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Doctors' Abusive Supervision and Patients' Deviant Behavior in Taizhou, China: The Mediating Role of Patients' Negative Emotion

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Objective: To explore the association between doctors' abusive supervision and patients' deviant behavior, and to evaluate the mediating role of patients' negative emotion.

Methods: A cross-sectional study with a convenient sample was conducted among hospitalized patients from April 13 to May 23, 2022, at a medical center in Taizhou, China. A total of 923 hospitalized patients participated in this survey. Collected data was analyzed based on correlation analyses and mediation regression approach.

Results: The findings showed that inpatients who think they experienced abusive supervision from their doctors exhibited higher negative emotion and were more likely to engage in both interpersonal and organizational deviance. In addition, the higher negative emotion the inpatients had, the more likely they would take deviant behavior. Of note, patients' negative emotion served as a mediator between doctors' abusive supervision and patients' deviant behavior.

Conclusion: Both doctors' abusive supervision and patients' negative emotion were found to be significantly correlated with patients' deviant behavior, with negative emotion playing a mediating role between abusive supervision and deviance. This finding will be helpful for studying the doctor-patient relationship.

Keywords: abusive supervision, deviant behavior, negative emotion, mediation analysis, China

Introduction

Abusive supervision is a common negative leadership behavior, which is a kind of direct organizational misconduct by leaders to subordinates.[1] Abusive supervision behavior includes public ridicule of employees, inappropriate reprimands, rude language, invasion of privacy, and other inappropriate behavior.[2,3] Research has shown that abusive supervision can have a very negative impact on employees' psychology, attitude, and behavior.[4–7] Employees who are subjected to abusive behavior by their supervisors can perceive their supervisors' disrespect and distrust, which in turn reduces their emotional attachment and identification with the organization.[8,9] In addition, previous studies have reported that abusive supervision can result in intending to take deviant behaviors such as bad work reactions, intentions to resign, and reductions of innovative behaviors.[10–13]

Deviant behavior is a kind of harmful behavior, which usually refers to behavior beyond the routine, deviating from or violating certain social morality, disciplinary norms, and legal norms.[14–16] To clarify the possible causes and motivation mechanism of deviant behavior is the focus of deviant behavior research. Studies have focused on the causes of deviant behavior and showed that deviant behavior is the response of individuals to specific situations, especially the abusive management is highly related to deviant behavior.[17–19] Except for abusive supervision, various kinds of positive

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or negative emotional problems gradually received people's attention and has become a compelling research issue in behavior research.[20–22] In addition, the behavior of leaders is closely related to subordinates' emotions, subordinates' behavior, and enterprise performance.[23] The actual situation is likely to be that employees often experience a variety of unpleasant negative emotions at work and negative emotions, if not properly regulated, may further affect employees' actions and performance.[24–26]

Although recent decades have seen a large amount of research concentrating on the relationship between abusive supervision and behaviors, the association between doctors' abusive behavior and patients' deviance is still unclear.[27–29] The doctor-patient relationship is a specific medical service management relationship produced in medical interaction between medical staff and patients. When a patient comes to the hospital, especially for inpatient treatment, the patient needs to obey the doctor during the management, which is similar to the enterprise leadership and subordinate being led relationship. Hence, the aim of this study is to investigate the impact of doctors' abusive supervision on patients' deviant behavior and explore whether patients' negative emotion mediates the above relation. We believe these findings will be helpful for studying the doctor-patient relationship.

Materials and Methods

Research Design

A cross-sectional study using self-reported questionnaire was conducted at a medical center in Taizhou City of Zhejiang province, China. Taizhou is located in East China, Longitude: 121.42, Latitude: 28.66. The medical center has a sufficient sample population that can ensure the rigorous and smooth of the study. This research was waived from informed consent and approved by the Ethical Review Committee of Taizhou Hospital, Zhejiang Province, China (ID: K20210405). Information about all participants was recorded anonymously. All procedures comply with the tenets of the Declaration of Helsinki.

Data Collection

The target participants were hospitalized patients and data were collected from April 13 to May 23, 2022, at a medical center in Taizhou City of Zhejiang province, China. We conducted the anonymous survey via the WeChat-incorporated Wen-Juan-Xing platform, which is used reachable to a large population in China. A convenience sampling method was utilized. Participants received the survey and voluntarily answered questionnaire on their mobile phones.

Questionnaires and Measures

As a measuring tool, the questionnaire included the following four parts. First of all, general demographic questions, including age, sex, education level, address, and occupation, were considered.

Abusive supervision was assessed by the Tepper's 15-items scale.[1] Here, we used the translated scale to measure the level of abusive supervision from doctors among inpatients.[30] We adopted the 5-point Likert scale method to give 1~5 points for each response given by each participant from strongly disagree, disagree, neutral, agree, and strongly agree, respectively. The sum of the responses for each item is the total score on the scale (ranging from 15 to 75), with higher scores indicating more abuse supervision by the doctor. The scale had good internal consistency, with Cronbach's alpha coefficient of 0.994.

Negative emotion refers to subjective pain and unpleasant engagement, including various aversive emotional states, such as anger, fear, and tension.[31] The Positive and Negative Affect Schedule (PANAS) was developed to assess both the positive and negative emotion.[31] In this survey, we used the 10 items from the Negative Affect factor to evaluate the level of patients' negative emotion.[32] Similarly, a 5-point Likert scale was used to rate these items, ranging from 1(not at all) to 5(extremely). In total, the scores of these 10 items of negative affect were added up. The larger the value was, the stronger the negative emotion was obtained by inpatients. The related Cronbach's alpha coefficient in the present study was 0.943.

Patients' deviant behavior was assessed by the previous research, and the scale contains two dimensions, interpersonal deviance and organizational deviance.[33,34] The former contains 9 items and the latter contains 10 items. Participants

rated their responses on a 5-point Likert scale, ranging from 1(strongly disagree) to 5(strongly agree). The total scores for interpersonal deviance and organizational deviance were ranged from 9 to 45 and 10 to 50, respectively, with a higher score indicating the more inclined to take deviant behavior. The corresponding Cronbach's alpha coefficients for interpersonal deviance and organizational deviance were 0.807 and 0.988, respectively. The detailed description could be found in Supplementary Material.

Mediation Regression Models

Our primary interest was to study the relationship between doctors' abusive supervision (X), patients' negative emotion (M), and patients' deviant behavior (Y). The structure was shown in Figure 1. In this research, we adopted a regression-based modeling approach for mediation analysis.[35–37] We focused on the following simple models for mediation analysis:

$$Y = c_1 + \gamma X + e_1, \tag{1}$$

$$M = c_2 + \alpha X + e_2, \tag{2}$$

$$Y = c_3 + \theta X + \beta M + e_3, \tag{3}$$

where equation (1) describes the relationship between X and Y; equation (2) characterizes the relationship between X and M; equation (3) summarizes the relationship between X, M, and Y. We could conclude that the variable M served as a mediating role between the exposure and the outcome if the P-value is less than 0.05.

Statistical Analysis

A linear multiple-regression model was adopted to calculate the impacts of factors on the patients' deviance, assuming a power of 90%, a significance level of 5%, an effect size level of 2%, and seven possible predictors (abusive supervision, negative emotion, sex, age, address, education, and occupation). The target sample size was 922 participants. The sample size was calculated via the software G. Power 3.1.9.6.[38]

Basic characteristics of the participants were reported by frequencies and percentages. We conducted a correlation matrix, which included abusive supervision, negative emotion, and deviance. Third, the three regression models (ie, equations (1)–(3)) were adopted to carry out mediation analyses. All of the above relationships were adjusted for baseline covariates, including age, sex, address, education, and occupation. The variance inflation factor (VIF) was adopted to assess the likelihood of collinearity between predictors and covariates with VIF <5 were considered low concern for collinearity.[39] A variable with a P-value <0.05 or 95% CI not including zero was considered statistically significant. All analyses were carried out using R software, version 4.1.0 (R Project for Statistical Computing).

Results

Characteristics of the Study Participants

A total of 923 hospitalized patients have participated in this survey. Table 1 showed the baseline characteristics of respondents, including sex, age, education level, address, and occupation. The mean (standard deviation, sd) age of the

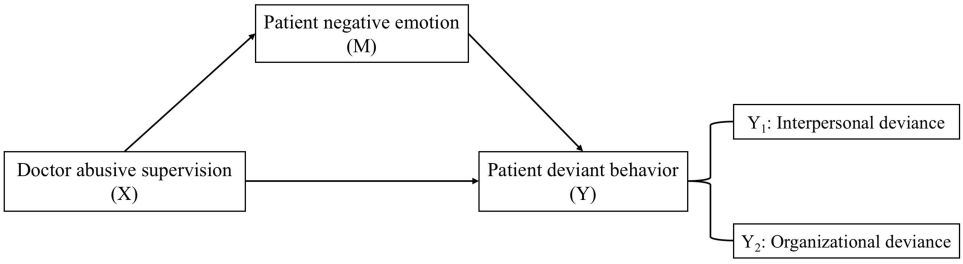

Figure 1 The directed acyclic graph describes the relation among doctor abusive supervision (X), patient negative emotion (M), and patient deviant behavior (Y). Patient deviant behavior includes interpersonal deviance (Y_1) and organizational deviance (Y_2).

Table 1 Baseline Characteristics (n=923)

Characteristics	Category	Sample	
		Number	Percentage (%)
Sex	Female	472	51.1
	Male	451	48.9
Age (years)	< 30	114	12.3
	30~60	463	50.2
	≥ 60	346	37.5
Education	Primary and below	482	52.2
	Junior secondary	238	25.8
	Senior secondary	106	11.5
	College and above	97	10.5
Address	Urban	195	21.1
	Rural	728	78.9
Occupation	Farmer	483	52.3
	Blue-collar	96	10.4
	White-collar	121	13.1
	Others	223	24.2

Note: "Others" for occupation includes freelancers, the self-employed, and the unemployed.

participants was 52.9 (18.8) years old, and the median age was 56 years old. There were 472 females (51.1%) and 451 males (48.9%). More than half of the respondents had primary and below education levels (52.2%). 78.9% participants were from rural area. Besides, the proportion of farmer interviewees was 52.3%.

Correlations Between the Main Study Variables

The correlation coefficients based on the Pearson correlation were given in Table 2. Doctors' abusive supervision was positively correlated with patients' negative emotion (r=0.21, *P*-value<0.001), patients' interpersonal deviance (r=0.51, *P*-value<0.001), and patients' organizational deviance (r=0.54, *P*-value<0.001). Patients' negative emotion was also positively correlated with patients' interpersonal deviance (r=0.43, *P*-value<0.001) and patients' organizational deviance (r=0.36, *P*-value<0.001). Overall, the results of correlation analysis show that the pairwise combinations of the above three variables are significant and illustrate that there was a correlation between doctors' abusive supervision, patients' negative emotion, and patients' deviant behavior.

Testing for the Mediation Model

The results of the mediation analyses for the relationship between doctors' abusive supervision, patients' negative emotion, and patients' deviant behavior, adjusting for sex, age, address, education level, and occupation, were presented in Tables 3 and 4. Each variable in both Tables 3 and 4 had a VIF <5 (Supplementary Table 1). The effect of doctors'

Table 2 Descriptive Statistics and Correlations Among Study Variables (n=923)

Variables	M	SD	Doctor Abusive Supervision (X)	Patient Negative Emotion (M)	Interpersonal Deviance (Y_1)	Organizational Deviance (Y_2)
Doctor abusive supervision (X)	17.96	10.39	1.00	–	–	–
Patient negative emotion (M)	16.21	7.84	0.21***	1.00	–	–
Interpersonal deviance (Y_1)	12.58	4.86	0.51***	0.43***	1.00	–
Organizational deviance (Y_2)	11.56	5.33	0.54***	0.36***	–	1.00

Note: ***, p<0.001.
Abbreviations: M, mean; SD, standard deviation.

Table 3 Mediation Regression Analyses for the Relationship Between Abusive Supervision, Negative Emotion, and Interpersonal Deviance

Variable	Model 1		Model 2		Model 3	
	B	95% CI	*B*	95% CI	*B*	95% CI
Independent variable						
Abusive supervision	0.24***	0.21 ~ 0.26	0.16***	0.11 ~ 0.21	0.20***	0.18 ~ 0.23
Mediator						
Negative emotion					0.21***	0.18 ~ 0.24
Controlled variable						
Age	0.01	−0.01 ~ 0.02	0.03	−0.01 ~ 0.06	−0.01	−0.02 ~ 0.01
Sex (Male)						
Female	−0.27	−0.84 ~ 0.26	−0.05	−1.05 ~ 0.95	−0.28	−0.78 ~ 0.23
Address (Urban)						
Rural	0.01	−0.72 ~ 0.74	1.33	−0.00 ~ 2.67	−0.27	−0.95 ~ 0.41
Education (Primary)						
Junior secondary	−0.45	−1.15 ~ 0.24	−0.85	−2.11 ~ 0.43	−0.28	−0.78 ~ 0.23
Senior secondary	−0.54	−1.53 ~ 0.45	−0.48	−2.27 ~ 1.32	−0.44	−0.92 ~ 0.37
College and above	−1.10	−2.28 ~ 0.08	1.12	−1.04 ~ 3.27	−1.34*	−2.43 ~ −0.24
Occupation (Farmer)						
Blue-collar	0.59	−0.40 ~ 1.58	1.30	−0.49 ~ 3.10	0.31	−0.60 ~ 1.23
White-collar	0.69	−0.39 ~ 1.77	1.44	−0.53 ~ 3.41	0.38	−0.62 ~ 1.38
Others	0.40	−0.42 ~ 1.21	1.90*	0.42 ~ 3.38	−0.01	−0.76 ~ 0.75

Notes: ***, *P*-value<0.001; *, *P*-value<0.05. The outcome of Model 1 and 3 was patient interpersonal deviance; the outcome of Model 2 was patient negative emotion.
Abbreviations: B, standardized beta regression coefficient; CI, confidence interval.

Table 4 Mediation Regression Analyses for the Relationship Between Abusive Supervision, Negative Emotion, and Organizational Deviance

Variable	Model 1		Model 2		Model 3	
	B	95% CI	*B*	95% CI	*B*	95% CI
Independent variable						
Abusive supervision	0.28***	0.25 ~ 0.30	0.16***	0.11 ~ 0.21	0.25***	0.22 ~ 0.28
Mediator						
Negative emotion					0.18***	0.14 ~ 0.21
Controlled variable						
Age	0.01	−0.02 ~ 0.02	0.03	−0.01 ~ 0.06	−0.01	−0.02 ~ 0.01
Sex (Male)						
Female	−0.32	−0.91 ~ 0.27	−0.05	−1.05 ~ 0.95	−0.31	−0.87 ~ 0.25
Address (Urban)						
Rural	0.20	−0.58 ~ 0.98	1.33	−0.00 ~ 2.67	−0.03	−0.78 ~ 0.71
Education (Primary)						
Junior secondary	−0.39	−1.14 ~ 0.35	−0.85	−2.11 ~ 0.43	−0.24	−0.95 ~ 0.47
Senior secondary	0.24	−0.81 ~ 1.30	−0.48	−2.27 ~ 1.32	0.33	−0.68 ~ 1.34
College and above	−0.83	−1.00 ~ 1.53	1.12	−1.04 ~ 3.27	0.07	−1.14 ~ 1.28
Occupation (Farmer)						
Blue-collar	0.41	−0.65 ~ 1.46	1.30	−0.49 ~ 3.10	0.18	−0.83 ~ 1.18
White-collar	0.10	−1.25 ~ 1.06	1.44	−0.53 ~ 3.41	−0.35	−1.46 ~ 0.76
Others	0.45	−0.42 ~ 1.32	1.90*	0.42 ~ 3.38	0.12	−0.72 ~ 0.95

Notes: ***, *P*-value<0.001; *, *P*-value<0.05. The outcome of Model 1 and 3 was patient organizational deviance; the outcome of Model 2 was patient negative emotion.
Abbreviations: B, standardized beta regression coefficient; CI, confidence interval.

abusive supervision on patients' interpersonal deviance was significant (*P*-value<0.001) (Table 3). The more abusive supervision that inpatients experienced, hospitalized patients would more likely to take interpersonal deviance (β = 0.24, 95% CI: 0.21 ~ 0.26). Besides, we found that inpatients who experienced more doctor's abusive supervision would have higher negative emotion (β = 0.16, 95% CI: 0.11 ~ 0.21) and the effect was significant (*P*-value<0.001). Furthermore, the influence of patients' negative emotion on patients' interpersonal deviance was also significant after controlling for doctors' abusive supervision and other covariates (β = 0.21, 95% CI: 0.18 ~ 0.24, *P*-value<0.001). The result indicated that the mediation effect of patients' negative emotion on the relationship between doctors' abusive supervision and patients' interpersonal deviance was significant (*P*-value<0.001). Similarly, results also showed that patients' negative emotion could also mediate the relationship between doctors' abusive supervision and patients' organizational deviance (Table 4).

Discussion

The findings in this study indicated that both doctors' abusive supervision and patients' negative emotion can result in both patients' international and organizational deviance, with patients' negative emotion mediated the above relationship. This research applied abusive supervision from the enterprise to the medical situation. To the best of our knowledge, this study represented one of the limited inquiries into the correlation between abusive supervision, negative emotions, and deviant behavior within a medical setting.

In this research, we found that patients who obtained higher abusive supervision from their doctors would more likely to take deviant behavior. This was in line with the results of previous studies that abusive leadership on employees could lead to poor work behaviors.[40,41] In addition, another study found that there was a non-linear association between abusive supervision and subordinates' innovative behavior.[42] The reason why patients were more likely to engage in interpersonal or organizational deviance after experiencing abusive supervision might be explained by social exchange theory.[43] According to the negative reciprocity principle of social exchange theory, leaders may engage in abusive supervision of subordinates so that employees realize that they are receiving worthless feedback from the leader about their work.[44] In this research scenario, when a doctor engages in abusive supervision of patients, including openly mocking or accusing, patients would be difficult to meet the positive psychological expectations from the negative effects as they perceive an asymmetry in the exchange. As a result, the patient will then have the motivation to take other retaliatory behavior against the doctor or the hospital.

This study also found that patients' negative emotion plays a mediating role in the relationship between doctors' abusive supervision and patients' deviant behaviors. It is not a coincidence that negative emotion was also found to mediate the relationship between abusive supervision and employee creativity.[45] Previous studies have found that abusive supervision could result in various emotional events.[46] This study also supports this, with the finding indicated that when doctors conduct abusive supervision on patients, patients' negative emotions are increased. Accordingly, patients' negative emotions can lead to their stronger motivation to perform deviant behaviors, which is consistent with the results of previous research.[47] This could be explained by emotion regulation theory and affective event theory, which indicated that affective behavior is the result of affective mood.[48,49]

There are several limitations in this research, which should be considered in the future studies. Due to the limitations of time and research conditions, the empirical measurement and analysis in this study can only use cross-sectional data. However, the impact of abusive behavior on deviant behavior is not immediate and has a long latency period. The solution to such a quandary would be achieved by conducting a number of prospective longitudinal analogous studies, the results of which would be expected to complement the cross-sectional findings of this study. In addition, this survey is a single-center study. All the samples in this study are from the same hospital, which limits the external validity of this study. Further studies can conduct more regional and hospital surveys to test the conclusions of this study. Overall, future studies including larger sample sizes and multi-centers are needed to conduct further in-depth research.

Conclusion

In summary, this study found that both doctors' abusive supervision and patients' negative emotion were found to be significantly correlated with inpatients' deviant behavior, with negative emotion playing a mediating role between

abusive supervision and deviance. These findings showed that hospitalized patients who obtain more abusive supervision from their doctors would tend more likely to take deviant behaviors. In addition, the higher the abusive supervision they obtain from their doctors would increase their negative emotions, which in turn result in more deviance. These results showed that in the process of seeking medical treatment, the management behavior of doctors will have obvious psychological and behavioral impact on patients in the process of seeking medical treatment, and then affect the treatment effect and patients' seeking medical emotion and behavior. The contribution of this study is to apply the abusive supervision from the enterprise to the medical situation through the empirical method and explore the impact of doctors' abusive behavior on patients' deviant behavior and the possible mechanism. The practical significance of this study is to improve the management level of doctors to patients from a new perspective of leadership and improve the relationship between doctors and patients.

Data Sharing Statement

The datasets generated and/or analysed during the current study are available from the corresponding author (Hai-Xiao Chen) on request.

Ethics Approval and Consent to Participate

The questionnaire utilized data anonymization techniques to safeguard the confidentiality of participants. The oral agreements were obtained before the survey. The written informed consents by participants were waived and approved by the Ethical Review Committee of Taizhou Hospital of Zhejiang Province (ID: K20210405). Information about all participants was recorded anonymously. All procedures were performed in accordance with the guidelines of our institutional ethics committee and adhered to the tenets of the Declaration of Helsinki.

This survey is collected anonymously, so it is difficult for us to obtain the informed consent signed by the subject. The questionnaire explained the purpose of the study, the risks and benefits of participation, and their right to refuse to participate without any reason. The subjects were informed that the survey was voluntary, the results would remain anonymous, and there were no right or wrong answers. It was also emphasized that the survey was being done only for the purpose of studying respondents' subjective perceptions (Supplementary Material).

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Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests in this work.

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