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Perspectives of physicians on risk factors for patient aggression and violence against physicians in Chinese hospitals: a Q-methodology study

Yuhan Wu[1*], Kees Ahaus[1], Jiaming Shi[2], Dahai Zhao[3] and Martina Buljac-Samardzic[1]

Abstract

Background The prevalence of patient (and their relatives/friends) aggression and violence against healthcare professionals in general, and physicians in particular, is a recognized problem worldwide. While numerous risk factors for such aggression and violence from patients (and their relatives/friends) have been identified, little is known about which risk factors are perceived as relatively most important in a specific context and among a particular group, and about the potentially differing views on the relative importance. This lack of insight prohibits preventive measures being tailored to address the main risk factors.

Method We conducted a Q-methodology study to investigate physicians' perspectives on risk factors for aggression and violence from patients (and their relatives/friends) against physicians in Chinese hospitals. A total of 33 physicians from public Chinese hospitals participated in this study and were asked to rank 30 risk factors according to their importance in triggering violent incidents. In addition, respondents were asked to explain their ranking of most and least important risk factors.

Results By employing a by-person factor analysis, four distinct perspectives on the importance of risk factors were identified: (1) unmet expectations of treatment and lack of resources; (2) perpetrator's educational background and personal characteristics; (3) distrust and limited protection measures; and (4) perpetrator's emotional well-being and poor interaction. There was a consensus across perspectives that failure to meet perpetrator's expectations is one of the most important risk factors and that physician's gender is one of the least important risk factors in the occurrence of patient (and their relatives/friends) aggression and violence against physicians in Chinese hospitals.

Conclusions This study has identified four distinct perspectives held among physicians on the risk factors for patient aggression and violence against physicians in Chinese hospitals. These insights enable the development and prioritization of targeted measures to address specific risk factors according to the dominant views among physicians.

Keywords Physician, Patient, Aggression, Violence, Risk factors, Q-methodology

*Correspondence:
Yuhan Wu
wu@eshpm.eur.nl
Full list of author information is available at the end of the article

Introduction

The prevalence of patient (and their relatives/friends) aggression and violence against healthcare professionals is a recognized problem worldwide [1]. Among healthcare professionals, physicians face a heightened risk of encountering aggression and violence in the workplace [2]. Globally, between 24 and 88% of physicians have reported that they had experienced violence from patients (and their relatives/friends) during their career [2, 3]. Such behavior has a wide range of negative impacts on physicians, teams, and hospitals, such as affecting the physician's work and emotional state, the team climate, performance, and the hospital's reputation [4–6].

To avoid aggression and violence from patients (and their relatives/friends) and to address the negative aftermaths, many studies have focused on identifying the risk factors and, accordingly, how to prevent such behavior. The social ecological model (SEM) and its four dimensions (individual, relationship, community, and societal) have been widely used to identify the risk factors and prevention strategies for workplace violence [7, 8]. Based on our recent systematic review [3], we refined the categorization within SEM to clearly explain the risk factors for aggression and violence from patients (and their relatives/friends) against physicians, including perpetrator-related factors (e.g., lack of education), physician-related factors (e.g., inexperience), interaction-related factors (e.g., denial of patient requests), factors related to organizational context (e.g., lack of organizational resources such as enough equipment), and external factors (e.g., adverse media). These risk factor categories are closely aligned with the available preventive measures. For example, Kumari et al. [2] argued in their narrative review that interventions should focus on three levels, namely the individual level (e.g., training of physicians), the organizational level (e.g., infrastructure changes such as installing alarm systems), and the societal level (e.g., seeking unbiased media reporting). Additionally, Bowers [9] emphasized that interventions should focus on reducing the factors that cause conflict, and on cutting the link between flashpoint and conflict. There is a common belief in the literature that preventive measures should be tailored to the risk factors to mitigate workplace violence [10, 11]. However, different viewpoints on the importance of risk factors are expected. Distinct views will cover different risk factors that are perceived as relatively most important, potentially complicating the adoption of general preventive measures that are not tailored to these viewpoints.

In addition, although nurses and other healthcare workers also face patient aggression and violence, the violence faced by physicians may have different motivations and characteristics. For example, patient dissatisfaction with diagnosis and treatment options is often directed at physicians [10]. Understanding physicians' perspectives on risk factors for patient aggression and violence is crucial because they play a central role in patient care and are often the key decision-makers in treatment planning, which can have a direct impact on patient satisfaction and potential frustration [12, 13]. However, it is important to recognize that even among physicians, views on the most critical risk factors differ. For example, Kumar et al. [14] conducted a quantitative study and concluded that most of the physicians (73.5%) considered long waiting times as the most important risk factor for violence, followed by delayed medical provision that was considered important by less than half of the physicians (45.7%). Based on a qualitative study, Pan et al. [15] concluded that the main reasons for violence were dissatisfaction with the treatment or diagnosis (51%) and dissatisfaction with services (24%). Naturally, differences in specialty, experience, and individual interactions with patients can all contribute to the diversity in perspectives on what risks are the most significant. By understanding these varied perspectives, and who holds which perspective, more nuanced and effective strategies can be developed to mitigate the risk of violence in healthcare settings.

Aggression and violence are context-specific [16], and studying aggression and violence from a specific source (i.e., patients and their relatives/friends) against a specific target (i.e., physicians) enables a more contextualized consideration of the different perspectives on what are the main risk factors and possible responses to prevent them. The distinct characteristics of the healthcare system in China, such as high patient expectations, limited resources and patients' medical treatment preferences (i.e., patients prefer to go directly to higher-level hospitals due to the absence of gatekeepers in primary care) result in Chinese hospitals having to work under tremendous pressure with the risk of patient aggression and violence [17, 18]. Given this context and China's rapid socioeconomic development, the relationship between physicians and patients faces unique challenges. For example, the number of healthcare professionals experiencing violence in Chinese clinical settings varies from 50 to 83.3%, which has raised serious concerns and attention in China [19]. To address these challenges, recent reforms, such as the Healthy China 2030, focus on structural changes to improve access and quality of healthcare services [20]. However, the persistence of patient aggression and violence underscores the need for evidence-based approaches to understand and prevent such violence in the Chinese context [19]. Additionally, studying such aggression and violence against physicians in China offers valuable opportunities for international comparisons and knowledge sharing. Chinese hospitals provide a unique

research setting, offering extensive experience in managing aggression and violence, and enabling a comprehensive understanding of risk factors as reported by both victims and witnesses of such incidents. Ultimately, this research can contribute to the global body of knowledge, informing effective practices and solutions to address patient aggression and violence worldwide.

Previous research has emphasized the importance of the experiences and variations in perspectives of physicians in seeking a comprehensive understanding of such violence [10, 12, 13]. Understanding the specific risks and needs that physicians face in their work would enable the development of targeted prevention and training measures [21]. The aim of this study is to investigate different views of physicians on the relative importance of risk factors for patient (and their relatives/friends) aggression and violence in Chinese hospitals. This study builds on the present extensive literature on risk factors by providing nuances in the many risk factors through identifying different views.

Method

Study design

This study adopted the Q-methodology to investigate subjective perspectives with a combination of quantitative and qualitative methods [22, 23]. A set of statements on risk factors associated with aggression and violence from patient (and their relatives/friends) was assembled and presented to participants who were instructed to rank these statements from least to most important in terms of the occurrence of such aggression and violence [22, 23]. In addition, qualitative data were collected by asking participants to explain their rankings of the least and the most important risk factors. Significant clusters of correlations between rankings were identified through by-person factor analyses [24]. The analysis was based on the assumption that participants who ranked statements similarly would also hold similar views on the risk factors for aggression and violence from patient (and their relatives/friends). For each factor, a composite ranking of the statements was constructed. In combination with the qualitative data, these rankings were used to develop an understanding of each viewpoint.

Statement set development (the Q-set)

The initial statements for this study were based on several literature reviews on risk factors for violence and aggression against healthcare providers [2, 25, 26], research on this topic within the Chinese context [27, 28], and the recently published systematic review of the risk factors for patient (and their relatives/friends) aggression and violence against physicians [3]. In total, 114 potential risk factors were obtained. According to our systematic review and the four-level social ecological model (SEM), the identified potential factors were classified into five categories: perpetrator-related factors, physician-related factors, interaction-related factors, factors related to organizational context, and external factors. Subsequently, the authors engaged in extensive discussions and refinement regarding the potential risk factors, ultimately distilling them into 30 statements. Statements deemed redundant, irrelevant, or ambiguous were excluded during the process. In order to validate these statements, a pilot study was conducted with three Chinese physicians (two female and one male). These participants were asked to rank these statements from the most important to the least important and to consider three related aspects: (1) whether improvements in the phrasing of the statements was required; (2) whether there were other risk factors that should be added; and (3) whether any risk factors should be deleted. Based on the results of this pilot study, there were no statements that needed to be added, deleted or modified.

Participants (the P-set)

Based on the literature and following the suggestions of Watts and Stenner [23], the ratio of statements to participants for such a study should be approximately 1:1. Therefore, we aimed to include at least 30 physicians in this study. Participants were invited through the authors' various networks and further applying a snowball sampling method, which resulted in a total of 33 participants. Since this study aims to investigate the importance of risk factors for patient (and their relatives/friends) aggression and violence from a physician's perspective, all the participants in our study were to be physicians who had experienced and/or witnessed such aggression and violence in public hospitals in China. To ensure diversity in the data sources, participants came from different departments, areas of China, hospital locations (urban/rural), and public hospital types (secondary/tertiary).

Data collection

Data were collected from February to April 2024 through online interviews. Prior to the interviews, the participants received an email with instructions plus a consent form and a preparation form. Once participants had agreed to join this study, we provided them with a score sheet and statement cards via email and also used screen sharing to display these documents during the online interviews held using Microsoft Teams. Participants were asked to judge the importance of the Q-set based on the question: "Please rank the risk factors for patient (and their relatives/friends) aggression and violence towards physicians from least to most important". More specifically, participants were first asked to place the statement

cards in most important, neutral, and least important piles [29]. Participants then ranked their most important pile of statements and entered them into the grid, followed by the least important pile, and the remaining neutral pile (Fig. 1). After participants completed their ranking, they were asked to explain the choices they had made. In addition, we collected demographic information on the participants, including their gender, working experience, and hospital characteristics. For the purpose of this study, all the statements were translated from English into Chinese employing the standard translation/back-translation technique by two researchers (Y.W. and H.W.) [30].

Data analysis and interpretation

In this Q-methodology study, data analysis was conducted using KADE software to identify distinct perspectives on risk factors for patient aggression and violence against physicians [31]. The process began with factor extraction, producing a factor matrix that displayed correlations between participants' Q-sorts (rankings of statements) and the identified factors. This process led to grouping participants with similar perspectives [23, 32]. Factor loadings were calculated to determine how strongly each participant's responses aligned with each factor, identifying representative participants for each viewpoint [32]. A by-person factor analysis was applied to group participants with similar Q-sorting patterns. This process involved calculating a correlation matrix to represent associations between participants, followed by centroid factor extraction to reveal factors in the unrotated factor matrix [23]. The criteria to determine the number of factors to retain included: (1) an Eigenvalue (EV) > 1.00; (2) at least two participants loading significantly at $p < 0.05$ on one factor [23, 32, 33]; and (3) the interpretation of the factors through qualitative analyses. Lastly, factor scores were calculated by averaging statement rankings within each factor, providing insights into the relative importance of statements within each perspective [23].

A mixed-method approach was used to interpret the factors and characterize them as distinct perceptions of risk factors for patient (and their relatives/friends) aggression and violence. This approach initially required us to consider characteristic and distinguishing statements. Characteristic statements were identified using scores of -4, -3, $+3$, and $+4$ within a factor, while distinguishing statements were considered those showing statistically significant differences compared to other factors. Verbal explanations from interviews with

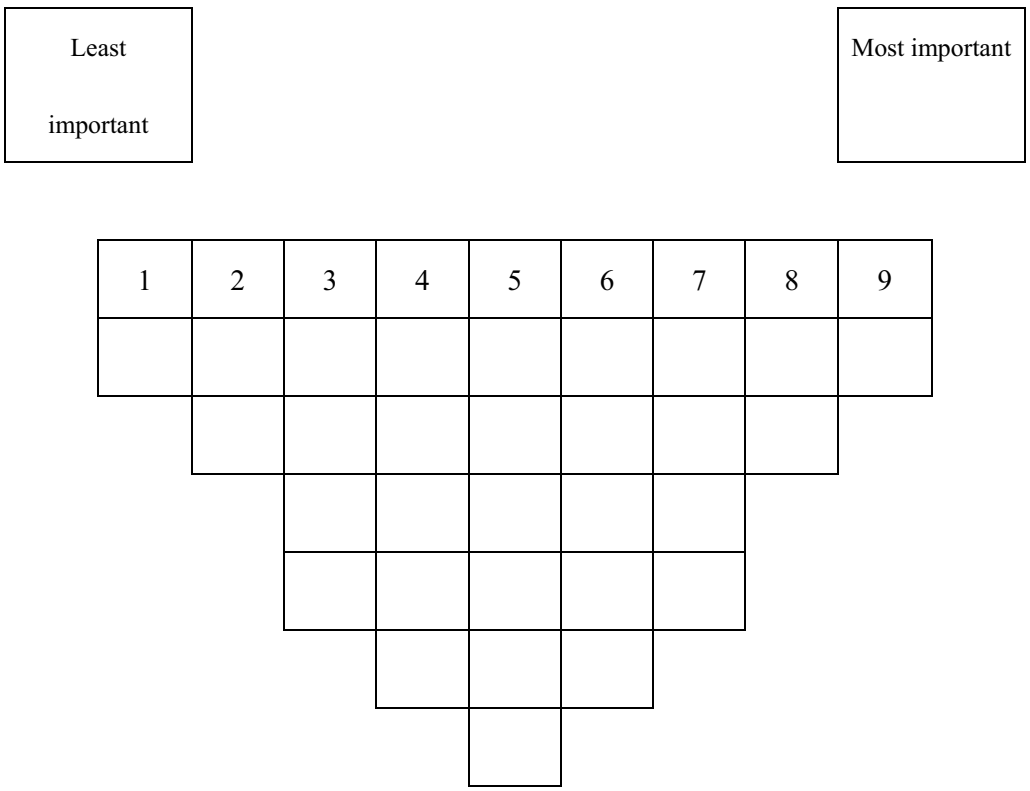

Fig. 1 Q-sorting grid

participants who loaded on to a specific factor were used to verify and refine the interpretation of each factor.

Results

The sample consisted of 33 participants, of whom 14 (42.2%) were male and 19 (57.8%) were female. Most of the participants had worked for less than 10 years (63.6%). 84.8% were working in urban hospitals, and 75.8% in tertiary hospitals. Among these participants, 9 participants (solely) directly experienced aggression and violence from patients (and their relatives/friends) (27.3%), 13 participants (solely) witnessed such aggression (39.4%), and 11 participants both experienced and witnessed such aggression and violence (33.3%). The detailed descriptive statistics of the sample are shown in Table 1.

The factor analysis identified five factors with an EV > 1 and at least two participants loading significantly onto them. Four- and five-factor solutions were compared because both these solutions explained more than 50% of the variance in the data. We found that the first four factors were almost identical in both solutions. The remaining fifth factor in the five-factor solution was too similar in interpretation to Factor 3 and therefore did not add a significantly distinct perspective. Consequently, the four-factor solution was chosen.

This four-factor solution explained 51% of the total variance. Table 2 shows the factor loadings: ten participants were associated with Factor 1, four with Factor 2, seven with Factor 3, and four with Factor 4. In addition to these 25 participants, five participants were mixed loaders (i.e., confounded) and three participants were null loaders (i.e., no significant loadings). Correlations between the factors ranged from 0.17 to 0.55. Table 3 presents the composite sorts of the statements for the four factors.

Table 1 Descriptive statistics of the study sample ($N = 33$)

Characteristics	*n* (%)
Gender	
Male	14 (42.2%)
Female	19 (57.8%)
Working experience	
≤ 10 years	21 (63.6%)
11–20 years	6 (18.2%)
> 20 years	6 (18.2%)
Hospital location	
Urban	28 (84.8%)
Rural	5 (15.2%)
Hospital type	
Secondary	8 (24.2%)
Tertiary	25 (75.8%)
Experience with aggression and violence	
Directly experienced (solely)	9 (27.3%)
Witnessed (solely)	13 (39.4%)
Both directly experienced and witnessed	11 (33.3%)

Table 2 Factor matrix

Participant ID	Factor 1	Factor 2	Factor 3	Factor 4
1	0.5316*	0.103	0.0738	0.3597
2	− 0.1482	0.3822	0.3989	0.4837
3	0.2293	− 0.1785	0.4047*	0.3381
4	0.1138	0.3037	0.6155	0.4955
5	0.3044	0.2838	0.7139*	0.0591
6	0.7274*	− 0.1764	0.2779	0.1893
7	0.7005*	0.1174	0.2165	− 0.0334
8	0.6206*	0.2701	0.2688	0.2401
9	0.0823	0.583*	0.3275	0.0922
10	0.3283	0.2716	0.2601	0.6712*
11#	0.0735	0.0621	0.2207	0.1194
12	0.3939	0.2313	0.218	0.5534
13	0.2841	0.246	0.1854	0.6896*
14#	0.1332	− 0.0296	0.3588	0.1116
15	0.5768*	− 0.1823	0.0471	0.3634
16	0.4387	0.486	0.2843	0.2174
17#	0.1417	0.1349	0.1989	0.1004
18	0.4917*	− 0.4021	0.2831	− 0.1248
19	0.4104*	− 0.0164	0.0536	0.3438
20	− 0.161	0.8248*	0.0888	0.1589
21	0.1442	0.1977	0.7015*	0.2695
22	0.1903	0.2747	0.1867	0.4905*
23	− 0.1011	− 0.2066	0.5006*	0.359
24	0.1664	0.5629*	0.2503	0.0081
25	0.272	0.3543	0.685*	− 0.1123
26	0.3851*	0.0416	0.1087	− 0.2186
27	0.5702	− 0.0194	0.15	0.3938
28	0.2685	0.0863	0.6979*	0.2213
29	0.0081	0.0517	0.2062	0.8227*
30	0.5583*	0.2549	− 0.0767	0.0505
31	0.6008*	−0.015	0.4369	0.324
32	0.0689	0.2931	0.6988*	0.3078
33	0.3192	0.7466*	− 0.0635	0.4381
% Variance explained	14	10	14	13
Correlation with Factor 2	0.1706			
Correlation with Factor 3	0.5473	0.4199		
Correlation with Factor 4	0.4777	0.4764	0.531	

* Denotes exemplar Q-sort for factor: that is, the Q-sort loads significantly at $p < 0.05$ on to only one factor. Significant loading calculated using the formula: $1.96 \times (1/\sqrt{\text{No. of items in Q-set}})$, equating to $1.96 \times (1/\sqrt{30}) = 0.36$

Null loading Q-sorts

Table 3 Factor scores per statement

No	Statements	Factor 1	Factor 2	Factor 3	Factor 4
Perpetrator-related factors					
1	Perpetrator's age	− 3	0*	− 4	0*
2	Perpetrator's gender	− 2	+ 2**	− 2	− 1**
3	Perpetrator's educational level	− 1	+ 4*	+ 2*	0
4	Perpetrator's social status	− 3	+ 3**	− 1	− 2
5	Perpetrator's personality traits	− 1**	+ 1	+ 1	+ 4**
6	Perpetrator under influence of alcohol and/or drug	− 1**	+ 2	+ 2	+ 3
7	Perpetrator's mental state	− 1**	+ 2*	+ 4	+ 3
8	Perpetrator's lack of medical knowledge	+ 1	+ 3	+ 1	+ 2
9	High out-of-pocket expenses	− 2*	+ 1	0	− 2*
10	Patient's severity of the disease state	+ 2	+ 1	0	+ 1
11	Actual or perceived non-improvement or deterioration of the patient's condition including patient death or irreversible damage	+ 4**	+ 1	+ 1	+ 1
12	Perpetrator's expectations are not met	+ 3#	+ 2#	+ 2#	+ 2#
Physician-related factors					
13	Physician's gender	− 4*#	− 3#	− 3#	− 3#
14	Physician's inexperience	0	0	− 1	− 1
15	Physician's personality traits	− 2	− 4**	− 2	− 1*
16	Physician's poor medical skills	0	− 1	− 2	0
17	Physician's heavy workload	0*	− 1	− 2	− 2
18	Medical error by physician	+ 1	0	− 1	0
Interaction-related factors					
19	Perpetrator's distrust of physicians	+ 3	+ 1	+ 3	+ 2
20	Perpetrators' dissatisfaction with physicians' attitude	+ 2	0	0	+ 2
21	Poor physician–perpetrator communication	+ 2	0	+ 1	+ 1
22	Physicians' poor skills in coping with patient aggression and violence	− 1	− 2	0*	− 1
23	Denial of perpetrator's requests	+ 1	− 2*	+ 1	0
Factors related to organizational context					
24	Long waiting time	0	− 2*	0	+ 1
25	Overcrowding	+ 1	− 3	− 1	+ 1
26	Lack of resources (e.g., equipment, free beds, and medication)	+ 2	− 2*	0	0
27	Insufficient staff	+ 1	− 1	− 1	− 2
28	Lack of security	0	− 1	+ 2**	− 1
External factors					
29	Lack of policies and laws to protect physicians from aggression and violence	0*	− 1*	+ 3**	− 3*
30	Characteristics of hospitals, e.g., hospital level, hospital type (public or private), or hospital location	− 2*	0*	− 3	− 4

* $p < 0.05$; ** $p < 0.1$; consensus statements are indicated by #

Perspective 1: unmet expectations of treatment and lack of resources

Participants associated with Perspective 1 identified factors related to the perpetrator's unmet expectations of treatment outcomes as important triggers of aggression and violence by the patient (and their relatives/friends) against physicians (st.11, + 4; st.12, + 3). These factors trigger perpetrator's negative reactions that are fed by emotions: "*They (perpetrators) cannot accept the poor treatment results, and they are prone to emotional breakdowns, which may then lead to some violent behavior against us.*" (id 8). Here, the severity of the patient's disease (st.10, + 2) plays an important role: "*The severity of the patient's condition has a significant impact on the family's emotions.*" (id 31). The possible consequences of unmet expectations following treatment are mistrust and dissatisfaction with physicians (st.19, + 3; st.20, + 2). The possible causes of unmet expectations are the lack of material resources (st.26, + 2) and insufficient staff (st.27, + 1) because these would affect the timeliness of treatment and potential lead to poor outcomes: "*Patients cannot be hospitalized in a timely manner (…) If their*

condition worsens, it will put pressure on our follow-up treatment." (id 30).

From this perspective, the personal characteristics of the perpetrator and the physician were unlikely to be the cause of violent behavior (st.13, − 4; st 1. − 3; st.2, − 2; st.4, − 3; st,5, − 1; st.15, − 2): "*Whether a physician is male or female, he or she is at risk of experiencing violence, and patients can be violent regardless of their gender or age.*" (id 15). "*These factors do not affect our treatment of patients or the effectiveness of treatment outcomes.*" (id 30). Relative to the other perspectives, a perpetrator's mental state was considered slightly less important (st.7, − 1): "*It takes experience to determine whether a patient is mentally abnormal or not. Sometimes it is hard for us, especially young physicians, to determine a patient's mental state unless he/she is clearly behaving in that way.*" (id 7).

Perspective 2: perpetrator's educational background and personal characteristics

Participants aligning with this perspective stressed the importance of the educational background of perpetrators, including their educational level (st.3, + 4) and their knowledge of medicine (st.8, + 3), because these characteristics influence physician–patient interactions, attitudes and realistic expectations: "*I think individuals who have had higher education tend to exhibit stronger self-control over their behavior.*" (id 20). "*Many patients who lack understanding of medicine believe that simply visiting the hospital guarantees recovery. When we are unable to cure them, they struggle to accept such outcomes, sometimes leading to incidents of violence.*" (id 33). Perpetrators' social status was also attached to their educational background and propensity for violence (st.4, + 3): "*I think social status, education level, economic condition, and understanding of medicine are related. (…) People with a higher social status tend to pay more attention to the way to solve something.*" (id 9). Participants associated with Perspective 2 deemed perpetrator's characteristics (i.e., mental state, gender, and personality traits) as important risk factors for patient violence (st.2, + 2; st.7, + 2; st.5, + 1): "*Patients who are mentally ill are more likely to be unable to control their behavior.*" (id 33). However, for those holding this perspective, physicians' traits and gender were not seen as major risk factors for patient aggression and violence (st15. − 4; st.13, − 3).

Factors related to organizational context were considered by these respondents as less important. These include overcrowding (st.25, − 3), long waiting times (st.24, − 2), lack of resources (st.26, − 2), insufficient staff (st.27, − 1), and lack of security (st.28, − 1), since these situations are viewed as the norm: "*We all know that hospitals are crowded.*" (id 9). "*The hospital lacks resources, this is an objective reality. Generally, since patients choose to visit the hospital, they are less likely to be concerned about these issues.*" (id 20).

Perspective 3: distrust and limited protection measures

In this perspective, participants identified the perpetrator's distrust of physicians (st.19, + 3) as an important trigger for violent behavior. Although similar to Perspective 1, the distrust in this case is not caused by unmet expectations but due to the created climate: "*Inaccurate and exaggerated media reports can exacerbate patients' distrust of us. (…) Lack of trust by our patients will make them question all of our actions.*" (id 3). Moreover, those holding to this perspective view the lack of protective measures as a risk factor. Participants considered the lack of policies, legislation, and security to protect physicians from aggression and violence (st.29, + 3; st.28, + 2) as an important risk factor given that perpetrators can attack physicians with relative impunity: "*The lack of security in hospitals can give patients a false sense that they can freely insult or assault physicians without anyone stopping them.*" (id 32). Participants also noted that the lack of appropriate safety measures in hospitals puts them under great pressure when dealing with patients with mental illness (st.7, + 4): "*I hope that the security check will identify people with abnormal mental behavior, and then these people should be accompanied by security guards when seeking medical treatment.*" (id 21).

Consistent with the previous perspectives, the gender and personality traits of physicians (st.13, − 3; st.15, − 2), the gender and age of potential perpetrators (st.1, − 4; st.2, − 2), and characteristics of hospitals (st.30, − 3) were considered as relatively unimportant risk factors. Interestingly, in this perspective, physicians' heavy workloads (st.17, − 2) and poor medical skills (st.16, − 2) were also seen as less important in causing patient aggression and violence: "*The heavy workload of physicians is an industry norm. Patients also do not see that we have a lot of work.*" (id 28). "*If treating a patient's illness exceeds our capabilities, we will refer them. We do not do more than we are capable of.*" (id 21).

Perspective 4: perpetrator's emotional well-being and poor interaction

Participants fitting within this perspective considered aspects related to the perpetrators' emotional well-being the most important risk factors: perpetrators' personality traits (st.5, + 4), their mental state (st.7, + 3), and being under the influence of alcohol and/or drugs (st.6, + 3). "*Some patients have personality flaws or are prone to anger. Whatever we do, we may inadvertently provoke them.*" (id 29). "*Sometimes it is hard to predict and control the behavior of patients who have mental issues.*" (id

10). "*The perpetrator was under the influence of alcohol or drugs and was prone to loss of control.*" (id 13).

Those participants adhering to Perspective 4 also saw interactions between physicians and perpetrators as a potential trigger for such violence, including perpetrators' dissatisfaction with physicians' attitudes (st.20, + 2) and their distrust of physicians (st.19, + 2). Unlike with Perspective 1, these negative interactions may be due to the perpetrator's psychological state: "*It is hard to communicate with patients when they are drunk.*" (id 29).

In this perception, external factors, including characteristics of hospitals (st.30, − 4) and the lack of policies and laws to protect physicians (st.29, − 3) were seen as less important in triggering patient's violent behavior: "*No matter what type of hospital it is, violence would occur.*" (id 13). "*Laws are in place, but they are not very effective.*" (id 22). Further, and consistent with Perspective 1, gender (st.13, − 3; st.2, − 1), a perpetrator's social status (st.4, − 2), and high out-of-pocket expenses (st.9, − 2) were not seen as important risk factors for such aggression and violence.

Statements where there was a broad consensus

An inability to meet perpetrators' expectations was consistently regarded as a significant factor in inciting violence (st.12#, P1: + 3, P2: + 2, P3: + 2, P4: + 2). "*They (perpetrators) expect too much from us and, to be honest, a lot of diseases are hard to cure.*" (id 33). "*The greater the expectations, sometimes the greater the disappointment.*" (id 17). Finally, the gender of the physician was considered among all perspectives as one of the least important factors to trigger violence (st.13#, P1: − 4, P2: − 3, P3: − 3, P4: − 3).

Discussion and conclusions

Main findings and comparison with previous findings

The aim of this study was to investigate the perspectives held among physicians on risk factors for patients (and their relatives/friends) aggression and violence against physicians in Chinese hospitals. Four distinct perspectives were identified by using Q-methodology. The first and third perspective focused on perpetrators' attitudes towards the physicians and unavailable resources: unmet expectations of treatment and distrust, and a lack of resources and limited protection measures. Those adhering to the second and fourth perspective emphasized the importance of features of potential perpetrators and interactions: their educational background and personal characteristics, their emotional well-being, and poor interaction. Based on the results of this study, there appears to be a broad consensus among physicians that a failure to meet the expectations of perpetrators is a significant factor in the occurrence of aggression and violence, and that the gender of a physician is not a factor in the likelihood of violence. The following discussion is broken down into separate levels, in line with the SEM.

Individual level: perpetrators and physicians

According to SEM, individual characteristics influence the occurrence of violent incidents. We subdivided the individual level into perpetrator- and physician-related factors in this study. In terms of perpetrator-related factors, our findings showed that participants among all four views broadly agreed on perpetrators' unmet expectations being an important risk factor in triggering violent behavior. This is consistent with previous studies. High expectations and disappointing realities, and the mismatch between patients' expectations and the service provided, were seen as likely to spark aggression and violence towards healthcare professionals [34, 35]. Within the SEM framework, this can be interpreted as an individual-level mismatch between personal beliefs or expectations and the reality of treatment outcomes. While unmet treatment expectations are a common factor in healthcare violence globally, the combination of high family involvement, and the expectation of high-quality care from tertiary hospitals intensifies this challenge in Chinese context [36, 37]. This convergence of factors creates a situation where unmet expectations can lead to frustration and even escalate into aggression. Interestingly, although some Chinese studies have claimed that high out-of-pocket medical expenses are significant in generating aggression and violence by patients (and their relatives/friends) [38, 39], such expenses were not perceived as relatively one of the most important risk factors among any of our perspectives. Actual or perceived non-improvement or deterioration in a patient's condition was considered an important risk factor among all four perspectives. This risk factor has also been seen as important in other countries. For example, an Indian study similarly showed that more than 70% of physicians perceived non-improvement and death of a patient as the two main causes of workplace violence [35].

Compared to the other three perspectives, participants who hold Perspective 1 seem reluctant to attribute violence to perpetrator-related factors, especially perpetrator's mental health. However, respondents holding other perspectives, and confirmed by previous studies [40, 41], claim that perpetrator's mental health played an important role in inducing violent incidents. In Perspective 1, participants argued that not all physicians were equipped to determine whether a perpetrator had a mental illness, and therefore felt they could not attribute violence to this factor. The existing literature similarly recognizes that spotting potentially aggressive patients was a key skill

for physicians and should therefore be a core element in their training [6, 42].

On the other hand, this study found that physician-related factors are not considered as one of the most important factors in triggering violent incidents among any of the four perspectives. Although some research has suggested that a lack of experience and insufficient skills among physicians can contribute to the occurrence of violent incidents [35, 38], participants in this study emphasized that they would recommend patients referral if faced with situations beyond their own experience and skills. This can be seen as not only taking responsibility for the patient, but also as ensuring their own protection. Physician-related factors might be considered as relatively less importance due to defensive medicine practices as physicians avoid certain activities to protect themselves [43, 44].

Relationship level: interaction-related factors

The relationship level of SEM emphasizes the quality of interactions between patients and physicians. In Perspectives 1, 3 and 4, patient–physician interactions such as poor communication and patient distrust, emerged as the relatively important risk factors, reflecting how relational dynamics directly impact the likelihood of aggressive incidents. Those participants who held Perspectives 1, 3 and 4 specifically highlighted the impact of poor treatment outcomes on perpetrators' trust, indicating that a perceived failure in treatment fuels a sense of resentment in perpetrators, a finding in line with previous studies [34, 45]. Additionally, consistent with other studies [46, 47], our findings suggest that patients' distrust may be fueled by negative media attention, which in turn worsens the patient–physician relationship and adds an external strain to their interaction. Within the SEM, this observation underscores how misaligned emotional and communication dynamics between patients and physicians could contribute to aggression and violence.

Community level: factors related to the organizational context

At the community or organizational level, SEM posits that workplace conditions and structural factors shape interactions within healthcare settings [7, 8]. This study found that participants across three perspectives (Perspectives 1, 3, 4) recognized organizational stressors like overcrowding, long wait times, and insufficient staff as aggravators of aggression. In line with the SEM, such organizational stressors contribute to an environment of increased tension and dissatisfaction [48]. Our finding showed that although patients may anticipate overcrowding and delays, the presence of these conditions may still intensify frustration. This interpretation is consistent with previous Chinese research [17, 48]. Due to Chinese patients' medical treatment preferences for seeking care directly at overcrowded higher-level hospitals (e.g., tertiary hospitals), these already crowded hospitals face community-level pressures that increase the risk of aggression. This leaves physicians to bear the brunt of patient dissatisfaction, stemming from systemic issues beyond their control [17].

Societal level: external contextual factors

SEM suggests that societal factors, such as the legal and policy landscape, create an overarching influence on violence prevention in healthcare [7]. In this regard, there is a distinction between those holding Perspective 3 and the other perspectives on the importance of the lack of laws protecting physicians against aggression and violence. While participants holding Perspective 3 acknowledged the importance of legal protection and support for physicians in the face of aggression and violence from patients (and their relatives/friends), this was less recognized in the other perspectives.

Implications for practices

In light of our findings, several key implications emerge for hospital administration to address patient aggression and violence. Due to the broad consensus on the importance of unmet perpetrator's expectations across all perspectives as a core contributor to aggression and violence, hospitals should consider interventions to address this risk factor. Creating a team trained to proactively address patient concerns can prevent misunderstandings and manage expectations, reducing the risk of aggression or violence [25, 42]. Additional strategies, such as shared decision-making and tailoring healthcare services, could further support these efforts by aligning treatment plans more closely with patient expectations [49, 50].

Distinct perspectives offer additional insights into targeted interventions. For example, to address the risk factors related to Perspective 1 (actual or perceived poor treatment outcomes and lack of resources), in addition to managing perpetrator's expectations (as previously mentioned), hospital may consider implementing incident analysis tools, such as root cause analysis and health failure mode and effect analysis). These tools help systematically investigate adverse events and identify underlying issues in patient care processes [51]. Additionally, hospital could focus on optimizing available resources by adopting lean management practices (e.g., eliminating waste, streamline workflows, and creating standardized procedures) to allow staff to handle a higher volume of cases effectively with existing resources [52]. Addressing risk factors related to Perspective 2 (perpetrators' backgrounds and personal characteristics) calls for tailored

communication training for physicians. Physicians who are trained to adjust their communication styles towards patients' demographics (e.g., age, cultural background, education level) and patient's personality traits, will improve patient–physicians interaction [53, 54]. To address the risk factors associated with Perspective 3 (limited protection measures and distrust for physicians), hospitals may consider enhancing security measures. This could include positioning security personnel in high-risk areas, establishing metal detectors at main entrances, and enforcing a zero-tolerance policy against aggression and violence [55]. Improving patient trust can be improved by fostering open communication, respecting patient privacy, and showing empathy to patients [50, 55]. Finally, to cope with Perspective 4 (poor interaction that arises from perpetrators' emotional well-being), hospitals might implement protocols for early identification of patients with high emotional distress or mental health issues, combined with de-escalation training for physicians to improve interactions with these patients [55].

Future research directions

This study proposes three suggestions for future study. First, future studies could conduct an in-depth investigation into potential differences between rural and urban physicians' perspectives on patient aggression and violence, as well as variations across different types of hospitals within these settings. Our findings hint that physicians in rural hospitals may hold distinct views compared to their urban counterparts. In this study, physicians in rural hospitals loaded onto Factor 1 (Perspective 1) and Factor 4 (Perspective 4), while physicians in urban hospitals loaded on all perspectives. However, these differences may not be conclusively established or generalized based solely on the Q-methodology, as it is not designed to provide definitive categorizations but rather to identify patterns of shared viewpoints. Second, the potential differences in views on risk factors between physicians who have directly experienced patient aggression and violence and those who have only witnessed such incidents should be further investigated. This study included physicians who (solely) experienced aggression directly, physicians who (solely) witnessed aggression, and physicians who both experienced and witnessed aggression. In this study, we did not distinguish whether these three groups of participants held different views for risk factors. However, existing literature claimed that direct exposure to aggression and violence could have different consequences than witnessing it [56]. Third, the distinct perspectives provide implications for interventions based on the assumption that a match between perceived crucial risk factors and the adoption and consequently the effectiveness of interventions will increase. Research should provide insights into how hospitals can assess the viewpoints among their healthcare professionals and guide the selection of best fitted interventions.

Limitations

Some limitations should be acknowledged. First, although the participants were assured of anonymity, some may still have been hesitant to provide a full disclosure. Some physicians might have felt stigmatized for being victims of violence and thus could have been reluctant to fully describe their experiences. Further, given the sampling process, potential participants who were reluctant to share their experiences may have been less likely to participate. In addition, since no distinction was made between types of aggression and violence from patients (and their relatives/friends), especially between verbal and physical violence, differences in risk factors in their predisposition to certain forms of violence were not addressed. Finally, although we used the SEM and other relevant literature to identify all the potential risk factors for patient aggression and violence against physicians and validated these in a pilot study, the possibility remains that certain risk factors may have been overlooked in our statement set. To mitigate this, we provided respondents with ample opportunities during the interviews to elaborate on their perspectives, ensuring that any additional relevant insights into additional risk factors could still be captured.

Conclusions

In conclusion, this Q-methodology study has identified four distinct perspectives among physicians on the risk factors for patient aggression and violence against physicians in Chinese hospitals: (1) unmet expectations of treatment and a lack of resources, (2) perpetrators' educational background and personal characteristics, (3) distrust of physicians and limited protection measures, and (4) perpetrator's emotional well-being and poor interactions. For practice, we suggest combining interventions targeted to cover the viewpoints of physicians.

Abbreviations

SEM Social ecological model
EV Eigenvalue

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Author contributions

YW: Conceptualization, Data collection and analysis, Writing—original draft. KA: Methodology, Writing—Review & Editing, Supervision, Project administration. MB: Methodology, Writing—Review & Editing, Supervision. JS: Contacting

participants, Data collection and analysis, Writing—Review & Editing. DZ: Contacting participants, Writing—Review & Editing.

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Availability of data and materials
The datasets created and/or analyzed through the present study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
This study was approved by the Research Ethics Review Committee of Erasmus School of Health Policy and Management, Erasmus University Rotterdam (Approval No. ETH2324-0306). Consent was obtained from all the participants before data collection.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Author details
[1]Erasmus School of Health Policy & Management, Erasmus University Rotterdam, Rotterdam, The Netherlands. [2]School of Public Administration, Southwestern University of Finance and Economics, Chengdu, Sichuan, China. [3]School of International and Public Affairs, Shanghai Jiao Tong University, Shanghai, China.

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