

Original article

The mediating roles of psychological resilience and psychological well-being of caregivers for the older adults

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Abstract

Objective: This study aimed to investigate the mediating effects of psychological resilience and psychological well-being for caregivers at nursing homes on the relationship between insomnia and elder maltreatment. As the world is aging quickly and the number of older individuals cared for by formal caregivers has been increasing, this study's results could help create intervention programs to minimize the occurrence of older people's maltreatment.

Materials and Methods: A total of 431 care workers who met all criteria, from 21 care service centers for older adults in Fukuoka, Japan, completed the Conditions of Maltreatment Scale, Caregivers' Belief in Ideal Care, Insomnia Severity Index, WHO-5 Well-Being Index, and Connor-Davidson Resilience Scale-10.

Results: A multivariate analysis of variance revealed that participants with no insomnia had greater resilience, higher psychological well-being, and greater belief in ideal care and to treated older clients less roughly compared to participants with insomnia. Psychological resilience and well-being were significant mediators in the relationship between insomnia, rough care, and beliefs in ideal care.

Conclusion: As formal caregivers are in urgent demand, society should take care of them. The most effective and successful intervention for improving their physical and psychological well-being should be initiated at the individual and organizational levels.

Key words: insomnia, psychological resilience, psychological well-being, elder maltreatment, caregivers' beliefs in ideal care

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Introduction

In Japan, 5.9% of older individuals above 65 are currently cared for in long-term care facilities a number significantly greater than that of China (2.1%) and the Republic of Korea (4.1%)¹⁾. Furthermore, an estimated 36.1% of the Japa-

nese population is involved in providing care for individuals aged over 65 years, which is the highest proportion in the world²⁾. Care facilities and professional caregivers for older individuals are a crucial part of Japanese society.

As the older population has increased and more older individuals have become dependent on being cared for by others, elder abuse has increased. Elder abuse is a severe problem that threatens public health with detrimental social, economic, and health consequences³⁾. It is perpetrated at residential facilities in every country and has become prevalent⁴⁾. Koga *et al.*⁵⁾ conducted a large epidemiologic study using self-reported surveys completed by older Japanese individuals and found that the prevalence of elder abuse was 12.3%; moreover, abused respondents were likely to report poor health. These findings are alarming since the prevalence of abuse increases as older individual's physical

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functions decline⁵). Therefore, urgent action is necessary to protect older people abuse.

The present study focuses on how caregivers' level of insomnia affects their quality of care and beliefs about ideal care as, sleep has an essential role in many aspects of human well-being. In this study, we refer to caregivers for older adults as professional caregivers who provide care to them. Thus, we recruited only licensed social care workers (*Kaigo Fukushima*) who passed the National Examination and are certified care workers (*Kaigo Shokuin Shoninsha Kenshu*). Both the license and certificate are governed by the Japanese Ministry of Health, Labour and Welfare. Sleep deprivation is extremely prevalent among caregivers for older individuals. One study showed that two-thirds of caregivers for older individuals have sleep disturbance⁶; this high rate is understandable as nocturnal behavior problems are widespread among older adults, especially those with dementia. Therefore, caregivers are frequently awake at night, which leads them to develop insomnia. In fact, Takahashi *et al.*⁷ investigated the impact of work schedule on sleep problems among nursing home caregivers and found that approximately 37% of the 731 caregivers reported some symptoms of insomnia.

Researchers have asserted that sleep deprivation is adversely associated with one's behavioral and physiological well-being⁸, and it is also significantly related to impairment in cognitive performance⁹ and has adverse effects on psychological well-being¹⁰. Individuals who experience disturbed sleep are aware that sleep deprivation may lead to emotional instability, irritability, crankiness, and short-temperedness. After an extensive literature review, Kamphuis *et al.*¹¹ concluded that most of the existing literature revealed a relationship between sleep loss and aggressive behavior and hostility. As sleep deprivation is prevalent among caregivers for the older adults, and given the urgent need to eradicate elder abuse, this study investigates the role of sleep deprivation in caregivers' self-reported maltreatment or abuse of the older individuals in their care. In this study, we focus on the effects of insomnia as assessing insomnia covers not only the severity of sleep disturbance but also the quality of sleep and impact of insomnia. Further, we examine the mediating effects of caregivers' psychological well-being and resiliency between insomnia and the maltreatment of older individuals. This study may be useful for developing prevention programs to minimize maltreatment by caregivers.

Mediating role of psychological well-being and psychological resilience on the relationship between insomnia and elder maltreatment and caregivers' ideal of care

Psychological resilience

Similar to "mental toughness", psychological resilience is defined as "an enduring and yet fluid personality charac-

teristic that enhances individual adaptation"¹²). Even though resilience was originally viewed as a personality trait, current researchers view resilience as a fluid process¹³; this means that resilience can fluctuate throughout one's life. Using meta-analyses, Arora *et al.*¹⁴ asserted that longer sleep duration and better sleep quality were significantly associated with higher levels of resilience. Their analyses were conducted by pooled correlational estimate, and therefore, the results cannot imply causation. However, theirs was the first meta-analytic investigation to show that sleep disturbance and poor quality of sleep are strongly associated with psychological resilience.

One can also make the intuitive explanation that mental toughness can impact emotional regulation, or the strategies used to alter one's emotional experiences and expressions. Indeed, individuals with a high level of psychological resilience tend to recover from negative emotion and reach higher levels of positive emotions considerably sooner than individuals with low levels of resilience¹⁵. Conversely, individuals with low levels of psychological resilience indicate a chronically negative response, such as anger or aggression¹⁶. Troy *et al.*¹⁷ investigated the relationship between psychological resilience and emotion regulation, asserting that "affect regulation allows individuals to change how they respond to adversity and the trajectory they are on, either away from or toward resilience"¹⁷). Therefore, individuals with high resilience may be able to regulate their expression of negative emotions, such as instability, irritability, and short-temperedness, impacted by insomnia, and they may be less likely to treat their clients inappropriately or aggressively.

Psychological well-being

The research has documented the strong relationship between sleep and psychological well-being. For instance, Min *et al.*¹⁸ found that increased sleep disturbances are a leading indicator of decreased psychological well-being. Pigeon *et al.*¹⁹ found that insomnia is significantly associated with increased risk of major depression, anxiety disorder, bipolar disorder, and suicide. They also concluded that treatment of insomnia may be a preventive factor of mental health problems. Individuals with an adequate amount of quality sleep tend to experience positive affect and increased psychological well-being²⁰. A study by Brummet *et al.*²¹ indicates that the sleep quality of caregivers is compromised and that their poor sleep quality is significantly associated with negative affect or decreased psychological well-being.

Associations between psychological well-being and aggressive behavior have also been well-noted. For instance, Bowling and Beehr²² researched why stressors may become antecedents of aggressive behavior, such as workplace harassment. They asserted that stressors might produce negative affect and behavioral responses that encourage vic-

timization and that elevated levels of stressors could cause some perpetrators to engage in harassment. Baillien *et al.*²³ identified various individual and work-related factors as potential antecedents of workplace aggressive behavior, namely bullying. Using a qualitative study, they found that workplace bullying may result from inefficient coping with frustration and negative emotions. Supporting their results, Devonish²⁴ also reported that poor psychological well-being is a significant predictor of aggressive behavior at one's workplace. Therefore, we hypothesize that psychological well-being could mediate the relationship between insomnia and caregivers' mistreatment of the older adults in their care.

Materials and Method

Participants/Procedure

The directors of 21 residential care service facilities for older adults in Fukuoka Prefecture agreed to participate in this study. Individuals from daycare facilities were excluded as they tended not to have night shifts. The research team sent consent forms and surveys to the facilities and included return envelopes with stamps, so that the directors were unaware of who participated in this research. The purpose of the study and inclusion and exclusion criteria for participation were explained in the consent form. The inclusion criteria for the participants in this study were that they must be care providers (1) aged between 20 and 65 years, (2) working between 30 and 40 hours a week for their facilities, (3) having worked more than one year as caregivers for older adults, and (4) maintaining a current license as a care worker. The exclusion criteria were (1) taking medications for sleep disorders, (2) receiving treatment for diseases that impacted their sleep, (3) having been diagnosed with mental illness, and (4) taking any medications or supplements to improve sleep. To ensure that the inclusion/exclusion criteria were fully met, the researchers interviewed the potential participants, all of whom were nurses, before they were enrolled in the study. A total of 556 individuals were informed about this research, and 431 care workers who met all criteria participated in this study; 121 were men, and 310 were women. Their ages ranged from 20 to 74 years, with an average age of 44.51 years. Of the participants surveyed, 208 (48.3%) reported being married, 139 (32.3%) being single, and 82 (19%) being divorced or widowed. Their average length of work in the field after receiving their license ranged from 1 to 50 years, with an average of 12.64.

This study was approved by the Fukuoka University-Medical Ethics Review Board in Japan. The participants were explained the purpose and method of this research and assured that their privacy would be protected. Consent was obtained from all participants.

Measurements

Dependent measure

Conditions of Maltreatment Scale (CMS). The CMS was developed by Matsumoto²⁵ to assess the degree of maltreatment of older individuals committed by nursing care facility workers. After conducting factor analyses, Matsumoto found three subscales: Degrading Care, Rough Care, and Physical Restriction. The Degrading Care subscale comprises six items, such as treating older clients like children, assisting older clients with changing clothes and excretion in a place where others can see, and (c) providing meal assistance at the caregiver's pace for older clients unwilling to eat. The Rough Care subscale comprises three items, such as providing rough care for older clients. Finally, the Physical Restriction subscale comprises three items, such as physically restraining older clients who are at risk of falling. Participants were asked to rate items on a scale ranging from 0=*never happened* and 1=*happened only once* to 3=*happened more than once*. All items in each subscale were summed, with higher scores represented representing greater engagement in degrading care, rough care, and physical restriction. The internal consistencies for these subscales are 0.78, 0.83, and 0.53, respectively.

Caregivers' Belief in Ideal Care (CBIC). The CBIC was one of the subscales that Matsumoto²⁵ developed to evaluate the prevention of maltreatment by caregivers for older individuals. The CBIC, designed to assess caregivers' beliefs about what their ideal care should be, was used in this study. This subscale included nine items, such as (a) I respect older clients rather than looking down on them; (b) I am highly motivated to assist my older clients; (c) I prioritize client-centered care over time efficiency; and (d) I can provide great care for my client in the same way as I would like to be cared. The respondents were asked to rate each item on a 5-point Likert scale, ranging from 1=*strongly disagree* to 5=*strongly agree*. All items were summed, and higher scores indicated that caregivers had greater belief in ideal care. The Cronbach's α for this scale was 0.84 in the present study.

Independent measure

Insomnia Severity Index (ISI-J). The ISI is a self-report questionnaire that assesses the nature, severity, and impact of insomnia, as well as satisfaction with sleep, and it was used to examine the clinical significance of insomnia treatment. The respondents were asked to recall the period of the "last two weeks" using a 5-point Likert scale, ranging from 0 (e.g., *no problem*) to 4 (e.g., *very severe problem*). The ISI has been translated into Japanese, and the translated version (ISI-J) has been validated in Japan by Munazawa *et al.*²⁶ All seven items were summed up and created the total scores, ranging between 0 and 28, and higher scores indicated a greater severity and impact of insomnia and dissatisfaction

with sleep. Based on the total scores, the respondents were categorized into (a) below clinical threshold or absence of insomnia (0–7), (b) sub-threshold insomnia (8–12), (c) moderate insomnia (15–21), and (d) severe insomnia (22–28). The cut-off score for detecting insomnia was set as 10, as recommended by Bastien *et al.*²⁷⁾ The Cronbach’s α of this scale in the present study was 0.89.

Mediator measures

WHO-5 Well-Being Index (WHO-5-J). The original WHO-5 is a scale widely used to measure subjective psychological well-being. The WHO-5 has been translated into many languages and used all over the world. In Japan, Awata *et al.*²⁸⁾ translated the WHO-5 into Japanese and then validated and utilized the Japanese version (WHO-5-J). The participants in our study responded to five items about their feelings over the past two weeks using a 6-point Likert scale ranging from 0=*not at all* to 5=*always*. All five items were summed, and the total scores ranged from 0 to 30, with higher scores representing greater subjective psychological well-being. The internal consistency of this scale in the present study was 0.90.

Connor-Davidson Resilience Scale-10 (CD-RISC-10). The CD-RISC-10 was designed to evaluate qualities that enable a respondent to thrive in the face of adversity. The CD-RISC-10 has been widely used cross-culturally and has proven to be exceptionally reliable in Japan²⁹⁾. It consists of 10 items rated on a 5-point Likert scale ranging

from 0=*strongly disagree* to 4=*strongly agree*. The respondents in our study were asked how they had felt over the past month. The total score was created by summing up all items, ranging from 0 to 40, with higher scores reflecting greater psychological resilience. The Cronbach’s α of this scale in the present study was 0.89.

Statistical analyses

Data were analyzed using SPSS Statistics 28.0 (SPSS Inc., Chicago, IL, USA). The impact of insomnia as an independent variable on the dependent variables (degrading care, rough care, physical restriction, belief in ideal care, psychological well-being, and psychological resilience) was examined. Participants who scored less than 10 were coded as 0 (no insomnia), and participants who scored more than 10 were coded as 1 (insomnia). A multivariate analysis of variance was performed on those dependent measures. Further, path-analytic mediation analyses were performed according to the guidelines developed by Judd and Kenny³⁰⁾.

Results

Before testing our hypotheses, we analyzed the effects of demographic characteristics on all measured variables (Table 1). The means, standard deviations, and zero-order correlations among the variables are presented in Table 2.

Table 1 Differing patterns of demographic characteristics on measured variables

| Demographic | N (%), Mean \pm SD [Range] | CMS | F- value | P- value | CBIC | F- value | P- value | ISI | F- value | P- value | WHO-5 | F- value | P- value | CD-RISC | F- value | P- value |
|-------------------------------|------------------------------------|-----------------|-------------|-------------|-----------------|-------------|-------------|-----------------|-------------|-------------|------------------|-------------|-------------|------------------|-------------|-------------|
| Age (n=428) | 44.5 \pm 12.4 [20–74] | | | | | | | | | | | | | | | |
| <44 | 220 (51) | 4.78 \pm 3.76 | 15.82 | 0.001 | 2.40 \pm 2.25 | 13.7 | 0.001 | 8.84 \pm 5.36 | 1.68 | 1.96 | 11.10 \pm 5.21 | 4.79 | 0.029 | 18.30 \pm 6.43 | 22.75 | 0.001 |
| >44 | 208 (49) | 3.40 \pm 3.33 | | | 1.61 \pm 2.11 | | | 9.50 \pm 5.15 | | | 12.19 \pm 5.10 | | | 21.35 \pm 6.80 | | |
| Gender (n=431) | | | | | | | | | | | | | | | | |
| Male | 121 (28) | 4.45 \pm 3.52 | 1.36 | 0.244 | 2.41 \pm 2.23 | 5.16 | 0.24 | 8.76 \pm 5.78 | 0.93 | 0.34 | 12.03 \pm 5.16 | 1.08 | 0.3 | 19.93 \pm 6.63 | 0.065 | 0.799 |
| Female | 310 (72) | 4.00 \pm 3.67 | | | 1.87 \pm 2.20 | | | 9.30 \pm 5.04 | | | 11.45 \pm 5.21 | | | 19.75 \pm 6.85 | | |
| Marital Status (n=429) | | | | | | | | | | | | | | | | |
| Single | 139 (32.3) | 4.58 \pm 3.73 | 3.09 | 0.08 | 2.50 \pm 2.25 | 9.31 | 0.002 | 9.55 \pm 5.04 | 1.08 | 0.299 | 10.81 \pm 5.3 | 5.17 | 0.024 | 18.36 \pm 6.38 | 9.46 | 0.002 |
| Married/ divorced | 230 (67.7) | 3.93 \pm 3.57 | | | 1.81 \pm 2.17 | | | 8.99 \pm 5.37 | | | 12.02 \pm 5.12 | | | 20.50 \pm 6.9 | | |
| Work Experience (n=376) | 152.0 \pm 114 [1–705] | | | | | | | | | | | | | | | |
| <130 | 187 (49.7) | 4.05 \pm 3.61 | 1.32 | 0.251 | 2.16 \pm 2.24 | 0.001 | 0.976 | 9.44 \pm 5.40 | 1.57 | 0.211 | 11.46 \pm 5.57 | 0.55 | 0.459 | 19.18 \pm 6.60 | 5.17 | 0.024 |
| >130 | 189 (50.3) | 4.48 \pm 3.70 | | | 2.14 \pm 2.31 | | | 8.76 \pm 5.20 | | | 11.85 \pm 4.51 | | | 20.69 \pm 6.33 | | |

CMS: Conditions of Maltreatment Scale; CBIC: Caregivers’ Belief in Ideal Care; ISI: Insomnia Severity Index; WHO-5: WHO-5 Well-Being Index; CD-RISC: Connor-Davidson Resilience Scale-10.

Impact of insomnia on degrading care, rough care, physical restriction, belief in ideal care, subjective psychological well-being, and psychological resilience

The results of multivariate analysis of variance (MANOVA) revealed a significant main effect of insomnia, $F(5, 422)=19.44, P<0.001$. Follow-up univariate tests using a one-tailed test denoted that participants with no insomnia tended to have greater resilience, higher psychological well-being, and greater belief in ideal care and to treat older clients less roughly compared to participants with insomnia, with $F(1, 427)=91.87, P<0.001$; $F(1, 427)=18.24, P<0.001$; $F(1, 427)=22.23, P<0.001$; $F(1, 427)=6.13, P<0.01$, respectively. However, no significant differences were found in the Degrading Care and Physical Restriction subscales, with $F(1, 427)=1.293, P=0.128$; $F(1, 427)=2.25, P=0.067$, respectively.

Mediating roles of resilience and psychological well-being on the relationship between insomnia and maltreatment and belief in ideal care

Resilience as a mediator

Path-analytic mediation analyses were conducted to test our hypotheses. According to Judd and Kenny³⁰⁾, the

empirical validation of a hypothesized mediation model involves satisfying three basic requirements. First, the exogenous variable (insomnia) must show a zero-order relationship with the hypothesized mediator (e.g., psychological resilience and psychological well-being) (Path a; Figure 1). Second, the mediator must show a first-order relationship, which is controlling for the relationship between the exogenous and endogenous variables (Path b) (the three subscales of the CMS: degrading care; rough care; and physical restriction, and belief in ideal care). Third, when the relationship between the mediator and exogenous variable is held constant, a previously significant zero-order relationship between the endogenous and exogenous variables (Path c) should be significantly reduced. This latter criterion manifest in a significant indirect effect of the predictor on the criterion via its influence on the mediator³¹⁾. Finally, the last requirement for mediation was examined by employing Sobel's³²⁾ approximate significance test for the indirect effect of the exogenous variable on the endogenous variable via the mediator.

The results showed that all four requirements for two endogenous variables—namely the rough care—and caregivers' belief in ideal care were significant (Table 3). Sobel's test was conducted using a one-tailed test, and the results indicated that resilience fully mediated the association be-

Table 2 Zero-order correlation coefficients, means, and standard deviations

| | 1 | 2 | 3 | 4 | 5 |
|--------------|----------|----------|---------|---------|--------|
| 1 ISI | - | | | | |
| 2 RC | 0.106* | - | | | |
| 3 CBIC | -0.255** | -0.381** | - | | |
| 4 Resilience | -0.252** | -0.234** | 0.586** | - | |
| 5 PWB | -0.525** | -0.171** | 0.428** | 0.529** | - |
| Mean | 90.15 | 20.02 | 310.24 | 190.80 | 110.62 |
| SD | 50.26 | 20.22 | 50.93 | 60.78 | 50.20 |

* $P<0.05$; ** $P<0.01$.

Resilience: Psychological Resilience measured by the CD-RISC-10; PWB: Psychological Well-Being measured by the WHO-5-J; RC: Rough Care measured by the Conditions of Maltreatment Scale; BIC: beliefs in ideal care measured by the Caregivers' Belief in Ideal Care; ISI: Insomnia Severity Index; SD: standard deviation.

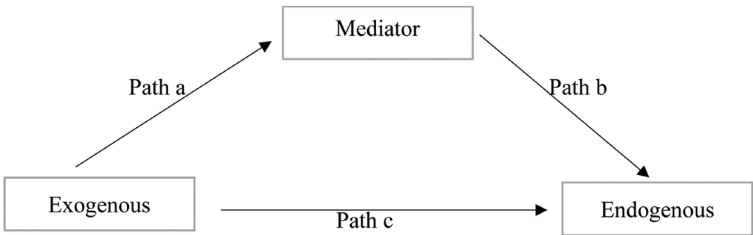


Figure 1 Mediation analysis.

Table 3 Summary of mediation path analyses

| Mediator | Endogenous | Path | b | SE | t | P |
|------------|------------|---------------------|--------|-------|--------|-------|
| Resilience | RC | Insomnia-Resilience | −0.325 | 0.060 | −5.40 | 0.001 |
| | | Resilience-RC | −0.076 | 0.015 | −4.97 | 0.001 |
| | | Insomnia-RC | 0.045 | 0.02 | 2.20 | 0.028 |
| | CBIC | Resilience-CBIC | 0.512 | 0.034 | 14.99 | 0.001 |
| | | Insomnia-CBIC | −0.288 | 0.053 | −5.47 | 0.001 |
| | | Insomnia-PWB | −0.519 | 0.041 | −12.79 | 0.001 |
| PWB | RC | PWB-RC | −0.073 | 0.020 | −3.59 | 0.001 |
| | | PWB-CBIC | 0.488 | 0.050 | 9.81 | 0.001 |
| | CBIC | | | | | |

Resilience: Psychological Resilience measured by the CD-RISC-10; PWB: Psychological Well-Being measured by the WHO-5-J; RC: Rough Care measured by the Conditions of Maltreatment Scale; CBIC: beliefs in ideal care measured by the Caregivers' Belief in Ideal Care.

tween insomnia and rough care ($z=3.70$, $P<0.0001$) and belief in ideal care ($z=-5.10$, $P<0.0001$).

Psychological well-being as a mediator

Path analyses were again conducted to test the hypothesis that psychological well-being mediates the relationship between insomnia and four endogenous variables. The results revealed a similar pattern as resilience: psychological well-being was a significant mediator on the relationship between insomnia and rough care and belief in ideal care (Table 2). Sobel's test also was conducted using one-tailed test, and the results showed that psychological well-being fully mediated the association between insomnia and rough care ($z=3.51$, $P<0.0001$) and belief in ideal care ($z=-7.73$, $P<0.0001$).

Discussion

The present study examined the effect of insomnia on elder maltreatment and caregivers' belief in ideal care; in particular, it investigated the mediating effect of psychological resilience and psychological well-being on the relationship between insomnia and caregivers' maltreatment and their ideal care. It is hoped that the results can be used to create prevention programs to minimize the occurrence of elder abuse, which is a global public health and human right concern and yet remains a form of violence receiving limited attentions and resources³³.

As expected, the results revealed that caregivers with insomnia looking after older adults at care centers tended to have lesser resilience, lower psychological well-being, and lesser belief in ideal care and to treat older clients more roughly compared to participants with no insomnia. However, insomnia had no significant impact on degrading care and physical restriction, although physical restriction was close to being significant. In the present study, approximately 42% of participants met the criterion of insomnia. Given

the prevalence of insomnia among caregivers for older individuals and its detrimental impact on older clients, their families, care facilities, and communities, it is crucial to screen for insomnia among caregivers. Furthermore, sleep disturbances, such as insomnia, is significantly associated with not only increased caregiver depression but also increased client depression³⁴. Therefore, it is beneficial to address caregivers' insomnia as growing evidence has shown that the treatment of insomnia is related to diminishing in depression severity, and a recent meta-analysis has confirmed that insomnia treatment is associated with moderate to large decreases in depression symptoms³⁵.

Insomnia also had a significant impact on caregivers' belief in ideal care. That is, caregivers with insomnia were inclined to maintain lesser belief in ideal care, such as less motivation to and respect for their clients and reduced confidence in their ability to provide great care to them. As caregivers' belief in ideal care, such as motivation to provide great care, is strongly associated with the quality of the relationship between caregiver and care recipient³⁶, and since the better quality of that relationship is significantly associated with recipients' better adjustment to care center³⁷ and their improved psychological well-being³⁸, addressing caregivers' insomnia is again critical.

This study also investigated the mechanism in which the mediating roles of psychological resilience and psychological well-being on the relationship between insomnia and elder maltreatment and CBIC. The results showed that caregivers' resilience and well-being had a strong impact. Caregivers' psychological resilience, psychological well-being, and level of insomnia were all significant predictors of maltreatment and caregivers' belief in ideal care. We recommend focusing on insomnia, psychological resilience, and psychological well-being when creating programs for minimizing the occurrence of elder maltreatment and improving caregivers' belief in ideal care.

Addressing insomnia

The results of this study showed that insomnia was strongly associated with elder maltreatment—particularly rough care—and reduced caregivers' motivation to provide ideal care for their clients. Holman *et al.*³⁹ attested that both individual and organizational levels of intervention are necessary for improving workers' well-being. As expected, care workers in residential facilities tended to show a high prevalence of insomnia, maybe due to the presence of night shifts (43% met the cut-off score of insomnia in the present study); thus, we strongly recommend frequently evaluating caregivers' level of sleep disturbance at the organizational level. Unidentified and untreated sleep disorders can have a profound and detrimental impact on one's physical and mental health and safety. Therefore, identifying and treating insomnia is crucial, especially for caregivers at nursing facilities, who provide care for one of the most vulnerable populations.

Ballesio *et al.*⁴⁰ gave practical advice for dealing with insomnia experienced by hospital staff during the COVID-19 outbreak. Hospital staff experience irregular, disturbed, and short sleep due to shift work and overtime work, which may be similar to the sleep disturbances experienced by caregivers for older individuals. Ballesio *et al.*⁴⁰ listed helpful and practical advice for the individual and organizational levels. For instance, at the individual level, they advised caseworkers to communicate their need for sleep; to avoid drinking alcohol, smoking, and stimulants prior to sleep; and to avoid eating too much or too much sugar. At the organizational level, they advised organizations to provide caseworkers with a comfortable, quiet, and dark place to nap and to encourage caseworkers to work with a colleague, among others. In addition, they warned that simply taking sleep medication to tackle insomnia may increase sleepiness, slow psychomotor responses, and affect circadian rhythm due to the combination of that medication with sleep deprivation and overlapping shifts. It is recommended that caregivers' insomnia should not be dealt with only at an individual level; instead, nursing home administrators must also be involved in helping address their workers' insomnia.

Improvement of caregivers' psychological resilience

As mentioned earlier in this article, psychological resilience is a fluid personality characteristic rather than a trait. Indeed, researchers have suggested some ways to improve psychological resilience. For instance, Ma *et al.*⁴¹ investigated the environmental correlates that impacted psychological resilience during COVID-19 lockdown in China. They found that social cohesion influenced psychological resilience indirectly through the perceived risks of COVID-19 infection and satisfaction with the neighborhood during the lockdown in China. Kukihara *et al.*²⁹ also found that social

support was a significant predictor of greater psychological resilience. Further, as effective leadership is a vital factor in the promotion of resilience, Labrague⁴² suggested that the hospital administrators should offer strong social support to healthcare workers by being attentive to their psychological needs. Therefore, we suggest that a selected leader of a nursing care facility may want to encourage caregivers to communicate with their social supporters, such as friends, families, and co-workers, strengthen teamwork and be attentive to the caregivers' psychological needs.

Another factor that helps improve resilience is physical activities. Kukihara *et al.*⁴³ investigated the mediating roles of resilience on the relationship between physical activities and minor psychiatric disorders using a randomized controlled study. They found that individuals randomly assigned to 50 minutes of exercise and 50 minutes of mindful yoga programs had significantly greater psychological resilience than those in the control group. Therefore, we strongly suggest that caregivers engage in such activities.

Improvement of caregivers' psychological well-being

Kukihara *et al.*⁴³ revealed that exercise and yoga improved not only participants' psychological resilience but also their psychological well-being. Indeed, Biddle *et al.*⁴⁴ asserted that partial evidence showed a causal association between physical activity and depression. Following the recommendation by Holman *et al.*³⁹, we suggest that care facilities consider resigning jobs by modifying workload and job discretion. We also recommend that care centers provide peer support groups or mentoring programs that enable workers to discuss difficulties.

This study has some limitations. According to Pillemer *et al.*⁴⁵, researchers, practitioners, and legal statutes recognize five different types of elder abuse: physical abuse, psychological abuse, sexual abuse, material exploitation, and neglect. All types of abuse have societal and personal long-lasting consequences; however, this study focused only on physical abuse. It is critical to investigate the diverse types of abuse and their mechanisms to ameliorate this human rights violation. Another limitation is the implication of causation. Although we used mediation analysis, this study did not use a randomized trial; therefore, we could not draw conclusions about causation. Further, another limitation of this study is that it did not ask the frequency of working night shifts, even though this may have a significant impact on insomnia. Interpretation and implications should be cautiously addressed.

Conclusion

The present study examined the mediating roles of nursing home caregivers on the relationship between insomnia

and elder maltreatment and their belief in ideal care. As the world is aging quickly and rampantly and the number of older individuals cared for by formal caregivers has been increasing, this study adds to the current literature by warning that our society must take care of these caregivers. Due to the nature of care recipients, who are in need of extensive and long-term physical and mental care, caregivers at nursing homes are at risk of physical and mental exhaustion. The most effective and successful intervention for improving caregivers' physical and psychological well-being should be initiated at the individual and organizational levels. Looking after caregivers physically and psychologically by providing a safe and fulfilling work environment may enable to not only minimize elder maltreatment but also reduce the shortage of care workers and secure their stable employment.

Conflict of interest: The authors declare that there are

no conflicts of interest.

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