Students' Awareness of Emerging Infectious Disease in the Age of Global Insecurity

Fatoyinbo, O. S. and Muritadho, H. O.

Department of Biology Education
Federal College of Education (Technical), Akoka.
omolola.fatoyinbo@fcetakoka.edu.ng

Abstract

Emerging infectious diseases have become a major global public health concern due to increasing globalization, environmental changes, and rising global insecurity. Factors such as conflict, displacement, weak healthcare systems, and rapid population movement have contributed to the spread of infectious diseases across different regions of the world. This study examined students' awareness of emerging infectious diseases in the age of global insecurity. The study specifically reviewed students' level of awareness, their sources of information, determined the relationship between awareness and preventive health behaviours, and evaluated the influence of global insecurity on students' perception of infectious disease risks. The study adopted a systematic review research design and relied on recent peer-reviewed journal articles obtained from academic databases such as Google Scholar, PubMed, ScienceDirect, and Scopus. Relevant studies published between 2020 and 2025 were critically reviewed and analysed through qualitative content analysis. The findings revealed that students generally possess moderate to high awareness of emerging infectious diseases, particularly diseases such as COVID-19 and Ebola. Social media, online platforms, educational institutions, and public health campaigns were identified as major sources of information. The study also found that awareness positively influences preventive health behaviours, although misinformation and low risk perception sometimes limit proper health practices. Furthermore, global insecurity was found to significantly shape students' perception of infectious disease risks. The study concludes that strengthening health education and promoting access to credible information are essential for improving students' preparedness for future infectious disease outbreaks.

Keywords: Emerging infectious diseases, Students' awareness, Global insecurity, Preventive health behaviors, Health education.

Introduction

Emerging infectious diseases have become a major global public health concern, especially in the context of increasing interconnectedness, environmental change, and socio-political instability. Diseases such as COVID-19 and Ebola virus disease have demonstrated how quickly infections can spread across borders, affecting not only health systems but also economies and social structures. Recent studies emphasise that emerging infectious diseases are driven by factors such

as globalisation, urbanisation, climate change, and human–animal interactions, which increase the likelihood of zoonotic transmission and rapid outbreaks (Barimah et al., 2023).

In addition, global insecurity, including armed conflict, political instability, and forced migration, further worsens the situation by disrupting healthcare systems and increasing population vulnerability. Evidence from a systematic review shows that conflict situations contribute significantly to the emergence and spread of infectious diseases through weakened infrastructure, overcrowding, and limited access to healthcare services (Marou et al., 2024).

Within this context, students represent an important population group in understanding awareness and response to infectious diseases. As young adults who are often active in social networks and educational environments, students are both at risk of exposure and capable of influencing public health outcomes through their knowledge and behaviour. Research has shown that health literacy plays a critical role in shaping students' awareness and preventive practices regarding infectious diseases. For instance, a study conducted among university students found that higher levels of health literacy were associated with better awareness and protective behaviours against infectious diseases (Orhan et al., 2025).

Similarly, other studies have indicated that while many students demonstrate moderate to high awareness, significant knowledge gaps and misconceptions still exist, particularly among non-health-related students (Abeywickrama et al., 2025). This suggests that awareness is not evenly distributed and may depend on academic background, access to information, and exposure to health education.

Despite the growing importance of awareness, there remains a persistent problem regarding the adequacy and depth of students' understanding of emerging infectious diseases, especially in regions experiencing varying degrees of insecurity. Many students rely heavily on informal sources such as social media, which may expose them to misinformation and reduce their ability to respond effectively to disease outbreaks. Studies on communicable disease awareness among

university students have revealed that although awareness levels can be relatively high, there are still inconsistencies in risk perception and preventive behaviour (Erdoğan & Duru, 2025).

Furthermore, the link between global insecurity and disease transmission is often not fully understood by students, even though insecurity significantly increases the risk of outbreaks and limits effective response mechanisms. This gap in knowledge may hinder preparedness and contribute to the rapid spread of infectious diseases during crises. Therefore, there is a need to examine the level of students' awareness within the broader context of global insecurity and to identify areas where knowledge and perception can be improved.

The concept of emerging infectious diseases (EIDs) refers to infections that are newly identified, newly evolved, or previously existing diseases that are rapidly increasing in incidence or geographic spread. Scholars explain that these diseases may arise from new pathogens, the reappearance of previously controlled infections, or the recognition of diseases that were previously undetected within populations (Chen, 2022). In simple terms, emerging infectious diseases are dynamic in nature and reflect changes in how diseases occur, spread, and affect populations over time.

Recent literature emphasises that most emerging infectious diseases are zoonotic, meaning they originate from animals and are transmitted to humans through processes such as spillover. It is estimated that a significant proportion of these diseases is linked to interactions between humans, animals, and the environment, especially in situations where ecological balance is disrupted (Nichol, 2024). This highlights the importance of the "One Health" approach, which recognises the connection between human health, animal health, and environmental conditions in understanding disease emergence.

Furthermore, the emergence of infectious diseases is driven by multiple interrelated factors. Studies identify key drivers such as globalisation, urbanisation, climate change, deforestation, and increased human–animal contact as major contributors to disease outbreaks (Topluoglu et al., 2023). Human activities, particularly environmental modifications and population movement, create conditions that facilitate the transmission and evolution of pathogens. In addition, microbial

adaptation and resistance further complicate the control of these diseases, making them a persistent global health challenge.

Global insecurity has been widely identified in recent literature as a major driver of infectious disease spread, particularly in regions affected by conflict, displacement, and weak governance systems. Insecurity disrupts essential social structures and creates conditions that favour the emergence and transmission of diseases. A systematic review by Marou et al. (2024) shows that conflict situations are strongly associated with outbreaks of infectious diseases due to factors such as population displacement, breakdown of healthcare systems, and poor living conditions (Marou et al., 2024). When health infrastructure is destroyed or weakened, routine disease surveillance, vaccination programs, and treatment services are often interrupted, thereby increasing the risk of epidemics.

Furthermore, global insecurity often leads to large-scale human displacement, which plays a critical role in disease transmission. Refugees and internally displaced persons frequently live in overcrowded camps with inadequate sanitation, limited access to clean water, and insufficient healthcare services. These conditions create a conducive environment for the rapid spread of communicable diseases such as cholera, measles, and respiratory infections (Kearney et al., 2024). In addition, increased mobility across borders during crises facilitates the spread of infections beyond local regions, turning localised outbreaks into global health threats.

Another important dimension is the indirect effect of insecurity on public health systems and governance. Conflict and political instability reduce government capacity to respond effectively to disease outbreaks, leading to delayed interventions and poor coordination of health responses. Marou et al. (2024) further note that insecurity disrupts supply chains for essential medical resources, including vaccines, medications, and clean water, thereby worsening disease outcomes (Marou et al., 2024). These challenges are often compounded by misinformation and a lack of public awareness, which can hinder preventive behaviours and increase vulnerability among affected populations. Students' awareness of infectious diseases is commonly examined through the "knowledge, attitude, and practice" (KAP) framework, which explains how what individuals

know influences how they feel and ultimately how they behave toward health risks. Recent studies show that awareness plays a central role in shaping preventive health behaviours among students. For instance, research on college students' knowledge of respiratory infectious diseases found that knowledge has both a direct and indirect influence on preventive practices, mainly through its effect on attitudes toward disease prevention (Gu et al., 2023). This suggests that awareness alone is not sufficient unless it also leads to positive perceptions and willingness to adopt protective measures.

Empirical evidence further indicates that although many students demonstrate moderate to high awareness of infectious diseases, this does not always translate into consistent health behaviours. A cross-sectional study among nursing students revealed that knowledge and attitudes significantly influence infection management behaviour, but other factors such as training, perceived risk, and environmental conditions also play important roles (Park & Yeom, 2023). Similarly, studies on tuberculosis and sexually transmitted infections among university students show that while awareness levels may be relatively high, gaps still exist in preventive practices due to misconceptions or low perceived susceptibility (Kandasamy et al., 2024).

In the Nigerian context and other developing regions, students' health behaviour is also influenced by access to accurate information and exposure to health education. Studies have shown that students who receive reliable information through formal education or health campaigns are more likely to adopt preventive measures such as hygiene practices, vaccination, and responsible healthseeking behaviour (Enang et al., 2023). However, reliance on informal sources, especially social media, can lead to misinformation, which negatively affects risk perception and behaviour.

Risk Perception Theory explains how individuals interpret and respond to potential health threats based on their subjective judgment of risk rather than objective facts. In the context of infectious diseases, the theory suggests that individuals are more likely to adopt preventive behaviours when they perceive themselves to be at risk of infection and believe that the consequences are serious. Recent studies indicate that risk perception is shaped by factors such as personal experience,

access to information, social influence, and trust in authorities (Niu et al., 2024). This means that students' understanding of disease risk is not only based on knowledge but also on how they interpret and internalize health information within their social environment.

Empirical evidence shows that risk perception plays a significant role in influencing health-related behaviour among students. A study on infectious disease dynamics found that individuals who perceive a higher risk of infection are more likely to engage in protective behaviours such as hygiene practices, social distancing, and vaccination (Li et al., 2023). Similarly, research among university students demonstrates that variations in perceived susceptibility and severity of diseases directly affect their willingness to adopt preventive measures (Tarek et al., 2023). This highlights the idea that even when awareness exists, low risk perception can reduce compliance with health guidelines.

In addition, studies conducted among student populations show that risk perception is closely linked to awareness and health literacy. For example, research on university students revealed that those with higher awareness of infectious diseases tend to have stronger risk perception and are more likely to practice preventive behaviours (Orhan et al., 2025). However, inaccurate information or low perceived vulnerability can weaken this relationship, leading to risky behaviours despite adequate knowledge.

Research Questions

1. What is the overall level of awareness of emerging infectious diseases among students?
2. What are the primary sources of information used by students to obtain knowledge about infectious diseases?
3. Is there a significant relationship between the level of awareness of emerging infectious diseases and the adoption of preventive health behaviours?
4. How do students perceive the personal and global risk posed by emerging infectious diseases in the context of current global insecurity?

Methodology

This study adopted a systematic review research design to examine students' awareness of emerging infectious diseases in the age of global insecurity as shown in Figure 1. The systematic review approach was considered appropriate because it allows for the collection, evaluation, and synthesis of existing scholarly evidence on a particular subject in a structured and transparent manner. Through this method, the study critically reviewed relevant peer-reviewed journal articles and academic publications relating to emerging infectious diseases, global insecurity, students' awareness, and health behaviour. The approach also enabled the identification of patterns, gaps, and recurring findings across previous studies.

Relevant literature for the study was obtained from reputable academic databases; a total of 125 research articles were retrieved, including Google Scholar (50), PubMed (30), Scopus (10), ScienceDirect (10), and ResearchGate (25); a total of 19 articles were finally reviewed. The search process focused mainly on recent studies published between 2020 and 2025 in order to ensure the inclusion of current and up-to-date information. Keywords and search phrases such as "emerging infectious diseases," "students' awareness," "infectious disease perception," "global insecurity and disease spread," and "health behaviour among students" were used to identify relevant materials. Only peer-reviewed journal articles published in English and directly related to the objectives of the study were included in the review process. Articles that were duplicated, lacked relevance to the study focus, or were not peer-reviewed were excluded to ensure the credibility and quality of the data used.

The selected studies were carefully reviewed and analysed through qualitative content analysis. Information from the articles was organised according to major themes relevant to the objectives of the study, including the concept of emerging infectious diseases, the relationship between insecurity and disease spread, students' awareness levels, and the influence of awareness on health behaviour. Findings from different studies were compared and synthesised in order to provide a comprehensive understanding of the subject area. The use of multiple scholarly sources also

helped to improve the reliability and validity of the study by ensuring that conclusions were drawn from consistent and evidence-based findings.

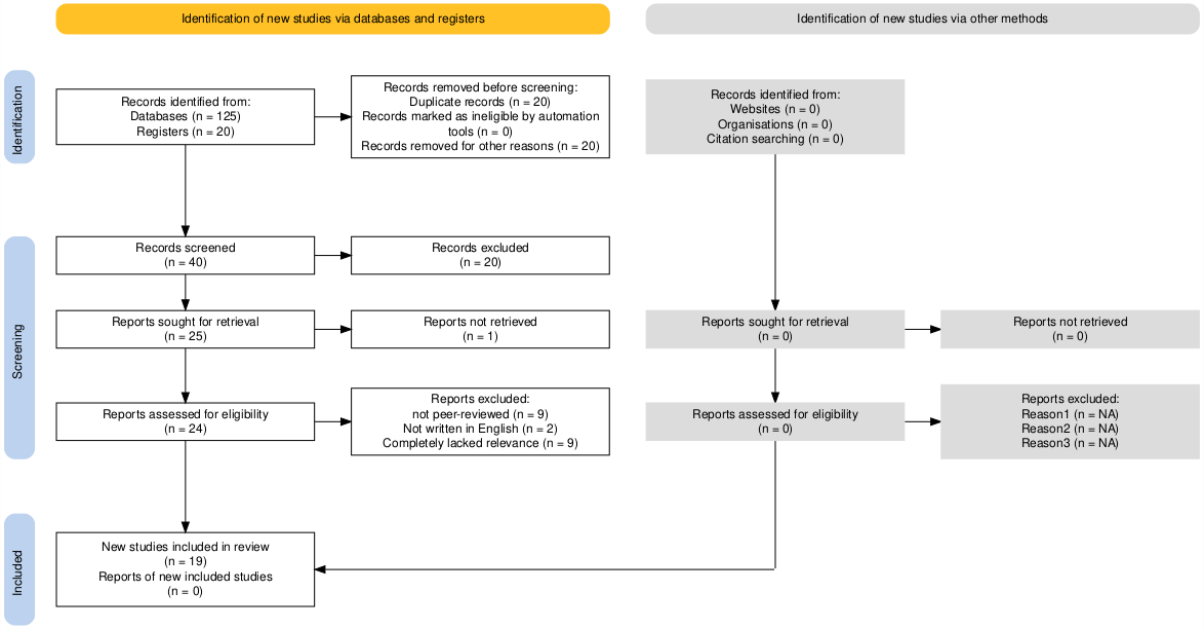

Figure 1: PRISMA diagram of the study

Results

Research question 1: What is the overall level of awareness of emerging infectious diseases among students?

The findings of this study, as shown in Figure 2, revealed that students generally possess moderate to high awareness of emerging infectious diseases, particularly regarding diseases that have received widespread global attention in recent years. Many students demonstrated familiarity with infectious diseases such as COVID-19, Ebola virus disease, cholera, malaria, and respiratory infections. Evidence from recent studies indicates that students in higher institutions are increasingly aware of infectious disease symptoms, modes of transmission, and basic preventive measures due to continuous exposure to public health campaigns and digital information platforms.

Category	True/ False	Correct (%)	M±SD
Cause and latency			
ERID[a] is an infectious disease with an endemic or imported source of infection.	T	96.3	3.90 ±0.35
The main cause of ERID is viruses.	T	98.1	
ERIDs include diseases such as MERS[b] and COVID-19[c].	T	99.2	
The incubation period of COVID-19 is 1–14 days (5–7 days on average).	T	96.9	
Propagation route and diagnostic criteria			
ERIDs can spread through various routes such as droplets, air, and contact.	T	93.1	3.70 ±0.52
ERIDs can be easily transmitted in closed, crowded, or poorly ventilated settings.	T	78.8	
Hand washing with water and soap for at least 30 s can help prevent the spread of ERIDs.	T	99.6	
COVID-19 infection is confirmed when found positive in the nasopharyngeal swab PCR[d] test (gene amplification), in which a sample is collected by inserting a cotton swab into the nose.	T	98.8	
Symptoms and treatment			
In the early stages of COVID-19 infection, mild respiratory symptoms (e.g., cough, fever, and sore throat) often appear.	T	99.0	3.39 ±0.64
COVID-19 infection does not necessarily lead to serious symptoms such as pneumonia or shortness of breath.	T	87.1	
All ERIDs can be treated prophylactically with vaccines.	F	58.2	
In principle, inpatient treatment for early-stage ERID patients should be performed in a hospital equipped with isolated beds or negative pressure rooms.	T	94.8	

Figure 2: Knowledge about ERIDs (N = 481) (Park & Yeom, 2023)

A systematic review conducted among students in Ethiopia reported that a substantial proportion of students showed good understanding of COVID-19-related information, although awareness levels varied according to educational background and access to reliable information sources (Chereka et al., 2024).

Similarly, studies among nursing and medical students found that awareness of Emerging Respiratory Infectious Diseases (ERID) was generally high because of educational exposure and clinical training (Park & Yeom, 2023).

However, despite these encouraging findings, several studies also identified persistent misconceptions and knowledge gaps, especially among students outside health-related disciplines. In some cases, students lacked adequate understanding of zoonotic transmission, long-term disease prevention strategies, and the connection between environmental changes and disease emergence.

Research Question 2: What are the primary sources of information used by students to obtain knowledge about infectious diseases?

	Education curriculum	Colleagues and friends	Mass media (TV, Radio, newspaper)	Scientific journals	Online searches (i.e., Google)	Social networks (i.e., Facebook, Twitter, Instagram, LinkedIn)
Zoonoses	24 (15.6%)	64 (41.6%)	96 (62.3%)	98 (63.6%)	105 (68.2%)	98 (63.6%)
Biosecurity measures and/or ICPs	27 (17.5%)	59 (38.3%)	86 (55.8%)	107 (69.5%)	104 (67.5%)	103 (66.9%)
One-Health	24 (15.6%)	54 (35.1%)	91 (59.1%)	100 (64.9%)	104 (67.5%)	95 (61.7%)
Antibiotic resistance	29 (18.8%)	57 (37.0%)	108 (70.1%)	106 (68.8%)	111 (72.1%)	92 (59.7%)
New treatments	20 (13.0%)	58 (37.7%)	99 (64.3%)	97 (63.0%)	104 (67.5%)	84 (54.5%)
Animal disease outbreaks	25 (16.2%)	64 (41.6%)	97 (63.0%)	98 (63.6%)	100 (64.9%)	100 (64.9%)

Figure 3: Main sources of information for veterinary students (n = 154) (Nyokabi et al., 2024)

The study further found that students obtain information about infectious diseases from multiple sources, with social media, television, online news platforms, health organisation websites, and educational institutions being the most frequently used channels. Recent research shows that digital media has become one of the dominant sources of health information among young people because of its accessibility and speed of information dissemination. Erdoğan and Duru (2025) observed that students who frequently accessed information through health organisation websites and news platforms demonstrated higher awareness and stronger preventive attitudes toward communicable diseases (Erdoğan & Duru, 2025).

In addition, university-based seminars, classroom discussions, and public health campaigns were identified as important formal channels for disease awareness. Studies among veterinary and nursing students also revealed that academic institutions contribute significantly to improving awareness through lectures, practical training, and infection control education (Figure 3), (Nyokabi et al., 2024; Park & Yeom, 2023).

Nevertheless, the findings also suggest that dependence on social media exposes students to misinformation and exaggerated claims, especially during disease outbreaks. False information relating to vaccines, disease severity, and treatment options has been shown to negatively influence students' perception and response to infectious diseases. This indicates that although

information is widely available, the quality and credibility of sources remain critical factors in shaping accurate awareness.

Research Question 3: Is there a significant relationship between the level of awareness of emerging infectious diseases and the adoption of preventive health behaviours?

Education/Training on Cholera Prevention	Frequency	Percentage
Yes	220	62.9%
No	130	37.1%
Total	350	100%

Figure 4: Students' Knowledge Regarding Cholera Prevention (Chisanga et al., 2024)

Symptoms	Frequency	Percentage
Severe diarrhea	70	20.0%
Vomiting	40	11.4%
Dehydration	30	8.6%
All of the above	210	60.0%
Total	350	100%

Figure 5: Students' Knowledge Regarding the Common Symptoms of Cholera (Chisanga et al., 2024)

Another major finding of the study is that there is a strong relationship between awareness and preventive health behaviours among students. Students with higher levels of awareness were more likely to practice preventive measures such as hand hygiene, vaccination, wearing face

masks during outbreaks, observing sanitation practices, and seeking medical attention when symptoms appeared. Research on infection management behaviour among nursing students revealed that knowledge and positive attitudes toward infectious diseases significantly influenced compliance with infection prevention practices (Park & Yeom, 2023).

Similarly, studies on communicable disease prevention among university students showed that awareness positively affects preparedness, risk reduction behaviour, and adherence to public health guidelines (Erdoğan & Duru, 2025). Findings from studies on cholera prevention and foodborne diseases also indicate that students with better knowledge demonstrate more

responsible health behaviour and stronger commitment to preventive practices, as indicated in Figures 4 & 5 (Chisanga et al., 2024).

However, the review also identified that awareness alone does not always guarantee positive health behaviour. Some students who possessed adequate knowledge still failed to consistently follow preventive measures because of low-risk perception, social pressure, negligence, or misinformation. This suggests that effective disease prevention requires not only awareness but also behavioural motivation and supportive environmental conditions.

Research Question 4: How do students perceive the personal and global risk posed by emerging infectious diseases in the context of current global insecurity?

The findings additionally revealed that global insecurity significantly influences students' perception of infectious disease risks. Insecurity arising from conflict, displacement, economic instability, and weak healthcare systems was found to increase students' concerns about disease outbreaks and public health preparedness. Students in regions affected by insecurity were more likely to perceive infectious diseases as serious threats because of overcrowding, poor sanitation, inadequate healthcare access, and disrupted health services. Recent studies show that disaster risk perception and social vulnerability strongly shape awareness and preventive behaviour among students (Erdoğan & Duru, 2025).

In addition, literature on infectious disease outbreaks in conflict settings demonstrates that insecurity weakens disease surveillance systems and increases the spread of communicable diseases due to poor living conditions and population displacement. These realities contribute to heightened fear and risk perception among students, especially in developing countries where health systems are already under pressure (Odetokun et al., 2024). The findings also indicate that students increasingly recognise the relationship between global crises and infectious disease transmission, particularly after the experiences of the COVID-19 pandemic (Chereka et al., 2024). However, some students still underestimate the broader effects of insecurity on global health, suggesting the need for greater integration of global health security education within academic institutions.

Discussion of Findings

The discussion of findings revealed that students generally possess moderate to high awareness of emerging infectious diseases, which reflects the growing impact of public health campaigns, digital communication, and educational exposure in recent years. This finding agrees with the study by Chereka et al. (2024), which reported that many students demonstrated good understanding of infectious diseases, particularly after the COVID-19 pandemic. Similarly, Park and Yeom (2023) observed that students in health-related disciplines often show higher awareness because of academic training and exposure to infection control education. However, the findings also revealed the existence of knowledge gaps and misconceptions among some students, especially those outside health-related fields. This supports previous studies, which argue that awareness levels are often influenced by educational background, health literacy, and access to reliable information.

The study also found that students rely heavily on multiple information sources, particularly social media, online news platforms, educational institutions, and public health campaigns. This finding is consistent with Erdoğan and Duru (2025), who noted that digital platforms have become major channels for health communication among university students. While these platforms improve access to information, the findings suggest that they also increase exposure to misinformation, especially during health emergencies. This supports the argument by Orhan et al. (2024) that the quality and credibility of information sources significantly affect students'

understanding and perception of infectious diseases. Therefore, although information is widely available, the effectiveness of awareness depends largely on the reliability of the information received.

Furthermore, the findings established a positive relationship between awareness and preventive health behaviour among students. Students with better awareness were more likely to practice preventive measures such as hand hygiene, vaccination, and adherence to public health guidelines. This aligns with Risk Perception Theory, which explains that individuals who perceive higher health risks are more likely to engage in protective behaviours. The findings support the study by

Park and Yeom (2023), which found that knowledge and positive attitudes toward infectious diseases significantly influence preventive practices. However, the review also showed that awareness alone does not always guarantee responsible behaviour, as factors such as low perceived vulnerability, negligence, and misinformation may limit compliance with preventive measures.

Finally, the study revealed that global insecurity significantly shapes students' perception of infectious disease risks. Factors such as conflict, displacement, poor healthcare systems, and economic instability were found to increase concern about disease outbreaks and public health preparedness. This finding agrees with Marou et al. (2024), who emphasised that insecurity weakens healthcare systems and increases the spread of infectious diseases through overcrowding, poor sanitation, and disrupted medical services. The findings further suggest that students increasingly recognise the connection between insecurity and disease transmission, particularly following global experiences such as the COVID-19 pandemic. Overall, the discussion demonstrates that students' awareness, access to credible information, and perception of health risks are closely interconnected and play important roles in shaping preventive health behaviour in the context of global insecurity.

Conclusion

This study examined students' awareness of emerging infectious diseases in the age of global insecurity through a systematic review of recent scholarly literature. The findings revealed that students generally possess moderate to high awareness of emerging infectious diseases, particularly those that have gained global attention in recent years. Increased exposure to health information through educational institutions, digital media, and public health campaigns has contributed significantly to this level of awareness. However, the study also identified gaps in knowledge, especially regarding zoonotic diseases, environmental factors, and the broader relationship between insecurity and disease transmission.

The study further established that students rely heavily on social media, online platforms, and educational sources for information about infectious diseases. While these channels improve access to information, they also increase exposure to misinformation, which can negatively

influence risk perception and health behaviour. The findings also demonstrated that awareness positively affects preventive health behaviours such as hygiene practices, vaccination, and compliance with public health guidelines. Nevertheless, awareness alone was found to be insufficient in ensuring consistent preventive behaviour, as factors such as risk perception, attitude, and social influence also play important roles.

In addition, the study revealed that global insecurity significantly influences students' perception of infectious disease risks. Conflict, displacement, weak healthcare systems, and economic instability were identified as major factors that increase vulnerability to disease outbreaks and shape public perception of health threats. Overall, the study concludes that strengthening health education, improving access to credible information, and integrating global health security education into academic programs are essential for enhancing students' preparedness and response to emerging infectious diseases in an increasingly uncertain world.

Furthermore, a closer examination of the reviewed studies suggests that global insecurity shapes students' risk perception in different ways. For some students, exposure to conflict, economic instability, disease outbreaks, and weak healthcare systems increases their perception of vulnerability and makes them more concerned about infectious disease threats. However, for others, persistent insecurity may reduce attention to health risks because immediate concerns such as personal safety, financial survival, and access to basic necessities become higher

priorities. As a result, global insecurity can both heighten awareness of disease risks and, in certain circumstances, divert attention away from preventive health behaviours.

Recommendations

1. Educational institutions should strengthen health education programs to improve students' knowledge of emerging infectious diseases and global health security.
2. Universities and public health agencies should provide students with accurate and evidence-based information through seminars, workshops, and verified digital platforms to reduce misinformation.

Awareness campaigns should emphasise not only disease knowledge but also the importance of preventive health behaviours such as vaccination, hygiene practices, and early health-seeking behaviour.

3. Governments and healthcare organisations should improve collaboration with schools and universities to promote preparedness for infectious disease outbreaks and public health emergencies.

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