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Impact of workplace incivility behavior in hospitals on work ability, career expectation and job performance among Chinese nurses : A cross-sectional survey

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Impact of workplace incivility behavior in hospitals on work ability, career expectation and job performance among Chinese nurses: A cross-sectional survey

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Key words. New nurses; Workplace incivility; Job performance; Work ability; Career expectation

ABSTRACT

Objectives: The premise of this study is to investigate workplace incivility experiences of new nurses, and focuses on the mediating and moderating effects on the relationship between workplace incivility and their job performance.

Design: This is a cross-sectional descriptive survey, carried out in China in May, 2016.

Setting: Setting: The survey was conducted among 54 cities across 29 provinces of China.

Participants: A total of 696 new nurses (< 3 service years) were recruited to complete an online survey questionnaire. The effective response rate was 77.1%.

Results: In this study, 78.2% of new nurses experienced workplace incivility. It was more frequent among nurses with higher level education degrees. Work ability played a fully mediating role between workplace incivility and job performance. Moreover, this relationship was moderated by career expectation.

Conclusion: Incivility towards new nurses was relatively common in the workplace. Workplace incivility impairs job performance by weakening the development of work

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ability of new nurses. The high level of career expectation could buffer negative emotional experience, and contribute to maintaining their performances to avoid the threats and detrimental effects of nursing workplace incivility.

Strengths and limitations of this study

The prevalence of incivility behavior towards nurses from two sources is investigated.

This is the first study that investigates the relationship between workplace incivility on job performance among nurses in China.

This study highlights the mediation effect of work ability in nursing practice, and we demonstrate the interaction mechanisms between these variables.

The approach of self-reporting by nurses through an online survey may have resulted in some bias in the responses, and a convenience sample was used in this study, which risks the potential problem of a sampling bias.

Cross-cultural adaptability is ignored for the employment of the scales designed abroad in this study, so further academic studies are needed in the future.

Introduction

Nurses in China are heavily concentrated on the highly stressful clinical work under the tense nurse-patient relationship. A harmonious medical work environment can improve the efficiency and quality of nursing, and the nurses may show altruistic and positively conducive behavior. Clearly, it is a compelling obligation for their colleagues and supervisors to build an environment to provide humanistic care for

their development. However, new nurses, who are lacking work skills and capacities¹, frequently experienced workplace mistreatment². Workplace incivility is a subtle form of workplace mistreatment with devastating effects on new nurses, including mental health³. There are numerous anecdotal reports about incivility in the nursing and health care settings, such as burnout, high turnover rates, and job dissatisfaction.⁴

Workplace Incivility

Related research on workplace incivility can be traced back to the 1990s. Andersson and Pearson (1999) defined workplace incivility as “*low intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect.*” Workplace incivility was characterized by rude and discourteous belittling and insulting⁵. Examples of workplace incivility include dismissing an employee’s ideas or opinions, making derogatory or demeaning remarks on individuals at work, and excluding people from social activities⁶. Currently, workplace incivility is prevalent throughout the world, and it has been thoroughly confirmed that severe effects exist on the development of individuals and organizations⁷. Literature review shows that it could disturb social harmony if left unresolved⁸. At the individual level, workplace incivility could decrease the workers’ job involvement, and impairs their job performance. It may also ruin job satisfaction and organizational loyalty of the employees, and increase their turnover rates⁹. At the same time, the victims of workplace incivility suffer from depression, mood swings, feelings of shame, embarrassment, remorse and other negative emotions, which seriously weaken their mental and physical health¹⁰. At the organizational level, the victims of workplace

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incivility tend to be isolated from surrounding social networks. The victims, witnesses, and stakeholders of workplace incivility may react with behaviors that will undermine organizational resources and threaten organization development ⁹. More importantly, workplace incivility can spread to the social level, which may escalate to more aggressive behavior and evoke workplace violence ¹¹. Nursing is a predominantly female occupation ¹². In terms of the health care industry, workplace incivility hampers professional nursing practice, decreases the quality of the care for the patient, and the overall health of the nurses ¹³. The nursing profession has been associated with the phrase “nurses eat their young”, which is an initiatory rite to determine whether a new nurse can survive their profession. Workplace incivility could have a substantially negative impact on new nurses ¹⁴.

Nurses in China are heavily concentrated on the highly stressful clinical work under the tense nurse-patient relationship. Nevertheless, their problems with early adaptation and adjustment have been seriously ignored. Not surprisingly, new nurses can hardly distinguish between the theoretical orientation of education and the focus of clinical practice. During this period, a new nurse has to undergo a stressful period of identity transformation, turning from a student to a nurse as quickly as possible ¹⁵) In fact, most new nurses may lack the key competence, including nursing skills, to respond appropriately to emergencies or handle the nurse-patient relationship well ¹⁶. The inexperienced nurses regard issues in practice as being primarily psychologically and emotionally challenging. Those challenges incur workplace incivility frequently, so new nurses could easily become the victims of incivility ¹⁷. New nurses are the new

blood of a hospital. Unfortunately, nursing workplace incivility ruins their mental health and emotional well-being, hence anxiety, depression, somatic symptoms, fatigue, sickness and so on often occur^{18 19}. These negative emotions would possibly hamper the development of the nurses' work ability. Furthermore, the spread of negative emotions would produce adverse effects on the nursing work environment²⁰. However, there is no empirical research to test the influence of workplace incivility in China.

Due to the pervasiveness of workplace incivility, uncivil behaviors would diffuse and penetrate the entire nursing work environment. Workplace incivility has a long-term cycle and adverse effects on new nurses. In the end, it may destructively influence the sustainable development of medical and health organizations²⁰. In the nursing workplace, it is significant to investigate the current situation of workplace incivility and explore the negative effects and mechanism of the actions. However, few evidence-based reports existed. Previous studies show that work ability, career expectation, and job performance have prevalent effects on the quality of work in nursing workplace. It is urgent to explore how uncivil behaviors influence work ability, career expectation and job performance of new nurses.

Work Ability, Career expectation and Job Performance

Previous studies have demonstrated that work ability is linked to varied work-related factors, including mental demands, development opportunities, satisfaction with working time, managers' style, and satisfaction with work prospects and salary¹².

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Work ability was influenced by work environment, work organization, and workload. It is necessary to build the environment and to provide humanistic care for nurses development ²¹. However, new nurses are required to adapt to their new role more quickly and smoothly, though they are limited in technological skills, clinical experience, and adaptability to the working environment ²². New nurses are the principal victims of nursing incivility. Previous studies show a significant association between violence at work and reduced working ability. Work ability appears to be the external manifestation of job performance. It might be closely linked to workplace incivility and job performance. This correlation, in turn, makes it clear to understand the influence of them among new nurses.

Career expectation falls into the category of individual inclination, an externalization of professional values, which manifests as an individual's philosophy and values. Meanwhile, it is one of the most basic and important psychological functions ²³, which encourages employees to achieve their desired goals, such as salary, welfare, working environment and conditions, and development opportunities. High career expectations ensure high motivation and promotes positive behaviors, as well as other results. Traditional expectations-value theory shows that job performance is influenced by the assessment of individual behaviors and expectations of the results ²⁴. That is to say, the new nurses with high career expectation tend to manifest higher levels of persistence in the process of achieving the goals, thus promoting positive results. On the contrary, the nurses with a low career aspiration will decrease the level of individual motivation, leading to lower aspirations and persistence, and then less

contribution to the organization²⁵. New nurses' hold career expectations based on a desire or passion for nursing, derived from an inner power of decision on a nursing career. However, targets, and motivation of reaching the targets are the determinants of job performance. Occupational expectation is an intrinsic power for engaging in the nursing profession, which is just the determinants of performance²⁶. Therefore, it is high time to explore how career expectation influences the job performance of new nurses.

Previous studies show that incivility experienced among nurses negatively affects their psychological state, and eventually job performance and well-being²⁷. After that, scholars confirmed that nursing incivility was negatively related to job performance and that the association was fully mediated by emotional exhaustion²⁷. Affective Events Theory (AET) predicts that nursing incivility may negatively influence job performance through the draining of emotional resources or work ability²⁸. To meet growing demand for medical services, nursing job performance entails not only the therapeutic effects, but also the behavioral process, including patients' satisfaction and their quality of life after treatment²⁹. Therefore, we should pay attention to improving the job performance of new nurses from the perspective of work ability and expectations.

This study primarily aims to solve the following problems. First, to evaluate the current situation of incivility workplace experiences of new Chinese nurses and to examine the association between workplace incivility and job performance. Second, to demonstrate whether the work ability mediates the association bet

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ween incivility and job performance among new nurses in the workplace. Third, to certify whether career expectation moderates the relationship between incivility and job performance among new nurses, as is shown in Figure 1.

Figure 1. Conceptual framework of the study.

Methods

Subjects and procedures

An anonymous online questionnaire was completed by nurses throughout the country in May 2016, in China. This cross-sectional study was conducted across 29 provinces within China. First, approximately 60 nurses (less than 3 service years) from the authors’ unit were selected as the original deliverers of the survey. Subsequently, the colleagues or classmates of “the original deliverers” were invited to participate in our online survey. A web page link to our questionnaire-survey (<https://www.wenjuan.com/>) was sent by mobile phone to subjects during nurses’ rest breaks. Moreover, the questionnaires were self-administered.

Participants

The participants were recruited from 29 cities within China. A total of 903 participants were enrolled in this survey, and ultimately, 696 valid questionnaires were used as an analysis sample. The effective response rate was 77.1%. Inclusion criteria: the regular nurses with less than 3 service years in voluntary participation; Exclusion criteria: irregular nurses, those with more than 3 service years and those in involuntary participation.

Ethical considerations

This study was approved by The Institutional Review Board (IRB) of Harbin Medical University. As the survey was anonymous, it is impossible to obtain written informed consents. Oral informed consent was obtained from each subject and approved by the IRB. An informed consent form was presented on the cover of the questionnaire. Once a questionnaire was completed, we considered that the participant had willingly agreed to participate in the survey. Meanwhile, all the information from the survey is kept strictly confidential.

Measurement tools

Demographic variables: gender, age, work experience, marital status, professional position, education level and so on.

Experienced incivility ($\alpha=0.893$)

A 12-item measure by Cortina et al. is commonly used to assess nursing workplace

incivility⁷. New nurses were provided with the following instructions: “*During the past years, have you been put into a situation where a COWORKER or SUPERVISOR...?*” Responses were scored on a 5-point scale from 1 (never) to 5 (many times). A sample item is “*Paid little attention to your statements or showed little interests in your opinions.*” We averaged the responses to the 12 items, with high scores reflecting high level of workplace incivility.

Work ability index

A single-item question from the work ability index³⁰ was used to assess work ability, namely “*current work ability compared with the lifetime best, with a possible score of 0 (completely unable to work) to 10 (work ability at its best)*”. High scores reflect high levels of work ability

Career expectation

Single-item was adopted to measure occupational expectations of new nurses, namely, “*current work ability compared with the lifetime best, with a possible score of 0 (no occupational expectation) to 5 (high occupational expectation).*” High scores reflect the high levels of occupational expectation. Past literature confirmed that an item questionnaire with a high validity and sensitivity can also measure the level of occupational expectation of new nurses³¹

Job performance ($\alpha=0.934$)

Job performance was assessed by using Job Performance Scale (NFRS) developed by

Williams and Anderson's³² including 5 items. We used a 5-point Likert scale (1=strongly disagree, 5=strongly agree), with high scores indicating high levels of job performance.

Data Analysis

All analyses were addressed by using SPSS statistical software for Windows version 17.0 (SPSS, Inc., Chicago, IL). The hierarchical linear regression was performed to test the relationship between variables and mediating effect. Statistical significance was defined as $P < 0.05$ (two-tailed).

Results

Descriptive statistics

Description of demographic variables of the participants is shown in Table 1. Mean age of new nurses was 24.55 years, ranging from 19 to 25. Ninety percent of this sample was female, and 97.6% of them had at least college education; 85.34% were unmarried, and 83.3% from tertiary hospitals. All of them were distributed in different departments in less than three service years. Analyses revealed that 78.2% ($N=696$) of the new nurses had reported the experience of workplace incivility during the working period, as is shown in Table 2. Differences in workplace incivility scores among varied educational levels was statistically significant ($F=6.442$, $P<0.01$), as is revealed in Table 1.

Table 1 Characteristics of the respondents (N = 696)

Characteristic	N	%	Workplace incivility	
			<i>F</i>	<i>P</i>
Gender				
Male	67	9.60	0.549	0.459
Female	629	90.40		
Marital status				
Unmarried	594	85.34	3.639	0.027
Married	99	16.67		
Divorced or widowed	3	0.04		
Hospital level				
Tertiary hospital	580	83.30	2.784	0.062
Secondary hospital	90	12.90		
Primary hospital	26	3.70		
Education level				
Secondary or below	17	8.10	6.442	0.002
Associate degree	253	31.60		
Bachelor or above	426	57.60		
Service Years				
<0.5	43	6.20	0.727	0.603
0.5-0.9	314	45.10		
1-1.4	69	9.90		
1.5-1.9	112	16.10		
2-2.4	73	10.50		

>2.5	85	12.20		
Departments				
Job rotation	102	14.60%		
Medical department	165	23.70%		
Surgery department	178	25.60%		
Medical technical department	25	3.60%	1.201	0.291
Outpatient department	30	4.30%		
Gynecology department	41	5.90%		
Pediatrics department	29	4.20%		
Others	126	18.10%		

Table 2 Incidence rates of workplace incivility among new nurses (N=696)

Workplace incivility	N (696)	%	cumulative %
Never	152	21.8	21.8
Occasionally	254	36.5	58.3
Sometimes	186	26.7	85.1
Frequently	76	10.9	96
Very Frequently	28	4.0	100

Correlations between study variables

The means, standard deviations, and Pearson's correlation coefficients of continuous variables are described in Table 3. As results revealed, all variables were significantly

correlated with each other, and workplace incivility was negatively correlated with work ability ($r=-0.403$, $P<0.01$), career expectation ($r=-0.298$, $P<0.01$) and job performance ($r=-0.202$, $P<0.01$). Work ability was positively related to career expectation ($r=0.366$, $P<0.01$) and job performance ($r=0.351$, $P<0.01$). There was a positive correlation between the career expectation and job performance ($r=0.389$, $P<0.01$).

Table 3. Means, standard deviations (SD) and correlations of continuous variables (N = 696).

Variables	Mean	SD	1	2	3	4
1. Workplace incivility	1.893	0.532	1			
2. Work ability	6.610	2.133	-0.403**	1		
3. Career expectation	3.490	0.955	-0.298**	0.366**	1	
4. Job performance	3.204	0.885	-0.202**	0.351**	0.389**	1

Note: ** $P<0.01$, Correlation is significant at the 0.01 level (2-tailed)

Hierarchical linear regression models

This study examined a mediation model in which the effects of workplace incivility on job performance were transmitted through a mediating effect of work ability. Regression analysis for the mediation effect was proposed by Baron & Kenny³³ and Sobel Test was also used³⁴ in Table 4. Results of multiple linear regression analysis demonstrated that workplace incivility had a significant negative influence on work ability ($\beta= -0.388$, $P<0.01$) and job performance ($\beta=-0.199$, $P<0.01$) of new nurses after controlling demographic variables, and work ability had a significant positive

influence on job performance ($\beta=0.338$, $P<0.01$). When controlling the mediation variables (work ability), the regression coefficient ($\beta=-0.008$) decreased obviously compared with the previous one ($\beta=-0.199$), and it no longer had statistical significance. It indicated that work ability ($\beta=0.305$, $P<0.01$) played a fully mediating role and career expectation ($\beta=-0.568$, $P<0.01$) played a moderating effect on the relationship between workplace incivility and job performance. We used Sobel test³⁴ to further verify the mediation effect of work ability and its significance, and referred to the inspection procedures developed by PREACHER, namely $ab=-1.556 \times 0.138 = -0.215$, $P<0.01$, $t=-7.190$, in Table 5. Furthermore, the interaction term between workplace incivility and career expectation was also significant ($\beta=-0.568$, $P<0.01$). This interaction effect is illustrated in Figure 2. A simple slope test revealed that both high and low career expectation were dedicated to nurses' performance in high workplace incivility. Job performance was significantly better among the new nurses with high career expectation than those with low career expectation.

Table 4. Hierarchical linear regression models of mediation and moderation N = 696)

Variables	Work ability		Job performance					
	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
Control variables								
Age	0.035	0.042	0.006	0.048	0.064	0.051	0.049	0.050
Gender	0.049	0.058	0.089**	0.073*	0.094**	0.076*	0.079*	0.082

Note : **P < 0.01, *P < 0.05	Hospital level	0.120**	0.104**	0.072	0.032	0.064	0.032	0.053	0.046**
	Education level	-0.108**	-0.062**	-0.026	0.011	-0.002	0.017	-0.001	0.000
	Service Years	0.013	-0.005	0.026	0.021	0.016	0.018	0.057	0.059
	Departments	0.089*	0.091*	0.043	0.013	0.045	0.017	0.037	0.260
Cause variable									
	Workplace incivility		-0.388**			-0.199**	-0.080*	-0.090*	0.369**
Mediating variable									
5.	Work ability				0.338**		0.305**		
Moderating variable									
	Career expectation							0.360**	0.830**
	Incivility*Ability								-0.568**
linear	F	6.009**	24.145**	3.128**	15.311**	6.856**	13.993**	19.063**	19.154**
regre	R ²	0.050**	0.197**	0.027**	0.367**	0.065**	0.014**	0.172**	0.190**
ssion	ΔR ²	0.050**	0.147**	0.027**	0.108**	0.039**	0.005**	0.155**	0.019**

models of mediation (Sobel Test)

Predictor	B	SE	Test statistic	Std Error	P-value	Mediation	Direct effect
Incivility for Work ability	-1.543	0.138	-7.0008	0.0304	0.0000		
Work ability for Job performance	0.143	0.015					
Incivility for Job performance	-0.131	0.065				0.215	0.080

Discussion

In this survey, nearly 78.2% of the participants reported experiencing nursing

workplace incivility. Compared with the western countries such as the United States and Canada^{35 36}, incivility is more serious in China's nursing workplace²⁰. Compared with other professions, workplace incivility toward nurses is also more serious. The reason might be the particularity of the nursing profession under the current medical environment and inverted structure of medical resources of China. At the same time, China is collectivistic and unequal. "Jun Chen" thought and caste-consciousness are deeply rooted. Especially for new nurses, as they are more used to obeying the rules of the leaders and colleagues, hence the unfavorable workplace. However, the results of internal mechanism remain to be tested in future research.

The group of new nurses with high level educational degrees is in pursuit of autonomy, innovation, individuality, and diversity. Currently, work allocation is not quite clear in nursing work. The group feels underemployed because the repetitive nature of the work³⁷, ensures that role conflict will appear.³⁷. Compared with the nurses with low educational degrees, those with higher education degree deeply feel the gap between the ideal and reality of the workplace when facing difficulties, and struggle to adapt to the new environment and organizational culture. Ultimately, these incompetent performances lead to admonition, resulting in nursing workplace incivility.

This study is consistent with previous research conclusion^{35 36}. Nursing workplace incivility had a significant negative influence on work ability ($\beta=-0.388$, $P<0.01$) and job performance ($\beta=-0.199$, $P<0.01$) of new nurses. This study also has a new theoretical contribution, that is, workplace incivility has both direct and indirect

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effects on performance of new nurses, and work ability ($\beta=0.305$, $P<0.01$) has a fully mediatory effect on their relationship. Furthermore, career expectation ($\beta=-0.568$, $P<0.01$) played a moderating role. Ultimately, workplace incivility reduced job performance by weakening the work ability of new nurses, and high career expectation could buffer negative emotional effects caused by nursing workplace incivility and improve performance by adjusting the directional motives of them. Possible mechanisms were described as the follows.

We used the Affective Events Theory (AET) to explain some of our research results.

AET proposed by Weiss & Cropanzano (1996) based on the summery of previous research explained the role of emotion and evaluative judgment in the relationship between an individual's experience and their behavior ²⁸. The core of AET is that one's emotional response to workplace events largely determines their attitude and subsequent behaviors ²⁸. As a green hand in the workplace and professional special properties, they could easily incur workplace incivility from supervisors and colleagues. New nurses experiencing negative events are more likely to generate negative emotions and behaviors ²⁸. Nurse's work ability is a comprehensive performance in the nursing process, which is remarkably related to the clinical experience, psychological states and motivation ³⁸. New nurses may feel stressed when facing the gap between higher job expectation and lower clinical competence. New nurses experience ambiguous and subtle behavior including neglected reasonable needs. They are treated unfairly, and confronted with sharp languages or potential threat from the colleagues. Facing such behaviors, the victims of incivility

would be trapped in negative psychological states, including severe distress, anxiety and other emotions. Workplace incivility adversely affects attitudes and cognition of new nurses, and drastically decreases their self-confidence. Therefore, it is difficult for them to objectively evaluate their own work ability, which can be weakened by negative cognition. In addition, workplace incivility adversely affects new nurses' behaviors, and is more likely to generate negative experiences and behaviors. Negative experiences such as role stress can increase role ambiguity, and in turn, cause difficulties to adjust to their new roles. As a result, this is harmful to the development of work ability of them ³⁹. Work ability is the inner form of job performance. The weakening of work ability would directly lead lower nursing quality. Besides, the accumulation of adverse events caused by workplace incivility induces negative emotions, greatly decreasing organizational commitment of the new nurses ⁴⁰, and destroying the development of their career. Moreover, negative impact is likely to be a long-term vicious cycle, undermining nursing service quality.

We used the Self-regulation theory to explain another part of our study results. Self-regulation theory shows that individuals tended to control their own ideas and reactions to achieve their goals ⁴¹. This theory reveals how the individuals realized positive goals and avoided negative status ⁴². As is shown in Figure 2, based on the theory ⁴³, new nurses under workplace incivility reported greater job-related stress, distraction, and dissatisfaction, and they were left in a state of lower creativity and greater psychological distress. We name the state as "negative ego". The low level of behavioral motivation would leave the nurses with low expectations in the "negative

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ego” situation after experiencing workplace incivility ⁴⁴. Occupational plans of new nurses are not clear. As a result, they lack internal motivations to achieve their higher goals. Lack of defensive ability for external negative incentives were the characteristics of those with low expectations ⁴⁵. This would generate role ambiguity, and in turn, reduce work efficiency and nursing quality, thus decreasing the whole working performance. However, classical motivational theory shows that a high level of professional expectation would raise the level of motivation of the employees and enhance their performance ⁴⁶. New nurses are full of expectations for professional development and will generate risk-averse reaction. They are not sensitive to negative emotional experiences caused by workplace incivility ⁴⁷, but focused on how to achieve their desires and ambitions. They are more likely to pursue career success and concentrate on the development of their career. New nurses with a high level of occupational expectation are characterized by a high level of social involvement with more persistence. They control and adjust negative emotions and mitigate negative status in time and effectively ⁴⁸. They are full of enthusiasm in work, desiring to learn nursing skills positively and fulfill nursing work efficiently. It contributes to acquiring their key competency and improving their nursing responsibility faster and smoother ⁴⁹, and thus enhancing the whole organizational performance. Ultimately, it is realistic to achieve a high quality of life and promote the satisfaction of the patients.

Limitation

Although some significant discoveries are displayed in the present study, it still has several limitations. First, a convenience sample was used in this study which risked a

potential sampling bias. Second, the cross-sectional nature is not helpful to establish a causal relationship between the workplace incivility, work ability and job performance. Thus, longitudinal studies are to be conducted as a future direction. Third, the data were obtained by the self-report of the new nurses, which, to some extent, resulted in response bias from social desirability or negative affect. New nurses might have overestimated or underestimated the association between study variables. Cross-cultural adaptability is ignored for the employment of the scales designed abroad in this study, so further academic studies are needed in the future.

Conclusions

This study focused on nursing workplace incivility and, for the first time, evaluates the current situation of nursing workplace incivility. It demonstrates that “work ability” may serve as an action mechanism that influences the relationship between workplace incivility and job performance. Meanwhile, this relationship may be moderated by career expectation. First, this study examined the association between workplace incivility and job performance of the new nurses in China’s nursing workplace. Second, the findings indicate that work ability mediated the association between workplace incivility and job performance of the new nurses. Third, it demonstrates that career expectation moderated the relationship between workplace incivility and job performance. Namely, workplace incivility reduced job performance by weakening the work ability of the new nurses. In this process, incivility induced negative ego. A high level of career expectation could buffer negative emotional experience caused by nursing workplace incivility and improve performance by

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adjusting the directional motives. It is significant for new nurses to adapt to the environment and improve work ability for the purpose of promoting nursing service quality

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Author Contributions

Conceived and designed the experiments: TS SZ CM. Conducted the survey: S Z CM YS FX JL SC XD. Analyzed the data: TS SZ. Contributed reagents/materials/analysis tools: DM JW CM. Wroten the paper: SZ CM TS.

Competing Interests

The authors have declared that no competing interests exist.

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Figure 1. Conceptual framework of the study.

Figure 2. Graphical representation of the interaction between workplace incivility and career expectation predicting job performance interference

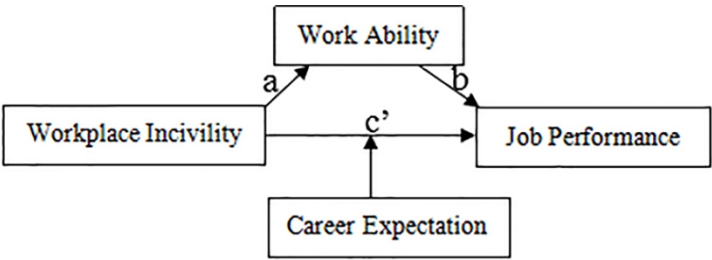


Figure 1. Conceptual framework of the study.

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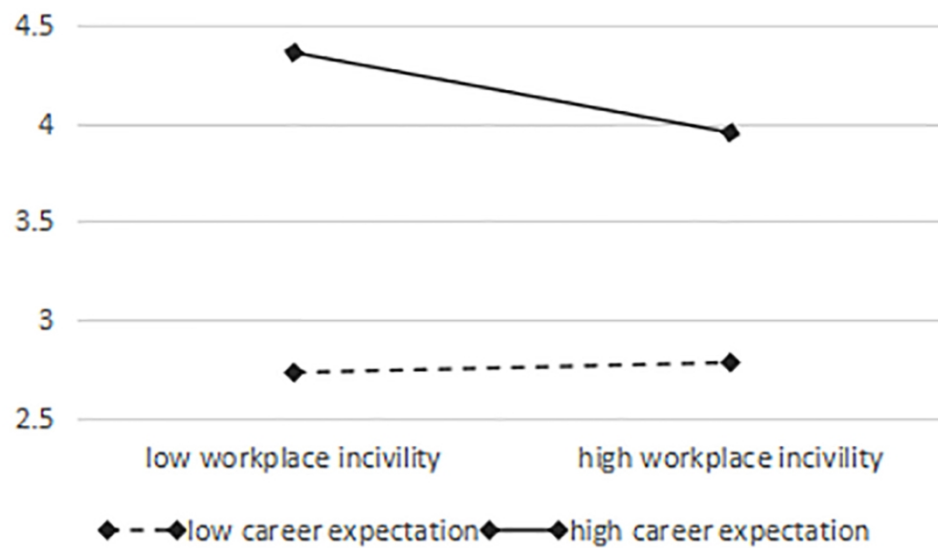


Figure 2. Graphical representation of the interaction between workplace incivility and career expectation predicting job performance interference

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STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	Page 1, line 24-36;
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	P.2; line10-18
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	p.3, line 7-22; p.4; p.5; p.6; p.7, line 1-5
Objectives	3	State specific objectives, including any prespecified hypotheses	P.7, line 6-13;
Methods			
Study design	4	Present key elements of study design early in the paper	P.8, line 1-10
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	p.8, line 11-17;p.9, line 1-3
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	P.8, line 11-22
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	no
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	p.9, line 4-22; p.10, line 1-19
Bias	9	Describe any efforts to address potential sources of bias	no
Study size	10	Explain how the study size was arrived at	no
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	p.10, line 10-14
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	p.10, line 10-14

		(b) Describe any methods used to examine subgroups and interactions	no
		(c) Explain how missing data were addressed	no
		(d) If applicable, describe analytical methods taking account of sampling strategy	p.10, line 10-14
		(e) Describe any sensitivity analyses	no
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	p.10, line 15-22; p.11, line 1-3
		(b) Give reasons for non-participation at each stage	no
		(c) Consider use of a flow diagram	No
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	P.11;p.12;
		(b) Indicate number of participants with missing data for each variable of interest	P.11;p.12;
Outcome data	15*	Report numbers of outcome events or summary measures	P.12;p.13; p.14; p.15;
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	p.13; p.14; p.15;
		(b) Report category boundaries when continuous variables were categorized	no
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	no
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	no
Discussion			
Key results	18	Summarise key results with reference to study objectives	p.20line20-22;p.16; p.17; p.18; p.19;
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	P.19, Line 20-21;P.20, Line 1-9;
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	p.20line16-22;p.21; line1-11

Generalisability	21	Discuss the generalisability (external validity) of the study results	no
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	P.21, line 5-9

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Impact of workplace incivility behavior in hospitals on work ability, career expectation and job performance among Chinese nurses : A cross-sectional survey

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**Impact of workplace incivility behavior in hospitals on work ability, career
expectation and job performance among Chinese nurses: A cross-sectional survey**

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Key words. New nurses; Workplace incivility; Job performance; Work ability; Career expectation

ABSTRACT

Objectives: The premise of this study is to investigate workplace incivility experiences of new nurses, and focuses on the mediating and moderating effects on the relationship between workplace incivility and their job performance.

Design: This is a cross-sectional descriptive survey, carried out in China in May, 2016.

Setting: The survey was conducted among 54 cities across 29 provinces of China.

Participants: A total of 903 participants were invited, about 696 new nurses (< 3 service years) were recruited to complete an online survey questionnaire. The effective response rate was 77.1%. Entry criteria: voluntary participation, having less than three service years, and being a registered nurse. Exclusion criteria: being an irregular nurse, having more than three service years, and refusing to participate in this work.

Results: In this study, 60.7% of new nurses experienced workplace incivility in the past year. It was more frequent among nurses with higher level education degrees. Work ability played a fully mediating role between workplace incivility and job performance. Moreover, this relationship was moderated by career expectation.

Conclusion: Incivility towards new nurses was relatively common in the workplace. Workplace incivility impairs job performance by weakening the development of work ability of new nurses. The high level of career expectation could buffer negative emotional experience, and contribute to maintaining their performances to avoid the threats and detrimental effects of nursing workplace incivility.

Strengths and limitations of this study

- This is the first study that investigates the relationship between workplace incivility on job performance among new nurses in China.
- The finding that work ability mediated the relationship between workplace incivility and job performance is first reported among new nurses in China.
- This research has innovatively examined the career expectation moderating the relations between workplace incivility and job performance.
- the data were obtained by the self-report of the new nurses, which, to some extent, resulted in response bias from social desirability .
- Samples from different regions are not balanced.

Introduction

Andersson and Pearson (1999) defined workplace incivility as “*low intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect.*” Workplace incivility was characterized by rude and discourteous belittling and insulting ¹. Due to the pervasiveness of workplace incivility, uncivil behaviors would diffuse and penetrate the entire nursing work environment². It may destructively influence the sustainable development of medical and health

organizations³. Unfortunately, nursing workplace incivility ruins employee's mental health and emotional well-being, hence anxiety, depression, somatic symptoms, fatigue, sickness and so on often occur^{4,5}. These negative emotions would possibly hamper the development of the nurses' work ability. Furthermore, the spread of negative emotions would produce adverse effects on the nursing work environment³. Workplace incivility has a long-term cycle and adverse effects on new nurses. High career expectations ensure high motivation and promotes positive behaviors, which could buffer negative emotional experience that caused by workplace incivility. In the nursing workplace, it is significant to investigate the current situation of workplace incivility and explore the negative effects and mechanism of the actions. Especially in work ability, career expectation and job performance of new nurses.

Incivility in Workplace

Currently, workplace incivility is prevalent throughout the world, and it has been thoroughly confirmed that severe effects exist on the development of individuals and organizations⁶. At the individual level, workplace incivility could decrease the workers' job involvement, and impairs their job performance. It may also ruin job satisfaction and organizational loyalty of employees, and increase their turnover rates⁷. At the same time, the victims of workplace incivility suffer from depression, mood swings, and other negative emotions, which seriously weaken their mental and physical health⁸. At the organizational level, the victims of workplace incivility tend to be isolated from surrounding social networks. The victims, witnesses, and stakeholders of workplace incivility may react with behaviors that will undermine

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organizational resources and threaten organization development ⁷. More importantly, workplace incivility can spread to the social level, which may escalate to more aggressive behavior and evoke workplace violence ⁹.

Nurses in China are heavily concentrated on the highly stressful clinical work under the shortage situation of nurses. Nursing is a predominantly female occupation ¹⁰. workplace incivility hampers professional nursing practice, decreases the quality of the care for the patient, and the overall health of the nurses ¹¹. The nursing profession has been associated with the phrase “nurses eat their young”, which is an initiatory rite to determine whether a new nurse can survive their profession. Workplace incivility could have a substantially negative impact on new nurses¹². Not surprisingly, new nurses can hardly distinguish between the theoretical orientation of education and the focus of clinical practice. In fact, most new nurses may lack the key competence, including nursing skills, to respond appropriately to emergencies or handle the nurse-patient relationship well ¹³. However, new nurses, who are lacking work skills and capacities ¹⁴, frequently experienced workplace mistreatment ¹⁵. So new nurses could easily become the victims of incivility ¹⁶. Workplace incivility is a subtle form of workplace mistreatment with devastating effects on new nurses, including mental health ¹⁷. There are numerous anecdotal reports about incivility in the nursing and health care settings, such as burnout, high turnover rates, and job dissatisfaction¹⁸. However, there is no empirical research to test the influence of new nurse in China.

The impact of Workplace Incivility on Work Ability, Career expectation and Job Performance

New nurses' work ability was influenced by work environment, work organization, and workload. It is necessary to build the environment and to provide humanistic care for new nurses development¹⁹. Work ability can be defined as the ability of workers to perform their job, taking into account their specific work demands, individual health condition and mental resources²⁰. Previous studies have demonstrated that work ability is linked to varied work-related factors, including mental demands, development opportunities, satisfaction with working time, managers' style, and satisfaction with work prospects and salary¹⁰. New nurses are required to adapt to their new role more quickly and smoothly, though they are limited in technological skills, clinical experience, and adaptability to the working environment²¹. New nurses are the principal victims of nursing incivility. Previous studies show a significant association between violence at work and reduced working ability²². Work ability appears to be the external manifestation of job performance. It might be closely linked to workplace incivility and job performance. This correlation, in turn, makes it clear to understand the influence of them among new nurses.

Career expectation falls into the category of individual inclination, an externalization of professional values, which manifests as an individual's philosophy and values. Meanwhile, it is one of the most basic and important psychological functions²³, which encourages employees to achieve their desired goals, such as salary, welfare, working environment and conditions, and development opportunities. Traditional

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expectations-value theory shows that job performance is influenced by the assessment of individual behaviors and expectations of the results ²⁴. That is to say, the new nurses with high career expectation tend to manifest higher levels of persistence in the process of achieving the goals, thus promoting positive results. On the contrary, the nurses with a low career aspiration will decrease the level of individual motivation, leading to lower aspirations and persistence, and then less contribution to the organization ²⁵. New nurses' hold career expectations based on a desire or passion for nursing, derived from an inner power of decision on a nursing career, which is conducive to alleviating the negative emotions caused by the incivility behavior. And then occupational expectation is an intrinsic power for engaging in the nursing profession, which is just the determinants of performance ²⁶. Therefore, it is high time to explore how career expectation influences the job performance after experienced incivility of new nurses.

Workplace incivility is highly dangerous for the organizations. It results in reducing the job performance of employees and leads them towards the intentions to leave the job²⁷. Job performance is defined by Motowidlo (2003) as a value of work by employee which expected by organizations over a period of time²⁷. In the nursing workplace, the nursing job performance is not only increased the cure rate of results, but also pay an attention to behavior process, which both the patient's satisfaction and quality of life²⁷. However, targets, and motivation of reaching the targets are the determinants of job performance. Previous studies show that incivility experienced among nurses negatively affects their psychological state, and eventually job performance and

well-being²⁸. After that, scholars confirmed that nursing incivility was negatively related to job performance and that the association was fully mediated by emotional exhaustion²⁸. Therefore, we should pay attention to improving the job performance of new nurses from the perspective of work ability and expectations. It is significant to further investigate this harmful workplace phenomenon and encourage practitioners to develop policies and measures to reduce the occurrence of workplace incivility.

This study primarily aims to solve the following problems. Firstly, to evaluate the current situation of incivility workplace experiences of new Chinese nurses and to examine the association between workplace incivility and job performance. Secondly, to demonstrate whether the work ability mediates the association between incivility and job performance among new nurses in the workplace. Thirdly, to certify whether career expectation moderates the relationship between incivility and job performance among new nurses, as is shown in Figure 1.

Figure 1. Conceptual framework of the study.

Methods

Subjects and procedures

In this study, the method of snowball sampling was used to collect the sample data. An anonymous online questionnaire was completed by nurses throughout the country in May 2016, in China. This cross-sectional study was conducted across 29 provinces within China. First, approximately 60 nurses (less than 3 service years) from the authors' unit were selected as the original deliverers of the survey. In the network survey, original deliverers used in this survey are alumni who maintain friendly contact with us, who work in nursing positions in various hospitals. Before a formal online survey begins, we have provided comprehensive survey training to these initial contacts. Then encourage them to invite their colleagues or classmates to fill out the

questionnaire. A web page link to our questionnaire-survey (<https://www.wenjuan.com/>) was sent by mobile phone to subjects during nurses' rest breaks. Moreover, the questionnaires were self-administered. This survey is to use their network of relationships for continuous expansion. The amount of data collected can be monitored in real time on the website's management platform. In other words, our group of people strictly in accordance with exclusion criteria for data management and quality control.

Participants

The participants were recruited from 29 cities within China. A total of 903 participants were enrolled in this survey, and ultimately, 696 valid questionnaires were used as an analysis sample. The effective response rate was 77.1%. Inclusion criteria: the regular nurses with less than 3 service years in voluntary participation; Exclusion criteria: irregular nurses, those with more than 3 service years and those in involuntary participation

Patient and Public Involvement Statement

There are no patients or public participation in this study.

Ethical considerations

This study was approved by The Institutional Review Board (IRB) of Harbin Medical University. As the survey was anonymous, it is impossible to obtain written informed consents. Oral informed consent was obtained from each subject and approved by the IRB. An informed consent form was presented on the cover of the questionnaire. Once

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a questionnaire was completed, we considered that the participant had willingly agreed to participate in the survey. Meanwhile, all the information from the survey is kept strictly confidential.

Measurement tools

Demographic variables: gender, age, work experience, marital status, professional position, education level and so on.

Experienced incivility ($\alpha=0.893$)

A 12-item measure by Cortina et al. is commonly used to assess nursing workplace incivility ⁶. New nurses were provided with the following instructions: *“During the past years, have you been put into a situation where a COWORKER or SUPERVISOR...?”* Responses were scored on a 5-point scale from 1 (never) to 5 (very frequently). A sample item is *“Paid little attention to your statements or showed little interests in your opinions.”* We averaged the responses to the 12 items, with high scores reflecting high level of workplace incivility. The adaptability and rationality of this scale are fully verified in Chinese nursing workplace²⁹.

Work ability index

A single-item question from the work ability index ³⁰ was used to assess work ability, namely *“current work ability compared with the lifetime best, with a possible score of 0 (completely unable to work) to 10 (work ability at its best)”*. High scores reflect high levels of work ability. The WAI is a widely disseminated, valid, reliable and commonly used tool for measuring work ability²⁰.

Career expectation

Single-item was adopted to measure occupational expectations of new nurses, namely, “current work ability compared with the lifetime best, with a possible score of 0 (no occupational expectation) to 5 (high occupational expectation).” High scores reflect the high levels of occupational expectation. Past literature confirmed that an item questionnaire with a high validity and sensitivity can also measure the level of occupational expectation of new nurses³¹.

Job performance ($\alpha=0.934$)

Job performance was assessed by using Job Performance Scale (NFRS) developed by Williams and Anderson's³² including 5 items. We used a 5-point Likert scale (1=strongly disagree, 5=strongly agree), with high scores indicating high levels of job performance.

Data Analysis

All analyses were addressed by using SPSS statistical software for Windows version 17.0 (SPSS, Inc., Chicago, IL). The hierarchical linear regression was performed to test the relationship between variables and mediating effect. Statistical significance was defined as $P < 0.05$ (two-tailed).

Results

Descriptive statistics

Description of demographic variables of the participants is shown in Table 1. Mean age of new nurses was 24.55 years, ranging from 19 to 25. Ninety percent of this sample was female, and 97.6% of them had at least college education; 85.34% were unmarried, and 83.3% from tertiary hospitals. All of them were distributed in different departments in less than three service years. Analyses revealed that 60.7% ($N=696$) of the new nurses had reported the experience of workplace incivility during the past year, as is shown in Table 2. Differences in workplace incivility scores among varied educational levels was statistically significant ($F=6.442$, $P<0.01$), as is revealed in Table 1.

Table 1 Characteristics of the respondents (N = 696)

Characteristic	N	%	Workplace incivility	
			<i>F</i>	<i>P</i>
Gender				
Male	67	9.60	0.549	0.459
Female	629	90.40		
Marital status				
Unmarried	594	85.34	3.639	0.027
Married	99	16.67		
Divorced or widowed	3	0.04		
Hospital level				
Tertiary hospital	580	83.30	2.784	0.062
Secondary hospital	90	12.90		

Primary hospital	26	3.70		
Education level				
Secondary or below	17	8.10		
Associate degree	253	31.60	6.442	0.002
Bachelor or above	426	57.60		
Service Years				
<0.5	43	6.20		
0.5-0.9	314	45.10		
1-1.4	69	9.90	0.727	0.603
1.5-1.9	112	16.10		
2-2.4	73	10.50		
>2.5	85	12.20		
Departments				
Job rotation	102	14.60%		
Medical department	165	23.70%		
Surgery department	178	25.60%		
Medical technical department	25	3.60%	1.201	0.291
Outpatient department	30	4.30%		
Gynecology department	41	5.90%		
Pediatrics department	29	4.20%		
Others	126	18.10%		

Table 2 Incidence states of workplace incivility among new nurses (N=696)

Workplace incivility item	Never	Occasionally	Sometimes	Frequently	Very Frequently
(N=696)	N (%)	N (%)	N (%)	N (%)	N (%)
Paid little attention to your statements or showed little interest in your opinions	77 (11.1%)	217 (31.2%)	322 (46.3%)	72 (10.3%)	8 (1.1%)
Doubted your judgment on a matter over which you had responsibility.	64 (9.2%)	267 (38.4%)	299 (43%)	60 (8.6%)	6 (1.9%)
Gave you hostile looks, stares, or sneers.	356 (5.1%)	252 (36.2%)	80 (11.5%)	7 (1%)	1 (0.1%)
Addressed you in unprofessional terms either publicly or privately.	199 (28.6%)	290 (41.7%)	176 (25.3%)	26 (3.7%)	5 (0.7%)
Interrupted or “spoke over” you.	149 (21.4%)	319 (45.8%)	184 (26.4%)	41 (5.9%)	3 (0.4%)
Rated you lower than you deserved on an evaluation.	171 (24.6%)	314 (45.1%)	181 (26%)	27 (3.9%)	3 (0.4%)
Yelled, shouted, or swore at you.	364 (52.3%)	225 (32.3%)	85 (12.2%)	17 (2.4%)	5 (0.7%)
Made insulting or disrespectful remarks about you.	503 (72.3%)	156 (22.4%)	33 (4.7%)	4 (0.6%)	0 (0.00%)
Ignored you or failed to speak to you	361 (51.9%)	243 (34.1%)	77 (11.1%)	12 (1.7%)	3 (0.4%)
Accused you of incompetence.	246 (35.3%)	319 (45.8%)	114 (16.4%)	15 (2.2%)	2 (0.3%)
Targeted you with anger outbursts or temper tantrums.	333 (47.8%)	278 (39.9%)	72 (10.3%)	12 (1.7%)	1 (0.1%)
Made jokes at your expense	459 (65.9%)	174 (25%)	57 (8.2%)	5 (0.7%)	1 (0.1%)

Correlations between study variables

The means, standard deviations, and Pearson's correlation coefficients of continuous variables are described in Table 3. As results revealed, all variables were significantly correlated with each other, and workplace incivility was negatively correlated with work ability ($r=-0.403$, $P<0.01$), career expectation ($r=-0.298$, $P<0.01$) and job performance ($r=-0.202$, $P<0.01$). Work ability was positively related to career

expectation ($r=0.366$, $P<0.01$) and job performance ($r=0.351$, $P<0.01$). There was a positive correlation between the career expectation and job performance ($r=0.389$, $P<0.01$).

Table 3. Means, standard deviations (SD) and correlations of continuous variables (N = 696).

Variables	Mean	SD	1	2	3	4
1. Workplace incivility	1.893	0.532	1			
2. Work ability	6.610	2.133	-0.403**	1		
3. Career expectation	3.490	0.955	-0.298**	0.366**	1	
4. Job performance	3.204	0.885	-0.202**	0.351**	0.389**	1

Note: ** $P<0.01$, Correlation is significant at the 0.01 level (2-tailed)

Hierarchical linear regression models

Several multiple linear hierarchical regression analyses were performed to examine the influence of workplace incivility on job performance, work ability, and career expectation of new nurses in Table 4. To examine this research, we conducted three mediation analyses using the methods based on linear regression published by Baron and Kenny³³. Workplace incivility was posed as a dependent variable in this study, work ability as a mediator variable, and job performance as an independent variable. Besides, the career expectation was seen as a moderating variable in these models. At the same time, to eliminate the effects of demographic variables around these regression models, age, gender, hospital level, working years, and situation of

education and department distribution were posed as control variables(M_1 , M_3), as shown in Table 4.

Results of multiple linear regression analysis demonstrated that workplace incivility had a significant negative influence on work ability ($\beta= -0.388$, $P<0.01$, M_2) and job performance ($\beta=-0.199$, $P<0.01$, M_5) of new nurses after controlling demographic variables, and work ability had a significant positive influence on job performance ($\beta=0.338$, $P<0.01$, M_4). When controlling the mediation variables (work ability), the regression coefficient ($\beta=-0.008$) decreased obviously compared with the previous one ($\beta=-0.199$), and it no longer had statistical significance. It indicated that work ability ($\beta=0.305$, $P<0.01$, M_6) played a fully mediating role.

In the last two models, the results showed that the career expectation had a positive impact on job performance ($\beta=0.036$, $P < 0.01$, M_7). Furthermore, the interaction term between workplace incivility and career expectation was also significant ($\beta=-0.568$, $P<0.01$, M_8), career expectation played a moderating effect on the relationship between workplace incivility and job performance. The moderating effect was estimated by referencing a previous study³⁴. This interaction effect is illustrated in Figure 2. A simple slope test revealed that both high and low career expectation were dedicated to nurses' performance in high workplace incivility. Job performance was significantly better among the new nurses with high career expectation than those with low career expectation.

Table 4. Hierarchical linear regression models of mediation and moderation N = 696)

Variables	Work ability		Job performance					
	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
	(step1)	(step1)	(step2)	(step2)	(step2)	(step3)	(step4)	(step4)
Control variables								
Age	0.035	0.042	0.006	0.048	0.064	0.051	0.049	0.050
Gender	0.049	0.058	0.089**	0.073*	0.094**	0.076*	0.079*	0.082
Hospital level	0.120**	0.104**	0.072	0.032	0.064	0.032	0.053	0.046**
Education level	-0.108**	-0.062**	-0.026	0.011	-0.002	0.017	-0.001	0.000
Service Years	0.013	-0.005	0.026	0.021	0.016	0.018	0.057	0.059
Departments	0.089*	0.091*	0.043	0.013	0.045	0.017	0.037	0.260
Cause variable								
Workplace incivility		-0.388**			-0.199**	-0.080*	-0.090*	0.369**
Mediating variable								
Work ability				0.338**		0.305**		
Moderating variable								
Career expectation							0.360**	0.830**
Career expectation-Interaction								-0.568**
F	6.009**	24.145**	3.128**	15.311**	6.856**	13.993**	19.063**	19.154**
R^2	0.050**	0.197**	0.027**	0.367**	0.065**	0.014**	0.172**	0.190**
ΔR^2	0.050**	0.147**	0.027**	0.108**	0.039**	0.005**	0.155**	0.019**

Note: ** $P < 0.01$, * $P < 0.05$

$M1$: explains the influence of demographic variables on work ability; (step1)

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M2: explains the influence of workplace incivility on work ability; *(step1)*

M3: explains the influence of demographic variables on job performance; *(step2)*

M4: explains the influence of work ability on job performance; *(step2)*

M5: explains the influence of workplace incivility on job performance; *(step2)*

M6: explains the influence of workplace incivility on job performance after bringing into the explanatory power of work ability; *(step3)*

M7: explains the influence of workplace incivility on job performance after bringing into the explanatory power of career expectation; *(step4)*

M8: explains the influence of workplace incivility on job performance after bringing into the explanatory power of career expectation and career expectation-interaction. *(step4)*

Discussion

In this survey, nearly 60.7% of the participants reported experiencing nursing workplace incivility in the past year. This is consistent with research findings that suggested somewhere been 27-85% of nurses experience incivility³⁵. Compared with the western countries such as the United States and Canada ^{36 37}, incivility is more serious in China’s nursing workplace ³. Compared with other professions, workplace incivility toward nurses is also more serious. The reason might be the particularity of the nursing profession under the current medical environment and inverted structure of medical resources of China. At the same time, China is collectivistic and unequal.

“Jun Chen” thought and caste-consciousness are deeply rooted. Especially for new nurses, as they are more used to obeying the rules of the leaders and colleagues, hence the unfavorable workplace. However, the results of internal mechanism remain to be tested in future research. This study investigates the occurrence of incivility incidence in the workplace of newly recruited nurses in the past year, resulting in the spontaneous reporting of rude behavior on the high side.

The group of new nurses with high level educational degrees is in pursuit of autonomy, innovation, individuality, and diversity. Currently, work allocation is not quite clear in nursing work. The group feels underemployed because the repetitive nature of the work³⁸, ensures that role conflict will appear³⁸. Compared with the nurses with low educational degrees, those with higher education degree deeply feel the gap between the ideal and reality of the workplace when facing difficulties, and struggle to adapt to the new environment and organizational culture. Ultimately, these incompetent performances lead to admonition, resulting in nursing workplace incivility.

This study is consistent with previous research conclusion^{36 37}. Nursing workplace incivility had a significant negative influence on work ability ($\beta=-0.388$, $P<0.01$) and job performance ($\beta=-0.199$, $P<0.01$) of new nurses. This study also has a new theoretical contribution, that is, workplace incivility has both direct and indirect effects on performance of new nurses, and work ability ($\beta=0.305$, $P<0.01$) has a fully mediatory effect on their relationship. Furthermore, career expectation ($\beta=-0.568$, $P<0.01$) played a moderating role. Ultimately, workplace incivility reduced job

performance by weakening the work ability of new nurses, and high career expectation could buffer negative emotional effects caused by nursing workplace incivility and improve performance by adjusting the directional motives of them. Possible mechanisms were described as the follows.

We used the Affective Events Theory (AET) to explain some of our research results.

AET proposed by Weiss & Cropanzano (1996) based on the summery of previous research explained the role of emotion and evaluative judgment in the relationship between an individual's experience and their behavior ³⁹. The core of AET is that one's emotional response to workplace events largely determines their attitude and subsequent behaviors ³⁹. As a green hand in the workplace and professional special properties, they could easily incur workplace incivility from supervisors and colleagues. New nurses experiencing negative events are more likely to generate negative emotions and behaviors ³⁹. Nurse's work ability is a comprehensive performance in the nursing process, which is remarkably related to the clinical experience, psychological states and motivation ⁴⁰. New nurses may feel stressed when facing the gap between higher job expectation and lower clinical competence. New nurses experience ambiguous and subtle behavior including neglected reasonable needs. They are treated unfairly, and confronted with sharp languages or potential threat from the colleagues. Facing such behaviors, the victims of incivility would be trapped in negative psychological states, including severe distress, anxiety and other emotions⁴¹. Workplace incivility adversely affects attitudes and cognition of new nurses, and drastically decreases their self-confidence. Therefore, it is difficult

for them to objectively evaluate their own work ability, which can be weakened by negative cognition. In addition, workplace incivility adversely affects new nurses' behaviors, and is more likely to generate negative experiences and behaviors. Negative experiences such as role stress can increase role ambiguity, and in turn, cause difficulties to adjust to their new roles. As a result, this is harmful to the development of work ability of them ⁴². Work ability is the inner form of job performance. The weakening of work ability would directly lead lower nursing quality. Besides, the accumulation of adverse events caused by workplace incivility induces negative emotions, greatly decreasing organizational commitment of the new nurses ⁴³, and destroying the development of their career. Moreover, negative impact is likely to be a long-term vicious cycle, undermining nursing service quality. A harmonious medical work environment can improve the efficiency and quality of nursing work, and the nurses may show altruistic and positively conducive behavior. Clearly, it is a compelling obligation for their colleagues and supervisors to build an environment to provide humanistic care for their development.

We used the Self-regulation theory to explain another part of our study results, the career expectation moderating role. Self-regulation theory shows that individuals tended to control their own ideas and reactions to achieve their goals ⁴⁴. This theory reveals how the individuals realized positive goals and avoided negative status ⁴⁵. As is shown in Figure 2, based on the theory ⁴⁶, new nurses under workplace incivility reported greater job-related stress, distraction, and dissatisfaction, and they were left in a state of lower creativity and greater psychological distress. We name the state as

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“negative ego”. The low level of behavioral motivation would leave the nurses with low expectations in the “negative ego” situation after experiencing workplace incivility ⁴⁷. Occupational plans of new nurses are not clear. As a result, they lack internal motivations to achieve their higher goals. Lack of defensive ability for external negative incentives were the characteristics of those with low expectations ⁴⁸. This would generate role ambiguity, and in turn, reduce work efficiency and nursing quality, thus decreasing the whole working performance. However, classical motivational theory shows that a high level of professional expectation would raise the level of motivation of the employees and enhance their performance ⁴⁹. New nurses are full of expectations for professional development and will generate risk-averse reaction. They are not sensitive to negative emotional experiences caused by workplace incivility ⁵⁰, but focused on how to achieve their desires and ambitions. They are more likely to pursue career success and concentrate on the development of their career. New nurses with a high level of occupational expectation are characterized by a high level of social involvement with more persistence. They control and adjust negative emotions and mitigate negative status in time and effectively ⁵¹. They are full of enthusiasm in work, desiring to learn nursing skills positively and fulfill nursing work efficiently. It contributes to acquiring their key competency and improving their nursing responsibility faster and smoother ⁵², and thus enhancing the whole organizational performance. Ultimately, it is realistic to achieve a high quality of life and promote the satisfaction of the patients.

Limitation

Although some significant discoveries are displayed in the present study, it still has several limitations. First, a convenience sample was used in this study which risked a potential sampling bias. Second, the cross-sectional nature is not helpful to establish a causal relationship between the workplace incivility, work ability and job performance. Thus, longitudinal studies are to be conducted as a future direction. Third, the data were obtained by the self-report of the new nurses, which, to some extent, resulted in response bias from social desirability or negative affect. New nurses might have overestimated or underestimated the association between study variables. Samples from different regions are not balanced, so further academic studies are needed in the future.

Conclusions

This study focused on nursing workplace incivility and, for the first time, evaluates the current situation among China's new nurses. It demonstrates that "work ability" may serve as an action mechanism that influences the relationship between workplace incivility and job performance. Meanwhile, this relationship may be moderated by career expectation. First, this study examined the association between workplace incivility and job performance of the new nurses in China's nursing workplace. Second, the findings indicate that work ability mediated the association between workplace incivility and job performance of the new nurses. Third, it demonstrates that career expectation moderated the relationship between workplace incivility and job performance. Namely, Workplace incivility in hospitals towards new nurses could weaken their work ability and, in turn, gradually reduced job performance. In this

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process, incivility induced negative ego. A high level of career expectation could buffer negative emotional experience caused by nursing workplace incivility and improve performance by adjusting the directional motives. The model theoretically extends the study of workplace incivility, especially to the Chinese new nursing group. It is significant for new nurses to adapt to the environment and improve work ability for the purpose of promoting nursing service quality.

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Author Contributions

Conceived and designed the experiments: TS SZ CM. Conducted the survey: S Z CM YS FX JL SC XD. Analyzed the data: TS SZ. Contributed reagents/materials/analysis tools: DM JW CM. Wrote the paper: SZ CM TS.

Competing Interests

The authors have declared that no competing interests exist.

Data Sharing Statement: No additional data are available.

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4 **Figure 1. Conceptual framework of the study.**
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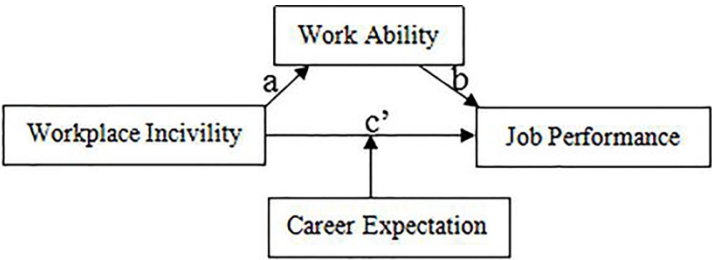


Figure 1. Conceptual framework of the study.

352x90mm (300 x 300 DPI)



Figure 2. Graphical representation of the interaction between workplace incivility and career expectation predicting job performance interference

150x90mm (300 x 300 DPI)

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of cross-sectional studies

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	Page 1, line 24-36;
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	P.2; line10-18
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	p.3, line 7-22; p.4; p.5; p.6; p.7, line 1-5
Objectives	3	State specific objectives, including any prespecified hypotheses	P.7, line 6-13;
Methods			
Study design	4	Present key elements of study design early in the paper	P.8, line 1-10
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	p.8, line 11-17;p.9, line 1-3
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	P.8, line 11-22
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	no
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	p.9, line 4-22; p.10, line 1-19
Bias	9	Describe any efforts to address potential sources of bias	no
Study size	10	Explain how the study size was arrived at	no
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	p.10, line 10-14
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	p.10, line 10-14

		(b) Describe any methods used to examine subgroups and interactions	no
		(c) Explain how missing data were addressed	no
		(d) If applicable, describe analytical methods taking account of sampling strategy	p.10, line 10-14
		(e) Describe any sensitivity analyses	no
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	p.10, line 15-22; p.11, line 1-3
		(b) Give reasons for non-participation at each stage	no
		(c) Consider use of a flow diagram	No
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	P.11;p.12;
		(b) Indicate number of participants with missing data for each variable of interest	P.11;p.12;
Outcome data	15*	Report numbers of outcome events or summary measures	P.12;p.13; p.14; p.15;
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	p.13; p.14; p.15;
		(b) Report category boundaries when continuous variables were categorized	no
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	no
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	no
Discussion			
Key results	18	Summarise key results with reference to study objectives	p.20line20-22;p.16; p.17; p.18; p.19;
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	P.19, Line 20-21;P.20, Line 1-9;
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	p.20line16-22;p.21; line1-11

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Generalisability	21	Discuss the generalisability (external validity) of the study results	no
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	P.21, line 5-9

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

Impact of workplace incivility in hospitals on the work ability, career expectations, and job performance of Chinese nurses : A cross-sectional survey

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Impact of workplace incivility in hospitals on the work ability, career expectations, and job performance of Chinese nurses: A cross-sectional survey

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Key words. New nurses; Workplace incivility; Job performance; Work ability; Career expectation

ABSTRACT

Objectives: This study's objectives were to investigate new nurses' experiences of workplace incivility; verify the mediating role of work ability in the relationship between workplace incivility and job performance; and examine the moderating role of career expectations in the relationship between workplace incivility and job performance.

Design: This cross-sectional survey was conducted in China in May 2016.

Settings: The research settings included 54 cities across 29 provinces of China.

Participants: Of the 903 participants recruited, 696 new nurses (less than 3 years of nursing experience) agreed to complete the study's online questionnaire. The effective response rate was 77.1%. The inclusion criteria were voluntary participation, less than 3 years of nursing experience, and recognition as a registered nurse. The exclusion criteria were refusal to participate, more than 3 years of nursing experience, or not recognised as a registered nurse.

Results: New nurses (60.7%) experienced some level of workplace incivility in the previous year, and it was more frequent among those with higher educational degrees.

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Work ability mediated the relationship between workplace incivility and job performance, and this relationship was moderated by career expectations.

Conclusion: Incivility towards new nurses was relatively common in the workplace. Workplace incivility impairs job performance by weakening the work ability of new nurses. Higher career expectations may buffer workplace incivility and contribute to the maintenance of job performance by buffering the detrimental effects of workplace incivility.

Strengths and limitations of this study

- This is the first study to investigate the relationship between workplace incivility and job performance among new nurses in China.
- Research with this sample from China should add to the global understanding of workplace incivility—that it occurs in different cultures and healthcare systems.
- This innovative study examined the moderating role of career expectations on the relationship between workplace incivility and job performance.
- The data were obtained using self-reports of new nurses, which, to some extent, resulted in response bias (social desirability).
- Samples from the different regions of China were not proportional.

INTRODUCTION

Andersson and Pearson (1999) defined workplace incivility as ‘low intensity deviant behaviour with ambiguous intent to harm the target, in violation of workplace norms for mutual respect’¹. Workplace incivility is described as rude, discourteous, belittling,

and insulting behaviour. It is pervasive in healthcare settings and can permeate an entire work environment². It may have a destructive influence on the sustainable development of medical and healthcare organisations³. Unfortunately, workplace incivility negatively affects employees' mental health and emotional well-being, often causing symptoms of anxiety, depression, somatic symptoms, fatigue, and illnesses among nurses⁴⁻⁶. These negative emotions and physical consequences can hamper nurses' development of their work abilities. Furthermore, the spread of negative emotions is likely to have adverse effects on nurses' work environments³. Workplace incivility has a long cycle and adverse effects on new nurses. High career expectations are accompanied by high motivation, which promotes positive behaviours that may buffer negative emotional experiences caused by workplace incivility. An investigation of current workplace incivility, its mechanisms, and negative effects is important, especially in relation to the work ability, career expectations, and job performance of new nurses.

Incivility in the workplace

Workplace incivility is prevalent worldwide, and its damaging effects on the development of individuals and organisations have been documented⁶. At the individual level, workplace incivility can decrease workers' job involvement and impair their job performance. It may also reduce or eliminate employees' job satisfaction and organisational loyalty, and increase their turnover rates⁷. Victims of workplace incivility suffer from depression, mood swings, and other negative emotions, which seriously compromise their mental and physical health⁸. At the organisational level, victims tend to be isolated from surrounding social networks. Victims, witnesses, and stakeholders involved in workplace incivility may react to it

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with behaviours that undermine organisational resources and threaten organisational development⁷. More importantly, workplace incivility can spread to the social level, which may escalate to more aggressive behaviour and evoke workplace violence⁹. Nursing in China, a predominantly female profession¹⁰, primarily involves clinical work under stressful conditions of staff shortages¹⁰. Workplace incivility hampers professional nursing practice, and decreases the quality of patient care and the health of the nurses¹¹. The nursing profession has been associated with the phrase ‘nurses eat their young’, which is viewed by many as an initiation rite to determine whether a new nurse can survive their profession. Workplace incivility can have a substantial negative impact on new nurses¹². Not surprisingly, new nurses can barely distinguish between the theoretical orientation of their nursing education and the focus of clinical practice. Most new nurses lack key competencies, including nursing skills, to respond appropriately to emergencies or effectively manage issues related to the nurse-patient relationship¹³. New nurses who lack work skills and competencies¹⁴, frequently experience workplace mistreatment^{14 15}, increasing their vulnerability to incivility¹⁶. Workplace incivility is a subtle form of workplace mistreatment with devastating effects (e.g., mental health) on new nurses¹⁷. There are numerous anecdotal reports about the effects of incivility in nursing and health-care settings (e.g. burnout, high turnover rates, and job dissatisfaction)^{18 19}. However, no empirical research has examined this problem among new nurses in China.

Impact of workplace incivility on work ability, career expectations, and job performance

The work ability of new nurses is influenced by their work environment, work organisation, and workload. Creating a work environment and providing humanistic

care is necessary for their development²⁰. Work ability is defined as workers' abilities to perform their jobs, taking into account specific work demands, and individuals' health and mental resources²¹. Previous studies have found a link between work ability and various work-related factors, including mental demands, professional development opportunities, satisfaction with work schedule, manager's style, and satisfaction with work prospects and salary^{21 22}. New nurses are expected to adapt to their new roles quickly and smoothly, though their technological skills, clinical experience, and adaptability to the work environment are limited²². New nurses are the principal victims of nursing incivility. Previous studies showed a significant association between violence at work and reduced working ability²³, which is a manifestation of job performance, and might be closely related to workplace incivility and job performance. These correlations clarify their influence on new nurses.

Career expectations can be categorised as an individual's inclination and an externalisation of professional values, which manifests as a person's philosophy and values. It is one of the most basic and important psychological functions²⁴, which encourages employees to achieve their desired goals, such as salary, welfare, work environment and conditions, and development opportunities. Traditional expectancy-value theory posits that job performance is influenced by the assessment of individual behaviours and expectations related to the results. That is to say, new nurses with higher career expectations tend to exhibit higher levels of persistence in the process of achieving their goals; thus, promoting positive results. In contrast, nurses with low career aspirations show decreased motivation, leading to lower aspirations and persistence, and, subsequently, fewer contributions to the organisation²⁵. New nurses' have career expectations based on a desire or passion for nursing, powered by an internal decision to make nursing a career, which can alleviate

negative emotions caused by incivility. Occupational expectations have intrinsic power to promote engagement in the nursing profession, which is a determinant of performance²⁵. Therefore, it is imperative to explore how career expectations influence the job performance of new nurses after they have experienced incivility.

Workplace incivility is very damaging to organisations. It causes reduced job performance of employees and fosters their intentions to leave the job¹⁸. Job performance is defined by Motowidlo (2003) as a value of work by an employee, which is expected by an organisation over a period. In the health-care settings, nurses' job performance is not only tied to increases in health outcomes, but also to behaviour processes, both of which concern patient satisfaction and quality of life¹⁸. However, goals and the motivation to achieve them are determinants of job performance. Previous studies showed that incivility experienced by nurses negatively affects their psychological state, job performance, and well-being²⁶. Scholars have confirmed that incivility is negatively related to job performance and that the association is fully mediated by emotional exhaustion²⁶. Therefore, improving the job performance of new nurses from the perspective of work ability and expectations deserves attention. Further investigation of this harmful workplace phenomenon and encouragement of practitioners to develop policies and procedures to reduce its occurrence are warranted.

This study aimed first, to evaluate the current state of workplace incivility, as experienced by new Chinese nurses and examine the association between workplace incivility and job performance. Second, it examined the mediating role of work ability on the relationship between incivility and job performance. Third, it explored the

moderating role of career expectations on the relationship between incivility and job performance, as shown in Figure 1.

METHODS

Participants and procedures

Snowball sampling was used to collect data. Nurses throughout China completed an anonymous online questionnaire in May 2016. This cross-sectional study was conducted across 29 provinces in China. Approximately 60 nurses (with less than 3 years of service) from the authors' units were selected to be the 'original deliverers' of the survey. The original deliverers were alumni who maintained friendly contact with the researchers and had nursing positions in various hospitals. Prior to commencement of the formal online survey, we provided comprehensive survey training to these initial contacts, and commissioned them to recruit 10-20 nurses to answer the questionnaire during the same period. A web page link to our questionnaire (<https://www.wenjuan.com/>) was sent by mobile phone to participants during their rest breaks. The amount of data collected was monitored in real time on the website's management platform. There were no 'required responses' in the online questionnaire. Our sample was selected with strict adherence to exclusion criteria for data management and quality control. For example, we eliminated unanswered or incomplete questionnaires and those answered in an extremely short period and/or with an excessive amount of blank items.

Participants were recruited for the study from 29 cities in China; 903 participants were enrolled and data from 696 valid questionnaires were analysed. The effective

response rate was 77.1%. The inclusion criteria were recognition as a registered nurse, less than 3 years of nursing experience, and voluntary participation in the study. The exclusion criteria were: not recognised as a registered nurse, more than 3 years of nursing experience, and refusal to participate in the study.

Patient and public involvement statement

There was no patient or public participation in this study.

Ethical considerations

The Institutional Review Board (IRB) of Harbin Medical University approved the study. As the survey was anonymous, it was impossible to obtain written informed consent. Therefore, an informed consent form was included on the cover of the questionnaire. The completed questionnaire was considered informed consent to participate in the survey. Confidentiality was maintained for all information collected in the survey.

Measures and tools

Demographic variables included gender, age, work experience, marital status, professional position, and educational level.

Experience of Incivility

A widely used 12-item measure developed by Cortina et al., was used in this study to assess new nurses’ experiences of workplace incivility²⁷. They were instructed to rate the frequency of the experience presented in each item. A sample item was:

‘During the past year, how many times have you been in a situation where a co-worker or supervisor paid little attention to your statements or showed little

interest in your opinions'? Responses were scored on a 5-point scale from 1 (never) to 5 (very frequently). We averaged the responses of the 12 items, with a high score reflecting a high level of workplace incivility. The scale's validity and reliability have been examined in workplaces with Chinese nurses²⁸. Cronbach's alpha coefficient for the scale was 0.893.

Work Ability Index

A single question from the Work Ability Index²⁹ was used to assess work ability, specifically the nurses' ratings of their 'current work ability compared with their lifetime best'. The total possible score ranged from 0 (completely unable to work) to 10 (work ability at its best), and a high score indicated a high level of work ability. The WAI is a widely used valid and reliable measure of work ability²¹.

Career Expectations

A single question was adopted from the WAI to measure the new nurses' career expectations, specifically, their 'current career expectations compared with their lifetime best'. The total possible score ranged from 0 (no career expectations) to 5 (high career expectations). A high score indicated high career expectations. Previous literature has suggested that a single-item questionnaire with high validity and sensitivity can measure these expectations of new nurses³⁰.

Job Performance

Job performance was assessed using the Job Performance Scale developed by Williams and Andersons³¹ which included 5 items. We used a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a high score indicating a high level of job performance. Cronbach's alpha for the scale was 0.934.

Data analysis

All data were analysed using SPSS Statistical Software for Windows version 17.0 (SPSS, Inc., Chicago, IL). Hierarchical linear regression was performed to test the relationships between the variables and the mediating and moderating effects. Statistical significance was set to $p<0.05$ (two-tailed).

RESULTS

Descriptive statistics

Participants’ demographic data are summarised in Table 1. The mean age of the new nurses was 24.55 years (19–25). Female nurses comprised 90% of the sample, and 97.6% of them had at least a college education; 85.34% were unmarried; and 83.3% were from tertiary hospitals. They worked in different hospital departments and had less than three years of nursing experience. Analyses revealed that 60.7% ($n=696$) of the new nurses had experienced some level of workplace incivility during the past year (Table 2). Differences in workplace incivility scores across educational levels was statistically significant ($F=6.442$, $p<0.01$) (Table 1).

Table 1 Characteristics of the respondents (N = 696)

Characteristic	N	%	Workplace incivility	
			<i>F</i>	<i>P</i>
Gender				
			0.549	0.459
Male	67	9.60		

Female	629	90.40		
Marital status				
Unmarried	594	85.34		
			3.639	0.027
Married	99	16.67		
Divorced or widowed	3	0.04		
Hospital level				
Tertiary hospital	580	83.30		
Secondary hospital	90	12.90	2.784	0.062
Primary hospital	26	3.70		
Education level				
Secondary or below	17	8.10		
Associate degree	253	31.60	6.442	0.002
Bachelor or above	426	57.60		
Service Years				
<0.5	43	6.20		
			0.727	0.603
0.5-0.9	314	45.10		

1-1.4	69	9.90
1.5-1.9	112	16.10
2-2.4	73	10.50
>2.5	85	12.20

Departments

Job rotation	102	14.60%		
Medical department	165	23.70%		
Surgery department	178	25.60%		
Medical technical department	25	3.60%	1.201	0.291
Outpatient department	30	4.30%		
Gynecology department	41	5.90%		
Pediatrics department	29	4.20%		
Others	126	18.10%		

Table 2 Incidence states of workplace incivility among new nurses (N=696)

Workplace incivility item	Never	Occasionally	Sometimes	Frequently	Very
					Frequently

(N=696)	N (%)	N (%)	N (%)	N (%)	N (%)
Paid little attention to your statements or showed little interest in your opinions	77 (11.1%)	217 (31.2%)	322 (46.3%)	72 (10.3%)	8 (1.1%)
Doubted your judgment on a matter over which you had responsibility.	64 (9.2%)	267 (38.4%)	299 (43%)	60 (8.6%)	6 (1.9%)
Gave you hostile looks, stares, or sneers.	356 (5.1%)	252 (36.2%)	80 (11.5%)	7 (1%)	1 (0.1%)
Addressed you in unprofessional terms either publicly or privately.	199 (28.6%)	290 (41.7%)	176 (25.3%)	26 (3.7%)	5 (0.7%)
Interrupted or “spoke over” you.	149 (21.4%)	319 (45.8%)	184 (26.4%)	41 (5.9%)	3 (0.4%)
Rated you lower than you deserved on an evaluation.	171 (24.6%)	314 (45.1%)	181 (26%)	27 (3.9%)	3 (0.4%)
Yelled, shouted, or swore at you.	364 (52.3%)	225 (32.3%)	85 (12.2%)	17 (2.4%)	5 (0.7%)
Made insulting or disrespectful remarks about you.	503 (72.3%)	156 (22.4%)	33 (4.7%)	4 (0.6%)	0 (0.00%)
Ignored you or failed to speak to you	361 (51.9%)	243 (34.1%)	77 (11.1%)	12 (1.7%)	3 (0.4%)
Accused you of incompetence.	246 (35.3%)	319 (45.8%)	114 (16.4%)	15 (2.2%)	2 (0.3%)
Targeted you with anger outbursts or temper tantrums.	333 (47.8%)	278 (39.9%)	72 (10.3%)	12 (1.7%)	1 (0.1%)
Made jokes at your expense	459 (65.9%)	174 (25%)	57 (8.2%)	5 (0.7%)	1 (0.1%)

Correlations between the study variables

The means, standard deviations, and Pearson's correlation coefficients of the continuous variables are presented in Table 3. All the variables were significantly correlated with one another, and workplace incivility was negatively correlated with work ability ($r=-0.403$, $p<0.01$), career expectations ($r=-0.298$, $p<0.01$), and job performance ($r=-0.202$, $p<0.01$). Work ability was positively correlated with career expectations ($r=0.366$, $p<0.01$) and job performance ($r=0.351$, $p<0.01$). There also was a positive correlation between the career expectations and job performance ($r=0.389$, $p<0.01$). The absolute value of the correlation coefficient was between 0.25 and 0.63, which indicated that each variable could be used in the subsequent regression analyses.

Table 3. Means, standard deviations (SD) and correlations of continuous variables (N = 696).

Variables	Mean	SD	1	2	3	4
1. Workplace incivility	1.893	0.532	1			
2. Work ability	6.610	2.133	-0.403**	1		
3. Career expectation	3.490	0.955	-0.298**	0.366**	1	
4. Job performance	3.204	0.885	-0.202**	0.351**	0.389**	1

Note: ** $P < 0.01$, Correlation is significant at the 0.01 level (2-tailed)

Hierarchical linear regression models

Several multivariate hierarchical linear regression analyses were performed to examine the association of workplace incivility with the job performance, work ability,

and career expectations of the new nurses (Table 4). To examine these relationships, we conducted three mediation analyses using linear regression methods described by Baron and Kenny³². Workplace incivility was analysed as a predictor variable in the models, work ability as a mediating variable, and job performance as an independent variable. Career expectations was analysed as a moderating variable in these models. Age, gender, hospital level, years of experience, educational level, and hospital department were used as control variables (M_1 , M_3) to eliminate the effects of demographic and work variables on the regression models (Table 4).

Table 4. Hierarchical linear regression models of mediation and moderation (N = 696)

Variables	Work ability		Job performance					
	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
	(step1)	(step1)	(step2)	(step2)	(step2)	(step3)	(step4)	(step4)
predictor variable								
Workplace incivility		-0.388**			-0.199**	-0.080*	-0.090*	0.369**
Mediating variable								
Work ability				0.338**		0.305**		
Moderating variable								
Career expectation							0.360**	0.830**

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Career expectation-Interaction								-0.568**
F	6.009**	24.145**	3.128**	15.311**	6.856**	13.993**	19.063**	19.154**
R ²	0.050**	0.197**	0.027**	0.367**	0.065**	0.014**	0.172**	0.190**
ΔR ²	0.050**	0.147**	0.027**	0.108**	0.039**	0.005**	0.155**	0.019**

Note: ** $P < 0.01$, * $P < 0.05$

- M1:** explains the influence of demographic variables on work ability; (step1)
- M2:** explains the influence of workplace incivility on work ability; (step1)
- M3:** explains the influence of demographic variables on job performance; (step2)
- M4:** explains the influence of work ability on job performance; (step2)
- M5:** explains the influence of workplace incivility on job performance; (step2)
- M6:** explains the influence of workplace incivility on job performance after bringing into the explanatory power of work ability; (step3)
- M7:** explains the influence of workplace incivility on job performance after bringing into the explanatory power of career expectation; (step4)
- M8:** explains the influence of workplace incivility on job performance after bringing into the explanatory power of career expectation and career expectation-interaction. (step4)

The regression models showed workplace incivility had a significant negative association with the work ability ($\beta=-0.388$, $p<0.01$, M_2) and the job performance ($\beta=-0.199$, $p<0.01$, M_3) of new nurses after controlling for the demographic and work variables; work ability had a significant positive association with job performance ($\beta=0.338$, $p<0.01$, M_4). When the mediation variable (work ability) was controlled for, the regression coefficient ($\beta=-0.008$) decreased from the coefficient in the previous model ($\beta=-0.199$), and was no longer statistically significant. Therefore, work ability ($\beta=0.305$, $p<0.01$, M_6) had a full mediating effect (Figure 2).

In the last two models, career expectations had a positive association with job performance ($\beta=0.036$, $p<0.01$, M_7). The interaction term between workplace incivility and career expectations was significant ($\beta=-0.568$, $p<0.01$, M_8), and career expectations had a moderating effect on the relationship between workplace incivility and job performance. The moderating effect was estimated by referencing a previous study^{33 34}. This interaction effect is illustrated in Figure 2. A simple slope test revealed that both high and low career expectations were correlated with the nurses' performance in workplaces with high levels of incivility. Job performance was significantly better among new nurses with high career expectations than those with low expectations (Figure 3).

DISCUSSION

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In this study, 60.7% of new nurses reported experiencing some level of workplace incivility in the past year. This result is consistent with the finding that 27–85% of nurses experience incivility³³ and might be due to the particular status of the nursing profession in the current medical environment and the structure of medical resources of China. China is a collectivistic and unequal society, in which ‘Jun Chen’ thought and caste-consciousness are deeply rooted. New nurses are accustomed to obeying the rules of their leaders and colleagues; hence, the unfavourable workplace. However, internal mechanisms remain to be tested in future research. This study investigated the incidence of workplace incivility among new nurses and found they reported a high incidence of rude behaviour during the past year.

The nurses with high educational degrees pursue autonomy, innovation, individuality, and diversity. Work allocation is not clear in the nursing profession; so, they feel undervalued because of the repetitive nature of the work³⁴, which contributes to the development of role conflict³⁴. Nurses with higher educational degrees experience a gap between the ideal and the real workplace when facing difficulties, and struggle to adapt to the new environment and organisational culture. Ultimately, incompetent performance leads to admonition and workplace incivility.

This study’s findings are consistent with previous research finding^{18 35}. Workplace incivility had a significant negative association with new nurses’ work ability ($\beta=-0.388$, $p<0.01$) and job performance ($\beta=-0.199$, $p<0.01$). This study also makes a new theoretical contribution, in that workplace incivility had both direct and indirect effects on new nurses’ performance and work ability ($\beta=0.305$, $p<0.01$), and fully mediated this relationship. Career expectations ($\beta=-0.568$, $p<0.01$) had a moderating role. Ultimately, workplace incivility may reduce job performance by weakening the

work ability of new nurses; however, high career expectations may buffer the negative emotional effects of workplace incivility and improve performance by altering the direction of the relationship. Possible mechanisms are described below.

Past studies have shown that individuals' emotional responses to workplace events largely determine their attitudes and subsequent behaviours³⁶. As a novice in the workplace with unique professional characteristics, new nurses are an easy target for workplace incivility from supervisors and colleagues. Those who experience negative events are more likely to develop negative emotions and behaviours³⁶. Nurse's work ability encompasses their performance across the nursing process, and it is related to their clinical experiences, psychological states, and motivation³⁷. New nurses may feel stressed when facing a gap between higher career expectations and lower clinical competence, and when they experience ambiguous and subtle behaviours, such as ignoring their reasonable requests, being treated unfairly, confronted with sharp language, or threatened by colleagues. Given such behaviours, victims of incivility are trapped in negative psychological states, including severe distress, anxiety, and other emotions³⁸. Workplace incivility adversely affects the attitudes and cognitions of new nurses, and drastically decreases their self-confidence. Therefore, they have difficulty objectively evaluating their own work ability, which might be weakened by negative cognitions. Workplace incivility adversely affects new nurses' behaviours, and is more likely to generate negative experiences and behaviours. Negative experiences (e.g., role stress) can increase role ambiguity and difficulty adjusting to new roles. This is harmful to the development of their work ability³⁹. Weakened work ability could lead to a lower quality of nursing care. The accumulation of adverse events caused by workplace incivility induces negative emotions, thereby decreasing the organisational commitment of new nurses⁴⁰, and disrupting their career development.

This negative impact is likely to be a long vicious cycle, undermining nursing service quality. A harmonious medical work environment can improve the efficiency and quality of nursing care, and nurses may show altruism and positive behaviour. Clearly, it is a compelling obligation for their colleagues and supervisors to build an environment to provide humanistic care for their development.

Individuals tend to control their own ideas and reactions to achieve their goals⁴¹. New nurses who have experienced workplace incivility report greater job-related stress, distraction, and dissatisfaction. They experience less creativity and greater psychological distress, which is referred to as ‘negative ego’. The low level of motivation leaves the nurses with low expectations in a ‘negative ego’ state after experiencing workplace incivility⁴². Their career plans become unclear; thus, they lack internal motivation to achieve higher goals. The ability to defend against external negative incidents is a characteristic of individuals with low expectations⁴³. This leads to role ambiguity, and in turn, reduces work efficiency and the quality of nursing service, thereby impairing overall work performance. However, classical motivational theory shows that high professional expectations raise employees’ motivational levels and enhances their performance⁴⁴. New nurses are full of expectations for professional development and exhibit risk-averse reactions. They are not overly sensitive to negative emotional experiences caused by workplace incivility⁴⁵, and are focused on how to achieve their desires and ambitions. They are more likely to pursue career success and concentrate on the development of their career; new nurses with high career expectations are more socially involved persistent. They control and adjust their negative emotions to mitigate their inferior status in a timely and effective manner. They are enthusiastic about work and desire to learn nursing skills and function efficiently. These characteristics contributed to their ability to acquire key

competencies and assume nursing responsibilities faster and smoother, thereby enhancing overall organisational performance. Ultimately, it is realistic for them to achieve a high quality of life and promote the satisfaction of the patients.

Limitations

Despite the significant findings reported, this study has several limitations. First, the use of a convenience sample increased the risk for sampling bias. Second, the cross-sectional design does not permit making causal inferences about the relationships between the workplace incivility, work ability, and job performance. Thus, longitudinal designs are needed in future studies. Third, the use of self-report instruments can result in response bias (social desirability or negative affect). New nurses might have overestimated or underestimated the association between the study variables. Fourth, the samples from the different regions were not proportional, thereby requiring further studies with representative samples. The validity and sensitivity of the single-item questionnaire about career expectations needs further examination. In conclusion, this study focused on workplace incivility and, for the first time, evaluated the current situation in a sample of new nurses working in hospitals in China. The study showed that work ability mediated the relationship between workplace incivility and job performance, and that career expectations moderated the relationship between workplace incivility and job performance. Workplace incivility towards the new nurses impaired their work ability, which was probably followed by a gradual decline in their job performance. In this study, incivility induced 'negative ego', a term we use to describe a state of reduced creativity and greater psychological distress. High career expectations buffered the negative emotional experience of workplace incivility and improved job performance

by altering the directional of the relationships. The model generated in this study theoretically extends the research on workplace incivility, especially among new Chinese nurses. It is important for new nurses to adapt to the workplace environment and improve their work ability to promote a high quality of nursing service.

Conclusions

This study focused on nursing workplace incivility and, for the first time, evaluates the current situation among China’s new nurses. It demonstrates that “work ability” may serve as an action mechanism that influences the relationship between workplace incivility and job performance. Meanwhile, this relationship may be moderated by career expectation. First, this study examined the association between workplace incivility and job performance of the new nurses in China’s nursing workplace. Second, the findings indicate that work ability mediated the association between workplace incivility and job performance of the new nurses. Third, it demonstrates that career expectation moderated the relationship between workplace incivility and job performance. Namely, Workplace incivility in hospitals towards new nurses could weaken their work ability and, in turn, gradually reduced job performance. In this process, incivility induced negative ego. A high level of career expectation could buffer negative emotional experience caused by nursing workplace incivility and improve performance by adjusting the directional motives. The model theoretically extends the study of workplace incivility, especially to the Chinese new nursing group. It is significant for new nurses to adapt to the environment and improve work ability for the purpose of promoting nursing service quality.

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Author Contributions

Conceived and designed the experiments: TS SZ CM. Conducted the survey: S Z CM YS FX JL SC XD. Analyzed the data: TS SZ. Contributed reagents/materials/analysis tools: DM JW CM. Wrote the paper: SZ CM TS.

Competing Interests

The authors have declared that no competing interests exist.

Data Sharing Statement: No additional data are available.

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Figure 1. Conceptual framework of the study.

Figure 2. Standardized regression coefficients for the relationship between workplace incivility and job performance as mediated work ability. Standardized regression coefficients for the relationship between workplace incivility and job performance as mediated work ability, controlling for work ability, is in parentheses.

Figure 3. Graphical representation of the interaction between workplace incivility and career expectation predicting job performance interference

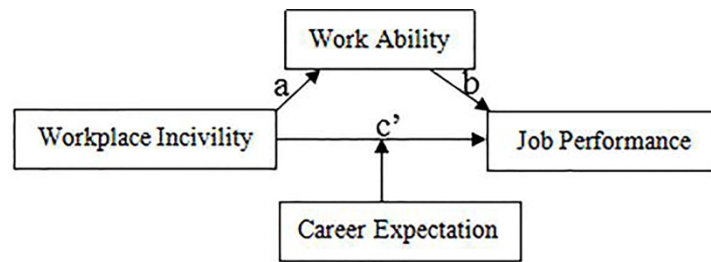
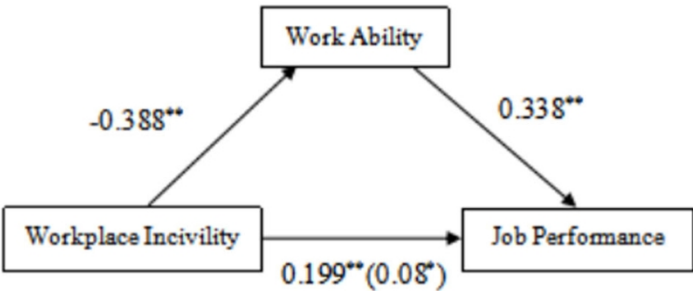


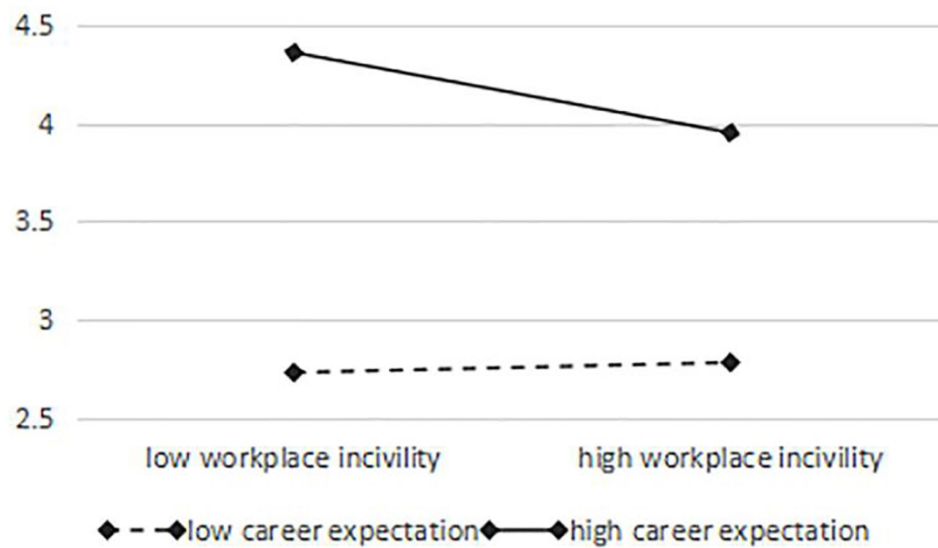
Figure 1. Conceptual framework of the study.

352x90mm (300 x 300 DPI)



Standardized regression coefficients for the relationship between workplace incivility and job performance as mediated work ability. Standardized regression coefficients for the relationship between workplace incivility and job performance as mediated work ability, controlling for work ability, is in parentheses.

115x40mm (300 x 300 DPI)



Graphical representation of the interaction between workplace incivility and career expectation predicting job performance interference

150x90mm (300 x 300 DPI)

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of cross-sectional studies

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	Page 1, line 24-36;
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	P.2; line10-18
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	p.3, line 7-22; p.4; p.5; p.6; p.7, line 1-5
Objectives	3	State specific objectives, including any prespecified hypotheses	P.7, line 6-13;
Methods			
Study design	4	Present key elements of study design early in the paper	P.8, line 1-10
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	p.8, line 11-17;p.9, line 1-3
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	P.8, line 11-22
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	no
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	p.9, line 4-22; p.10, line 1-19
Bias	9	Describe any efforts to address potential sources of bias	no
Study size	10	Explain how the study size was arrived at	no
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	p.10, line 10-14
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	p.10, line 10-14

		(b) Describe any methods used to examine subgroups and interactions	no
		(c) Explain how missing data were addressed	no
		(d) If applicable, describe analytical methods taking account of sampling strategy	p.10, line 10-14
		(e) Describe any sensitivity analyses	no
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	p.10, line 15-22; p.11, line 1-3
		(b) Give reasons for non-participation at each stage	no
		(c) Consider use of a flow diagram	No
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	P.11;p.12;
		(b) Indicate number of participants with missing data for each variable of interest	P.11;p.12;
Outcome data	15*	Report numbers of outcome events or summary measures	P.12;p.13; p.14; p.15;
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	p.13; p.14; p.15;
		(b) Report category boundaries when continuous variables were categorized	no
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	no
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	no
Discussion			
Key results	18	Summarise key results with reference to study objectives	p.20line20-22;p.16; p.17; p.18; p.19;
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	P.19, Line 20-21;P.20, Line 1-9;
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	p.20line16-22;p.21; line1-11

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Generalisability	21	Discuss the generalisability (external validity) of the study results	no
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	P.21, line 5-9

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.