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The Relationship Between Negative Medical News on Attacks Against Healthcare Providers and Medical Students' Anxiety: The Mediating Role of Secondary Trauma

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Abstract. In recent years, media reports often report medical staff encounter violence. Repeated exposure to such news may cause secondary trauma among uninvolved medical students, leading to anxiety and other adverse psychological states. At present, there are limited studies focusing on the psychological mechanism among medical students. In this study, a total of 104 medical students were included as research subjects, forming a sample cohort for this analysis. Research data is collected with the help of three evaluation tools, including the ' Medical Staff Violence Exposure Scale ', ' Secondary Trauma Scale (STSS) ', and ' Generalized Anxiety Disorder Scale (GAD-7) '.In this study, SPSS 27.0 was used for independent sample t-test, Pearson correlation analysis and process macro program mediation effect analysis. Medical news exposure tracked positively with both secondary trauma ($r = 0.304$, $p = 0.002$) and anxiety ($r = 0.246$, $p = 0.012$). Secondary trauma and anxiety ($r = 0.696$, $p < 0.001$) was also linked significantly. Mediation analysis showed that secondary trauma played a completely mediating role. That is to say, exposure to violent news affects the anxiety level of medical students completely through the intermediate link of secondary trauma. This study shows that colleges and universities should strengthen mental health education and improve the support system, so as to help medical students establish psychological adjustment ability and alleviate the negative psychological impact of secondary trauma.

Keywords: Medical students, secondary trauma, news exposure, anxiety, mediating effect

1. Introduction

In recent years, the frequent occurrence of medical-related violence in China has triggered widespread public discussion. With the rapid popularity of the Internet and social media platforms, it is becoming more and more convenient for the public to obtain relevant information about doctor-patient disputes and medical personnel suffering from violence. Even if there is no personal experience, watching such reports repeatedly will also cause individuals to form indirect exposure.

Previous studies have shown that media exposure can indeed significantly affect individual mental state. There is evidence that exposure to a large number of media reports about traumatic events can significantly increase the risk of post-traumatic stress responses [1]. Taking the period of

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the COVID-19 pandemic as an example, prolonged exposure to negative news significantly increased the public 's risk of anxiety and depression [2]. Relevant studies in the medical field have shown that long-term exposure to a large amount of traumatic information has the possibility of causing secondary trauma. For example, medical staff who are exposed to negative medical news for a long time may have psychological problems such as anxiety and stress on the one hand, and may also change their behavior patterns on the other hand, thereby reducing the risk of doctor-patient conflicts [3]. Compared with the relevant discussions for front-line clinical workers, the literature on the impact of news exposure on the psychological response of medical students through empirical methods is still relatively limited. Medical students are in the transitional stage of school training and clinical practice, which may make them more vulnerable to the adverse psychological effects of negative medical news. Based on the above literature, this study will continue to study the mental health status of medical students after exposure to injury-related medical news, and pay special attention to the mediating role of secondary trauma. It is hoped that the conclusions of this study can provide a theoretical basis for the improvement of mental health support systems and vocational education strategies in medical colleges.

2. Research methods

2.1. Study population

This study used the convenience sampling method. In March 2026, an online questionnaire was released on the questionnaire star platform. The target population was medical students, and all questionnaires were collected anonymously. Before anyone was involved, they were given an introduction, which detailed the content of the study and how their data would be kept confidential. All participants have informed consent. After eliminating invalid answers, 104 questionnaires were adopted.

2.2. Research instruments

2.2.1. Demographic information

This study collected the basic demographic information of the subject through self-compiled questionnaires, covering variables such as gender, academic grade and clinical internship experience.

2.2.2. News exposure to violence against healthcare workers scale

The scale was adapted from the AMV scale developed by Felix et al. This study adjusted the items related to violence news exposure and emotional response in the original scale to make it more suitable for specifically assessing everyone's exposure to violence news of medical staff [4]. The scale contains a total of eight items, using a five-point Likert scale - from 'never' to 'very frequent' five levels, corresponding to 1 to 5 points. Ultimately, a mean score is computed, with elevated numerical values reflecting increased levels of news exposure among respondents.

2.2.3. Secondary trauma scale

The assessment instruments employed in this investigation were adapted from the Chinese-language adaptation of the Secondary Trauma Scale (STSS), as modified by Li Haiyun [5]. The scale has a

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total of 17 items and also uses a 5-point Likert scale - from 'never' to 'very frequently', giving 1 to 5 points respectively. The value range of the total score of the scale is 17 to 85 points, with greater values denoting more profound severity of secondary traumatic stress.

2.2.4. Generalized anxiety scale

The tool for assessing anxiety is the Generalized Anxiety Disorder Scale (GAD-7) [6]. The table contains seven items, using a 4-point Likert scale-from 'never' to 'almost every day', corresponding to 0 to 3 points. The aggregate score spans 0 to 21 points, with greater numerical values indicating heightened anxiety severity among respondents.

2.3. Data analysis

Data analysis was completed with the help of SPSS 27.0 statistical software. Continuous variables that conform to the normal distribution assumption are presented in mean ± standard deviation (M±SD), and classified variables are described in frequency and percentage. Although some variables do not strictly conform to the normal distribution, considering the large sample size (n = 104), it can be approximated as a normal distribution according to the central limit theorem. Independent sample t test was used to analyze the degree of medical news exposure, secondary trauma and anxiety scores of medical students with different demographic characteristics (gender, clinical exposure and educational level). This study looked at whether people who read medical news tended to feel more secondary trauma and anxiety. To test this link,Pearson correlation analysis was used to map out the relationship among these three factors—news exposure, trauma levels, and anxiety.

To assess whether secondary trauma serves as an intermediary in the association linking news exposure with anxiety scores, the PROCESS macro (Model 4) was utilized. The bootstrap method was repeated for 5000 times. Only when the P value of the result is less than 0.05, it is considered to be statistically significant. Any result higher than this value is considered to be just an accident.

3. Results

3.1. Demographic characteristics

The participants of the study came from a group of medical students, with a total of 104. Each participant was currently pursuing a medical degree and had been screened to participate in this study. Descriptive statistics were conducted for gender, educational level, and clinical internship experience. Table 1 provides a comprehensive summary of the corresponding findings.

Table 1. Demographic characteristics of participants (N = 104)

Variable	Category	n	%
Gender	Male	31	29.8
	Female	70	67.3
	Other	3	2.9
Internship Experience	Yes	66	63.5
	No	38	36.5
Education	Bachelor's Degree	78	75

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Table 1. (continued)

	Master's Degree	26	25

3.2. Differences across demographic characteristics

3.2.1. Gender differences

Given the small number of participants identifying as "Other" gender (n = 3), statistical analyses were restricted to male and female participants. Independent samples t-tests were conducted to compare news exposure to violence against healthcare workers, secondary trauma, and anxiety. The results are presented in Table 2. To ensure that the t-test is not carried out blindly, the experiment adopts the Levene test to check whether the distribution of the data is uniform. The test results are all normal ($p > 0.05$), which indicates that the variance is homogeneous and the groups are sufficiently comparable. That is to say, ordinary t-tests can be used in experiments without worrying about the problem of different variances.

No significant gender differences were observed in news exposure ($t(99) = -1.637$, $p = 0.105$). Similarly, the difference in secondary trauma was not statistically significant, although male students showed slightly higher scores than female students ($t(99) = 0.784$, $p = 0.435$). Anxiety levels were comparable across the two groups ($t(99) = -0.452$, $p = 0.652$).

Overall, gender was not significantly associated with levels of news exposure, secondary trauma, or anxiety among medical students.

Table 2. Gender differences in key variables (Mean ± SD)

Variable	Male (n=31)	Female (n=70)	t	p
News exposure	3.69±0.62	3.89±0.52	-1.637	0.105
Secondary trauma	46.23±13.75	43.90±13.74	0.784	0.435
Anxiety	12.97±4.85	13.41±4.45	-0.452	0.652

3.2.2. Differences in educational level

In order to compare the differences between undergraduates and graduate students in the exposure of violence to medical staff, secondary trauma and anxiety levels, an independent sample t-test was conducted. The results are presented in Table 3. After the Levene's test, each analysis variable meets the assumption of variance homogeneity, and the test results show that all p values exceed the significance level of 0.05.

There was no significant difference in the level of news exposure between the two groups ($t(102) = 1.386$, $p = 0.169$).However, a significant difference was observed in secondary trauma ($t(102) = -2.476$, $p = 0.015$), with graduate students reporting higher levels than undergraduates. The difference in anxiety approached statistical significance but did not reach the threshold ($t(102) = -1.969$, $p = 0.052$), indicating a tendency for higher anxiety among graduate students.

Table 3. Differences by educational level (Mean ± SD)

Variable	Undergraduates (n=78)	Graduate students (n=26)	t	p
News exposure	3.86±0.53	3.69±0.63	1.386	0.169
Secondary trauma	42.88±13.52	50.38±12.91	-2.476	0.015*

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Table 3. (continued)

Anxiety	12.88±4.31	14.92±5.30	-1.969	0.052

*Note: * p<0.05

3.2.3. Differences in internship experience

To examine differences between students who have completed clinical internships and students who have not completed clinical internships, an independent sample t-test was carried out in three dimensions: news exposure, secondary trauma and anxiety about the violence of medical staff. The results are presented in Table 4.

The Levene's test confirmed the variance of news exposure and anxiety, but the assumption of secondary trauma was violated. Therefore, Welch's t-test was applied for the analysis of secondary trauma.

The two groups showed similar news exposure levels (t (102) = 1.271, p = 0.207). The difference in secondary trauma approached but not did reach statistical significance (t (95.309) = 1.847, p = 0.068), indicating a potential trend. Similarly, no significant difference was observed in anxiety (t (102) = 0.481, p = 0.632).

Table 4. Differences by internship experience (Mean ± SD)

Variable	With internship (n=66)	Without internship (n=38)	t	p
News exposure	3.87±0.51	3.72±0.62	1.271	0.207
Secondary trauma	46.48±14.83	41.76±11.03	1.847	0.068
Anxiety	13.56±4.61	13.11±4.72	0.481	0.632

3.3. Reliability and validity testing

Reliability and validity analyses were conducted for the Chinese version of the News Exposure to Violence Against Healthcare Workers Scale.

As shown in Table 5, the Cronbach α coefficient reaches 0.724, which shows that the internal consistency is satisfactory. Two tests were carried out before the factor analysis. The KMO score is not very high but enough (0.642),and Bartlett's test performance is excellent($\chi^2 = 235.491$, df = 28, $p < 0.001$). This almost zero p value means that the correlation between projects is not accidental. The combination of the two points shows that the scale looks structurally stable enough to continue the factor analysis.

Table 5. Reliability and validity results

Indicator	
Cronbach's a	0.724
KMO	0.642
Bartlett X	235.491
df	28
p	<0.001

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3.4. Correlation analysis

In order to explore how medical news exposure is associated with secondary trauma and anxiety; this study used the Person correlation coefficient.

Table 6 shows that exposure to medical news is closely related to secondary trauma ($r = 0.304$, $p = 0.002$), and anxiety also shows the same upward trend ($r = 0.246$, $p = 0.012$). There was also a significant positive correlation between secondary trauma and anxiety ($r = 0.696$, $p < 0.001$). This result shows that the higher the degree of medical students' exposure to medical news, the more obviously the corresponding secondary traumatic reaction and anxiety will be.

Table 6. Pearson correlation analysis

Variable	News exposure	Secondary trauma	Anxiety
News exposure	1		
Secondary trauma	0.304**	1	
Anxiety	0.246*	0.696**	1

*Note: * p<0.05 ** p<0.01

3.5. Mediation analysis

In this study, PROCESS macro program model 4 was used to test the mediating role of secondary trauma between medical news exposure and anxiety. The results are shown in Table 7: The total effect of news exposure on anxiety is significant. However, after introducing secondary trauma into the model as a mediating variable,the direct effect is no longer statistically significant.

The results of the Bootstrap test show that the indirect effect of medical news exposure on anxiety through secondary trauma is 1.7236. Its 95% confidence interval is [0.5524, 3.1065]. This interval does not include 0. Therefore, the mediating effect is established.

It can be seen that secondary trauma plays a complete mediating role. That is to say, medical injury-related news can affect the anxiety level of medical students completely through the path of secondary trauma.

Table 7. Mediation analysis results

Path	β	SE	t	p	95%CI
X→Y(Total Effect)	2.0372	0.7959	2.5598	0.0119	[0.4587,3.6158]
X→Y(Direct Effect)	0.3137	0.6214	0.5048	0.6148	[-0.9190,1.5363]
Indirect Effect	1.7236	0.6476			[0.5524,3.1065]

4. Discussion

Taking medical students as the research subjects, this paper explores the relationship between medical news exposure, secondary trauma and anxiety in news reports, and focuses on whether secondary trauma plays an intermediary role in it. On the whole, the results are generally consistent with previous studies. The results show that news exposure is positively correlated with secondary trauma and anxiety, and there is also a positive correlation between secondary trauma and anxiety. Mediation analysis shows that secondary trauma completely acts as a mediator between news

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exposure and anxiety-that is,news exposure itself does not directly aggravate anxiety, but indirectly affects anxiety by triggering secondary trauma.

Specific research results show that increased exposure to medical news is associated with more obvious secondary trauma among participants. The conclusion is basically consistent with the previous research results. Studies have shown that even if individuals have no personal experience, long-term exposure to violence or painful media reports can trigger secondary traumatic stress symptoms by stimulating empathy and emotional processing [1]. At the same time, some studies have found that frequent exposure to negative information can increase psychological stress and emotional distress [7, 8]. For medical students, the content of medical news itself has a sense of pain. This kind of news is closely related to the professional environment they will enter in the future, and this correlation may enhance their alternative identity to the affected medical staff, resulting in an increase in psychological load.

In addition, this study also found a significant positive correlation between secondary trauma and anxiety. Taking previous studies as an example, secondary trauma is often associated with emotional problems such as anxiety and depression, which can be mutually confirmed with the results of this study [9, 10]. Combined with the actual clinical background, medical students often interact with patients and face potential medical conflicts. These experiences may overlap with media contact, increase emotional load and increase the risk of adverse psychological states.

Further mediation analysis showed that secondary trauma played a complete mediating role between news exposure and anxiety. In other words, news exposure itself does not directly cause anxiety, but indirectly affects the psychological state of medical students through secondary trauma. This finding is consistent with existing theories. For example, the impact of media information on mental health is usually regulated by emotional and cognitive processing [3]. After repeated exposure to medical news, medical students may begin to worry about the safety of the medical environment and have negative expectations for occupational risks. These cognitive responses, in turn, exacerbate the traumatic experience and push anxiety levels higher.

In terms of demographic characteristics, no significant differences were found in gender or internship experience. This phenomenon is likely to be related to the relatively concentrated sample sources and the consistent professional background of the participants. It is worth noting that the level of secondary trauma reported by graduate students is significantly higher than that of undergraduates. This may mean more clinical contact, which will make medical students more vulnerable to the psychological impact of negative medical information. Existing studies have also shown that there is a certain correlation between clinical exposure and psychological stress - the results partially support this conclusion [10].

Based on the above results, medical education should place greater emphasis on how news exposure affects the psychological well-being of medical students. In terms of medical courses, emotional regulation and stress management can be added. To cope with the pressure and challenges in the training stage and future clinical work, group counselling can be carried out to help medical students. In addition, senior students and students who are receiving resident training are themselves more vulnerable to the impact of secondary trauma, which means more psychological support is needed.

5. Conclusion

Based on the survey data of 104 medical students, this study revealed a significant correlation between medical news exposure, secondary trauma and anxiety. On the whole, news exposure is positively correlated with secondary trauma and anxiety. There was also a positive correlation

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between secondary trauma and anxiety. Mediation analysis further showed that the impact of news exposure on anxiety is entirely generated through its impact on secondary trauma. The results reflect that medical news itself does not directly cause the anxiety of medical students, but indirectly aggravates their psychological burden by affecting the individual's cognitive style and emotional response process to related events.

It is worth mentioning that social media itself does not directly lead to anxiety, but is gradually transmitted through individual attention patterns and emotional responses. The slow accumulation of intermediary factors eventually leads to the increase of psychological load. Therefore, frequent exposure to negative news content may lead to more mental health problems, reduce the individual's ability to resist stress, and cause problems among medical students.

Based on these findings, medical education should place greater emphasis on how news exposure affects the psychological well-being of medical students. In practice, mental health education and stress management should be integrated into the curriculum. Actions should be taken to guide students to improve emotional management, so as to reduce the negative impact of secondary trauma. This study analyses the mechanism of medical students' mental health from the perspective of media, which is helpful to study the causes of mental health problems and provides a reference for the formulation of campus psychological support strategies.

Of course, this study also has some limitations. The use of a cross-sectional design makes it impossible to explore the causal relationship between variables in this study. In addition, the sample sources are relatively concentrated and the representativeness is relatively limited. Therefore, future research can broaden the sample range on the basis of the original, and further explore the relationship between demographic characteristics, news reports, secondary stressors and anxiety. Or introduce a longitudinal tracking design to comprehensively study the long-term mechanism of medical news exposure on the psychological state of medical students.

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