

RESEARCH ARTICLE

Perceived professional benefits and associated factors among nurses during the COVID-19 pandemic: A cross-sectional study

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Abstract

Aims: To examine the perceived professional benefits (PPB) and associated factors among nurses during the coronavirus disease 2019 (COVID-19) pandemic in China.

Design: Cross-sectional study.

Methods: Using the snowball sampling method, 492 nurses (478 females, 14 males) were recruited. Data were collected using an online survey, including participants' socio-demographic and working characteristics, psychological distress related to the COVID-19 pandemic, dealing with professional frustration, professional self-reflection and PPB from 1–30 April 2020.

Results: Nurses experienced high levels of PPB. In linear regression analysis, self-perceived concerns about COVID-19, emotional shock caused by it, risk perception towards their occupations, dealing with professional frustration and professional self-reflection were positively associated with PPB among nurses. These factors explained 84% variance in PPB.

Conclusions: This study highlighted that although the nurses experienced psychological distress, they gained high PPB during the COVID-19 pandemic. Additionally, to facilitate nurses' efforts to achieve professional growth, more educational resources and opportunities for engaging in reflective practices could be provided.

KEYWORDS

coronavirus, nurses, perceived professional benefits, professional identity, psychological distress, severe acute respiratory syndrome-related coronavirus

1 | INTRODUCTION

Globally, the outbreak of the severe acute respiratory syndrome novel coronavirus (SARS-CoV-2) has severely threatened public health. With the increasing number of confirmed patients of coronavirus disease 2019 (COVID-19), as well as a shortage of personal protective equipment (PPE) at the early stage of the COVID-19 pandemic, numerous healthcare workers suffered great losses as a result of SARS-CoV-2 infections, especially nurses, who had close contact with suspected or confirmed patients with COVID-19.

According to the International Council of Nurses statistics, 1,500 nurses have died from COVID-19 in 44 countries (International Council of Nurses, 2020). In addition, physical burden (e.g., high workload, performing tasks with PPE) and psychological distress (e.g., anxiety, fear, concerns of being infected or infecting families) owing to the COVID-19 pandemic enhanced the turnover intentions among nurses (Cai et al., 2020; Nie et al., 2020; Sun et al., 2020). A study which was focused on frontline nurses in hospital settings demonstrated that COVID-19's perceived threat to their personal health increased turnover intentions among nurses who treated

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COVID-19 patients (Cole et al., 2021; Lavoie-Tremblay et al., 2022). Consequently, the outbreak of COVID-19 might result in some nurses re-evaluating their occupation and career choices, thereby translating into high risks of workplace productivity losses.

1.1 | Background

Nurses' perceived professional benefits (PPB) were defined as 'the benefits and gains nurses perceived from their jobs, which can promote personal development' (Hu & Liu, 2013, P.1). Previous studies have revealed that social support, psychological capital (e.g., hope, optimism) and supportive working environments were positively associated with PPB within the nursing occupation (Zhou et al., 2018). Furthermore, while working with COVID-19 patients, nurses experienced PPB (e.g., improved public perception of nurses, confidence, social support, financial rewards and reputation certificates). Additionally, PPB acted as a facilitator in enhancing nurses' intent to continue working during the COVID-19 pandemic (Liu et al., 2021). In a recent study, PPB was also mentioned in the recommendations to increase nurses' willingness to participate in caring for COVID-19 patients (Wu et al., 2020).

Although nurses' experience of caring for patients during the current pandemic might have been challenging, there is evidence that individuals could also perceive positive changes through such experiences (Eftekhari et al., 2020; Galehdar et al., 2020; Tan et al., 2020). PPB, as one form of such positive changes, involves the process of obtaining growth from adversity (Affleck et al., 1987). In a qualitative study where 14 frontline nurses participated in a COVID-19 rescue task, Sheng et al. (2020) identified 'unexpected professional benefits,' such as personal and professional growth (e.g., increased confidence, feelings of being valued, improvement of infectious intensive care and self-protection skills) as well as honorary rewards (e.g., improvement of social image), which strengthened nurses' confidence in combatting the pandemic and enhanced their perceptions of their occupation.

Professional frustration refers to a subjective psychological sentiment as a response to events or experiences at work (Fox & Spector, 1999). As revealed by relevant studies, nurses experienced increased frustration due to the high levels of moral distress, anxiety, stress and the insufficient human resources and PPE available in practice, during the COVID-19 pandemic (Catania et al., 2020; Tu et al., 2020). Experiencing professional frustration would prevent nurses from gaining extensive exposure to clinical practice, decrease their satisfaction with their nursing role, and thereby, impede their development of professional knowledge and skills (Keuter et al., 2000). Alternatively, nurses with active coping strategies in dealing with professional frustration during the pandemic may perceive it as a positive experience and experience low stress levels; thus, they may effectively fulfil their role and responsibility as nurses. Therefore, it can be assumed that active coping strategies in dealing with professional frustration will promote personal and professional growth among nurses.

Self-reflection, as a model of reflective practices, was highlighted in nursing education and clinical practice in the context of the COVID-19 crisis (Brindley, 2020; Grech, 2020). It was reported that self-reflecting on experiences of caring for COVID-19 patients enabled nurses to learn from their experiences and increased their self-awareness towards the nursing role and their responsibility as nursing professionals (Chamboredon et al., 2020). Through self-reflection, nurses gained practical experience of essential nursing skills in caring for patients, with and without COVID-19, such as ensuring standard precautions against COVID-19, which improved their performance and thus, enhanced their professional growth (Sun et al., 2020). Furthermore, self-reflection on volunteering during COVID-19 inspired a sense of pride and professional value of being a nurse (Nanavaty, 2020). This contributed to a positive identification with the nursing profession as well as enhanced self-esteem, which promoted the retention of nurses in the profession.

The theory of growth through adversity has long been recognized in psychological literature (Park et al., 1996). According to the theory of growth amidst adversity, stressful events might lead to personal growth and positive changes, such as PPB. During the pandemic, nurses were exposed to numerous stressful events, such as the threat of COVID-19, psychological and physical burden related to the disease, a shortage in the nursing workforce, and high workloads (Murat et al., 2021). Nurses have the potential to obtain professional benefits by overcoming these difficulties through developing the capacity to manage frustration and partaking in self-reflection to restructure their self-understanding of their profession and achieve growth (Danielis et al., 2021). Thereby, the present study aimed to examine the PPBs and associated factors among nurses during the COVID-19 pandemic. This would contribute to an understanding of nurses' PPBs and help retain the nursing workforce during adversities and emergency events.

2 | METHODS

2.1 | Design and recruitment of participants

A cross-sectional design was adopted by referring to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) (von Elm et al., 2007; see the checklist in [Supplementary File 1](#)). At the time of the study, healthcare workers were dispatched to different cities to care for the COVID-19 patients. Nurses may have different experiences due to the incidence of COVID-19 infections in different cities. To include more nurses from other cities and increase the generalizability of the results, the snowball sampling technique was used to recruit participants during the COVID-19 pandemic. Participants who fulfilled the following criteria were recruited: registered nurses, having at least 1 year of work experience, and currently employed in public hospitals, worked in all wards. Nurses who worked in departments other than wards (e.g. clinics) were excluded.

For calculations, the G*Power 3.1.9.2 program with a medium effect size of .15, a significance level (α) of .05, statistical power ($1 - \beta$) of .95 was used, and for multiple linear regression using the F-test, 15 independent variables and a minimum sample size of 199 participants were required.

2.2 | Data collection

Between 8 December 2019—when the first case of COVID-19 was confirmed in Wuhan City, China—and 30 April 2020—when the COVID-19 outbreak was still an epidemic and under control—there were 82,874 confirmed cases and 4,633 deaths. Data were collected using an online questionnaire from 1–30 April 2020. The questionnaire was in Chinese and was created through an online survey platform ('Survey Star', Changsha Ranxing Science and Technology). First, the main investigator contacted and explained the study's purpose to the administrators of nursing departments at five tertiary hospitals by email in Jinan City, Shandong Province. After the administrators granted permission, the questionnaire was first disseminated through WeChat (the most used chat application in China) to nurse administration groups, and they were encouraged to share it with their nurses. The electronic questionnaire link in the WeChat app IP could be used once only. Of the 550 responses obtained, 492 were included for final analysis after exclusion of the ones with missing data. The effective response rate was 89.45%.

2.3 | Measures

The nurses' perceived professional benefits questionnaire (NPPBQ), which was developed in mainland China by Hu and Liu (2013), was used to assess nurses' PPB. The questionnaire had 33 items with five dimensions: positive occupational perception; good nurse–patient relationship; recognition from family, relatives and friends; sense of belonging to a team and self-growth. The questionnaire was scored on a five-point Likert scale (ranging from strongly disagree = 0 to strongly agree = 5). Higher scores indicated higher PPB. The NPPBQ has a good reliability and validity (Hu et al., 2020). In this study, Cronbach's α of the total NPPBQ was .97.

Dealing with professional frustration (six items) and professional self-reflection (three items) were adopted from the professional identity scale, which was developed in a Chinese language (Mandarin) by Liu, Hao, and Liu et al. (2011). Items were scored on a five-point Likert scale (ranging from 1 = complete inconformity to 5 = complete conformity). Higher scores indicated a higher ability of dealing with professional frustration and self-reflection. The reported Cronbach's α coefficients varied from .72 to .94. In this study, the Cronbach's α coefficients varied from .96 to .98.

Participants' socio-demographic variables included age, sex, educational levels, number of working years, department, marital status and number of children (if any). Working characteristics in the hospital during the COVID-19 pandemic were assessed with

two questions: 'Have you ever taken care of severe/critical patients before the outbreak of COVID-19?' and 'Were you dispatched to Wuhan city for the rescue task during the COVID-19 pandemic?' which required a 'yes' (=1) or 'no' (=0) response. Four items adapted from previous studies (Hong et al., 2020; Si et al., 2020) were used to assess the psychological impact of the current pandemic on nurses. Self-perceived anxiety was assessed with one item: 'To what extent did you feel anxious when COVID-19 occurred?', with a response on a five-point Likert scale (ranging from 'not at all'=1 to 'very much' = 5). Self-perceived concerns were assessed with one item, 'To what extent did you worry about you or your family being infected with SARS-CoV-2?' with a response on a five-point Likert scale (ranging from 'not at all' = 1 to 'very much' = 5). Self-perceived emotional shock was assessed with the item: 'To what extent did you feel emotionally shocked by the COVID-19 pandemic?', with a response on a five-point Likert scale (ranging from 'not at all' = 1 to 'very much' = 5). Risk perception towards occupation was assessed with the item: 'To what extent did you perceive the risk towards your occupation when the COVID-19 occurred?' with a response on a five-point Likert scale (ranging from 'not at all' = 1 to 'very much' = 5).

2.4 | Ethical considerations

The study was reviewed and approved by an appropriate hospital research ethics committee [KYLL-2020 (LW)-042]. Electronic informed consent was obtained from potential participants before they completed the online questionnaire. Anonymity and confidentiality were ensured.

2.5 | Data analysis

The IBM SPSS Statistics for Windows (Version 22 Armonk, NY: IBM Corp) was used for data analysis. Descriptive statistics were conducted to examine the normality and homoscedasticity of the study variables. All the data met the assumption of normality. The correlation between professional identity and PPB was assessed through bivariate Pearson correlation. Furthermore, stepwise multiple linear regression analyses were conducted to explore the associated factors of PPB. All variables were treated as continuous variables. The variance inflation factor ranged from 1.02–7.82 (i.e. lower than the standard of 10), and the Durbin Watson statistic was 1.90 (close to 2.00), indicating no issues regarding multicollinearity and autocorrelations. Furthermore, a p value $< .05$ (two tailed) was considered as statistically significant.

2.6 | Study rigour

All the measures used in this study had good reliability and validity (Hu et al., 2020; Liu et al., 2011; Zhang et al., 2021). The research

proposal was reviewed by two senior nursing researchers before the study began, to ensure the rigour of the measures throughout the study.

3 | RESULTS

3.1 | Participants' socio-demographic characteristics

Table 1 shows the demographic variables of the participants. Most of the participants were female (478, 97.15%), with mean age of 32.29 years (SD = 6.13 years), with an undergraduate degree (411, 83.54%), with mean work years of 23.42, in the internal medicine department (168, 34.15%), and with children (339, 68.90%).

Regarding working characteristics, 77.85% had previous critical care experience before the outbreak of COVID-19 and 74 participants were voluntarily dispatched to Wuhan city for the rescue task.

Of the participants, 187 (38.01%) felt somewhat anxious when COVID-19 occurred, 270 (54.88%) felt very worried that they or their family would be infected, 200 (40.65%) experienced somewhat of an emotional shock and 226 (45.93%) perceived a high level of risk towards their occupation as nurses.

3.2 | Correlation between professional identity and PPB

Table 2 presents the results for the bivariate correlations between professional identity and PPB among nurses. It was found that dealing with both, professional frustration and professional self-reflection, had significant correlations with the total score and subscales of PPB ($p < .01$).

The overall mean score of PPB was 3.96 (SD = .55) on a 5-point Likert scale. Among the subscales, 'Self-growth' (mean = 4.12, SD = .56) obtained the highest values, suggesting that nurses experienced self-growth during the pandemic. Whereas 'positive occupation perception' (mean = 3.63, SD = .76) obtained the least values, indicating a negative perception of the nursing profession among nurses.

3.3 | Multiple linear regression analysis of PPB

The results of the multiple linear regression analysis of PPB are shown in Table 3, which examined the explanatory variables of PPB. According to a previous study, age and the number of working years were associated with PPB (Zhan et al., 2020). Therefore, age and working years were considered as control variables and were entered into the regression model first, followed by other statistically significant factors, such as previous critical care experience before the outbreak of COVID-19, being dispatched to Wuhan city for the rescue task, psychological impact of COVID-19,

dealing with professional frustration and professional self-reflection. The results showed that self-perceived concerns, emotional shock, risk perception towards their occupation, dealing with professional frustration and professional self-reflection were significantly associated with PPB among nurses. These factors accounted for 84% of the variance in PPB ($F = 285.23$, $R^2 = .84$, $\Delta R^2 = .84$, $p < .01$). Of these factors, self-perceived concerns ($\beta = .41$, $p < .01$) and dealing with professional frustration ($\beta = .55$, $p < .01$) were the main explanatory variables of PPB.

4 | DISCUSSION

This study indicated that nurses had a medium to high score for PPB at work during the outbreak of COVID-19 in mainland China. Nurses were shown to have experienced self-growth, and the highest PPB that they experienced is consistent with that of Sun et al. (2020), who found that social respect and support, and close connection with colleagues and patients contributed to the development of confidence and self-growth.

Among the factors associated with PPB, nurses without previous critical care experience received a higher score on PPB than those with it. In addition, nurses who participated in the rescue task tended to have higher PPB than those who did not. During this pandemic, the updated national/local guidelines and innovative practice strategies were introduced into nursing practice, for example, viral nucleic acid testing specifications, infection prevention and control measures and management measures for patients with suspected symptoms. The acquisition of professional knowledge enhanced nurses' capability of coping with adversity and challenges during the pandemic. Additionally, nurses have their own learning needs within the context of the pandemic (Sun et al., 2020). Peiró et al. (2020), who studied education needs among 403 nurses during the COVID-19 pandemic in Spain, reported that communication and relationship skills; team work, organization and management skills and technical or professional skills were in high demand among nurses. This demand is also an important driving force for nurses to expand their professional knowledge and skills, thereby promoting their professional growth.

Regarding the psychological impact of the COVID-19 pandemic on nurses, the results showed that self-perceived concerns, emotional shock and risk perceptions towards their occupation were positively related to PPB. Nurses with higher fear of infection during the stressful pandemic tended to make increased efforts to obtain infectious disease-related professional knowledge and skills to protect themselves and others from being infected (Peiró et al., 2020). Consequently, more experience of the nurses in dealing with the infectious disease resulted in more positive reactions to COVID-19-related emergencies. Although nurses were fearful of being infected with the virus, they felt a 'sense of duty' to care for patients with COVID-19 and accepted the reality of occupational risks associated with being a nurse (Schroeder et al., 2020), which prompted them to deliver appropriate care for

TABLE 1 Participants' characteristics (N = 492)

	N	%	M	SD	Minimum	Maximum
Age			32.29	6.13	21	54
Sex						
Male	14	2.85				
Female	478	97.15				
Educational level						
College degree	64	13.01				
Undergraduate	411	83.54				
Graduate or above	17	3.45				
Years of experience			23.42	6.86	1	33
Department						
Gynaecology and Obstetrics	10	2.03				
Surgery	118	23.98				
Internal medicine	168	34.15				
Paediatrics	42	8.54				
Emergency and ICU	49	9.96				
Others	105	21.34				
Marital status						
Married	388	78.86				
Single/divorced	104	21.14				
Have a child/children						
Yes	339	68.90				
No	153	31.10				
Have you ever taken care of severe/critical patients before the outbreak of COVID-19?						
Yes	383	77.85				
No	109	22.15				
Were you dispatched to Wuhan city for the rescue task?						
Yes	74	15.04				
No	418	84.96				
Self-perceived anxiety						
Not at all	49	9.96				
A little	119	24.19				
Somewhat	187	38.01				
A lot	82	16.66				
Very much	55	11.18				
Self-perceived concern						
Not at all	6	1.22				
A little	44	8.94				
Somewhat	41	8.33				
A lot	131	26.63				
Very much	270	54.88				
Self-perceived emotional shock						
Not at all	7	1.42				
A little	50	10.17				

(Continues)

TABLE 1 (Continued)

	N	%	M	SD	Minimum	Maximum
Somewhat	200	40.65				
A lot	142	28.86				
Very much	93	18.90				
Risk perception towards occupation						
Not at all	0	-				
A little	2	.41				
Somewhat	55	11.18				
A lot	209	42.28				
Very much	226	45.93				

Abbreviations: M, mean; SD, standard deviation.

TABLE 2 Correlation between professional identity and PPB

Variables	M	SD	1	2	3	4	5	6	7	8
1. PPB total score	3.96	.55	1							
2. Positive occupation perception	3.63	.76	.80**	1						
3. Good nurse-patient relationship	4.09	.60	.87**	.66**	1					
4. Recognition from family, relatives, and friends	3.99	.91	.32**	.23**	.22**	1				
5. Sense of belonging to a team	3.97	.65	.88**	.75**	.85**	.26**	1			
6. Self-growth	4.12	.56	.87**	.67**	.93**	.27**	.87**	1		
7. Dealing with professional frustration	3.86	.67	.81**	.89**	.74**	.24**	.79**	.75**	1	
8. Professional self-reflection	3.88	.69	.77**	.86**	.70**	.23**	.75**	.71**	.90**	1

Abbreviation: PPB, perceived professional benefits.

** $p < .01$.

patients by following established protocols and improving their performance. Similar to the findings of Sun et al. (2020), nurses experienced growth in the context of adapting to the pressure of the pandemic, partly because of their appreciation for life and the support they received from patients, colleagues and society, in dealing with the pandemic. Therefore, inspiring nurses to find the benefits and meanings from their adverse experiences during the pandemic may play a positive role in embracing the challenges of future emergencies.

In addition, dealing with professional frustration was positively associated with PPB. The results indicated that the more capable nurses were in managing their frustration at work, the more the PPB increased. Regarding coping strategies towards professional frustration among nurses, culturing resilience, acceptance, self-distraction, social support, physical exercise, meditation and psychological counselling were reported (Pedrosa et al., 2020). As illustrated, when a successful coping style is adopted, nurses can increase their capacity for self-control over their stressors, which leads to improved professional skills. Furthermore, increased experience can ameliorate the complexity of tasks that nurses undertake during the pandemic and enhance their confidence to deal with professional frustration related to the infectious disease. Thus, timely identification of nurses'

professional frustration and interventions to reduce their feelings of frustration in the workplace was emphasized as vital among hospital managers.

The results of this study demonstrated that professional self-reflection ability was positively associated with PPB. That is, self-reflection was helpful for nurses in gaining insight into the self and their situation, which led to professional improvements in practice. In a qualitative study by Liu et al. (2020), nurses reflected on their personal clinical experience, identified their inadequate knowledge and training in relation to the challenges posed by the pandemic (e.g. how to communicate with patients), and intended to strengthen those in the future. Additionally, nursing teams from different countries summarized their experiences to better facilitate the management of patients under the context of COVID-19 by reflecting on their nursing practices (Anders & Lam, 2021; Fernandez et al., 2020). The benefits of reflection extend beyond improving nursing care delivery as reflections on previous experiences can increase nurses' reflective capacity and cultivate resilience (Brindley, 2020). Therefore, hospital managers should encourage reflection among nurses to sustain their professional development. In addition, the development of self-reflective abilities is encouraged among nurses to enable them to adapt to challenging environments, such as the pandemic.

TABLE 3 Multiple linear regression of variables explaining perceived professional benefits among nurses

Variables	Step 1				Step 2			
	Unstandardized coefficient		Standardized coefficient	t	Unstandardized coefficient		Standardized coefficient	t
	B	SE	β		B	SE	β	
Age	-.02	.01	-.18	-1.46	-.01	.01	-.03	-.66
Years of experience	-.02	.01	-.22	-1.77			-.06	
Have you ever taken care of severe/critical patients before the outbreak of COVID-19?								
Yes ^{Ref}					-.01	.01		-1.27
No					.04	.02	.03	1.48
Were you dispatched to Wuhan city for the rescue task								
Yes ^{Ref}								
No					-.05	.03	-.03	-1.60
Self-perceived anxiety					-.01	.01	-.02	.54
Self-perceived concern					.22	.01	.41	20.51**
Self-perceived emotional shock					.04	.01	.05	2.50*
Risk perception towards occupation					.03	.02	.04	2.13
Dealing with professional frustration					.45	.03	.55	13.29**
Professional self-reflection					.15	.03	.19	4.46**
R ²								.84
Adjusted R ²								.84
F								259.08**

Abbreviations: Ref, reference; SE, standard error.

* $p < .05$; ** $p < .01$.

4.1 | Limitations

Several limitations to this study need to be acknowledged. First, it does not allow conclusions regarding causality, owing to its cross-sectional design. Second, the snowball sampling may have limited the generalizability of the results. Third, the non-inclusion of nurses who resigned, took a leave of absence or requested for early retirement during the early stages of the epidemic may have affected the results. Lastly, psychological impact of the COVID-19 pandemic on nurses may vary across regions and depend on the time during which the data were collected. Thus, to better understand the relationships between psychological impact, dealing with professional frustration, professional self-reflection and PPB among nurses, random or stratified sampling and a longitudinal study design are necessary in future studies.

5 | CONCLUSION

The findings from this study demonstrated that nurses gained high PPB during the COVID-19 pandemic, although they experienced psychological distress. Self-perceived concerns, emotional shock, risk perception towards occupation, dealing with professional frustration and professional self-reflection were associated with PPB among nurses.

5.1 | Relevance to clinical practice

Nurses are under considerable pressure to manage the COVID-19 outbreak response, which produced professional frustration, and led to serious physical and psychological problems. As shown in this study, working experiences in the context of the COVID-19 pandemic offered stimulation for professional development among nurses, which can be considered as a positive outcome of the pandemic. Furthermore, these results have important implications for research and practice. Further research exploring the mechanism underlying the psychological impact of the COVID-19 pandemic, risk perception towards occupation, and professional identity during the COVID-19 pandemic, can deepen our understanding of PPB among nurses. Active acquisition of COVID-19-related professional knowledge, such as preventative measures, may help strengthen PPB among nurses, thereby, minimizing the negative effects of the COVID-19 pandemic. Moreover, hospital managers should be aware of the potential for positive changes in nurses after engaging in emergencies, and should provide more resources to meet nurses' educational needs, greater psychosocial support, more strategies to cope with professional frustration, and opportunities for engaging in reflective practices to facilitate nurses' efforts to achieve professional growth.

AUTHOR CONTRIBUTIONS

XW, PD, FC, XL and LQ: Made substantial contributions to conception and design. XW and FC: Drafted the manuscript and revised

it critically for important intellectual content. PD and LQ: Were responsible for acquisition of the data, its analysis and interpretation. XW, PD, FC, XL and LQ: Were accountable for the accuracy and integrity of any part of the study. XW, PD, FC, XL and LQ: Gave final approval for the study to be published.

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CONFLICT OF INTEREST

None.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The Institutional Review Boards of the Second Hospital, Cheeloo College of Medicine, Shandong University approved the study [KYLL-2020 (LW)-042].

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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