

## Cross-Lagged Relationship between Abusive Supervision and Psychological Health among Nurses

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### Abstract



*The main research objective of this study was to investigate the reciprocal relationship of abusive supervision with psychological health. The longitudinal cross-lagged panel model was adopted to investigate the target objective of this research work. The considered sample constituted 331 nurses from public hospitals located in Islamabad, Pakistan. We used well-established and reliable instruments to assess the constructs of abusive supervision and psychological health. The conducted comparative analysis demonstrate that the proposed reciprocal model provides a significantly better fit with the data compared to that provided by stability, forward, and reverse models. The reciprocal model demonstrated that abusive supervision at baseline measurement wave T1 predicts psychological health at subsequent measurement wave T2, and in turn psychological health at T1 is significantly related to abusive supervision at T2. The reciprocal model also represents a loss cycle where abusive supervision and psychological health are mutually related. Our findings highlighted the importance to curb abusive supervision and provided intervention programs to foster the psychological health of nurses.*

**Keywords:** Abusive Supervision, Psychological Health, Longitudinal Survey Design, Nursing Staff

### Introduction

Abusive supervision is recognized as one of the main growing concerns for today's organizations (Yu et al., 2020). Tepper (2000) conceptualized abusive supervision as "subordinates' perceptions of the extent to which supervisors engage in the sustained display of hostile verbal and nonverbal behaviors, excluding physical contact" (p.178). The phenomenon covers an inclusive list of abusive behaviors such as publicly humiliating, ridiculing, giving salient treatment, or making negative remarks that detrimentally impact subordinates (Harris et al., 2011). Abusive supervisors tend to maliciously and arbitrarily use power against their subordinates (Ashforth, 1997), notably in a high power distance culture (Karatuna et al., 2020). The asymmetry of power is profoundly rooted in the supervisor-subordinate dyad, and it causes more antagonistic effects on the subordinate than by mistreatment instigated from any other source (Hershcovis, 2011).

The existing research work has revealed that abusive supervision places deleterious effects on subordinates' health (e.g., Mullen et al., 2018). For instance, various notable studies have established the existence of an association of abusive supervision with subordinates' physical and mental health issues (Peltokorpi & Ramaswami, 2021), psychological health (Lin et al., 2013), distress (Tepper et al., 2007), and insomnia (Rafferty et al., 2010). However, most of these studies' findings were driven by either using cross-sectional or correlational designs (Martinko et al., 2013; Yu et al., 2020), which are confined to address the directionality or causality of its effects. Besides, prior studies have portrayed the static view of abusive supervision by showing the supervisor as the sole instigator of abuse (Peltokorpi & Ramaswami, 2021). To fill this gap, it is critical to identify the temporal ordering

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between abusive supervision and psychological health, which is rarely addressed in the literature. To this end, the prime objective of this study is to address the following research question:

*Research question:* Does abusive supervision and psychological health mutually trigger each other over time?

To answer this research question, we proposed a theoretical model that postulated the relationship between psychological health and abusive supervision over time. Furthermore, we hypothesized four competing models, i.e., stability, forward, reverse, and reciprocal, to establish the best choice of model after conducting a thorough comparative analysis. To robustly investigate the identified research question, we employed a longitudinal cross-lagged panel design.

The present research work contributes to abusive supervision literature by establishing an explicit reciprocal linkage between psychological health and abusive behavior precipitated by supervisors. This study is among the fewest existing studies (Simon et al., 2015) advocating a dynamic reciprocal relationship between abusive supervision and its outcomes by using a longitudinal design. This work broadens our understanding to specify the directionality between variables by using a two-wave longitudinal cross-lagged panel model as it allows the conduction of statistical comparison of different models and helps to identify a most likely causal model (Kearney, 2017). Additionally, this study significantly contributes to the nursing literature that has paid less research attention to the exploration of dynamic relational perspectives that exist between supervisor-subordinate relationships. Conducting such a study can be potentially beneficial for practitioners to devise and implement more effective intervention programs to prevent or mitigate the occurrence of supervisor's abusive behaviors in the workplace and promote the psychological wellbeing of their subordinates.

### **Literature Review**

We proposed and tested four different competing models by using the framework of conservation of resources (COR) theory (Hobfoll, 1989, 2002). Each model is explained below (see Figure 1).

#### **The Stability Model**

This model is also referred to as a baseline model, indicated that the construct at Time1 (T1) is related to a similar construct at Time2 (T2). The model assumed the stability within the construct across time, however, no cross-lagged effects between constructs were considered (see Figure 1, panel A).

#### **The Forward Causal Model**

This model assumed the forward causation between abusive supervision and psychological health over time (see Figure 1, panel B). According to COR theory, resource loss may take significant value in the presence of stressors where valuable resources are perceived to be threatened, actual loss, or inability to regain resources (Hobfoll, 2002). Abusive supervision is largely recognized as a stressor that may create a toxic work environment whereby subordinates perceive threats or experience actual depletion of resources which subsequently results in the deterioration of their health (Peltokorpi & Ramaswami, 2021). Notably, abusive supervision is an escalating process that happens repeatedly, rather than an isolated event (Harvey et al., 2007). Therefore, continuous exposure of subordinates to abusive supervision instigates increased stress which can eventually cause a high level of psychological discomfort among abused employees. Such discomfort can incite even by imagining the possibility of working with supervisors who are perceived as abusive. Some cross-sectional findings disclosed the negative association between abusive supervision and psychological health (Bowling & Michel, 2011).

*H1: Abusive supervision at T1 is related to psychological health at T2.*

#### **The Reverse causal Model**

In this model, we assumed psychological health as a predictor of abusive supervision (see Figure 1, panel C). The study of Martinko et al., (2017) showed that individuals' characteristics or behaviors (such as poor health or deviant behavior) may contribute to the provocation of abusive supervision. Consistent with COR theory, unhealthy individuals (whose resources are exhausted) undergo a self-defensive mode and can act aggressively or irrationally (Hobfoll et al., 2018) which can elicit aggression from others. For example, individuals with impaired psychological health are behaving in a way that irritates or annoys others, which may increase their vulnerability to mistreatment (Nielsen et al., 2012). Alternatively, the "gloomy perception mechanism" explains the reverse association between psychological health and abusive supervision (Lange et al., 2005). The gloomy mechanism implies that unhealthy individuals tend to evaluate their work environment negatively over time,

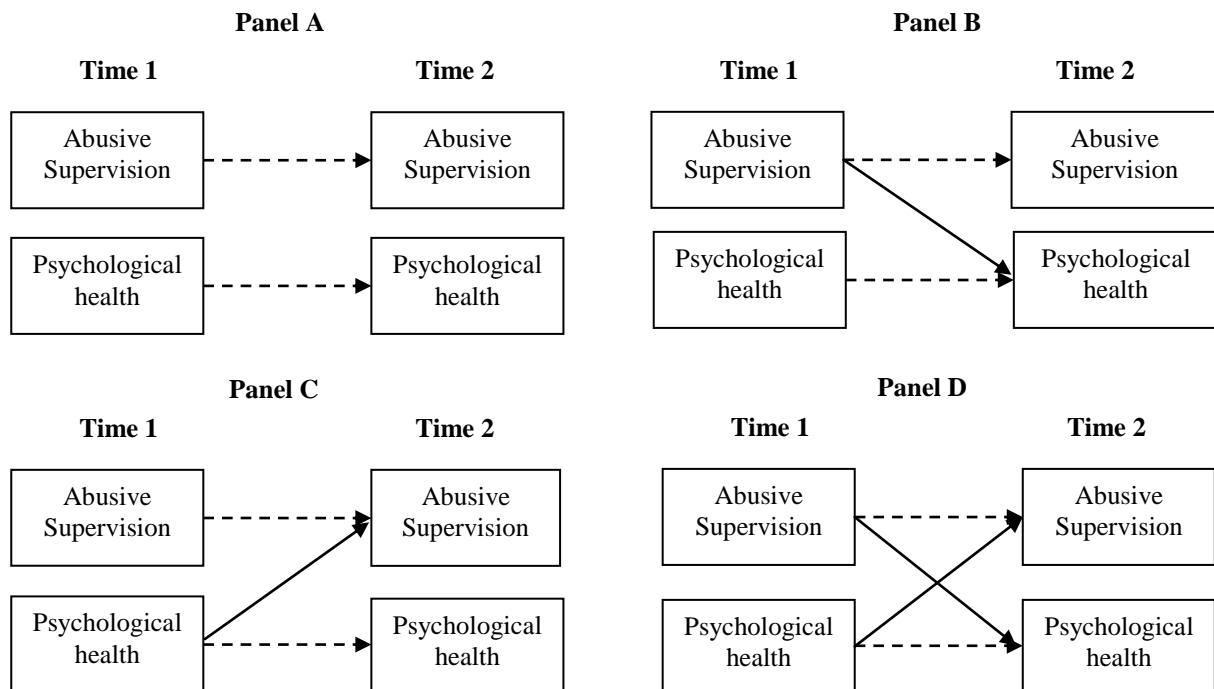
which consequently causes the individuals to narrate unfavorable aspects of the work environment, developing a gloomier perception of reality (Lange et al., 2005). Subordinates with impaired health perceive the behavior of their supervisor as abusive, which may not be the case, and can consequently remark more abuse over time. There exist empirical evidence that supports the notion of reverse effect, for example, Tang (2014), who reviewed 23 studies, found that the reverse effects between stressors and strain (mental health). Another study also illustrated that a baseline level of psychological distress was significantly related to high stressors at the subsequent level (Dalgard et al., 2009).

*H2: Psychological health at T1 is related to abusive supervision at T2.*

**The Reciprocal Model**

Putting together, both the discussed forward and reverse causal effects underline the reciprocal association between psychological health and supervisory abuse (see Figure 1, panel D). As abusive supervision is perceived to consume the cognitive and physiological resources leading to deterioration in the psychological health of employees, and in turn, subordinate’s impaired health precipitates abusive supervision over time. According to the loss spiral described in COR theory (Hobfoll, 2002), future resource loss is followed by initial resource losses, forming a loss spiral and thus weakening health and wellbeing. Additionally, people who lack resources are usually more exposed to a greater risk of resource loss. The loss cycle is more momentous and proceeds more rapidly than the gain cycle. A few notable longitudinal studies on workplace mistreatment lend support to this idea, for instance, Nielsen et al., (2012) in their longitudinal study examined workplace bullying and psychological distress over two years, which has found that workplace bullying (a similar, yet empirical distinct construct from abusive supervision) and psychological distress are mutually related. Another longitudinal study conducted among 1971 Norwegian employees demonstrated workplace bullying as a precursor as well as an outcome of mental discomfort (Finne et al., 2011). A very few existing studies have also indicated that workplace stressors and mental health are reciprocally related to each other (Tang, 2014).

*H3: Abusive supervision and psychological health is reciprocally related.*



**Figure 1. Panel A: The autoregressive model. Panel B: The forward causal model. Panel C: The reverse model. Panel D: The reciprocal model.**

## Methodology

### Research Design and Participants

A longitudinal cross-lagged panel model employing the maximum likelihood (ML) estimator was used to estimate the cross-lagged paths in Amos 20.0. A two-wave longitudinal survey design was used where the time frame between T1 and T2 points was six months. We used a self-report survey mechanism for data collection from nursing staff working in public hospitals in Islamabad, Pakistan. The purposive sampling method was considered to draw the nursing sample. The sampling criteria consisted of nursing staff who were not employed in a supervisory position and had a minimum work experience of one year in public hospitals. Signed consent was obtained from all participants, and whereby anonymity and confidentiality of all information were assured.

During the baseline survey, i.e., first measurement point T1, 399 out of 700 complete survey responses were acquired, that is a response rate of 57%. Subsequently, in the second wave, the identical survey form was used for the data collection. Only the respondents of baseline survey T1 were approached to participate in the follow-up survey T2. During the follow-up survey T2, 331 out of 399 participants responded, which is a response rate of 83%. Corresponding data samples of both the measurement points were carefully matched by using the unique matching codes. All the participants were assigned unique matching codes against which they filled the survey forms of both the measurement points. The final gathered data set consisted of 331 respondents of which 269 were female (i.e., 81.3%) and 62 were male (i.e., 18.7%). These participants on average had a work experience of 7.21 years, while their average age was 30.63 years. Classifying with regards to the academic qualification, most of the participants 204 (66.6%) had a diploma in nursing followed by 98 (29.6%) who had a bachelor's degree.

### Sample Attrition

To rule out the probability of potential sample attrition bias that may occur due to the panel loss, we conducted a comparison of the stayer group (n=331) with the dropout group (n=68) for identifying any differences in their demographics and other variables of interest. The obtained results indicated that the overall attrition rate is 17% from T1 to T2. As observable in Table 1, there are no significant differences between stayer and dropout groups, regarding their demographics (gender, age, tenure, and education level) and other studied variables (i.e., abusive supervision and psychological health). Thus, it can be concluded that no systematic dropout occurs due to panel loss.

**Table 1: Demographic characteristics and Sample attrition: n (%)**

		Dropout Group	Stayer Group	Difference
Gender	Male	14 (20.6)	62 (18.7)	$\chi^2 = 0.13$ ; $p = 0.72$
	Female	54 (79.4)	269 (81.3)	
Age	Mean (SD)	30.84 (4.96)	30.625 (5.09)	$t = 0.32$ ; $p = 0.75$
Tenure	Mean (SD)	7.35 (3.59)	7.209 (3.59)	$t = 0.30$ ; $p = 0.76$
	Diploma	42 (61.8)	204 (61.6)	
Educational level	BSN	20 (29.4)	98 (29.6)	$\chi^2 = 2.36$ ; $p = 0.13$
	MSN	6 (8.8)	29 (8.8)	
Abusive supervision	Mean (SD)	3.97 (0.42)	3.981 (0.81)	$t = -0.07$ ; $p = 0.94$
Psychological health	Mean (SD)	2.17 (0.90)	2.106 (0.89)	$t = 0.54$ ; $p = 0.58$

*Note: For dropout group (participated only in the first wave) n=68; For stayer group (participated in both waves) n=331.*

### Instruments

The testing of abusive supervision was conducted with the recognized five-item instrument provided in (Mitchell & Ambrose, 2007), which is a widely accepted concise form of the 15-item scale of abusive supervision (Tepper, 2000). An example item is "My supervisor teases me". Response anchors of the scale ranged from 1 (never) to 5 (very often). The composite reliability was 0.936 at T1 and 0.929 at T2. Psychological health was assessed by using the General Health Questionnaire (GHQ-12) originally provided by Goldberg and Williams (1988), comprising a 12-items scale. An example item is "Losing confidence in yourself". The composite reliability was 0.981 at T1 and 0.984 at T2. We assessed subordinates' basic characteristics including gender, age, education, and working tenure. Earlier work indicated that these confounding constructs potentially impact an individual's reactions to supervisory abuse (e.g., Tepper et al., 2007).

**Data analytical strategy**

Our data analytical strategy consisted of four main steps. First, we conducted descriptive statistics to observe the initial understanding regarding the relationships between variables. Second, we evaluated the measurement model by conducting confirmatory analysis for both occasions simultaneously. We followed the procedural guidelines for the conduction of longitudinal data analysis (Little, 2013). We allowed the residuals of each corresponding variable to covary at different times. Third, we conducted factorial invariance tests, a major precondition for testing longitudinal relations (Little, 2013). Fourth, to gauge deeper insights into the proposed cross-lagged relationship between abusive supervision and psychological health, we compared the four proposed models. First, the stability model (M<sub>1</sub>) includes synchronous correlations and autocorrelations, excluding cross-lagged paths between variables. The autocorrelations at T1 were specified by allowing the covariance among variables. The synchronous correlations at T2 were specified by permitting the error terms for the criterion variables to covary with each other. Second, the forward causal model (M<sub>2</sub>)- like the baseline stability model but contains additional cross-lagged paths from T1 abusive supervision to T2 psychological health. Third, the reverse causal model (M<sub>3</sub>)- identical to the baseline stability model but with additional paths from T1 psychological health to T2 abusive supervision. Fourth, the reciprocal model (M<sub>4</sub>) includes all effects proposed in the stability, forward, and reverse causation models simultaneously. To assess the models' fitness, there are various statistical fit indices, such as “chi-square difference test ( $\chi^2$ ), comparative fit index (CFI), the root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR)” (Hu & Bentler, 1999). For model comparison, we relied on the chi-squared difference ( $\chi^2$ ) test to identify the best-fitted model with the data (Hooper et al., 2008).

**Results**

**Descriptive Statistics**

We calculated the mean, standard deviation, validity, and correlational scores for all the latent variables for both time points, shown in Table 2. As it can be seen in Table 2, all the correlational values within and across measurement points were significant. Moreover, all the average variance extracted (AVE) scores varying between 0.723 and 0.886 exceeding the threshold point of 0.50, showing satisfactory convergent validity. Discriminant validity of all the latent factors was assessed by using the criterion given by Fornell and Larcker (1981). That is the square root of the AVE scores for each latent variable exceeds the correlational value of the respective latent construct with the correlational scores of all other latent constructs.

**Table 2: Mean, Standard deviation, and Correlational values**

Latent Construct	Mean	Standard deviation	1	2	3	4
<i>Time 1</i>						
1. Abusive supervision	3.981	0.806	<b>0.863</b>			
2. Psychological health	2.106	0.887	-0.366**	<b>0.916</b>		
<i>Time 2</i>						
3. Abusive supervision	4.241	0.696	0.542**	-0.358**	<b>0.849</b>	
4. Psychological health	2.074	0.882	-0.436**	0.357**	-0.315**	<b>0.926</b>

\*\*  $p < 0.01$ . The values of square root of the AVE are presented on the diagonal.

**Measurement Model**

Before testing cross-lagged paths, we evaluated the overall measurement model by mean of confirmatory factor analyses (CFA) for both measurement times simultaneously. The result of the CFA demonstrated the proposed model is adequate fit to data ( $\chi^2$  (504) = 587.508,  $p = 0.006$ ; RMSEA = 0.022; CFI = 0.995; TLI = 0.994; and SRMR = 0.0266). To rule out the common method variance (CMV) associated with self-reported data, we conducted a single-factor analysis by loading all the indicators of the latent variables onto a one-factor model. The result of a one-factor model exhibited a worse fit with the data ( $\chi^2$  (526) = 8274.448,  $p < 0.001$ ; RMSEA = 0.211; CFI = 0.498; TLI = 0.465; and SRMR = 0.274). Thus, the obtained CFA results show that study findings were not subject to the problems related to CMV (Podsakoff et al., 2003, 2012).

**Factorial Invariance**

A prerequisite of longitudinal analysis, we tested for configural and metric invariance for each scale across time. The configural invariance or unconstrained model was specified to evaluate the same

factor structure at both measurement points to be equal. The configural model achieved an appropriate data fit ( $\chi^2 (504) = 587.508, p < 0.05$ ; RMSEA = 0.022; TLI = 0.994; CFI = 0.995; and SRMR = 0.026). The metric invariance, whereby the constraint on all the factor loadings were set as equal across time, exhibit an appropriate fit over the data ( $\chi^2 (521) = 602.917, p < 0.05$ ; RMSEA = 0.022; TLI = 0.994; CFI = 0.995; and SRMR = 0.028). The metric invariance model was nested within the configural model. The result of the competing model demonstrated that the constrained model (i.e., metric invariance) exhibits an improved fit over the data compared to that achieved by the unconstrained configural model ( $\Delta\chi^2 (17) = 50.409, p > 0.05$ ). Thus, the results of factorial invariance supported the metric equivalence of the proposed model.

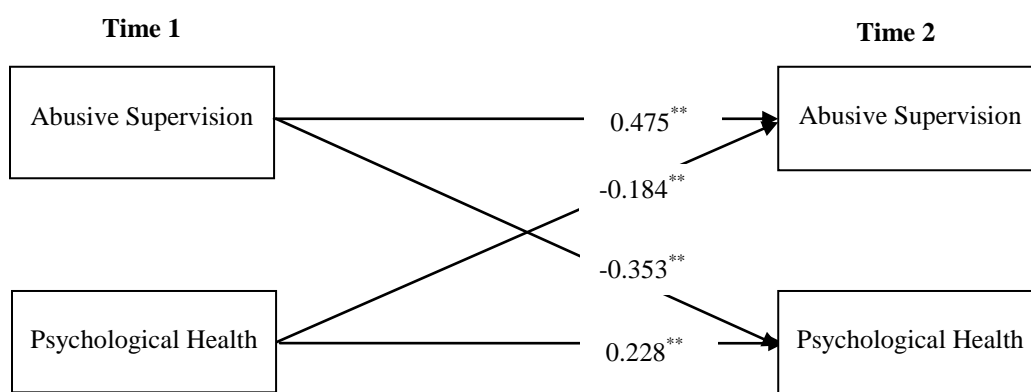
**Model Comparison and Cross-lagged Paths**

A comparison of different competing models along with goodness-of-fit metrics is depicted in Table 3. The results of the chi-square difference test statistic indicated the stability model (M<sub>1</sub>-M<sub>4</sub>):  $\Delta\chi^2 = 52.412$ ;  $\Delta df = 2$ ;  $p < .05$ , forward causation model (M<sub>4</sub>-M<sub>2</sub>;  $\Delta\chi^2 = 12.145$ ;  $\Delta df = 1$ ;  $p < .05$ ), and the reversed causation model (M<sub>4</sub>-M<sub>3</sub>;  $\Delta\chi^2 = 39.354$ ;  $\Delta df = 1$ ;  $p < .05$ ) worse fit with data compared to reciprocal model (M<sub>4</sub>). Thus, the model comparison revealed that our proposed reciprocal model provides an appropriate fit with the data. As it can be seen in Figure 2, all the variables showed stability over time, with significant autoregressive effects of 0.228 for psychological health and 0.475 for abusive supervision. It can also be seen in the model (see Figure 2), the path from T1 abusive supervision to T2 psychological health is significant ( $\beta = -0.353$ ;  $p < 0.05$ ). Moreover, the path from T1 psychological health to T2 abusive supervision is significant ( $\beta = -0.184$ ;  $p < 0.05$ ).

**Table 3. Goodness-of-fit indices and model comparisons.**

Model	$\chi^2$ (df)	P	RMSEA	CFI	TLI	SRMR	Model Comparison	$\Delta\chi^2$	$\Delta df$
Stability (M <sub>1</sub> )	639.920 (506)	<0.00	0.028	0.991	0.990	0.106			
forward Causal (M <sub>2</sub> )	599.653 (505)	<0.00	0.024	0.994	0.993	0.047	M <sub>1</sub> - M <sub>2</sub>	40.266*	1
Reversed (M <sub>3</sub> )	626.862 (505)	<0.00	0.027	0.992	0.991	0.088	M <sub>1</sub> - M <sub>3</sub>	13.057*	1
Reciprocal (M <sub>4</sub> )	587.508 (504)	<0.00	0.022	0.995	0.994	0.027	M <sub>1</sub> - M <sub>4</sub>	52.412*	2
							M <sub>2</sub> - M <sub>4</sub>	12.415*	1
							M <sub>3</sub> - M <sub>4</sub>	39.354*	1

\*  $p < 0.05$ .



**Figure 2. Standardized path coefficients for the final (reciprocal) model. \*\*  $p < 0.01$ .**

**Discussion**

Although abusive supervision has formerly been documented as an important predictor of psychological health in the literature (e.g., (Bowling & Michel, 2011), but there is a dearth of longitudinal studies that can infer the directionality or causality between the variables (Peng et al.,

2019). Extending the existing literature, this study investigated the reciprocal association between supervisory abusive behaviors and psychological health by applying a longitudinal panel model over a time interval of six months between the two considered measurement waves. Our longitudinal data analysis revealed that the final reciprocal model (includes all paths) achieves a better fit with the data compared to that provided by other competing causal models.

The reciprocal model exhibited that abusive supervision predicts psychological health, and in turn, a baseline level of psychological health significantly predicts abusive supervision at the subsequent wave. Our results can be regarded as more insightful than the existing notable cross-sectional studies as our considerations are more dynamic to represent the interactional phenomenon that develops in the supervisor-subordinate relationship. The previous cross-sectional studies provided a static view of abusive supervision in which the supervisors were solely blamed for the precipitation of abuse in a workplace (Mullen et al., 2018). This study adopted a unique perspective to highlight that not only the supervisor behaviors, but certain characteristics of the subordinates increase their vulnerability to mistreatment. In this context, our study has established that the subordinates develop a gloomy perception of reality due to their impaired health which originates a vicious cycle of abuse. The findings of this research study make a significant addition to the limited existing theory on abusive supervision by developing a relational phenomenon in which both supervisor and subordinate's characteristics mutually reinforce one another (Klaussner, 2014). These findings are consistent with the loss spiral outlined in COR theory (Hobfoll, 2002; Hobfoll et al., 2018a) suggesting that stressor (i.e., abusive supervision) affects the psychological health of subordinates, in turn, those abused subordinates may apply coping strategy to protect their remaining resources which in turn, escalate the process of abusive supervision. Employees may get trapped in a downward spiral in which their resources continuously deplete in the time of stressor because such situations leave them less likely to recuperate and replenish their resources which consequently worsens their health conditions (Van Der Heijden et al., 2008). In general, the findings of this study are consistent with the limited number of available longitudinal studies which investigate the reciprocal relationships between psychological distress and workplace stressors (Nielsen et al., 2012; Tang, 2014).

Our research findings provide useful insights for healthcare organizations to curb abusive supervision and foster nurses' psychological health. The findings of the present study help healthcare organizations in making decisions and strategies that involve counteracting abusive supervision and foster the health of nurses. In this regard, it is suggested to healthcare organizations that top management can adopt a zero-tolerance policy. Healthcare organizations as a part of their selection process should evaluate the self-regulatory traits of individuals who are potential candidates for the managerial position (Liang et al., 2018). It has been evident that managers display abusive behaviors when they lose control over self-regulatory impulses. Organizations can arrange different valuable programs like supportive supervisor training for supervisors to restrain the process of supervisory abuse (Gonzalez-Morales et al., 2018). Training programs like this can not only help nurse supervisors, but are beneficial to employees, patients, and organizations at large. Besides, the findings of this study also suggest that psychological health contributes to the precipitation of abusive supervision in the workplace. Positive psychological health can bring several benefits for the employees as well as for the organizations. Therefore, healthcare organizations can design effective intervention programs to improve the well-being of their employees. Organizations can employ a few appropriate strategies, viz: job autonomy, opportunities for career growth, and supportive supervision to promote the psychological health of employees at work (Russell, 2008).

#### **Study Limitations and Future Recommendations**

Although the study has obtained significant results, it has certain limitations. At first, we used self-reported questionnaires to collect the data, which inducts a certain amount of risk in the results to be contaminated by CMV (Podsakoff et al., 2003, 2012). However, this study is based on a longitudinal design approach that addresses the issue associated with CMV (Little, 2013). The CFA results indicated that the one-factor model (all the unobserved indicators were loaded onto a single latent factor) provided the worse fit to data, thus indicating that self-report survey is not the main concern for this study. However, it would be noteworthy for future studies to use other-reported data. Secondly, we used a two-longitudinal design here, three or more waves would be used to estimate a reciprocal model with a different time-lagged. Third, this study only focuses on nurses, which confines the applicability of our findings over a wide range of other occupational groups. Future

research should use samples from diverse occupations and cultures to generalize the findings of this study.

### Concluding Remarks

Conclusively, this study suggested that abusive supervision and psychological health are mutually related, forming a vicious cycle. The findings of this study generated valuable theoretical, empirical, and practical insights drawing from longitudinal data to understand the temporal and dynamic nature of supervisor-subordinate dyadic relationships evolve in the workplace.

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