to generate keywords for the research process in the four databases: PubMed, ScienceDirect, ProQuest, and Scopus. We include articles published in peer-reviewed journals on risk communication during outbreak by healthcare workers in English between 2014 and 2024. Details of search strategy is shown in Table 2. We identified 566 articles from four databases, and 507 articles remained after eliminating duplicate, unavailable full texts, and inappropriate research methods (e.g., research with secondary data: review, systematic/scoping review). Abstracts from 507 articles were screened and eliminated based on inclusion criteria: risk communication, outbreaks, health workers, and primary health

care. An initial screening for titles and abstract was performed by first author and a research assistant with public health competency. A full-text screening for five selected articles was followed. The selection process of eligible literature was reported using PRISMA in Figure 1.

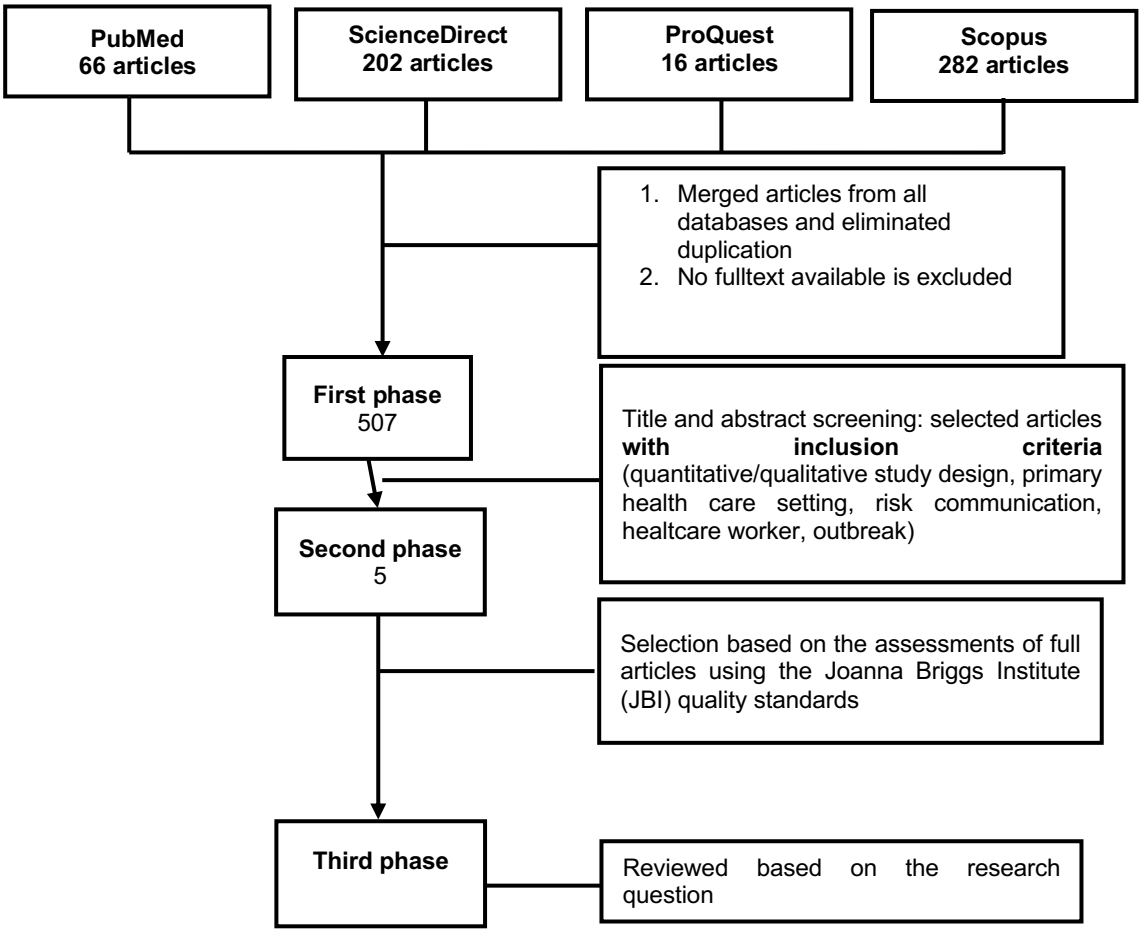
Table 1. PICOTS Framework

Criteria	Determinants
Population	Healthcare workers
Intervention	Risk communication
Comparison	None
Outcome	Quantitative and qualitative data on implementation of risk communication during outbreaks
Timeframe	1 January 2014 - 31 Januari 2024
Setting	Primary health care

Table 2. Searching Strategy

Source	#	Query	Limiters	QTY
PubMed	4	#1 AND #2 AND #3	-Free full text -In the last 10 years -English	66
	3	(("Risk communication"[Title/Abstract]) OR ("Crisis Communication"[Title/Abstract])) OR ("Emergency risk communication"[Title/Abstract])		
	2	(((((("Disease outbreaks"[MeSH Terms]) OR ("Disease outbreak"[Title/Abstract])) OR (Epidemics [MeSH Terms])) OR (Epidemic*[Title/Abstract])) OR (Pandemic*[Title/Abstract])) OR ("Health emergency*"[Title/Abstract])		
	1	((((((("Health personnel"[MeSH Terms]) OR ("Health personnel"[Title/Abstract])) OR ("Healthcare personnel*"[Title/Abstract])) OR ("Health worker*"[Title/Abstract])) OR (doctor*[Title/Abstract])) OR (Physician*[Title/Abstract])) OR (Paramedic*[Title/Abstract])		
ScienceDirect		("Health personnel" OR "Health worker" OR doctor OR Physician) AND ("Disease outbreak" OR Epidemic OR Pandemic) AND ("Risk communication" OR "Crisis communication")	- 2014-2024 -Research article -Open access & Open archive	202
Proquest		("Health personnel" OR "Healthcare personnel" OR "Health worker" OR doctor OR Physician OR Paramedic) AND ("Disease outbreak" OR Epidemic OR Pandemic OR "Health emergency") AND ("Risk communication" OR "Crisis communication" OR "Emergency risk communication")	-Fulltext -Scholary Journals -Last 10 years - Document type (Article, Evidance Based Healthcare, Case Study) -English	16
Scopus		("Health personnel" OR "Healthcare personnel" OR "Health worker" OR doctor OR Physician OR Paramedic) AND ("Disease outbreak" OR Epidemic OR Pandemic OR "Health emergency") AND ("Risk communication" OR "Crisis communication" OR "Emergency risk communication")	-2014-2024 -Document type: Article -Language: English -Source type: Journal -Publication stage: Final -All open access	282
TOTAL				566

Figure 1. PRISMA Diagram



Extracting and charting the data

Each article was assessed methodologically by Joanna Briggs Institute (JBI) critical appraisal tools (1). The summary of the the data was summarized from the following categories: detailed article, main finding, and identification of barrier or supporting factors for informed-decision making. Detailes of the summary were shown in Table 3.

Following the data charting, studies were analyze into three categories: health system response to COVID-19 among primary health care units, primary healthcare providers challenged during the COVID-19 pandemic, and model development. Data analysis based on the concept of informed-decision making and risk communication guidelines from WHO was conducted to explore good practices and weaknesses to be improved.

Result:

Study characteristic

Table 3 summarizes five studies included in this review. Five studies originated from Ethiopia, Armenia, Turkey, Canada, and USA.

Health system response to COVID-19 among primary health care units:

A variety of media and communication channels are employed to disseminate information to the public during health emergencies. Authorized institutions, including government bodies, health services, and professional organizations at national and

regional levels, utilize both one-way and two-way communication strategies. These encompass verbal and non-verbal communication, indoors and outdoors, online and offline. A wide array of media is leveraged, ranging from printed materials such as brochures and leaflets to television, radio, social media, and even art performances like drama or songs. Additionally, home visits serve as another vital means of communication (2). Effective risk communication significantly reduced burnout among health care workers (3).

However, a study showed that people's protective behavior is still low . Several factors were identified as barriers for effective risk communication such as inadequate risk communication strategy for vulnerable population (Latino in USA) (4), and the last but not least was unprepared health workers to implement risk communication (5,6).

Primary healthcare providers challenged during the COVID-19 pandemic:

Cross-sectoral assistance (government, security, transportation, trade, education, etc.) appeared strong in the initial phase of the outbreak. Their policies increased community compliance with outbreak control efforts. However, participation decreased as the outbreak progressed. The contributing factors include the top-down strategy in the formation process, lack of internal coordination within task forces, cross-sectoral prioritization of their own duties, insufficient budget (2).

Healthcare workers play an active role in communicating health risks to the public, both directly and indirectly. They conducted both face-to-face and indirect communication. They disseminate health information through television, radio, and other media channels. Doctors receive feedback through patient consultations both at home and in health facilities during consultation (2,5). However, research in Armenia indicates that doctors at primary health care levels have difficulty in communicating health risks in emergency situations. They also have difficulty obtaining training and obtaining trust from the public.

Meanwhile, community health workers (CHWs) communicate directly and indirectly with the community in the field. CHWs are usually members of the community who are well-known by the surrounding community (5). They communicate in the local language and know the environment and community well. Research on Rohingya refugees shows that healthcare workers as a frontliner experience many challenges. They have excessive workloads and lack adequate training. It hampers their role to listen effectively.

Public trust and confidence in healthcare workers is identified as the main challenge in many studies. Lack of trust leads to high error rates due to rumors and misinformation (2).

Models that have been developed

A study describe the development process of risk communication models. A study in the USA provides risk communication guidelines for Latino (4). This model was developed based on effective communication models in social media.

Table 3. List of reviewed articles and important findings

No	Articles detailed	Important finding	Barrier or supporting factors for effective
1	Mitike, G., Nigatu, F., Wolka, E., Defar, A., Tessema, M., & Nigussie, T. (2023). Health system response to COVID-19 among primary health care units in Ethiopia: A qualitative study. *PLoS ONE*, *18*(2 February). https://doi.org/10.1371/journal.pone.0281628	Efforts made in the initial phase of the outbreak: ▪ Cross-sectoral collaboration to reduce community movement. ▪ Risk communication is one of the interventions carried out in line with efforts to reduce human resource needs, provide training, equip personal protective equipment for health workers, surveillance, self-isolate at home for patients with mild symptoms. ▪ Cross-sector collaboration declines over time.	• Reducing community movement through cross-sector collaboration is only effective for the short term. • Community protective behavior is important for long-term outbreak prevention and can be achieved through risk communication interventions.
2	Aslanyan, L., Arakelyan, Z., Atanyan, A., Abrahamyan, A., Karapetyan, M., & Sahakyan, S. (2022). Primary healthcare providers challenged during the COVID-19 pandemic: a qualitative study. *BMC Primary Care*, *23*(1). https://doi.org/10.1186/s12875-022-01923-4	Health workers do not yet understand their roles and responsibilities in risk communication; lack of training; excessive workload; recruiting community health workers from the local community. The relationship between patients and health workers is not good due to a lack of trust.	• Health workers are not ready to implement risk communication. • Community health workers play an important role as an extension of health workers. • Lack of trust in health workers hinders successful communication.
3	Ayaslıer AA, Albayrak B, Çelik E, Özdemir Ö, Özgür Ö, Kırımlı E, Kayı İ, Sakarya S. (2023) Burnout in primary healthcare physicians and nurses in Turkey during COVID-19 pandemic. Primary Health Care Research & Development 24(e4): 1–8. doi: 10.1017/S146342362200069X	Family physicians and nurses are affected by burnout in different ways under the conditions of the COVID-19 pandemic	Communication problems in conditions of uncertainty (caused by the epidemic)
4	Young G, Mathews M, Hedden L, Lukewich J, Marshall EG, Gill P, McKay M, Ryan D, Spencer S, Buote R, Meredith L, Moritz L, Brown JB, Christian E and Wong E (2023) "Swamped with information": a qualitative study of family physicians' experiences of managing and applying pandemic-related information. *Front. Commun.* 8:1186678. doi: 10.3389/fcomm.2023.1186678	• Family physicians were overwhelmed by the volume of information and had difficulty applying the information to their practices. • Participants wanted summarized and consistent information from credible sources that are relevant to primary care.	The need for a coordinated communication strategy to effectively inform FPs in health emergencies.
5	Andrade, E.L.; Abroms, L.C.; González, A.I.; Favetto, C.; Gomez, V.; Díaz-Ramírez, M.; Palacios, C.; Edberg, M.C. Assessing Brigada Digital de Salud Audience Reach and	• Community-based model to engage Spanish- speaking audiences on social media with culturally aligned content to counter misinformation shows promise for addressing public health threats.	Digital CHWs who may encounter and/or manage this kind of engagement on social media platforms should also receive enhanced training.

	Engagement: A Digital Community Health Worker Model to Address COVID-19 Misinformation in Spanish on Social Media. *Vaccines* **2023**,*11*,1346. https://doi.org/ 10.3390/vaccines11081346	• The most engaging posts included videos with audio narration, healthcare providers, influencers, or music artists. • Projects seeking to implement community-based digital outreach with community health workers (CHWs) must have sufficient personnel and capacity to monitor, fact-check, and correct misleading and false comments,	

Discussion:

Healthcare workers are the frontliner in public health emergency. Effective risk communication provides protection to the community and also protects the healthcare workers (7–9).

The review showed that various efforts of risk communication conducted by the authorities become meaningless when there is no trust from the community. WHO's risk communication guidelines indicate that building and maintaining public trust is the main pillar of successful outbreak control (10). Uncertain situations increase emotions. The community will follow the sources of information they trust. They can trust many sources of information, including competent institutions, loved ones, any respected experts, and people who have proven to be kind to them in the past. WHO recommends that to build public trust, risk communication interventions should be related to access to healthcare services, transparent, timely, easy to understand, explain uncertainties, be appropriate to the target audience, link to self-efficacy, and delivered through various strategies (platforms, methods, and channels). Communicators must build relationships with the community, involve the community in decision-making, and ensure that interventions are carried out based on collaboration and context-appropriate (11). A study on building trust post-Ebola outbreak in Guinea shows that trust in healthcare workers can be fostered through non-verbal communication: competent, friendly, empathetic, honest, and maintain confidentiality (12).

Research conducted on health authorities in Quebec, Canada during the COVID-19 pandemic shows that the core principles of crisis and emergency risk communication (CERC) issued by the CDC (13) cannot all be implemented systematically. While the principle of 'be first' can be implemented well, the principles of 'be right' and 'be credible' still face obstacles in their implementation. Efforts to standardize message content to increase credibility and trust in society inadvertently use a 'top-down,' paternalistic approach, which weakens adjustments to society's needs and negatively impacts the implementation of individual protective behaviors (14). Meanwhile, the results of a scoping review conducted by Berg (15) regarding risk communication for minorities and migrants indicated that they need personal information from trusted sources.

Outbreak management is multi-sectoral in nature (Claramita et al., 2023.). Overcoming outbreaks requires the involvement of many sectors outside the health sector, at the international, national, and local government levels. However, over time, especially as the outbreak progresses, cross-sector assistance weakens, and efforts are needed to maintain its continuity (2,17). Such efforts have been demonstrated by a study in France. These efforts were undertaken with the consideration that effective public health interventions must involve sectors other than health. The Open Arena discussion venue for Public Health has proven to be more effective compared to ad hoc meetings. This ongoing discussion uses principles of equality in governance and organization, stakeholder representation, and agreement on

existing evidence at both international and local levels. Policy dialogue is allowed to flow freely without imposed solutions and support to test agreed-upon solutions (18).

One of the key successes in outbreak management is attributed to the capability of healthcare workers. Along with studies on doctors' risk ommunication skills in Armenia (5), a study in India also shows that doctors have varied perceptions regarding the definition of risk communication (19). It indicates a lack of teaching of risk communication concepts in medical education curricula. The importance of communication training is also demonstrated by a study in Indonesia. Doctors who have received communication training during their education also show higher satisfaction with patient-preferred communication compared to their colleagues who have never received such training (20).

CHWs have proven to play an important role in outbreak management worldwide (21,22). Research related to CHWs summarized from various countries in Africa and Asia shows that CHWs contribute to surveillance, health education, and COVID-19 patient management in the community. Various training programs are also available for CHWs. However, treatment and protection for CHWs vary between countries. This makes them at risk of experiencing direct and indirect negative impacts such as infection, stress, workload overload, and difficulty balancing time with household chores. Additionally, as frontline workers, CHWs are also vulnerable to stigmatization due to society's rejection of the messages conveyed (23).

The development of effective risk communication models in primary health care setting shows efforts towards community-based model.

The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

Conclusion:

The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

STATUS LUARAN

The manuscript and plagiarism checker are provided in annex.

PERAN MITRA

Tidak ada mitra dalam penelitian ini.

KENDALA PELAKSANAAN PENELITIAN

Kendala pelaksaanaan penelitian yang kami rasakan adalah:

1. Banyaknya artikel yang terjaring, sehingga diperlukan proses yang panjang untuk memilih artikel yang sesuai dengan kriteria inklusi.
2. Manajemen waktu

RENCANA TINDAK LANJUT PENELITIAN

1.

Daftar Pustaka disusun dan ditulis **berdasarkan sistem nomor** sesuai dengan urutan pengutipan. **Hanya pustaka yang disitasi/diacu** pada laporan kemajuan saja yang dicantumkan dalam Daftar Pustaka. **Minimal 25 referensi**.

DAFTAR PUSTAKA

1.1. 1 Search strategy

PICOTS framework (Table 1) was used to generate keywords for the research process in the four databases: PubMed, ScienceDirect, ProQuest, and Scopus. We include articles published in peer-reviewed journals on risk communication during outbreak by healthcare workers in English between 2014 and 2024. Details of search strategy is shown in Table 2. We identified 566 articles from four databases, and 507 articles remained after eliminating duplicate, unavailable full texts, and inappropriate research methods (e.g., research with secondary data: review, systematic/scoping review). Abstracts from 507 articles were screened and eliminated based on inclusion criteria: risk communication, outbreaks, health workers, and primary health care. An initial screening for titles and abstract was performed by first author and a research assistant with public health competency. A full-text screening for five selected articles was followed. The selection process of eligible literature was reported using PRISMA in Figure 1.

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ScienceDirect		("Health personnel" OR "Health worker" OR doctor OR Physician) AND ("Disease outbreak" OR Epidemic OR Pandemic) AND ("Risk communication" OR "Crisis communication")	- 2014-2024 -Research article -Open access & Open archive	202
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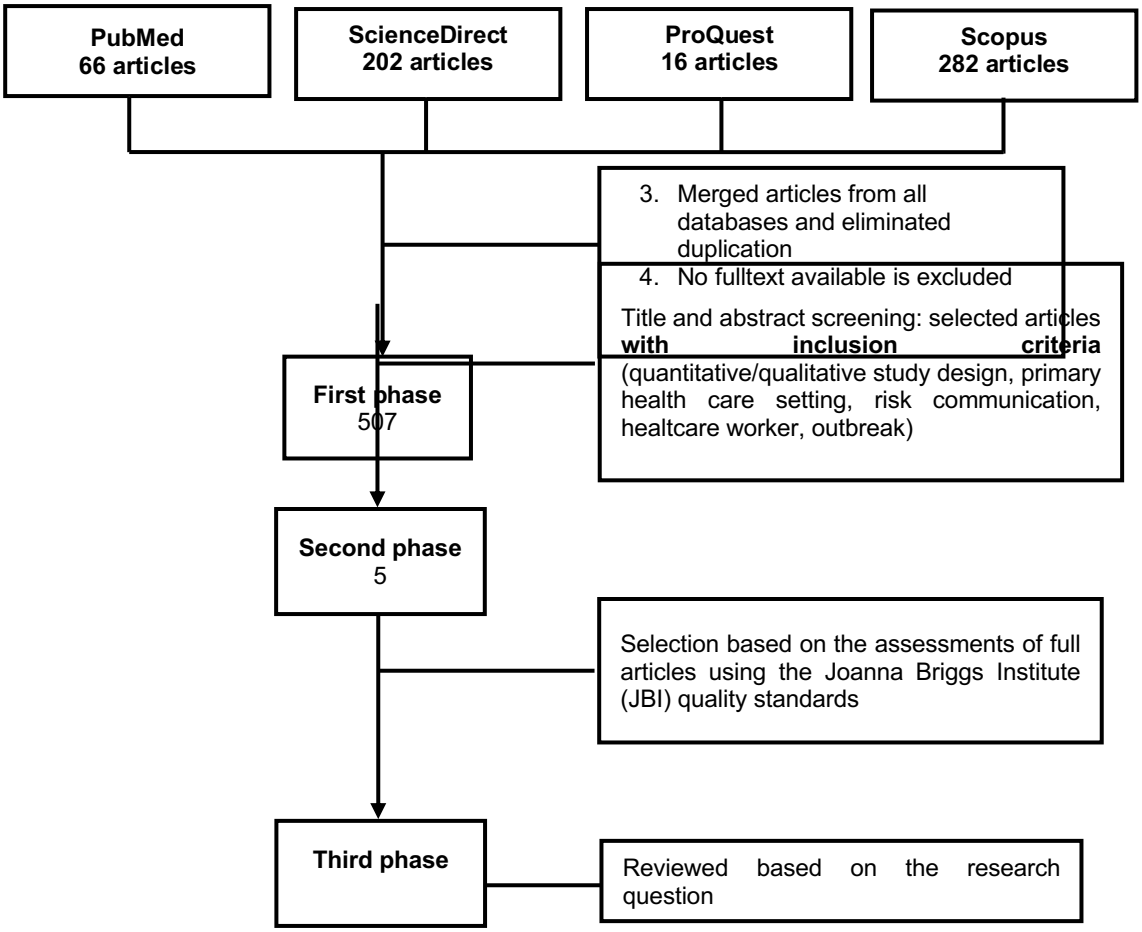
Scopus		("Health personnel" OR "Healthcare personnel" OR "Health worker" OR doctor OR Physician OR Paramedic) AND ("Disease outbreak" OR Epidemic OR Pandemic OR "Health emergency") AND ("Risk communication" OR "Crisis communication" OR "Emergency risk communication")	-2014-2024 -Document type: Article -Language: English -Source type: Journal -Publication stage: Final -All open access	282
TOTAL				566



2.2. Extracting and charting the data

Each article was assessed methodologically by Joanna Briggs Institute (JBI) critical appraisal tools (1). The summary of the the data was summarized from the following categories: detailed article, main finding, and identification of barrier or supporting factors for informed-decision making. Detailes of the summary were shown in Table 3.

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2. Result:

2.1. Study characteristic

Annex 1 summarizes five studies included in this review. Five studies originated from Ethiopia, Armenia, Turkey, Canada, and USA.

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A variety of media and communication channels are employed to disseminate information to the public during health emergencies. Authorized institutions, including government bodies, health services, and professional organizations at national and regional levels, utilize both one-way and two-way communication strategies. These encompass verbal and non-verbal communication, indoors and outdoors, online and offline. A wide array of media is leveraged, ranging from printed materials such as brochures and leaflets to television, radio, social media, and even art performances like drama or songs. Additionally, home visits serve as another vital means of communication (2). Effective risk communication significantly reduced burnout among health care workers (3).

However, a study showed that people's protective behavior is still low . Several factors were identified as barriers for effective risk communication such as inadequate risk communication strategy for vulnerable population (Latino in USA) (4), and the last but not least was unprepared health workers to implement risk communication (5,6).

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Cross-sectoral assistance (government, security, transportation, trade, education, etc.) appeared strong in the initial phase of the outbreak. Their policies increased community compliance with outbreak control efforts. However, participation decreased as the outbreak progressed. The contributing factors include the top-down strategy in the formation process, lack of internal coordination within task forces, cross-sectoral prioritization of their own duties, insufficient budget (2).

Healthcare workers play an active role in communicating health risks to the public, both directly and indirectly. They conducted both face-to-face and indirect communication. They disseminate health information through television, radio, and other media channels. Doctors receive feedback through patient consultations both at home and in health facilities during consultation (2,5). However, research in Armenia indicates that doctors at primary health care levels have difficulty in communicating health risks in emergency situations. They also have difficulty obtaining training and obtaining trust from the public.

Meanwhile, community health workers (CHWs) communicate directly and indirectly with the community in the field. CHWs are usually members of the community who are well-known by the surrounding community (5). They communicate in the local language and know the environment and community well. Research on Rohingya refugees shows that healthcare workers as a frontliner experience many challenges.

They have excessive workloads and lack adequate training. It hampers their role to listen effectively.

Public trust and confidence in healthcare workers is identified as the main challenge in many studies. Lack of trust leads to high error rates due to rumors and misinformation (2).

Models that have been developed

A study describe the development process of risk communication models. A study in the USA provides risk communication guidelines for Latino (4). This model was developed based on effective communication models in social media.

Table 4. List of reviewed articles and important findings

No	Articles detailed	Important finding	Barrier or supporting factors for effective
1	Mitike, G., Nigatu, F., Wolka, E., Defar, A., Tessema, M., & Nigussie, T. (2023). Health system response to COVID-19 among primary health care units in Ethiopia: A qualitative study. *PLoS ONE*, *18*(2 February). https://doi.org/10.1371/journal.pone.0281628	Efforts made in the initial phase of the outbreak: ▪ Cross-sectoral collaboration to reduce community movement. ▪ Risk communication is one of the interventions carried out in line with efforts to reduce human resource needs, provide training, equip personal protective equipment for health workers, surveillance, self-isolate at home for patients with mild symptoms. ▪ Cross-sector collaboration declines over time.	• Reducing community movement through cross-sector collaboration is only effective for the short term. • Community protective behavior is important for long-term outbreak prevention and can be achieved through risk communication interventions.
2	Aslanyan, L., Arakelyan, Z., Atanyan, A., Abrahamyan, A., Karapetyan, M., & Sahakyan, S. (2022). Primary healthcare providers challenged during the COVID-19 pandemic: a qualitative study. *BMC Primary Care*, *23*(1). https://doi.org/10.1186/s12875-022-01923-4	Health workers do not yet understand their roles and responsibilities in risk communication; lack of training; excessive workload; recruiting community health workers from the local community. The relationship between patients and health workers is not good due to a lack of trust.	• Health workers are not ready to implement risk communication. • Community health workers play an important role as an extension of health workers. • Lack of trust in health workers hinders successful communication.
3	Ayaslıer AA, Albayrak B, Çelik E, Özdemir Ö, Özgür Ö, Kırımlı E, Kayı İ, Sakarya S. (2023) Burnout in primary healthcare physicians and nurses in Turkey during COVID-19 pandemic. Primary Health Care Research & Development 24(e4): 1–8. doi: 10.1017/S146342362200069X	Family physicians and nurses are affected by burnout in different ways under the conditions of the COVID-19 pandemic	Communication problems in conditions of uncertainty (caused by the epidemic)
4	Young G, Mathews M, Hedden L, Lukewich J, Marshall EG, Gill P, McKay M, Ryan D, Spencer S, Buote R, Meredith L, Moritz L, Brown JB, Christian E and Wong E (2023) "Swamped with information": a qualitative study of family physicians' experiences of managing and applying pandemic-	• Family physicians were overwhelmed by the volume of information and had difficulty applying the information to their practices. • Participants wanted summarized and consistent information from credible sources that are relevant to primary care.	The need for a coordinated communication strategy to effectively inform FPs in health emergencies.

	related information. *Front. Commun.* 8:1186678. doi: 10.3389/fcomm.2023.1186678		
5	Andrade, E.L.; Abroms, L.C.; González, A.I.; Favetto, C.; Gomez, V.; Díaz-Ramírez, M.; Palacios, C.; Edberg, M.C. Assessing Brigada Digital de Salud Audience Reach and Engagement: A Digital Community Health Worker Model to Address COVID-19 Misinformation in Spanish on Social Media. *Vaccines* **2023**,*11*,1346. https://doi.org/10.3390/vaccines11081346	• Community-based model to engage Spanish- speaking audiences on social media with culturally aligned content to counter misinformation shows promise for addressing public health threats. • The most engaging posts included videos with audio narration, healthcare providers, influencers, or music artists. • Projects seeking to implement community-based digital outreach with community health workers (CHWs) must have sufficient personnel and capacity to monitor, fact-check, and correct misleading and false comments,	Digital CHWs who may encounter and/or manage this kind of engagement on social media platforms should also receive enhanced training.

3. Discussion:

Healthcare workers are the frontliner in public health emergency. Effective risk communication provides protection to the community and also protects the healthcare workers (7–9).

The review showed that various efforts of risk communication conducted by the authorities become meaningless when there is no trust from the community. WHO's risk communication guidelines indicate that building and maintaining public trust is the main pillar of successful outbreak control (10). Uncertain situations increase emotions. The community will follow the sources of information they trust. They can trust many sources of information, including competent institutions, loved ones, any respected experts, and people who have proven to be kind to them in the past. WHO recommends that to build public trust, risk communication interventions should be related to access to healthcare services, transparent, timely, easy to understand, explain uncertainties, be appropriate to the target audience, link to self-efficacy, and delivered through various strategies (platforms, methods, and channels). Communicators must build relationships with the community, involve the community in decision-making, and ensure that interventions are carried out based on collaboration and context-appropriate (11). A study on building trust post-Ebola outbreak in Guinea shows that trust in healthcare workers can be fostered through non-verbal communication: competent, friendly, empathetic, honest, and maintain confidentiality (12).

Research conducted on health authorities in Quebec, Canada during the COVID-19 pandemic shows that the core principles of crisis and emergency risk communication (CERC) issued by the CDC (13) cannot all be implemented systematically. While the principle of 'be first' can be implemented well, the principles of 'be right' and 'be credible' still face obstacles in their implementation. Efforts to standardize message content to increase credibility and trust in society inadvertently use a 'top-down,' paternalistic approach, which weakens adjustments to society's needs and negatively impacts the implementation of individual protective behaviors (14). Meanwhile, the results of a scoping review conducted by Berg (15) regarding risk communication for minorities and migrants indicated that they need personal information from trusted sources.

Outbreak management is multi-sectoral in nature (Claramita et al., 2023.). Overcoming outbreaks requires the involvement of many sectors outside the health sector, at the international, national, and local government levels. However, over time, especially as the outbreak progresses, cross-sector assistance weakens, and efforts are needed to maintain its continuity (2,17). Such efforts have been demonstrated by a study in France. These efforts were undertaken with the consideration that effective public health interventions must involve sectors other than health. The Open Arena discussion venue for Public Health has proven to be more effective compared to ad hoc meetings. This ongoing discussion uses principles of equality in governance and organization, stakeholder representation, and agreement on existing evidence at both international and local levels. Policy dialogue is allowed to flow freely without imposed solutions and support to test agreed-upon solutions (18).

One of the key successes in outbreak management is attributed to the capability of healthcare workers. Along with studies on doctors' risk ommunication skills in Armenia (5), a study in India also shows that doctors have varied perceptions regarding the definition of risk communication (19). It indicates a lack of teaching of risk communication concepts in medical education curricula. The importance of communication training is also demonstrated by a study in Indonesia. Doctors who have received communication training during their education also show higher satisfaction with patient-preferred communication compared to their colleagues who have never received such training (20).

CHWs have proven to play an important role in outbreak management worldwide (21,22). Research related to CHWs summarized from various countries in Africa and Asia shows that CHWs contribute to surveillance, health education, and COVID-19 patient management in the community. Various training programs are also available for CHWs. However, treatment and protection for CHWs vary between countries. This makes them at risk of experiencing direct and indirect negative impacts such as infection, stress, workload overload, and difficulty balancing time with household chores. Additionally, as frontline workers, CHWs are also vulnerable to stigmatization due to society's rejection of the messages conveyed (23).

The development of effective risk communication models in primary health care setting shows efforts towards community-based model.

The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

4. Conclusion:

The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

RENCANA TINDAK LANJUT:

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LAMPIRAN-LAMPIRAN:

a. Luaran wajib penelitian dan status capaiannya (draft manuskrip)

Risk communication in primary health care: *scoping review*

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Abstract

Background: All countries around the globe are facing health challenges caused by Infectious disease outbreaks. Healthcare workers in primary care are the first responders during health emergencies. They should be able to communicate risks effectively according to the context of society.
Objective: To identify the latest data regarding the implementation of risk communication conducted by healthcare workers during outbreaks in primary health care.
Method: This scoping review was conducted using Arksey and O'Malley's five-stage framework guideline. The selection process of eligible literature was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR).
Result: Total five articles were analyzed. Effective risk communication provides protection to the community and also protects the healthcare workers. Risk communication strategies used are very diverse. Meanwhile, there are many factors that hinder their effectiveness. Identified factors include low public trust, gaps in the development and implementation of communication strategies (media, channels, language), which hinder accessibility for vulnerable groups (Latino), a tendency for weakened cross-sector collaboration as the outbreak prolongs, top-down policies that are not deeply rooted in the community, and a lack of competence and training for healthcare workers. The development of risk communication models shows efforts towards community-based risk communication.
Conclusion: The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

1. Introduction:

History has taught us about the existence of infectious diseases that cause outbreaks (24). Large-scale outbreaks could lead to health emergencies and cause a lot of suffering, loss, and death (24,25). Countries with weak health systems will experience serious and continuous negative impacts (26,27). Outbreaks require rapid response to manage the cases, save lives, and control the spread of the disease (28,29). *International Health Regulation* (IHR) 2015 recommends eight core capacities that are synergistic in dealing with epidemics, namely national legislation, policy, and finance; coordination and communication of national focal point; surveillance, response, preparedness, risk communication, human resources, and laboratory (30).

Emerging diseases with potential epidemics are grouped into four major categories: newly emerging infectious disease, re-emerging infectious disease, deliberately infectious disease (bioterorism), and accidentally infectious disease (25). They create highly uncertain situations: people's health is at risk, but treatment options are limited, direct interventions may be not available, and existing resources are inadequate (25,29,31). Therefore, people's behavior and

compliance with health protocols are the most effective public health intervention before a biomedical intervention such as vaccines and treatments are widely available (32). Risk communication encourages people to adopt protective behavior, facilitates disease surveillance, reduces confusion, and enables better use of resources (10,31).

Risk communication is defined as “real-time exchange of information, advice and opinions – between experts, community leaders or officials and the people who are at risk” (10) Several studies conducted during pandemic COVID-19 showed significant prediction between public knowledge and awareness about the disease with their willingness to get tested (33,34). Transparency in information delivery in South Korea during MERS outbreak in 2015 was proven to reduce the incidence of infection by 85% and contaminated healthcare facilities by 39%. This reduction rate is comparable to vaccination (35). Meanwhile, ineffective risk communication will hamper efforts to contain the outbreak. The outbreak caused hundreds of thousands to millions of deaths in a short time throughout its cycle (36). Low levels of public knowledge and awareness increased fear, anxiety, stigma, and violence against health workers (37,38).

Healthcare workers in primary health care are vital in health emergencies. As the first responders, they are responsible for identifying cases, providing supportive treatment, implementing appropriate procedures to control the infections, and making safe referrals (7). Meanwhile, they also have to maintain the continuity of chronic disease management and reduce the burden of patient referrals at all higher-level health services through comprehensive preventive services (39,40). Primary care should be able to communicate risks effectively according to the context and continue to work together with the community until the outbreak is over (Claramita et al., 2023.; WHO, 2018). Outbreak risk communication must follow five principles namely trust, transparency, early announcing, listening, and planning (WHO South-east Asia, 2019) and must be engage the community (32).

However in practice, the difference in risk perception between healthcare workers and the community is the main obstacle to communicating risks. Experts think analytically and view risks based on the high probability of death, disability, and the impact of financial or political losses. Meanwhile, people's perception of risk is broader and based on emotions (41). Effective risk communication requires communicators to overcome these differences in line with combating the infodemic and rumors widely circulating in society (10,42).

This study aims to identify the implementation of risk communication at the primary health care level and to summarize the effectiveness and challenges encountered.

2. Method:

This scoping review was conducted using Arksey and O’Malley’s five-stage framework guideline. The selection process of eligible literature was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR). The study was started in May 2024.

The research question was framed using the population, intervention, comparison, outcomes and setting (PICOTS) method as following:

5. How is the implementation of risk communication conducted in primary health care?
6. What are the good practices and weaknesses to be improved based on WHO risk communication guidelines?

6.1. Search strategy

PICOTS framework (Table 1) was used to generate keywords for the research process in the four databases: PubMed, ScienceDirect, ProQuest, and Scopus. We include articles published in peer-reviewed journals on risk communication during outbreak by healthcare workers in English between 2014 and 2024. Details of search strategy is shown in Table 2. We identified 566 articles from four databases, and 507 articles remained after eliminating duplicate, unavailable full texts, and inappropriate research methods (e.g., research with secondary data:

review, systematic/scoping review). Abstracts from 507 articles were screened and eliminated based on inclusion criteria: risk communication, outbreaks, health workers, and primary health care. An initial screening for titles and abstract was performed by first author and a research assistant with public health competency. A full-text screening for five selected articles was followed. The selection process of eligible literature was reported using PRISMA in Figure 1.

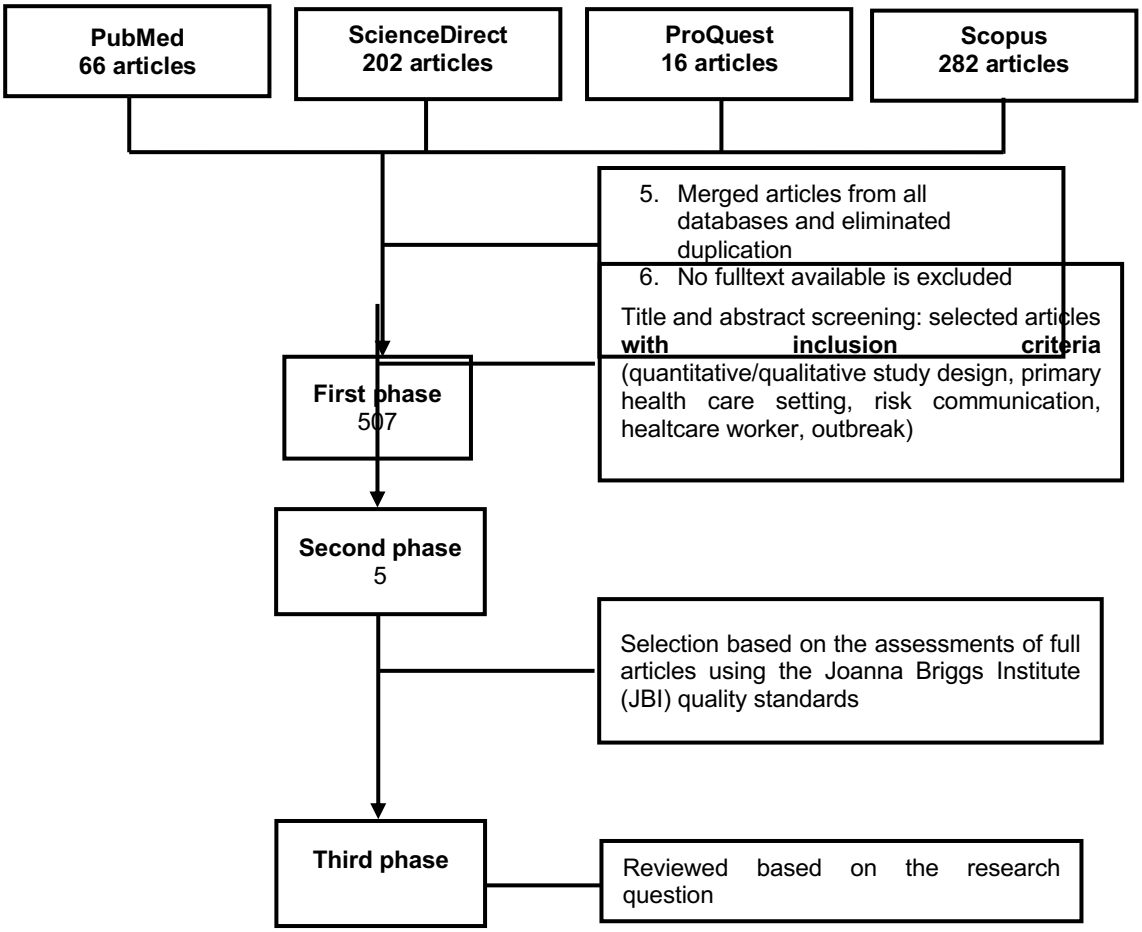
Table 1. PICOTS Framework

Criteria	Determinants
Population	Healthcare workers
Intervention	Risk communication
Comparison	None
Outcome	Quantitative and qualitative data on implementation of risk communication during outbreaks
Timeframe	1 January 2014 - 31 Januari 2024
Setting	Primary health care

Table 2. Searching Strategy

Source	#	Query	Limiters	QTY
PubMed	4	#1 AND #2 AND #3	-Free full text -In the last 10 years -English	66
	3	(("Risk communication"[Title/Abstract]) OR ("Crisis Communication"[Title/Abstract])) OR ("Emergency risk communication"[Title/Abstract])		
	2	(((((("Disease outbreaks"[MeSH Terms]) OR ("Disease outbreak"[Title/Abstract])) OR (Epidemics [MeSH Terms])) OR (Epidemic*[Title/Abstract])) OR (Pandemic*[Title/Abstract])) OR ("Health emergency*"[Title/Abstract])		
	1	((((((("Health personnel"[MeSH Terms]) OR ("Health personnel"[Title/Abstract])) OR ("Healthcare personnel*"[Title/Abstract])) OR ("Health worker*"[Title/Abstract])) OR (doctor*[Title/Abstract])) OR (Physician*[Title/Abstract])) OR (Paramedic*[Title/Abstract])		
ScienceDirect		("Health personnel" OR "Health worker" OR doctor OR Physician) AND ("Disease outbreak" OR Epidemic OR Pandemic) AND ("Risk communication" OR "Crisis communication")	- 2014-2024 -Research article -Open access & Open archive	202
Proquest		("Health personnel" OR "Healthcare personnel" OR "Health worker" OR doctor OR Physician OR Paramedic) AND ("Disease outbreak" OR Epidemic OR Pandemic OR "Health emergency") AND ("Risk communication" OR "Crisis communication" OR "Emergency risk communication")	-Fulltext -Scholary Journals -Last 10 years - Document type (Article, Evidance Based Healthcare, Case Study) -English	16
Scopus		("Health personnel" OR "Healthcare personnel" OR "Health worker" OR doctor OR Physician OR Paramedic) AND ("Disease outbreak" OR Epidemic OR Pandemic OR "Health emergency") AND ("Risk communication" OR "Crisis communication" OR "Emergency risk communication")	-2014-2024 -Document type: Article -Language: English -Source type: Journal -Publication stage:	282

			Final -All open access	
TOTAL				566



2.2. Extracting and charting the data

Each article was assessed methodologically by Joanna Briggs Institute (JBI) critical appraisal tools (1). The summary of the the data was summarized from the following categories: detailed article, main finding, and identification of barrier or supporting factors for informed-decision making. Detailes of the summary were shown in Table 3.

Following the data charting, studies were analyze into three categories: health system response to COVID-19 among primary health care units, primary healthcare providers challenged during the COVID-19 pandemic, and model development. Data analysis based on the concept of informed-decision making and risk communication guidelines from WHO was conducted to explore good practices and weaknesses to be improved.

7. Result:

7.1. Study characteristic

Annex 1 summarizes five studies included in this review. Five studies originated from Ethiopia, Armenia, Turkey, Canada, and USA.

Health system response to COVID-19 among primary health care units:

A variety of media and communication channels are employed to disseminate information to the public during health emergencies. Authorized institutions, including government bodies, health services, and professional organizations at national and regional levels, utilize both one-way and two-way communication strategies. These encompass verbal and non-verbal communication, indoors and outdoors, online and offline. A wide array of media is leveraged, ranging from printed materials such as brochures and leaflets to television, radio, social media, and even art performances like drama or songs. Additionally, home visits serve as another vital means of communication (2). Effective risk communication significantly reduced burnout among health care workers (3).

However, a study showed that people's protective behavior is still low . Several factors were identified as barriers for effective risk communication such as inadequate risk communication strategy for vulnerable population (Latino in USA) (4), and the last but not least was unprepared health workers to implement risk communication (5,6).

Primary healthcare providers challenged during the COVID-19 pandemic:

Cross-sectoral assistance (government, security, transportation, trade, education, etc.) appeared strong in the initial phase of the outbreak. Their policies increased community compliance with outbreak control efforts. However, participation decreased as the outbreak progressed. The contributing factors include the top-down strategy in the formation process, lack of internal coordination within task forces, cross-sectoral prioritization of their own duties, insufficient budget (2).

Healthcare workers play an active role in communicating health risks to the public, both directly and indirectly. They conducted both face-to-face and indirect communication. They disseminate health information through television, radio, and other media channels. Doctors receive feedback through patient consultations both at home and in health facilities during consultation (2,5). However, research in Armenia indicates that doctors at primary health care levels have difficulty in communicating health risks in emergency situations. They also have difficulty obtaining training and obtaining trust from the public.

Meanwhile, community health workers (CHWs) communicate directly and indirectly with the community in the field. CHWs are usually members of the community who are well-known by the surrounding community (5). They communicate in the local language and know the environment and community well. Research on Rohingya refugees shows that healthcare workers as a frontliner experience many challenges. They have excessive workloads and lack adequate training. It hampers their role to listen effectively.

Public trust and confidence in healthcare workers is identified as the main challenge in many studies. Lack of trust leads to high error rates due to rumors and misinformation (2).

Models that have been developed

A study describe the development process of risk communication models. A study in the USA provides risk communication guidelines for Latino (4). This model was developed based on effective communication models in social media.

Table 4. List of reviewed articles and important findings

No	Articles detailed	Important finding	Barrier or supporting factors for effective

1	Mitike, G., Nigatu, F., Wolka, E., Defar, A., Tessema, M., & Nigussie, T. (2023). Health system response to COVID-19 among primary health care units in Ethiopia: A qualitative study. *PLoS ONE*, *18*(2 February). https://doi.org/10.1371/journal.pone.0281628	Efforts made in the initial phase of the outbreak: ▪ Cross-sectoral collaboration to reduce community movement. ▪ Risk communication is one of the interventions carried out in line with efforts to reduce human resource needs, provide training, equip personal protective equipment for health workers, surveillance, self-isolate at home for patients with mild symptoms. ▪ Cross-sector collaboration declines over time.	• Reducing community movement through cross-sector collaboration is only effective for the short term. • Community protective behavior is important for long-term outbreak prevention and can be achieved through risk communication interventions.
2	Aslanyan, L., Arakelyan, Z., Atanyan, A., Abrahamyan, A., Karapetyan, M., & Sahakyan, S. (2022). Primary healthcare providers challenged during the COVID-19 pandemic: a qualitative study. *BMC Primary Care*, *23*(1). https://doi.org/10.1186/s12875-022-01923-4	Health workers do not yet understand their roles and responsibilities in risk communication; lack of training; excessive workload; recruiting community health workers from the local community. The relationship between patients and health workers is not good due to a lack of trust.	• Health workers are not ready to implement risk communication. • Community health workers play an important role as an extension of health workers. • Lack of trust in health workers hinders successful communication.
3	Ayaslıer AA, Albayrak B, Çelik E, Özdemir Ö, Özgür Ö, Kırımlı E, Kayı İ, Sakarya S. (2023) Burnout in primary healthcare physicians and nurses in Turkey during COVID-19 pandemic. Primary Health Care Research & Development 24(e4): 1–8. doi: 10.1017/S146342362200069X	Family physicians and nurses are affected by burnout in different ways under the conditions of the COVID-19 pandemic	Communication problems in conditions of uncertainty (caused by the epidemic)
4	Young G, Mathews M, Hedden L, Lukewich J, Marshall EG, Gill P, McKay M, Ryan D, Spencer S, Buote R, Meredith L, Moritz L, Brown JB, Christian E and Wong E (2023) "Swamped with information": a qualitative study of family physicians' experiences of managing and applying pandemic-related information. *Front. Commun.* 8:1186678. doi: 10.3389/fcomm.2023.1186678	• Family physicians were overwhelmed by the volume of information and had difficulty applying the information to their practices. • Participants wanted summarized and consistent information from credible sources that are relevant to primary care.	The need for a coordinated communication strategy to effectively inform FPs in health emergencies.
5	Andrade, E.L.; Abroms, L.C.; González, A.I.; Favetto, C.; Gomez, V.; Díaz-Ramírez, M.; Palacios, C.; Edberg, M.C. Assessing Brigada Digital de Salud Audience Reach and Engagement: A Digital Community Health Worker Model to Address COVID-19 Misinformation in	• Community-based model to engage Spanish- speaking audiences on social media with culturally aligned content to counter misinformation shows promise for addressing public health threats. • The most engaging posts included videos with audio narration, healthcare providers, influencers, or music artists. • Projects seeking to implement community-based digital outreach with community health workers (CHWs) must have	Digital CHWs who may encounter and/or manage this kind of engagement on social media platforms should also receive enhanced training.

	Spanish on Social Media. *Vaccines* **2023**,*11*,1346. https://doi.org/ 10.3390/vaccines11081346	sufficient personnel and capacity to monitor, fact-check, and correct misleading and false comments,	

8. Discussion:

Healthcare workers are the frontliner in public health emergency. Effective risk communication provides protection to the community and also protects the healthcare workers (7–9).

The review showed that various efforts of risk communication conducted by the authorities become meaningless when there is no trust from the community. WHO's risk communication guidelines indicate that building and maintaining public trust is the main pillar of successful outbreak control (10). Uncertain situations increase emotions. The community will follow the sources of information they trust. They can trust many sources of information, including competent institutions, loved ones, any respected experts, and people who have proven to be kind to them in the past. WHO recommends that to build public trust, risk communication interventions should be related to access to healthcare services, transparent, timely, easy to understand, explain uncertainties, be appropriate to the target audience, link to self-efficacy, and delivered through various strategies (platforms, methods, and channels). Communicators must build relationships with the community, involve the community in decision-making, and ensure that interventions are carried out based on collaboration and context-appropriate (11). A study on building trust post-Ebola outbreak in Guinea shows that trust in healthcare workers can be fostered through non-verbal communication: competent, friendly, empathetic, honest, and maintain confidentiality (12).

Research conducted on health authorities in Quebec, Canada during the COVID-19 pandemic shows that the core principles of crisis and emergency risk communication (CERC) issued by the CDC (13) cannot all be implemented systematically. While the principle of 'be first' can be implemented well, the principles of 'be right' and 'be credible' still face obstacles in their implementation. Efforts to standardize message content to increase credibility and trust in society inadvertently use a 'top-down,' paternalistic approach, which weakens adjustments to society's needs and negatively impacts the implementation of individual protective behaviors (14). Meanwhile, the results of a scoping review conducted by Berg (15) regarding risk communication for minorities and migrants indicated that they need personal information from trusted sources.

Outbreak management is multi-sectoral in nature (Claramita et al., 2023.). Overcoming outbreaks requires the involvement of many sectors outside the health sector, at the international, national, and local government levels. However, over time, especially as the outbreak progresses, cross-sector assistance weakens, and efforts are needed to maintain its continuity (2,17). Such efforts have been demonstrated by a study in France. These efforts were undertaken with the consideration that effective public health interventions must involve sectors other than health. The Open Arena discussion venue for Public Health has proven to be more effective compared to ad hoc meetings. This ongoing discussion uses principles of equality in governance and organization, stakeholder representation, and agreement on existing evidence at both international and local levels. Policy dialogue is allowed to flow freely without imposed solutions and support to test agreed-upon solutions (18).

One of the key successes in outbreak management is attributed to the capability of healthcare workers. Along with studies on doctors' risk ommunication skills in Armenia (5), a study in India also shows that doctors have varied perceptions regarding the definition of risk

communication (19). It indicates a lack of teaching of risk communication concepts in medical education curricula. The importance of communication training is also demonstrated by a study in Indonesia. Doctors who have received communication training during their education also show higher satisfaction with patient-preferred communication compared to their colleagues who have never received such training (20).

CHWs have proven to play an important role in outbreak management worldwide (21,22). Research related to CHWs summarized from various countries in Africa and Asia shows that CHWs contribute to surveillance, health education, and COVID-19 patient management in the community. Various training programs are also available for CHWs. However, treatment and protection for CHWs vary between countries. This makes them at risk of experiencing direct and indirect negative impacts such as infection, stress, workload overload, and difficulty balancing time with household chores. Additionally, as frontline workers, CHWs are also vulnerable to stigmatization due to society's rejection of the messages conveyed (23).

The development of effective risk communication models in primary health care setting shows efforts towards community-based model.

The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

9. Conclusion:

The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

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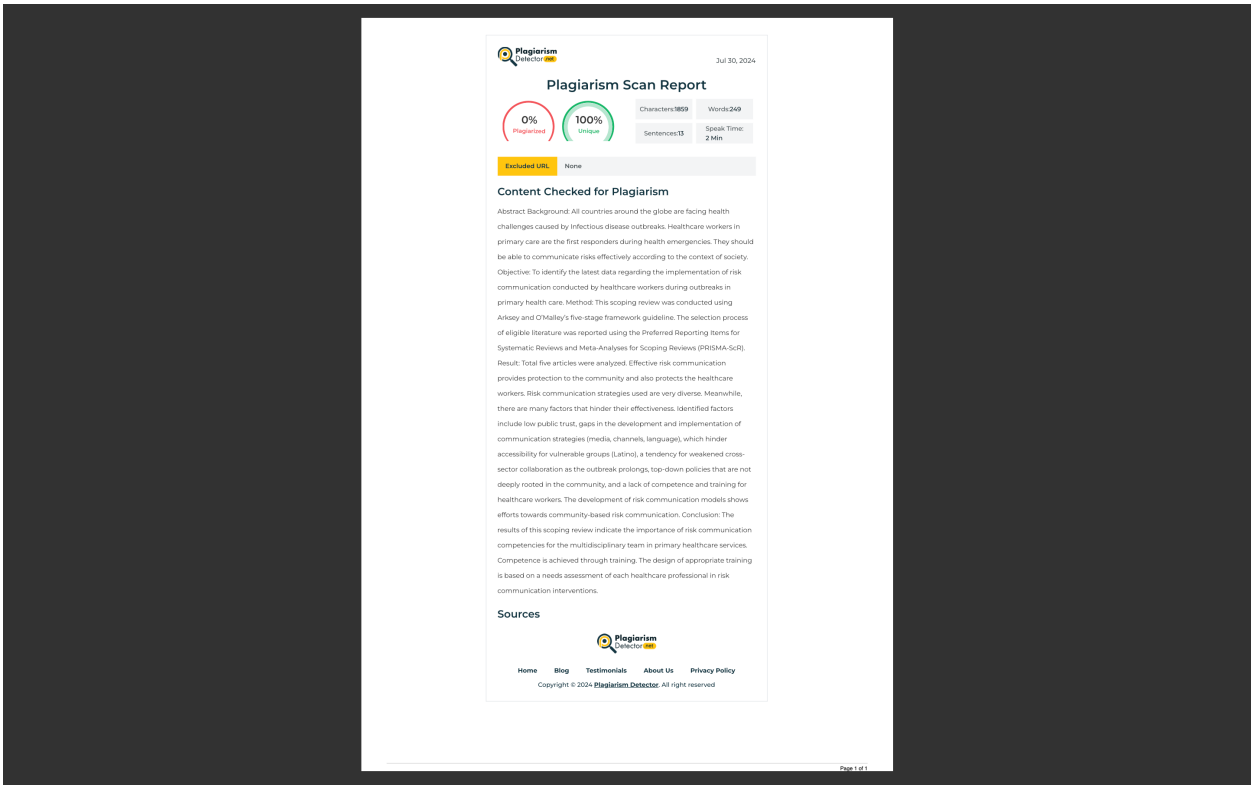

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Abstract Background: All countries around the globe are facing health challenges caused by infectious disease outbreaks. Healthcare workers in primary care are the first responders during health emergencies. They should be able to communicate risks effectively according to the context of society. Objective: To identify the latest data regarding the implementation of risk communication conducted by healthcare workers during outbreaks in primary health care. Method: This scoping review was conducted using Arksey and O'Malley's five-stage framework guideline. The selection process of eligible literature was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR). Result: Total five articles were analyzed. Effective risk communication provides protection to the community and also protects the healthcare workers. Risk communication strategies used are very diverse. Meanwhile, there are many factors that hinder their effectiveness. Identified factors include low public trust, gaps in the development and implementation of communication strategies (media, channels, language), which hinder accessibility for vulnerable groups (Latino), a tendency for weakened cross-sector collaboration as the outbreak prolongs, top-down policies that are not deeply rooted in the community, and a lack of competence and training for healthcare workers. The development of risk communication models shows efforts towards community-based risk communication. Conclusion: The results of this scoping review indicate the importance of risk communication competencies for the multidisciplinary team in primary healthcare services. Competence is achieved through training. The design of appropriate training is based on a needs assessment of each healthcare professional in risk communication interventions.

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History has taught us about the existence of infectious diseases that cause outbreaks (Piret & Boivin, 2021). Large-scale outbreaks could lead to health emergencies and cause a lot of suffering, loss, and death (Morens DM, 2020; Piret & Boivin, 2021). Countries with weak health systems will experience serious and continuous negative impacts (Djalante et al., 2020; Khatri et al., 2023). Outbreaks require rapid response to manage the cases, save lives, and control the spread of the disease (WHO, 2005, 2022). International Health Regulation (IHR) 2015 recommends eight core capacities that are synergistic in dealing with epidemics, namely national legislation, policy, and finance; coordination and communication of national focal point; surveillance, response, preparedness, risk communication, human resources, and laboratory (WHO, 2015). Emerging diseases with potential epidemics are grouped into four major categories: newly emerging infectious disease, re-emerging infectious disease, deliberately infectious disease (bioterorism), and accidentally infectious disease (Morens DM, 2020). They create highly uncertain situations: people's health is at risk, but treatment options are limited, direct interventions may be not available, and existing resources are inadequate (Morens DM, 2020; WHO, 2005, 2008). Therefore, people's behavior and compliance with health protocols are the most effective public health intervention before a biomedical intervention such as vaccines and treatments are widely available (WHO, 2020). Risk communication encourages people to adopt protective behavior, facilitates disease surveillance, reduces confusion, and enables better use of resources (WHO, 2008; WHO South-east Asia, 2019). Risk communication is defined as "real-time exchange of information, advice and opinions – between experts, community leaders or officials and the people who are at risk" (WHO South-east Asia, 2019) Several studies conducted during pandemic COVID-19 showed significant prediction between public knowledge and awareness about the disease with their willingness to get tested (Almuzaini et al., 2021; Vandrevala et al., 2022). Transparency in information delivery in South Korea during MERS outbreak in 2015 was proven to reduce the incidence of infection by 85% and contaminated healthcare facilities by 39%. This reduction rate is comparable to vaccination (Yoon, 2022). Meanwhile, ineffective risk communication will hamper efforts to contain the outbreak. The outbreak caused hundreds of thousands to millions of deaths in a short time throughout its cycle (Saunders-hastings & Krewski, 2016). Low levels of

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2. Method: This scoping review was conducted using Arksey and O'Malley's five-stage framework guideline. The selection process of eligible literature was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR). The study was started in May 2024. The research question was framed using the population, intervention, comparison, outcomes and setting (PICOTS) method as following: 1. How is the implementation of risk communication conducted in primary health care? 2. What are the good practices and weaknesses to be improved based on WHO risk communication guidelines? 2.1. Search strategy PICOTS framework (Table 1) was used to generate keywords for the research process in the four databases: PubMed, ScienceDirect, ProQuest, and Scopus. We include articles published in peer-reviewed journals on risk communication during outbreak by healthcare workers in English between 2014 and 2024. Details of search strategy is shown in Table 2. We identified 566 articles from four databases, and 507 articles remained after eliminating duplicate, unavailable full texts, and inappropriate research methods (e.g., research with secondary data: review, systematic/scoping review). Abstracts from 507 articles were screened and eliminated based on inclusion criteria: risk communication, outbreaks, health workers, and primary health care. An initial screening for titles and abstract was performed by first author and a research assistant with public health competency. A full-text screening for five selected articles was followed. The selection process of eligible literature was reported using PRISMA in Figure 1.

Sources

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2.2. Extracting and charting the data Each article was assessed methodologically by Joanna Briggs Institute (JBI) critical appraisal tools (Lockwood C, 2015). The summary of the the data was summarized from the following categories: detailed article, main finding, and identification of barrier or supporting factors for informed-decision making. Detailes of the summary were shown in Table 3. Following the data charting, studies were analyze into three categories: health system response to COVID-19 among primary health care units, primary healthcare providers challenged during the COVID-19 pandemic, and model development. Data analysis based on the concept of informed-decision making and risk communication guidelines from WHO was conducted to explore good practices and weaknesses to be improved. 3. Result: 3.1. Study characteristic Annex I summarizes five studies included in this review. Five studies originated from Ethiopia, Armenia, Turkey, Canada, and USA. Health system response to COVID-19 among primary health care units: A variety of media and communication channels are employed to disseminate information to the public during health emergencies. Authorized institutions, including government bodies, health services, and professional organizations at national and regional levels, utilize both one-way and two-way communication strategies. These encompass verbal and non-verbal communication, indoors and outdoors, online and offline. A wide array of media is leveraged, ranging from printed materials such as brochures and leaflets to television, radio, social media, and even art performances like drama or songs. Additionally, home visits serve as another vital means of communication (Mitike et al., 2023). Effective risk communication significantly reduced burnout among health care workers (Ayasller et al., 2023). However, a study showed that people's protective behavior is still low . Several factors were identified as barriers for effective risk communication such as inadequate risk communication strategy for vulnerable population (Latino in USA) (Andrade et al., 2023), and the last but not least was unprepared health workers to implement risk communication (Aslanyan et al., 2022; Young et al., 2023). Primary healthcare providers challenged during the COVID-19 pandemic: Cross-sectoral assistance (government, security, transportation, trade, education, etc.) appeared strong in the initial phase of the outbreak. Their policies increased community compliance with outbreak control efforts. However, participation decreased as the outbreak progressed. The contributing factors include the top-down strategy in the formation process,

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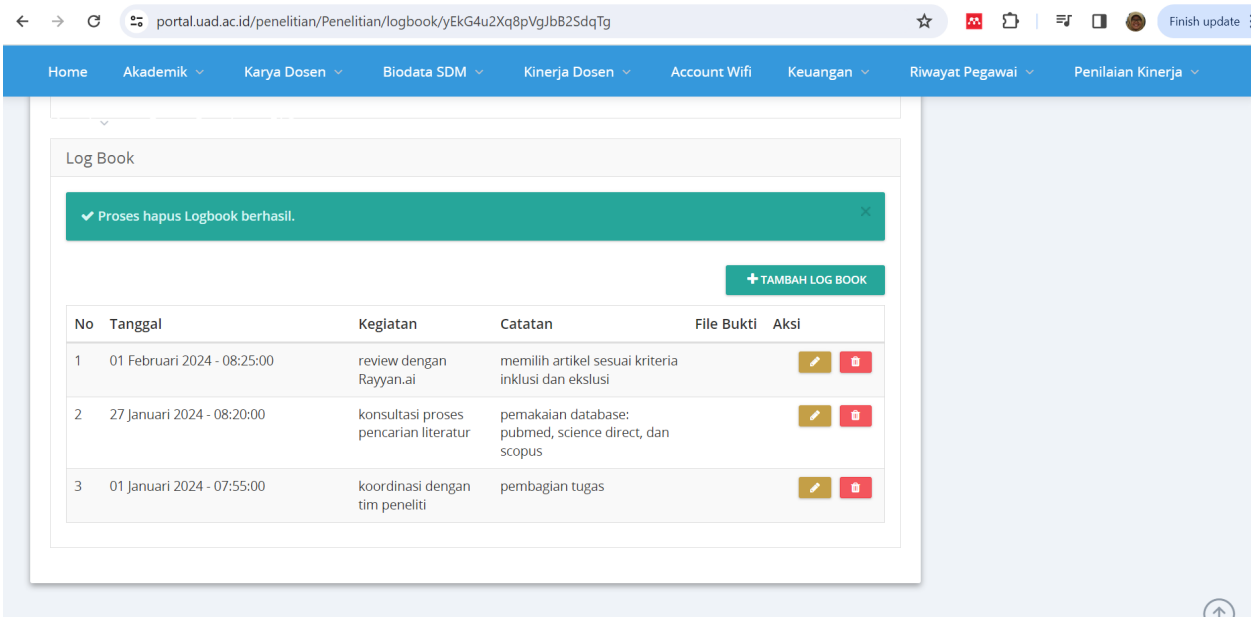
4. Discussion: Healthcare workers are the frontliner in public health emergency. Effective risk communication provides protection to the community and also protects the healthcare workers (Bandyopadhyay et al., 2020; Smaghi et al., 2021; WHO, 2018). The review showed that various efforts of risk communication conducted by the authorities become meaningless when there is no trust from the community. WHO's risk communication guidelines indicate that building and maintaining public trust is the main pillar of successful outbreak control (WHO South-east Asia, 2019). Uncertain situations increase emotions. The community will follow the sources of information they trust. They can trust many sources of information, including competent institutions, loved ones, any respected experts, and people who have proven to be kind to them in the past. WHO recommends that to build public trust, risk communication interventions should be related to access to healthcare services, transparent, timely, easy to understand, explain uncertainties, be appropriate to the target audience, link to self-efficacy, and delivered through various strategies (platforms, methods, and channels). Communicators must build relationships with the community, involve the community in decision-making, and ensure that interventions are carried out based on collaboration and context-appropriate (WHO, 2017). A study on building trust post-Ebola outbreak in Guinea shows that trust in healthcare workers can be fostered through non-verbal communication: competent, friendly, empathetic, honest, and maintain confidentiality (Tibbels et al., 2022). Research conducted on health authorities in Quebec, Canada during the COVID-19 pandemic shows that the core principles of crisis and emergency risk communication (CERC) issued by the CDC (CDC, 2014) cannot all be implemented systematically. While the principle of 'be first' can be implemented well, the principles of 'be right' and 'be credible' still face obstacles in their implementation. Efforts to standardize message content to increase credibility and trust in society inadvertently use a 'top-down,' paternalistic approach, which weakens adjustments to society's needs and negatively impacts the implementation of individual protective behaviors (Dubé et al., 2022). Meanwhile, the results of a scoping review conducted by Berg (Berg et al., 2021) regarding risk communication for minorities and migrants indicated that they need personal information from trusted sources. Outbreak management is multi-sectoral in nature (Claramita et al., 2023.). Overcoming outbreaks requires the involvement of many sectors outside the

b. *Logbook* / Catatan Harian (diinput dan diunduh dari portal)



c. Laporan penggunaan dana penelitian / SPTB (diinput dan diunduh dari portal)