

RELATIONSHIP BETWEEN ALONELINESS AND HARSH SUPERVISORY BEHAVIOR AMONG SMALL AND MEDIUM-SIZED ENTERPRISE OWNERS IN JAPAN: A MODERATED MEDIATION MODEL OF ANGER AND SPIRITUALITY



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ABSTRACT

This study examines the mediating role of anger in the relationship between loneliness and harsh supervisory behavior (HSB) toward employees among small and medium-sized enterprise (SME) owners and the moderating effect of spirituality on this mediating relationship. We conducted an internet survey to collect responses from 800 SME owners in Japan. The final sample included data from 678 individuals. The mediation/moderated mediation analysis (BCa method, 5,000 iterations) revealed a significant mediating effect of anger in the relationship between loneliness and HSB, whereas the moderating effect of spirituality was non-significant. These findings suggest that SME owners who perceive a lack of solitary time experience anger more frequently, leading to harsher interactions with employees.

Keywords: Solitude; Occupational Stress; Workplace Aggression

Received : 29-05-2024

Revised : 06-12-2024

Approved : 02-02-2025

Published : 01-03-2025



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Published by: Program Studi Manajemen, Universitas Nusa Cendana, Kupang – Indonesia.

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INTRODUCTION

In recent years, the state of being without positive alone time (solitude) has been studied under the concept of aloneliness (Coplan et al., 2019). Studies have found that an increase in aloneliness can lead to heightened aggression toward an intimate partner (Swets & Cox, 2022); however, few studies have examined how this phenomenon manifests in contexts other than romantic relationships.

This study investigates whether high levels of aloneliness in small and medium-sized enterprises (SMEs) owners, who are unable to secure sufficient alone time due to work-related busyness, result in increased feelings of anger and consequently aggressive behavior toward employees. Furthermore, this research examines whether the relationship between these variables is moderated by spirituality which is effective for stress relief.

LITERATURE REVIEW AND HYPOTHESES

Solitude and Aloneliness

Solitude, which is characterized by “a lack of social interaction” (Burger, 1995, p.86), fosters mental and physical well-being by facilitating autonomy, reducing high-arousal emotions, and enhancing low-arousal emotions (Nguyen et al., 2018; Weinstein et al., 2023). Positive solitude that encompasses spirituality, equanimity, stress reduction, and creativity correlates positively with overall mental and physical well-being (Palgi et al., 2021).

Recent conceptualizations posit aloneliness as negative emotions that stem from having inadequate alone time (Coplan et al., 2019). It is associated with reduced well-being and aggression toward intimate partners. Based on the I³ theory (Finkel, 2014), which posits that aggression arises from the interplay of instigation, impellance, inhibition, and behavioral propensity, Swets and Cox (2022) examined whether partner-induced, thwarted solitude stemming from unmet needs, triggers aggressive behavior. They observed that aloneliness (instigation/impellance) heightens aggression and violence among individuals in romantic relationships. Nonetheless, they also emphasized the need to investigate whether similar manifestations of aloneliness occur in other relationship dynamics.

Aloneliness and Harsh Supervisory Behavior

In what other situations would a lack of alone time lead to aggression toward others? This study focuses on SMEs because of the likelihood of tensions arising between highly busy owners and their employees. SME owners encounter numerous job stressors, including those related to human resource and financial management, which would cause more elevated psychological stress responses compared to general employees (Kurioka et al., 2020). High occupational stress levels among SME owners contribute to burnout, mediated by feelings of leader-specific loneliness (Fernet et al., 2016). Additionally, a considerable portion of SME owners struggle to take time off (Kurioka et al., 2023).

Thus, SME owners face unmet needs for solitary time due to work-related overload. Labor shortages significantly contribute to SME owners' occupational stress (Kurioka et al., 2021), often necessitating the extension of their working hours to address the issue (Small and Medium Enterprise Agency, 2018). These shortages, compounded by subordinates' inadequate abilities (Kurioka et al., 2021), force owners to compensate for employee errors or subpar outcomes, which further encroaches on their alone time. Following the frustration-aggression hypothesis (Berkowitz, 1989), the obstruction of desired goals heightens aggression. Consequently, employees' subpar work behaviors

may serve as stressors that inhibit the desire for solitude and potentially escalate owner aggression. Indeed, supervisors' heightened stress levels are positively correlated with perceived bullying behaviors among subordinates (Mathisen et al., 2011). However, given the infrequency of direct aggressive behaviors, such as violence (Yang, 2023), heightened aggression may instead manifest as harsh supervisory behavior (HSB), such as verbal reprimands, severe critique of work methods or outcomes, and rigid deadlines (Moro & Matsui, 2019).

Anger as a Mediator

The I³ theory (Finkel, 2014) posits that behavior proclivity mediates between aggressive behavior (i.e., HSB) and the impellance factor (i.e., loneliness). Thus, certain mediating factors could influence the mechanism through which loneliness leads to aggressive interactions with employees. This study examines anger as one such behavior proclivity. Loneliness triggers anger (Swets & Cox, 2022), and a leader's anger predicts their tendency toward petty tyranny (Kant et al., 2013). Hence, lonely SME owners are prone to anger, likely resulting in stringent guidance toward employees.

Spirituality as a Potential Moderator

The preceding review demonstrates that loneliness influences anger, potentially heightening HSB toward employees; however, not all owners exhibit such aggressive behaviors. This study investigates spirituality as a potential buffer in this mediating relationship. Spirituality is defined as "the belief in a meaningful life imbued with a sense of connection to a Higher Power, the world, or both" (Van Cappellen, Way, et al., 2016, p.1579). Spirituality serves as a coping mechanism for stress (Pargament et al., 2000) and is associated with positive emotions such as love (Van Cappellen, Toth-Gauthier, et al., 2016), emotional stability, and feelings of harmony (Dambrun, 2017). Thus, individuals with high levels of spirituality experience lower stress levels and are more inclined toward prosocial emotions. Therefore, when SME owners experience high levels of loneliness, those with greater spirituality are less likely to evoke or act on anger. Consequently, the mediating relationship among loneliness, anger, and HSB could be moderated by owners' spirituality.

Hypotheses

In summary, this study investigates how loneliness influences HSB among SME owners by examining the mediating role of anger and the moderating effect of spirituality. The specific hypotheses are:

Hypothesis 1: anger mediates the relationship between loneliness and HSB

Hypothesis 2: spirituality moderates this relationship, including its mediated effect via anger

METHOD

Individuals from previous SME owner surveys (Kurioka et al., 2022) participated in an online survey conducted by Rakuten Insight. Participants provided informed consent after being assured of anonymity and had the option to withdraw at any point. The survey was capped at 800 individuals to manage costs. Respondents who failed attention checks were excluded, resulting in a dataset of 800 individuals, of which the following were excluded: 70 respondents working for a company but not identifying as owners or providing unspecified responses; 4 respondents reporting 301 or more employees; 3 respondents selecting the same response for all items; 11 under 18 years old; 1

respondent reporting implausible working hours; and 33 outliers in response times, beyond ± 2 *SD* of the mean value, logarithmically transformed (Erikawa & Yamada, 2015).

Finally, the analysis involved 678 participants (660 men, 18 women; $M_{age} = 59.12$, $SD = 8.43$). On average, respondents held their current position for 17.9 years and worked 44.9 hours per week; 90.0% lived with at least one other person. By industry, 19.0% were in the manufacturing sector and 18.6% in the wholesale and retail trade. Most respondents had 5–10 employees (33.3%), followed by 11–20 (22.3%) and 21–50 employees (22.3%) (Table 1). Ethics approval was obtained from the relevant university board (#373).

Table 1
Characteristics of Enterprise

Characteristics	Women (<i>n</i> = 18)	Men (<i>n</i> = 660)	Overall (<i>N</i> = 678)
<i>Type of owner</i>			
Founder	11 (61.1%)	274 (41.5%)	285 (42.0%)
Family business	6 (33.3%)	283 (42.9%)	289 (42.6%)
Takeover	0 (0%)	19 (2.9%)	19 (2.8%)
Paid officer	1 (5.6%)	74 (11.2%)	75 (11.1%)
Other	0 (0%)	10 (1.5%)	10 (1.5%)
<i>Size of enterprise (no. of employees)</i>			
<4	1 (5.6%)	37 (5.6%)	38 (5.6%)
5–10	11 (61.1%)	215 (32.6%)	226 (33.3%)
11–20	3 (16.7%)	148 (22.4%)	151 (22.3%)
21–50	1 (5.6%)	150 (22.7%)	151 (22.3%)
51–100	1 (5.6%)	67 (10.2%)	68 (10.0%)
101–300	1 (5.6%)	43 (6.5%)	44 (6.5%)
<i>Industrial sector</i>			
Manufacturing	1 (5.6%)	128 (19.4%)	129 (19.0%)
Construction	1 (5.6%)	95 (14.4%)	96 (14.2%)
Electricity, gas, heat supply, and water	0 (0%)	3 (0.5%)	3 (0.4%)
Information and communications	0 (0%)	61 (9.2%)	61 (9.0%)
Transport and postal activities	0 (0%)	29 (4.4%)	29 (4.3%)
Wholesale and retail trade	3 (16.7%)	123 (18.6%)	126 (18.6%)
Finance and insurance	1 (5.6%)	14 (2.1%)	15 (2.2%)
Accommodation, eating, and drinking services	0 (0%)	17 (2.6%)	17 (2.5%)
Other services	8 (44.4%)	99 (15.0%)	107 (15.8%)
Education, learning support	0 (0%)	11 (1.7%)	11 (1.6%)
Medical, health care, and welfare	2 (11.1%)	35 (5.3%)	37 (5.5%)
Other	2 (11.1%)	45 (6.8%)	47 (6.9%)

Source: Analyzed data, 2024

Measures

Demographic Variable. Participants provided information on their current position, years of ownership experience, size of the enterprise, industrial sector, ownership position, and average weekly hours worked. Information on gender, age, and family structure was obtained from the survey company's registration.

Aloneliness. We used the Aloneliness Scale (Wu & Murakami, 2024; 4 items) to assess aloneliness over the preceding 1–2 weeks on a 7-point Likert scale ranging from 1 = “Not at all” to 7 = “Very much.” Items included “I do not spend my ‘alone time’ satisfactorily.” Cronbach's alpha was .87, 95% confidence interval (CI) [.85, .88].

Anger. We used the Frustration Scale (3 items) from the Occupational Stress Inventory (Shimomitsu, 2009) to measure anger over the preceding 1–2 weeks. Items were measured on a 4-point Likert scale ranging from 1 = “Rarely” to 4 = “Almost always.” An example item is “I feel irritated inside.” Cronbach's alpha was .91, 95% CI [.89, .92].

Harsh Supervisory Behavior (HSB). We adapted the HSB subscale from the Supervisory Behavior as Perceived by Subordinates Scale (Moro & Matsui, 2019). Items included, “I criticized subordinates/employees harshly for mistakes or failures.” The scale comprised 5 items rated on a 5-point Likert scale ranging from 1 = “Disagree” to 5 = “Agree.” Cronbach's alpha was .77, 95% CI [.74, .80].

Spirituality. We applied the 18-item Self-Transcendence Scale-2 (Nakamura, 1998), rated on a 5-point Likert scale ranging from 1 = “Disagree” to 5 = “Agree.” Cronbach's alpha was .88, 95 % CI [.87, .90]. Items included, “I feel that I am ‘kept alive’ by some great invisible force.”

Analyses

Descriptive statistics, correlations (among aloneliness, anger, spirituality, and HSB), a mediation analysis (to test whether anger mediated the association between aloneliness and HSB), and a moderated mediation analysis (to test the moderated effect of spirituality on the proposed mediation model) were conducted. All variables were centralized to reduce collinearity when conducting the moderation analysis. The bootstrap CI for the indirect effect was estimated using 5,000 bootstrap samples with bias-corrected and accelerated (BCa) bootstrap. Gender (dummy coded as 0 = women, 1 = men), work hours, family status (dummy coded as 0 = no family members living together, 1 = more than one family member living together), number of employees (dummy coded as 0 = less than 20 employees, 1 = more than 21 employees) were included as covariates to control for mediation and moderated mediation analysis.

Statistical analyses were performed using R (R core Team, 2023) and Rstudio (RStudio Team, 2022). All the analyses employed psych (Revelle, 2022), apaTables (Stanley, 2021), bluceR (Bao, 2023), Mediation (Tingley et al., 2014), and interactions (Long, 2019) statistical packages in R. Statistical significance was set at a p value $< .05$.

This study's design and analysis were not pre-registered. Study materials, analysis code, and data can be obtained by contacting the first author.

RESULTS AND DISCUSSION

Preliminary Analyses

The descriptive statistics and correlation analysis in Table 2 reveal positive associations between HSB and loneliness, anger, and spirituality. Loneliness was positively associated with anger, and negatively with spirituality. Anger was negatively associated with spirituality.

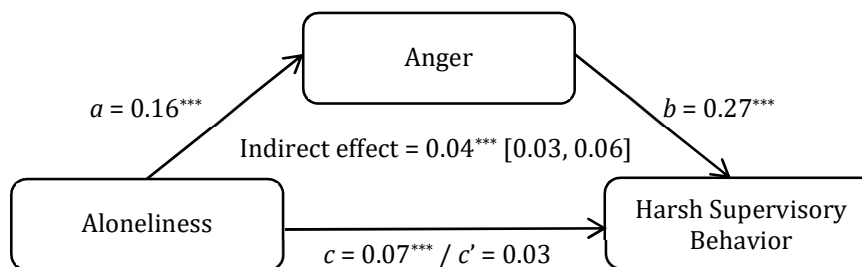
Table 2
 Mean, Standard Deviation, and Correlations for the Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. Loneliness	3.84	1.42	–			
2. Anger	1.72	0.71	.33** [.26, .40]	–		
3. HSB	1.82	0.74	.15** [.07, .22]	.28** [.21, .35]	–	
4. Spirituality	2.98	0.67	-.10** [-.18, -.03]	-.12** [-.20, -.05]	.08* [.00, .15]	–

Note. *M*, Mean; *SD*, standard deviation; HSB, harsh supervisory behavior. Values in square brackets indicate the 95% confidence intervals for each correlation. ** $p < .01$, * $p < .05$
 Source: Analyzed data, 2024

Simple Mediation Model

The total effect of loneliness on HSB was significant ($b = 0.07$, $SE = 0.02$, $p < .001$, 95% CI [0.03, 0.11]). The indirect effect of anger on this relationship was also significant ($b = 0.04$, $SE = 0.01$, $p < .001$, 95% CI [0.03, 0.06]). The direct effect of loneliness on HSB was not statistically significant ($b = 0.03$, $SE = 0.02$, $p = .24$, 95% CI [-0.02, 0.07]) as shown in Figure 1.



Note. $N = 678$. Background confounders (gender, average work time per week, size of enterprise, and family size) are not shown.

*** $p < .001$

Source: Analyzed data, 2024

Figure 1
 Mediation Model of the Relationships between Loneliness, Anger, and Harsh Supervisory Behavior

Moderated Mediation Model

Spirituality did not significantly moderate the association between loneliness and HSB ($b = 0.01, p = .653$), and loneliness and anger ($b = -0.00, p = .986$). Although the moderated effect of spirituality on the association between anger and HSB was marginally significant ($b = 0.11, p = .054$), in consideration of its contribution to future research, we also reported conditional indirect effects of loneliness of HSB via anger. The indirect effect of anger was significant when spirituality was at low ($b = 0.03, p < .001, SE = 0.01, 95\% CI [0.02, 0.06]$), moderate ($b = 0.05, p < .001, SE = 0.01, 95\% CI [0.03, 0.07]$), and high ($b = 0.06, p < .001, SE = 0.02, 95\% CI [0.03, 0.09]$) levels.

Interpretation of Results

This study investigated how loneliness influences HSB among SME owners by examining the mediating role of anger and the moderating effect of spirituality. The former was found to be significant, whereas the latter was not statistically significant.

The results confirmed anger's mediating role between loneliness and HSB, supporting Hypothesis 1 and aligning with the I³ model (Finkel, 2014). This implies that an inability to attain solitary time heightens the likelihood of irritation, prompting aggressive behaviors, such as harsh interactions with employees. This study is among the first to demonstrate that loneliness can amplify anger and aggression, not only in intimate relationships (Swets & Cox, 2022), but also in industrial settings.

SME owners' spirituality did not affect the mediation model, contradicting Hypothesis 2. Spirituality, therefore, has a limited capacity to alleviate stress. A meta-analysis suggests a weak correlation between spirituality/religiosity and mental health (Garssen et al., 2021), particularly in Japan where religiosity has declined (Jackson et al., 2023). Thus, spirituality inadequately suppresses irritability and critical behaviors. Alternatively, heightened spirituality might facilitate aggression. Although the interaction effect of anger and spirituality on HSB was marginally significant, it suggests that spiritually-inclined owners may be more prone to anger-driven HSB under specific circumstances. The inability to secure reflective solitude could distress individuals with heightened spirituality because solitude provides an opportunity for individuals to explore the meaning and purpose of life (Palgi et al., 2021). This might lead to spiritually inclined owners imposing rigorous standards in efforts to reclaim solitude and enhance the quality of work among employees. Notably, these perspectives represent conflicting functions of spirituality, potentially contributing to the absence of significant moderating effects.

Limitations and Future Directions

This study's cross-sectional design and reliance on self-reported questionnaires may limit causal inference and introduce response bias. Further validation of the scale measuring loneliness is necessary to establish its validity more comprehensively. Future research efforts could incorporate third-party assessments (e.g., employees) and longitudinal data to enhance the robustness of the findings. Additionally, caution is needed when generalizing outcomes due to the restricted sample size and focus on the Japanese population, with limited female participation. A replication of findings among SME owners in different cultural contexts is necessary.

Future research could also focus on elucidating the inhibitory factors within the I³ model (Finkel, 2014) by exploring psychological variables related to attention and emotion regulation, such as mindfulness (Eisenlohr-Moul et al., 2016) or self-control. Few

studies in the literature on stress management strategies have focused on SME owners; identifying such target factors can aid in formulating concrete intervention strategies.

CONCLUSION AND SUGGESTION

In this study, through a survey targeting SME owners in Japan, we were able to elucidate the significant mediating effect of anger in the loneliness of owners and HSB. Spirituality did not emerge as a significant variable to moderate this mediating relationship. Given the cross-sectional design of this investigation, it does not explicitly unveil the causal mechanisms underlying intra-individual variability processes.

Despite such methodological limitations, we could demonstrate that amidst the relatively aggressive communication observed in SMEs, the lack of sufficient solitary time and the resultant anger as a stress response might be implicated. Interventions aimed at managing the mental health of SME owners may benefit from focusing on how they allocate their solitary time.

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