Journal of Multidisciplinary Healthcare

Dovepress
Taylor & Francis Group

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ORIGINAL RESEARCH

# How Media Reports on Medical Violence Erode Clinician Trust in Patients

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**Background:** Violence against doctors is a common worldwide problem. Such risk events, due to the further exaggeration by media reports, trigger collective anxiety among medical staff. Using structural equation modeling (SEM), this study reveals how media portrayals erode clinician trust through amplified risk perception.

**Methods:** A questionnaire survey was conducted with 211 healthcare professionals from medical institutions in Beijing using stratified random sampling. Exploratory factor analysis, confirmatory factor analysis, and structural path analysis were performed on the sample data using structural equation modeling.

**Results:** The "Pseudo-Environment" (symbolic reality) created by the media can significantly alter medical staff's perceptions of violence risks, such as vulnerability to attack and becoming victims ($P<0.05$). In this "Pseudo-Environment" medical staff may overestimate the probability of violent incidents and the severity of their consequences, thereby significantly undermining doctor–patient trust. However, the perception of vulnerability has a more prominent impact on relational trust, possibly because patients are portrayed as potential threats in the "Pseudo-Environment".

**Conclusion:** Media reports can amplify risk perceptions among medical staff and lead to a substantial decline in doctor-patient trust. In order to enhance doctor-patient relationships, we should consider the sociopsychological effects of media reporting and strive to maintain trust when formulating relevant policies.

**Keywords:** violence against medical staff, doctor-patient relations, doctor-patient trust, structural equation model, risk perception

## Introduction

Violence against doctors is a common worldwide problem, and doctors in China also face the risk of violent attacks.[1] Such risk events, due to the further exaggeration by media reports, trigger collective anxiety among medical staff,[2,3] which often obscures the real experience of individuals and leads to a significant decrease in the trust of medical staff in patients.[4]

Short video platforms, as an emerging form of communication media, have increasingly integrated into daily life. Incidents of violence against doctors are now reported more frequently and with greater emotional impact through video dissemination. The media's amplifying effect can intensify medical staff's "symbolic experience" of risk, it refers to risk awareness developed by medical staff through media exposure rather than personal experience; that is, despite not having personally encountered violent attacks, a heightened sense of fear and anxiety has been cultivated due to media reporting.[5]

Risk perception is not only based on actual experiences but also influenced by a combination of cognitive, emotional, and sociocultural factors.[6] The media creates a "Pseudo-Environment" (symbolic reality) that further deepens medical staff's perception of violent attacks.[7] The way in which the media reports risk events significantly affects people's risk perceptions, especially in social situations with high levels of risk and anxiety.[8] Owing to their professional characteristics, medical staff have greater risk perceptions, and negative information from media reports makes them more sensitive and defensive against violent attacks.[4]

Received: 18 April 2025
Accepted: 27 August 2025
Published: 2 September 2025

The panic and anger experienced by medical staff have transcended the actual situation, impacting not only their professional identity but also disrupting doctor-patient trust.[9] Doctor-patient trust encompasses trust in medical skills (technical trust) and moral trust (the patient's trust in the doctor's moral qualities, including integrity, empathy, and a strong sense of responsibility) between doctors and patients (relational trust).[10] Research has shown that the perception of risk by medical staff is closely linked to their trust in patients.[11] When medical staff perceive a heightened risk of violence, they often decrease their trust in patients to safeguard their own interests.[12] The dynamic risk perception model by Langford et al indicates that risk perception affects individual behavior and also shapes collective behavior through cultural and social structures.[13] Existing research suggests that healthcare workers' risk perception is negatively correlated with their level of trust in patients. When healthcare workers perceive a higher risk of violence, they are more likely to adopt defensive strategies and reduce their trust in patients.

Although the media amplification effect and the theory of the "Pseudo-Environment" have been widely recognized, there remains a lack of research on how new, emotionally engaging media formats, such as short videos, specifically influence the risk perception of medical staff. Risk perception is often treated as a vague concept,[12] with insufficient examination of its internal multidimensional structure, such as victim panic and vulnerability, under media influence. This study integrates short video media into the research framework concerning risk perception and the doctor-patient trust relationship among medical staff, addressing the gap created by evolving media forms. It clearly distinguishes and measures the core dimensions of risk perception (including victim panic and vulnerability) and the dual dimensions of doctor-patient trust (technology trust and relationship trust), moving beyond previous approaches that treated these constructs as single, undifferentiated concepts.

To better understand and verify the complex mechanism behind the impacts of media reports on medical staff risk perceptions and doctor-patient trust, this study adopts a structural equation model (SEM) as the main analytical tool. SEM is a multivariate statistical analysis method widely used in social sciences, psychology, and medical science, which can address the impacts of multiple causal relationships and latent variables simultaneously.[14] Through SEM, this study considers various dimensions of risk perception (such as victim panic and vulnerability) and examines how these dimensions impact the two aspects of doctor-patient trust, namely technical trust and relational trust, through intricate pathways.[15] In recent years, structural equation models have been extensively employed in research fields such as doctor-patient relations, risk perception, and media influence. For instance, some studies have utilized SEM to analyze the mechanisms underlying patients' trust in doctors or to investigate the effect of media on public health risk perception.[16,17] These studies offer crucial theoretical foundations and methodological support for this research, making SEM an appropriate tool for investigating the mechanisms influencing violence against medical staff. This study fully leverages the unique advantages of Structural Equation Modeling (SEM) in managing latent variables, complex pathways, and multiple causal relationships. It provides a rigorous and reliable analytical framework for examining the multifaceted and multilayered social-psychological mechanisms underlying media perception and trust.

# Methods

## Statement

This study was approved by the School of Criminology at the People's Public Security University of China (No. 2024KY-001). The study did not involve human experiments or human tissue; it solely conducted questionnaire surveys among medical staff. Informed consent was obtained from all participants involved in the study. The research process was conducted in accordance with relevant guidelines and regulations.

## Sample and Data Acquisition

This study employed a cross-sectional survey design and collected data using a structured questionnaire from November to December 2024. This design is appropriate for examining the correlation mechanisms among variables (media exposure→risk perception→trust) and satisfies the requirements of structural equation modeling for analyzing variable covariances.

According to statistical analysis requirements, the sample size for this study must be 5 to 10 times the number of questions. With a total of 20 questions, the required sample size was calculated to be 200. To ensure data validity, 230 questionnaires were distributed, and following the exclusion of invalid responses, 211 valid questionnaires were obtained. Consequently, the data for this study were derived from a survey of 211 medical staff members in Beijing.

Classify according to hospital level and use stratified random sampling (40% tertiary, 30% secondary, and 30% specialty hospitals). The questionnaire was designed with reference to relevant scales. The risk perception scale and mediator scale were developed based on the psychological measurement paradigm proposed by Slovic et al, while the physician trust scale was adapted and improved by Dong Zhaolun. Detailed descriptions of the specific questionnaire items are presented in the results section.

The medical staff included in this study are from various hospitals in Beijing, including tertiary Grade A hospitals, secondary Grade A hospitals, and specialized hospitals. By choosing hospitals of different levels, the study aims to represent the diversity of medical institutions in Beijing, thus improving the representativeness of the research findings. The study sample comprises 211 using stratified random sampling selected medical staff members, representing various departments, years of service, and job titles. Sample Selection Criteria: Medical staff are in-service employees who work directly on the clinical front line, including doctors, nurses, and hospital administrators, but excluding retired personnel.

This study conducted descriptive statistical analysis using SPSS 26.0, and performed path analysis, confirmatory factor analysis, discriminant validity analysis, convergent validity analysis, and model fit testing using AMOS 24.0. The Cronbach's alpha coefficient was used to evaluate the reliability of the questionnaire. A Cronbach's alpha coefficient greater than 0.8 indicates good reliability. To assess the validity of the questionnaire, the Kaiser-Meyer-Olkin (KMO) measure, Bartlett's test of sphericity, variance explained by rotation, and cumulative variance explained were used. The questionnaire is considered valid and suitable for factor analysis when the KMO value exceeds 0.9, Bartlett's test is significant ($p < 0.05$), variance explained by rotation is greater than 0.5, and cumulative variance explained exceeds 0.6. Confirmatory factor analysis was conducted using AMOS to evaluate the structural validity of each dimension by examining composite reliability and average variance extracted (AVE). A composite reliability greater than 0.7 and an AVE greater than 0.5 indicate good structural validity of the model.

## Representativeness and Limitations of the Sample

Although the sample for this study was sourced from various hospitals in Beijing and aimed to encompass different types of medical institutions within the city, the generalizability of the findings may be limited due to the sample being confined to Beijing. As the capital, Beijing may have distinct differences from other regions regarding medical resource allocation, staff quality, and patient demographics. Therefore, while the results are well-suited for Beijing, caution is necessary when applying these findings to hospitals in other regions or of different types. Future research should consider validating and broadening these conclusions through similar studies in other cities or varied hospital types.

## Measurement Tools

### Risk Perception Scale

The risk perception scale used in this study was created based on the psychometric paradigm introduced by Slovic et al, which is extensively used in risk perception research. This paradigm defines risk perception as an individual's subjective interpretation of risk, involving assessments of consequence severity, impact scope, likelihood of occurrence, familiarity, and control over outcomes.[6]

The risk perception scale is structured around two key dimensions: victim panic and vulnerability, which are intended to gauge psychological responses and subjective evaluations of personal safety among medical staff in the event of violent attacks. Victim panic evaluates the level of concern regarding the outcomes of such attacks, while vulnerability measures the perceived risk of becoming a victim. The scale comprises 8 items and employs a 5-point Likert scale from "Strongly Agree" to "Strongly Disagree." Reliability analysis showed Cronbach's α coefficients for each dimension between 0.798 and 0.822, with an overall Cronbach's α coefficient of 0.837, reflecting strong internal consistency. The results of the structural validity analysis revealed a KMO value of 0.837, a Bartlett test $\chi 2$ value of 654.71 ($P<0.001$), and a cumulative variance contribution rate of 64.753%, indicating good structural validity of the scale. See Table 1.

**Table 1** Risk Perception Scale

| Measurement Dimension | Observed Variables (5-point Likert Scale) |
|---|---|
| Victim Panic | 1. The consequences of violence incidents against medical staff are disastrous. |
| | 2. The career of medical staff will be affected by violence incidents. |
| | 3. Violence attacks can occur at any time to any medical worker. |
| | 4. I fear the consequences of falling victim to violence attacks. |
| | 5. If I were in the midst of a violence attack, I would feel nervous. |
| Vulnerability | 1. I am at risk of experiencing a violence attack against medical staff. |
| | 2. Compared to others, my probability of experiencing violence attacks is significantly higher. |
| | 3. The likelihood of medical staff experiencing violence attacks is considerably high. |

## Media Scale

The media scale is utilized to assess the exposure of medical personnel to media reports and their psychological responses to incidents of violence against them.[18–20] This study's media scale comprises two sections: the first section examines the respondents' media exposure, including the frequency and types of media accessed; the second section evaluates the effect of specific media content and forms on the risk perception of medical personnel, consisting of four items measured on a 5-point Likert scale. To establish the reliability and validity of the scale, extensive tests were performed in this study. Cronbach's α coefficient of the scale is 0.898, reflecting strong internal consistency. The KMO value is 0.828, and the Bartlett test $\chi 2$ value is 512.257 ($P<0.001$), with a cumulative variance contribution rate of 76.603%, further indicating that the scale possesses high structural validity. Refer to Table 2.

## Scale of Physician Trust in Patients

To measure the level of medical staff trust in patients, this study employed the Scale of Physician Trust in Patients improved by Dong Zhaolun et al,[21] which is divided into two dimensions: technical trust and relational trust.[22] Technical trust measures medical staff's confidence in patients' adherence to medical advice and active participation in disease management, whereas relational trust assesses patients' respect for medical staff's time and personal boundaries.

The scale includes 8 items and employs a 5-point Likert scale ranging from "not confident at all" to "completely confident" across five levels. Cronbach's α coefficients for each dimension varied between 0.881 and 0.882, while the overall Cronbach's α coefficient of the scale was 0.895, demonstrating high internal consistency. Structural validity analysis results showed that the KMO value was 0.847, the Bartlett test $\chi 2$ value was 860.082 ($P<0.001$), and the cumulative variance contribution rate was 66.612%, signifying strong structural validity of the scale. Refer to Table 3.

All three scales are founded on well-established theoretical models and have been subjected to thorough reliability and validity assessments. The risk perception scale evaluates various aspects, effectively capturing the psychological condition of medical personnel facing the threat of violent incidents. The media scale thoroughly accounts for the possible influence of media coverage on public sentiments and actions, ensuring precise evaluation of medical staff risk

**Table 2** Media Scale

| Content and Form | Observed Variable (5-point Likert Scale) |
|---|---|
| | 1. I feel panic when I come across the casualties of violence incidents in media reports. |
| | 2. Contradictory information in news reports makes me feel panic. |
| | 3. Images and videos related to incidents in media reports cause more panic than text for me. |
| | 4. In media coverage of incidents, news reviews cause more panic than factual reporting for me. |
| Age | 1=18–25, 2=26–30, 3=31–40, 4=41–50, 5=51–60, 6=60 above |
| Education | 1=junior high school and below, 2=technical secondary school or senior high school, 3=junior college or undergraduate, 4=postgraduate and above |
| Department | 1=Emergency Department, 2=Orthopedics Department, 3=Gynaecology and Obstetrics Department, 4=Internal Medicine Department, 5=Surgery Department, 6=Pediatrics Department, 7=Others |

**Table 3** Scale of Physician Trust in Patients

| Measurement Dimension | How Confident are you About the Following Behaviors? (Not confident at all, a Little Confident, somewhat Confident, Quite Confident, Completely Confident) |
|---|---|
| Technical Trust | 1. The patient can understand what you say to him/her.<br>2. The patient will follow the treatment plan you suggest.<br>3. The patient will actively participate in the management of his/her condition.<br>4. The patient is willing to promptly inform you of any significant changes in his/her condition.<br>5. The patient will inform you when he/she is not actively following the treatment plan. |
| Relational Trust | 1. The patient will respect your time.<br>2. The patient will respect your personal boundaries.<br>3. The patient will not make unreasonable demands. |

perception. The physician trust in patients scale offers an in-depth examination of doctor-patient interactions in China, based on the dimensions of skills and relationships, delivering dependable supporting data for the study.

## Statistical Methods

This study used SPSS 26.0 and AMOS 24.0 software for data analysis. Descriptive statistical analysis was completed using SPSS, whereas path analysis, confirmatory factor analysis, discriminant validity analysis, convergent validity analysis, and model fit testing were conducted using AMOS.

### Reliability and Validity Testing

Cronbach's α coefficient was used for reliability analysis to determine the internal consistency of the questionnaire. A Cronbach's α coefficient >0.8 is considered to reflect good reliability. For validity analysis, both the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were applied to evaluate the appropriateness of factor analysis. A KMO value >0.8 is viewed as a good standard, and a significance level of $P<0.05$ in Bartlett's test indicates the data are suitable for factor analysis. In factor analysis results, a rotational variance explanation rate >0.5 and a cumulative variance explanation rate >0.6 signify strong structural validity of the scale.

### Confirmatory Factor Analysis and Model Fit Testing

In confirmatory factor analysis, composite reliability (CR) and average variance extracted (AVE) were employed to evaluate the structural validity of each dimension. Structural validity is considered satisfactory when the composite reliability is >0.7 and the AVE is >0.5. To further assess the model fit, the following indicators were analyzed: chi-square/degrees of freedom ratio ($\chi^2$/df), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), normed fit index (NFI), comparative fit index (CFI), incremental fit index (IFI), and root mean square error of approximation (RMSEA). When $\chi^2$/df is <5, GFI, AGFI, NFI, CFI, and IFI values are > 0.90, and an RMSEA is <0.06, it indicates a good model fit. If the model does not meet these criteria, further adjustments and refinements are necessary.

### Data Processing and Analysis Steps

In data analysis, the raw data were first processed to address missing values and outliers. Preliminary descriptive statistics were then generated to examine the fundamental characteristics of the sample. Before performing confirmatory factor analysis, the assumptions of normality and linearity were verified. If these assumptions were not satisfied, necessary adjustments were made through methods such as data transformation. Finally, path analysis and model testing were conducted with AMOS to verify that the research model effectively represented the data.

# Results

## Demographic Characteristics of the Sample

The sample's age distribution was predominantly between 26–30 years and 31–40 years, representing 34.12% and 30.81%, respectively. This suggests a higher proportion of younger medical professionals in medical institutions, aligning with the age distribution of medical staff in Beijing hospitals. Concerning department distribution, larger sample sizes were observed in

internal medicine and surgery departments, with proportions of 36.97% and 23.22%, respectively. This distribution is consistent with the prevalence and significance of these departments in hospital settings and their role in doctor-patient interactions. Conversely, the emergency and obstetric/gynecology departments had smaller sample sizes, which could impact the generalizability of perceptions regarding violence risk in these areas. Future research should focus on increasing sample sizes in high-risk departments, such as emergency services, to more accurately capture differences in risk perception. Additionally, most medical staff (46.92%) spent between 1–30 min on media daily, while 32% spent over an hour daily. This suggests that regular media engagement may influence risk perceptions due to exposure to reports of violent incidents. See Table 4.

# Model Construction

## Exploratory Factor Analysis

To investigate the possible structure of the questionnaire, an exploratory factor analysis was performed on 19 items. The maximum variance method was used for rotation, and based on the eigenvalue criterion exceeding 1, five principal components were identified: technical trust, relational trust, vulnerability, victim panic, and content and form.

However, since the rotational variance explanation rates for items Q53 and Q48 were below 50%, these items were removed based on the statistical findings. Future research should further assess the theoretical significance of these items to ensure the model's completeness. The factor analysis of the remaining 18 items demonstrated that the cumulative variance explanation rate for the four dimensions after rotation was 72.153%, indicating that the model adequately explains the total variance of the questionnaire. Additionally, the variance explanation rates for each item in the rotational component matrix exceeded 50%, which confirms the strong correlation between latent and observable variables and suggests that the factor analysis is valid. See Table 5.

## Path Construction

Social media reports on violent attacks against medical staff, especially those featuring vivid videos and photos taken from the first-person perspective, are more likely to provoke emotional responses among medical staff. Research

**Table 4** Statistical Table of Demographic Characteristics

| Characteristics | Categories | Frequency | Proportion |
|---|---|---|---|
| Ages | 18–25 | 65 | 30.81% |
| | 26–30 | 72 | 34.12% |
| | 31–40 | 65 | 30.81% |
| | 41–50 | 8 | 3.79% |
| | 51–60 | 1 | 0.47% |
| Departments | Emergency Department | 10 | 4.74% |
| | Orthopedics | 29 | 13.74% |
| | Gynecology and Obstetrics | 5 | 2.37% |
| | Internal Medicine | 78 | 36.97% |
| | Surgery | 49 | 23.22% |
| | Others | 40 | 18.95% |
| Time Spent on Media | Almost no time | 13 | 6.16% |
| | 1–30 min | 99 | 46.92% |
| | 31–60 min | 37 | 17.54% |
| | 1–2 h | 30 | 14.22% |
| | 2 h and above | 32 | 15.17% |
| Information Acquisition Channels | Official media | 89 | 42.18% |
| | Social media | 122 | 57.82% |
| Frequency of Coming across Reports on Violence Attacks against Medical Staff | Never | 2 | 0.95% |
| | Hardly | 27 | 12.80% |
| | Sometimes | 121 | 57.35% |
| | Often | 57 | 27.01% |
| | Always | 4 | 1.90% |

**Table 5** Exploratory Factor Analysis

| Questions | Components | | | | |
|---|---|---|---|---|---|
| | Content and Form | Victim Panic | Vulnerability | Technical Trust | Relational Trust |
| Q10 | 0.870 | | | | |
| Q11 | 0.834 | | | | |
| Q12 | 0.818 | | | | |
| Q13 | 0.796 | | | | |
| Q14 | | 0.622 | | | |
| Q16 | | 0.726 | | | |
| Q21 | | 0.718 | | | |
| Q22 | | 0.780 | | | |
| Q23 | | 0.799 | | | |
| Q18 | | | 0.779 | | |
| Q19 | | | 0.607 | | |
| Q20 | | | 0.824 | | |
| Q50 | | | | 0.802 | |
| Q51 | | | | 0.766 | |
| Q52 | | | | 0.732 | |
| Q54 | | | | | 0.805 |
| Q55 | | | | | 0.777 |
| Q56 | | | | | 0.827 |

indicates that emotional impact and vivid information play key roles in risk perception.[23] Vivid and emotive reporting can significantly increase medical staff victim panic and vulnerability. On the basis of social psychology and media effects theory, the following hypotheses are proposed:

**Hypothesis H1:** The content and form of crime reports have a positive effect on victim panic. Vivid and emotional elements in media reports, such as videos and pictures, can significantly increase medical staff panic toward violent attacks.

**Hypothesis H2:** The content and form of crime reports have a positive effect on perceived vulnerability. Owing to the vividness and emotionality of reports, medical staff not only feel panic but also may perceive a greater risk of violence, thereby increasing their sense of vulnerability.

**Hypothesis H3:** Victim panic has a positive impact on perceived vulnerability. Strong victim panic not only increases fear of violent attacks but also makes medical staff more likely to believe that they could become victims.

**Hypothesis H4:** Perceived vulnerability has a negative impact on technical trust. When medical staff perceive high vulnerability, they may reduce their trust in patients, especially in terms of their technical operations and medical decisions.

**Hypothesis H5:** Perceived vulnerability has a negative impact on relational trust. High perceived vulnerability may cause medical staff to be more cautious, reducing their level of trust and interaction with patients, particularly in terms of relational trust.

**Hypothesis H6:** Victim panic has a negative impact on technical trust. Victim panic can make medical staff more cautious with patients, potentially decreasing their technical trust in patients.

**Hypothesis H7:** Victim panic has a negative impact on relational trust. Victim panic can make medical staff more vigilant during interactions with patients, thereby reducing relational trust.

# Confirmatory Factor Analysis

## Structural Validity

Based on the original hypothesis model, model estimation was performed using the maximum likelihood estimate (MLE) method. From Table 6, it is evident that AGFI = 0.808 (< 0.85), indicating that the theoretical model did not fully capture the covariance structure among variables. RMSEA = 0.083 (> 0.06) shows that the approximation error between the model and the data exceeds the acceptable threshold. NFI = 0.864 (< 0.90) reflects insufficient improvement compared to the baseline model. The fit indices GFI, AGFI, RMSEA, and NFI for the original model did not meet the established standards, resulting in a poor fit. To address these issues, our revised objectives are to reduce the chi-square/df ratio, improve the relative fit indices (CFI and NFI), and decrease the approximation error (RMSEA). The method used for correcting the model involved increasing the residual covariance between e21 and e22. The invalid path from victim panic to technical trust was removed. Additionally, the cross-factor loading of Q14 (catastrophic consequences of violence) was released. The revised validity test, using the Bollen-Stine Bootstrap method (B=2000), showed that the final model had a p-value of 0.132 (>0.05), confirming that the goodness of fit was not due to random chance. This revision resolves the fitting issues and reveals the nonlinear mechanism underlying doctor-patient trust formation through a statistically grounded dual-drive decision-making theory, providing a methodological template for future research. Based on this, the optimized model diagram is included in the text. To enhance the model's fit, adjustments were made using AMOS 26.0 software, which involved removing certain invalid paths and modifying some path relationships according to the modification indices (MI). The revised model exhibited improved fit, with all indices meeting or surpassing the standards: GFI increased to 0.904, AGFI to 0.866, RMSEA decreased to 0.059, and NFI rose to 0.909 (See Figure 1 and Table 6).

The modified model's fit indices all meet the standards, indicating that the model can fit the sample data well.

On the basis of the structural equation model in Figure 1, we conducted a more explicit verification of the study's hypotheses and explained why certain paths might not be significant.

**Hypothesis H1 (Impact of Content and Form on Victim Panic):** As shown in the Figure 1, the path coefficient is 0.56, significantly supporting the hypothesis.

**Hypothesis H2 (Impact of Content and Form on Vulnerability):** The path coefficient is 0.23, indicating a weak influence; the following hypothesis is established.

**Hypothesis H3 (Impact of Victim Panic on Vulnerability):** The path coefficient is 0.49, significantly supporting the hypothesis.

**Hypothesis H4 (Impact of Vulnerability on Technical Trust):** The path coefficient is –0.40, significantly supporting the hypothesis.

**Hypothesis H5 (Impact of Vulnerability on Relational Trust):** The path coefficient is –0.49, significantly supporting the hypothesis.

**Hypothesis H6 (Impact of Victim Panic on Technical Trust):** The path coefficient is 0.09, indicating a weak positive influence, which is inconsistent with the hypothesized negative relationship; the hypothesis is not established.

**Hypothesis H7 (Impact of Victim Panic on Relational Trust):** The path coefficient is 0.13, indicating a weak positive influence; the hypothesis is not established.

**Table 6** The Fit Indices of Both the Original and Modified Models

| Fit Indices | Absolute Fit Index | | | | Relative Fit Index | | Simplicity Index | |
|---|---|---|---|---|---|---|---|---|
| | Chi/DF | GFI | AGFI | RMSEA | NFI | CFI | PNFI | PGFI |
| Fit Criteria | <3.0 | >0.9 | >0.85 | <0.08 | >0.9 | >0.9 | >0.5 | >0.5 |
| Original Model | 2.45 | 0.856 | 0.808 | 0.083 | 0.864 | 0.914 | 0.723 | 0.641 |
| Ultimate Model | 1.728 | 0.904 | 0.866 | 0.059 | 0.909 | 0.959 | 0.725 | 0.645 |

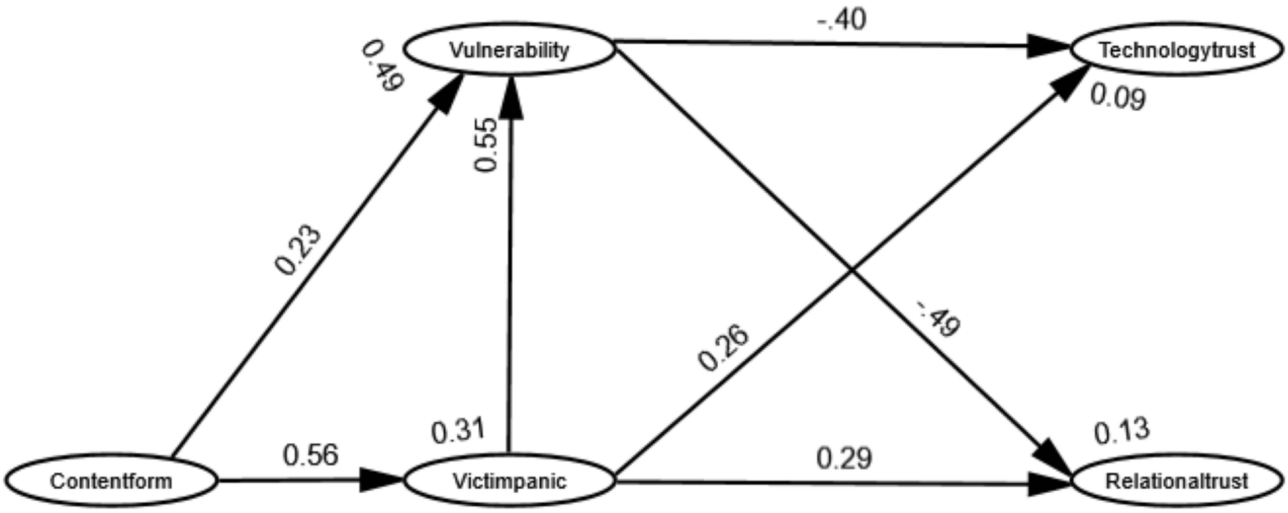


**Figure 1** Structural equation model for influencing factors of doctor-patient trust.

### Convergent Validity and Discriminant Validity

In the revised structural equation model, the composite reliability (CR) for each latent variable varies from 0.763 to 0.889, all surpassing 0.7, indicating that the observed variables are appropriately defined and that internal consistency is high. Most squared multiple correlations (SMC) exceed 0.50, reflecting the model's strong internal quality. With the exception of victim panic, the average variance extracted (AVE) for each latent variable exceeds 0.5, showing robust explanatory power for the observed variables. Although the AVE for victim panic is 0.479, which is slightly below 0.5, it remains within an acceptable range, as it is above 0.36.[24] Additionally, the discriminant matrix confirms that the square root of the AVE for each latent variable exceeds its correlation coefficient with other latent variables, demonstrating excellent discriminant validity of the scale's data. Refer to Table 7 and Table 8.

## Structural Path Analysis

Path analysis indicated that content and form exert a significant positive effect on victim panic ($\beta = 0.56$, $P<0.001$), victim panic significantly affects vulnerability ($\beta= 0.549$, $P<0.001$), and vulnerability has a significant negative impact on both relational trust ($\beta= -0.493$, $P<0.001$) and technical trust ($\beta = -0.403$, $P = 0.004$). However, hypotheses H6 and H7 were not supported, suggesting that the effect of victim panic on technical trust and relational trust did not achieve statistical significance. This lack of significance may be attributed to the influence of other potential factors, such as the working environment and personal experience, which might have a more direct effect on trust. See Table 9.

**Table 7** Convergent Validity

| Observed Variables | Latent Variables | Std. | Unstd. | S.E. | T value | P | SMC | CR | AVE |
|---|---|---|---|---|---|---|---|---|---|
| Q50 | Technical Trust | 0.773 | 0.924 | 0.071 | 12.996 | *** | 0.598 | 0.883 | 0.717 |
| Q51 | | 0.896 | 1.033 | 0.066 | 15.748 | *** | 0.803 | | |
| Q52 | | 0.866 | 1 | | | | 0.750 | | |
| Q54 | Relational Trust | 0.891 | 1 | | | | 0.794 | 0.886 | 0.723 |
| Q55 | | 0.933 | 1.051 | 0.058 | 18.24 | *** | 0.870 | | |
| Q56 | | 0.711 | 0.785 | 0.064 | 12.303 | *** | 0.506 | | |
| Q18 | Vulnerability | 0.636 | 1 | | | | 0.404 | 0.763 | 0.525 |
| Q19 | | 0.892 | 1.185 | 0.155 | 7.658 | *** | 0.796 | | |
| Q20 | | 0.612 | 0.997 | 0.108 | 9.259 | *** | 0.375 | | |

(*Continued*)

**Table 7** (Continued).

| Observed Variables | Latent Variables | Std. | Unstd. | S.E. | T value | P | SMC | CR | AVE |
|---|---|---|---|---|---|---|---|---|---|
| Q14 | Victim Panic | 0.589 | 0.842 | 0.11 | 7.633 | *** | 0.347 | 0.819 | 0.479 |
| Q23 | | 0.749 | 0.901 | 0.095 | 9.506 | *** | 0.561 | | |
| Q16 | | 0.571 | 0.745 | 0.101 | 7.35 | *** | 0.326 | | |
| Q21 | | 0.707 | 1 | | | | 0.500 | | |
| Q22 | | 0.813 | 1.149 | 0.115 | 10.029 | *** | 0.661 | | |
| Q11 | Content and Form | 0.852 | 1 | | | | 0.726 | 0.889 | 0.668 |
| Q13 | | 0.795 | 0.912 | 0.095 | 9.593 | *** | 0.632 | | |
| Q12 | | 0.858 | 1.004 | 0.099 | 10.187 | *** | 0.736 | | |
| Q10 | | 0.76 | 0.888 | 0.066 | 13.384 | *** | 0.578 | | |

**Note**: ***p < 0.001.

**Table 8** Discriminant Validity

| | AVE | Content and Form | Victim Panic | Vulnerability | Relational Trust | Technical Trust |
|---|---|---|---|---|---|---|
| Content and Form | 0.668 | 0.817 | | | | |
| Victim Panic | 0.479 | 0.560 | 0.692 | | | |
| Vulnerability | 0.525 | 0.536 | 0.677 | 0.725 | | |
| Relational Trust | 0.723 | −0.102 | −0.044 | −0.297 | 0.850 | |
| Technical Trust | 0.717 | −0.071 | −0.013 | −0.227 | 0.747 | 0.847 |

**Table 9** Structural Path Coefficients

| Paths | Non-standard Coefficients | Standardized Coefficients | Standard Error | Critical Ratio Value | P value |
|---|---|---|---|---|---|
| Content and Form→Victim Panic | 0.414 | 0.56 | 0.064 | 6.465 | *** |
| Content and Form→Vulnerability | 0.196 | 0.229 | 0.075 | 2.597 | 0.009 |
| Vulnerability→Relational Trust | −0.643 | −0.493 | 0.175 | −3.68 | *** |
| Vulnerability→Technical Trust | −0.397 | −0.403 | 0.137 | −2.896 | 0.004 |
| Victim Panic→Vulnerability | 0.633 | 0.549 | 0.126 | 5.039 | *** |
| Victim Panic→Technical Trust | 0.295 | 0.26 | 0.153 | 1.923 | 0.054 |
| Victim Panic→Relational Trust | 0.436 | 0.29 | 0.197 | 2.215 | 0.027 |

**Note**: ***p < 0.001.

# Discussion

## The Impact of Media Reports on Violent Incidents Against Medical Staff on Medical Staff's Risk Perception

Firstly, media reports about casualties from violent attacks on medical staff significantly heighten their perception of risk related to such incidents. Risk perception is a subjective judgment of the likelihood and impact of specific risk events.[25] This judgment often hinges on personal intuition and emotional responses rather than just objective evidence. Therefore, increased media coverage of violent incidents can alter medical staff's understanding of the severe consequences of doctor-patient conflicts, leading to greater fear. Research has demonstrated that the perceived seriousness of risk is a fundamental aspect of threat perception.[26]

Secondly, inconsistent information in news reports can amplify medical staff's perception of risk regarding violent attacks. Contradictions within reports can challenge medical staff's understanding, leading to confusion about the event and a heightened sense of uncontrollability. Studies show that factors such as an individual's comprehension of the risk source, perceived control over the risk, and the reliability of risk information substantially influence risk perception.[27]

Third, images and videos in media reports exert a greater influence on medical staff's risk perception of violent attacks than text does. Visual information has a more significant effect compared to textual information, as it can more readily evoke emotional responses and thereby substantially heighten the level of risk perception.[28]

Fourth, news reviews can more readily heighten medical staff's risk perception of violent attacks compared to factual reports. News reviews are frequently more subjective and emotional, particularly when they amplify the perceived responsibility of medical staff, which can negatively affect their professional identity. Such reviews may be perceived as "poisons" that decrease their professional status, leading to significant anger. Anger is a crucial emotional factor influencing risk perception.[29]

## The Impact of Victim Panic on Vulnerability

Victim panic significantly enhances the sense of vulnerability among medical staff. The "subjective reality" of individuals is often shaped by the "symbolic reality" constructed by the media, leading to deviations from "objective reality".[30] In an age of rapid information dissemination and extensive social media use, medical staff are frequently bombarded with a large volume of contradictory, misleading, or partial information. This not only fails to accurately represent events but also exacerbates their fear of violent incidents, resulting in an inflated sense of vulnerability.

## The Impact of Vulnerability on Doctor–Patient Trust

Studies have indicated that variables such as age, income, education level, working environment, and experiences with doctor-patient disputes influence medical staff's trust in patients.[31] When patients exhibit friendliness and respect towards medical staff, an increase in trust is observed.[32] Conversely, perceived vulnerability may decrease medical staff's trust in patients by heightening their risk perception. Evidence suggests that group culture significantly impacts individual behavior. A highly consistent defensive mentality towards medical disputes is frequently demonstrated by medical staff.[33] With the frequent reporting of violent incidents by the media and the increase in misreporting, medical staff members' sense of trust significantly decreases.[34] Therefore, perceived vulnerability has a negative effect on doctor–patient trust, especially when medical staff perceive high risk, and this impact is particularly significant.

## Differences in the Impact of Vulnerability on Technical Trust and Relational Trust

Doctor-patient trust is usually divided into two aspects: technical trust and relational trust. Technical trust is related mainly to the professional competence of medical staff, whereas relational trust involves moral and emotional connections between doctors and patients. This study revealed that there are significant differences in the impact of vulnerability on technical and relational trust.

Medical staff's technical trust in patients mainly depends on the latter's ability to seek medical advice and compliance, such as whether patients have overly high treatment expectations and whether there is information asymmetry. However, the impact of vulnerability on these technical factors is relatively limited.

In contrast, vulnerability exerts a more significant effect on medical staff's relational trust in patients. In a "stranger" society, where both doctors and patients have restricted access to each other's information, initial trust frequently depends on media portrayal. Studies indicate that the initial trust of medical staff is shaped by perceptions of risk and benefit.[35] When medical staff perceive patients as "potential criminals" during initial contact, there is a substantial decrease in professional satisfaction and communication quality throughout diagnosis and treatment, leading to a reduction in relational trust.

## Refining the Mechanism of Doctor-Patient Trust Formation

This study found that media coverage of short videos asymmetrically affects healthcare workers through emotional arousal pathways (victim panic, $\beta = 0.56$) and cognitive assessment pathways (vulnerability, $\beta = 0.23$). The intensity of the emotional pathway is 2.4 times greater than that of the cognitive pathway, indicating a dual-pathway asymmetry in media effects. Additionally, in the Chinese context, the detrimental impact of vulnerability on relational trust ($\beta = -0.49$) is significantly stronger than its impact on technological trust ($\beta = -0.40$), suggesting a culturally specific mechanism in which moral trust precedes technological trust.

### Practice and Policy Measures

Based on the finding that visual information enhances risk perception by 289%, a visual grading standard for violent content reporting is proposed. For instance, graphic scenes can be automatically blurred by social media platforms to reduce viewer discomfort and decrease the likelihood of criminal imitation. Additionally, algorithmic recommendations have been shown to increase risk perception by 47%, supporting the implementation of a black-box algorithm to regulate medical violence content, such as limiting the continuous promotion of violent medical injury incidents. In terms of hospital management, a scenario-based simulation training module can be developed using VR technology to provide simulated anxiety intervention training. Furthermore, establishing a doctor-patient communication office can improve communication efficiency, enhance trust between doctors and patients, and contribute to creating a safer hospital environment.

### Future Research

Due to space limitations, this study focuses exclusively on the Beijing area as the research region. Future research will incorporate samples from additional regions for confirmatory studies. Furthermore, factors related to the media itself should also be taken into account. Within the media framework, the influence of the media may be moderated by various factors, such as its credibility, the frequency of reporting, and the nature of the reporting, etc. In future research, it is essential to expand the discussion of potential confounding variables, such as organizational culture and prior experiences of violence.

## Conclusion

This study revealed that media reports on violent attacks against medical staff significantly reduce doctor-patient trust, especially relational trust, by increasing medical staff's risk perceptions, particularly their victim panic, and vulnerability. The "pseudo-environment" created by the media amplifies medical staff's fear and defensive mentality toward violent attacks, thus resulting in lower levels of trust in doctor-patient relationships. Government departments are required to enhance the development of social support systems, offering psychological assistance, legal guarantees, and occupational protection to medical staff. Through the establishment of a thorough social support framework, medical personnel can achieve increased psychological security and a stronger professional identity when confronted with risks amplified by media. This approach can decrease the adverse effects of media coverage and improve trust in patients. Policymakers and hospital administrators should pay attention to the development of social support systems to resolve the doctor-patient trust crisis induced by media reports.

## Disclosure

All of the authors had no any personal, financial, commercial, or academic conflicts of interest separately.

## Databases

The original data used in this study has not been disclosed. The data used and analyzed during the study were available from the corresponding author on reasonable request.

## Ethics Approval and Consent to Participate

This study was approved by the School of Criminology at the People's Public Security University of China (No. 2024KY-001). Written informed consent was obtained from all participants. The data in this study has been obtained with individual informed consent.

## Funding

This study was supported in part by the "Double First-Class" innovative research project in criminology at the People's Public Security University of China (2023SYL03).

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