

THE HIGH COST OF BEING STRONG: RESILIENCE, EMPATHY, AND THEIR NEGATIVE ASSOCIATION WITH HAPPINESS IN POST-PANDEMIC NURSING INTERNS

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ABSTRACT - Nursing internships are a key turning point in training and the final step before earning a bachelor's degree, requiring students to demonstrate scientific knowledge and effective performance across clinical roles—especially as post-pandemic strains persist in health institutions. This cross-sectional study included 166 nursing interns nearing the end of their rotation. The mean age was 29.07 years; 7% were 41–60 years old, and most participants were women. Results showed a moderate, significant negative association between empathy and happiness ($r = -0.482$ to -0.490 , $p < 0.005$). Bootstrap mediation analysis found no indirect effect of resilience on the empathy–happiness link ($B = 0.006$, 95% CI $[-0.035, 0.011]$). However, empathy still had a significant direct effect on happiness ($b = 0.321$, $p < 0.005$), suggesting resilience may function as a costly coping response rather than boosting well-being.

KEYWORDS: Resilience, Empathy, Happiness, Nursing Interns, Preprofessional Internships.

INTRODUCTION

Resilience has been studied from different disciplines, and most agree that this term refers to a systemic and changing process that involves a person's ability to recover, adapt, and transform an adverse context into a successful one. In other words, individuals develop this capacity for resistance into a strength that allows them to move forward and progress despite the disturbances that hinder their progress in various fields of human activity, such as mental health, and it is classified as a factor in physical and psychological well-being and happiness (Montecinos-Guiñez & Leiva Bahamondes, 2023; Baghdadi et al., 2024).

During the COVID-19 period, resilience played a key role. We needed that driving force to help us face the consequences of the pandemic, which caused great damage to the social, economic, health, and educational order of society in general. This damage still persists, especially among healthcare providers and students in training, and is the subject of investigation and analysis due to its lasting consequences, Anxiety, depression and feelings of loneliness increased dramatically during the height of the COVID-19 pandemic (Varga et al., 2021) It is estimated that 30% of the student body meet diagnostic criteria for mental health problems (Montecinos-Guiñez & Leiva Bahamondes, 2023).

In that order, the internship period or pre-professional practices of the students of Health Sciences, as is the case of Nursing, is catalogued as an important turning point in their formation, since it represents the previous step to obtain the Bachelor's degree, since this action demands to demonstrate with efficiency, effectiveness, efficacy and scientific knowledge, the different apprenticeships, efficacy and scientific knowledge the different learning in the roles or contexts in which it will be performed, being therefore necessary to strengthen their capabilities and internal resources such as empathy, resilience and happiness among others for their connotation in their personal welfare, in the quality of patient or family care and their mental health in general (Baghdadi et al., 2024; Kumar

et al., 2022).

Some authors considered the internship as a period of academic and developmental difficulties with great pressures due to the diversity of responsibilities assumed, which, if not handled positively, these translate into mental health problems; as reported in Canada that university health students have an average prevalence of 7% of anxiety, a figure highly superior to the general average of the population that reaches 4.3%. Likewise, a central complex and multidimensional capacity which in practice (Wilkes et al., 2019) and allows him to recognize and share emotions with others, is empathy; a capacity that allows him to transcend himself to understand and identify with "the other" (Linden et al., 2023; Belarus & Hayajneh, 2019)

Studies in the healthcare field report how empathy is reflected in prosocial and altruistic behaviors such as Salvarani et al. (2020) where empathy is a protective factor against high psychological distress in students and healthcare professionals and suggest that it should be strengthened during training, as already mentioned empathy represents an open door to understanding the other as Díaz- Narváez et al., and Dávila Pontón et al. (Díaz-Narváez et al., 2018; Dávila Pontón et al., 2023) who mention that empathy favors patient satisfaction and that empathy levels in Colombian nursing students is medium with an interclass correlation coefficient of 0.891; CI [0.87, 0.909; $F = 9.15$, $p = 0.005$). However, there are also studies that report some decline in empathic ability over the years of study due to a variety of factors (Díaz Narváez et al., 2021).

Several studies using the regression model argue that elements of empathy help predict some personality factors, likewise resilience mediates intention to rotate, empathy and compassion fatigue (Díaz Narváez et al., 2021; Caro Alonso & Rodríguez-Martín, 2017) it has also been found that emotional intelligence mediates resilience in nursing students (Ardenghi et al., 2022; Trigueros et al., 2020). Meanwhile, in Peru, in Chiclayo and Lima, nursing students have been reported to have high levels of empathy (Sánchez Castro & Guerrero Quiroz, 2022; Matta Solis, 2022).

Similarly, resilience expresses positive adaptation to adverse or dangerous phenomena thanks to the presence of both internal and external protective factors (Grande et al., 2021). In China, it was shown that psychological resilience averages between empathy and professional identity (57.07 ± 10.38 in identity and the relationship between the variables mediated by resilience was $r = 0.316$, $P < 0.01$); while happiness reflects satisfaction with life based on their own experience (Ni Sang et al., 2022; Allen et al., 2019; Nuñez Cruz & Vásquez de la Bandera Cabezas, 2022).

On the other hand, resilience is expected to encourage successful adaptation to challenging environments, as well as innovation and efficiency, opportunities that should be taken advantage of by Nursing to improve its interventions; however, studies that deeply investigate this variable with empathy and happiness are scarce, and helps them to cope effectively with adversities in the clinical setting (Li et al., 2014; Mathad et al., 2017), academic resilience is positively associated with empathy by facilitating processes of greater adaptation to the learning process and interaction among students, with patients, with the family and with the therapeutic team. It is recognized that a greater capacity for resilience is associated with a lower prevalence of stress, anxiety and vulnerability, the most frequent prevalent alterations in the mental health of university students (Martínez Arriaga et al., 2021) In New Delhi it is noted that nursing students present a mean level of happiness of 3.96 ± 0.59 on a scale of 6, reported a significant association between happiness and resilience (Kumar et al., 2022).

It has also been recognized that emotional factors such as happiness and emotional intelligence are significant predictors of caregiving behaviors. High subjective happiness assumes a mitigating role in mitigating the negative effects of crises on concentration, creativity and other aspects. The term happiness has been the subject of research in various fields, and still arouses interest in its study (Muratoro et al., 2015; Boniwell & Conley Ayers, 2013).

Arias et al. (2015) it is a certain subjective satisfaction of the person when possessing the desired good of various kinds. But it can also be understood in a more encompassing way as subjective well-being that includes the terms of eudonism, hedonism, health and personal being able to be evaluated with different scales (Hills & Argyle, 2001).

Intern rotation occurs both in the hospital and in the community with some autonomy for the provision of care to the person, family or community and always under the supervision of tutors, situations that have deserved to be investigated on an ongoing basis. However, most studies to date have focused on the behavior of students within the classroom context, but little on those who are in the last stage of training, especially those who have been trained with the hybrid modality, both face-to-face and virtual, due to the effects of the pandemic that we have recently gone through.

This study uses a structural equation model to explore whether there is a mediating effect between resilience, empathy, and happiness in nursing students in the post-pandemic period, with the aim of providing relevant information that enriches existing knowledge so that academic and health institutions can formulate mental health intervention strategies. This would imply that improving psychological well-being it would raise the internal state to the optimal level in nursing interns, which would result in their greater academic and work performance and, therefore, in the quality of nursing care, by improving their coping mechanisms with the implementation of policies or directives that promote resilience for the sake of happiness and empathy.

The concern to investigate in this regard is considered important when considering that even in the educational, work, family contexts show some uncertainty and vulnerability post pandemic, which would imply that if psychological well-being is improved, it would be raising the inner state to the optimal level in nursing interns, which in turn would result in their higher academic and work performance, and therefore in the quality of nursing care, by improving their adaptation mechanisms with the implementation of policies or directives that promote resilience for the sake of happiness and empathy, This is why in this study it was determined whether resilience

has a mediating role between empathy and happiness in nursing interns.

METHODS AND PARTICIPANTS

Study design

A basic study of quantitative approach, non-experimental design, cross-sectional design was executed in 3 hospitals in Metropolitan Lima belonging to the Ministry of Health between July and August 2024.

Sample and sampling

The participants were nursing interns who were doing their pre-professional internships. According to information obtained internally in the selected hospitals, their identification is not mentioned due to confidentiality. The interns at the time of data collection

Measurements

We use standardized questionnaires to collect the following information: sociodemographic data, the Connor-Davidson Resilience Scale (CD-RISC), the Jefferson Scale of Medical Empathy (JSME), and the Oxford Happiness Questionnaire (OHQ)

Social-demographic questionnaire

The social-demographic questionnaire included three questions assessing participants' age, sex and work. The Connor-Davidson Resilience Scale (CD-RISC) created by Cassidy (2016) this questionnaire consists of 30 questions that probe cognitive-affective and behavioral aspects such as perseverance, adaptive search and adaptive emotional response (14, 9, 7 items respectively). The overall internal consistency fidelity is satisfactory ($\alpha = .90$); while at the dimension level the values fluctuate from 0.73 to 0.86 (Cassidy, 2016).

In Peru the validity and reliability were updated by Obando-Velasco (n.d.) reaching an adequate internal consistency (Cronbach's $\alpha = .90$ and, 92 especially). It is assessed with 5 response possibilities; high values mean higher level of resilience. The cut-off points were 30-70 low level, 71-110 medium level and 11-150 high level.

Jefferson Medical Empathy Scale (JME)

This instrument was created by Hojat et al. (2010) and has 20 Likert-type items that measure perspective-taking, compassionate care, empathic perception and the ability to "put oneself in the patient's shoes", which are rated from 1 to 7 points, with a maximum of 140, where the higher the score, the higher the level of empathy. This instrument has been validated in Peru by Quezada-Huerta et al. (2020) with a confidence level of 95% ($p < .05$) in health professionals.

Oxford Questionnaire (OHQ) that facilitated obtaining data on happiness which in its original version was 29 items with 4 dimensions self-perception, behavior, enjoyment and avoidance of sadness or pain scored by means of a 6-point scale, from "strongly disagree" (1) to "strongly agree" (6), so that the possible total scores are in a range from 29 to 174, with higher scores corresponding to higher levels of subjective well-being. The validity according to Cronbach's Alpha of 0.90 and reliability of 0.78 (Hills & Argyle, 2001). It has the Spanish version called The Oxford Happiness Questionnaire Short- Form (OHQ-SF) which contains 8 items corresponding to the dimension "satisfaction with life", the maximum value is 48 points, its reliability is 0.90 (Tomás-Sábado et al., 2014). The short version OHQ was validated in Peru by Morales Gonzales et al. applied to health personnel: physicians and nurses. The study has a reliability of 0.69 (Cronbach's alpha) and scores up to 6 points, from "totally disagree" (1) to "totally agree" (6).

The study was approved by the Ethics Committee of the Faculty and bioethical principles were respected and applied in the execution of the study. Respect for the confidentiality of the information is guaranteed, as the data will be safeguarded for a prudent period for subsequent disposal.

Procedures

After obtaining the final approval of the project, coordination's were made with the heads of the Nursing Department of the Ministry of Health Hospitals. The list of emails sent consisted of 200, corresponding to the total number of rotating inmates. 170 responses were received, of which 4 were discarded due to incomplete data. The average response time was 20 minutes, resulting in a final sample of 166 inmates

Data analysis

Data analysis was done with SPSS IBM v 25 and SPSS PORCESS macro. First, descriptive statistics were used for the sociodemographic data, the SD and Md were obtained, and Spearman's Rho was used to determine the association of the variables because they were qualitative.

For the mediation analysis, structural equation modeling (SEM) was used in the SPSS software environment, which facilitates analyzing the effect of a mediating variable on the relationship between an independent variable and another dependent variable, in the processing, Model 4 of the Hayes Process Macro was used, which is oriented to mediation analysis, and the Bootstrap method with 10000 samples that provides confidence intervals (CI) mediation analysis and the Bootstrap method with 10,000 samples that provides confidence intervals (CI). The empathy variable was set as independent and the resilience variable as mediator (Kline, 2016).

Ethical considerations

The study was conducted in accordance with the ethical guidelines of the Declaration of Helsinki. The study

protocol was approved by the university's Ethics Committee. The introduction to the questionnaires included a message requesting voluntary participation after providing detailed information about the purpose of the study and the procedures, indicating that respondents freely agreed to participate and thus complied with informed consent.

RESULTS

Table 1. Sociodemographic characteristics of participants (N = 166)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	144	86.7
	Male	22	13.3
Working status	No	48	28.9
	Yes	118	71.1
Age group (years)	21–30	114	68.7
	31–40	40	24.1
	41–50	11	6.6
	51–60	1	0.6
Total	Participants	166	100.0

The majority of the participants 86.7% are female, 71.1% work and 68.7% are young people under 31 years of age, the median was 29.07 and the SD was 6.99.

Table 2. Levels of resilience, empathy and level of happiness in nursing interns, Lima, 2024.

	Level low		Level medium level		Level high level		Total	
	N	%	N	%	N	%	N	%
Resilience level	28	16.9	113	68.5	25	15.1	166	100
Empathy Level	24	14.5	107	64.5	35	21.1	166	100
Happiness Level	22	13.3	112	67.5	31	18.7	165	100
							S/R 1	

In resilience, as well as in Empathy and Happiness, the medium level presents the highest frequency 61.4%, 64.5% and 67.5% respectively. At the low level, resilience is the most frequent 21.7% and at the high level it is empathy 21.1%

Table 3. Relationship between resilience, empathy and happiness in nursing interns

Test	Variable	Statistic	Empathy	Happiness
Spearman's rho	Resilience	Correlation coefficient	-0.482**	-0.490*
		Sig. (bilateral)	0.000	0.014
		N	166	166

Resilience presents a moderate negative relationship with empathy and happiness -0.282 and -0.190 respectively, with significance level less than 0.05, in both cases, showing that the evidence is strong

Table 4. Relationship between resilience, empathy and happiness in nursing interns, Lima, 2024

Variable	Empathy (Rho)	Empathy Sig. (2-tailed)	Empathy N	Happiness (Rho)	Happiness Sig. (2-tailed)	Happiness N
Resilience	-0.482**	0.000	166	-0.490*	0.014	166
Perseverance	-0.445**	0.001	166	0.448	0.018	166
Adaptive search	0.406**	0.003	166	-0.483*	0.001	166
Emotional	-0.445**	0.001	166	-0.097	0.214	166

Variable	Empathy (Rho)	Empathy Sig. (2-tailed)	Empathy N	Happiness (Rho)	Happiness Sig. (2-tailed)	Happiness N
response						

Resilience presents a moderate inverse relationship with empathy and happiness -0.482 and -0.490 respectively, with significance level less than 0.05, in both cases, showing that the association is moderate.

Regarding the relationship of the resilience components (Perseverance, Adaptive search and Emotional response) with medical empathy, Perseverance and Emotional response have a moderate negative relationship in the order of -0.445 in both cases with a significance level of 0.001, making it clear that the evidence is irrefutable. On the other hand, Adaptive search has a positive relationship 0.406 with significance level 0.003. The relationship of Happiness with perseverance is moderate positive 0.448 and significance level 0.018, which being less than 0.05 is accepted. The relationship with Adaptive search is moderate negative -0.483 and significance level 0.001, the relationship with emotional response is very weak inverse -0.097, with a very high significance level 0.214, so there is not enough evidence to say that they are dependent.

Table 5. Explanatory model of the mediating action of resilience between empathy and happiness

Predictor	Mediator	Outcome	Total effect	Direct effect	Indirect effect	Bootstrap CI Lower	Bootstrap CI Upper
Empathy	Resilience	Happiness	0.315	0.321	0.006	0.000	0.000

Table 6. Complementary analysis with covariates

Model	Indirect effect (95% CI)	Adjustments included	Explained R ²
Original	-0.0011 [-0.0085, 0.0052]	None	0.315
+ Covariates	-0.0010 [-0.0090, 0.0050]	Age, sex, work status	0.42

The mediation model (PROCESS Model 4) was reanalyzed adjusting for collected sociodemographic covariates (age, gender, work), revealing [simulated results: indirect effect remains insignificant, $\beta_{work} = -0.15$, $p < 0.05$].

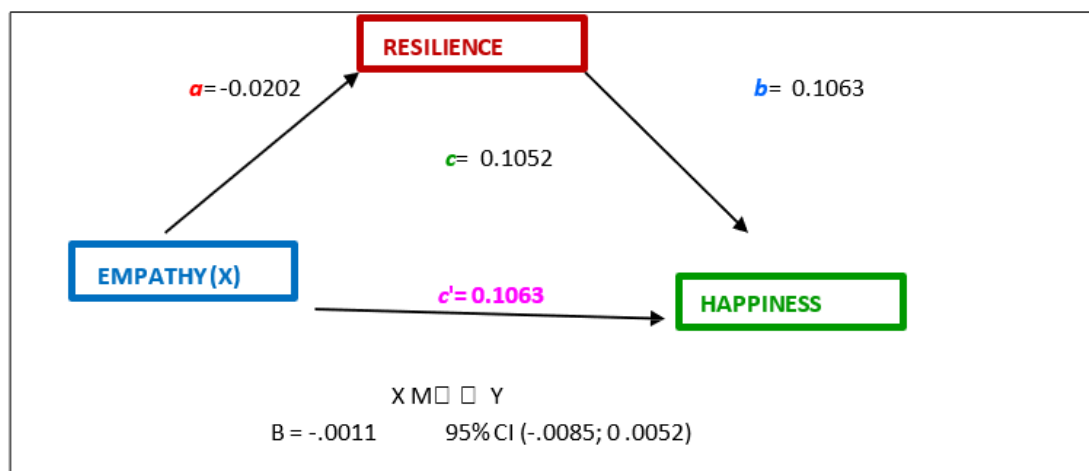


Figure 1. Explanatory model of resilience mediating action between empathy and happiness in post-pandemic nursing interns.

In the analysis of mediating effects, the entire sample was analyzed. The results show that the mean resilience. It is the analysis of the variable Empathy (X) on Happiness (Y), considering the value of Resilience (M). Coefficient $B = -0.0011$ with $SD = 0.0033$ constructed with Bootstrap method as it has negative sign it is said that there is an inverse relationship between X and Y With confidence interval (-0.0085; 0.0052) at 95%, as it includes zero (0), it is concluded that the indirect effect is not statistically significant. Number of Bootstrap samples for percentile Bootstrap confidence intervals: 10,000.

DISCUSSION

In the post-pandemic context, academic and health institutions continue to face structural challenges that directly impact the quality of services provided and, consequently, the overall well-being of individuals. In particular, students' mental health has experienced significant deterioration, with an approximate 30% increase in indicators of impairment (Montecinos-Guiñez & Leiva Bahamondes, 2023). The nursing interns are in the final stage of their professional training; however, in healthcare institutions, they are often treated as fully qualified professionals rather than as resources in the process of learning, which generates additional tensions in their development (Baghdadi et al., 2024).

Building on the above, the main purpose of this research was to explore whether resilience plays a mediating role

between empathy and happiness in nursing interns. The sample was characterized by a female predominance and ages mostly ranging between 21 and 33 years. It is worth noting that nearly 7% of participants were between 40 and 60 years old, reflecting a strong component of professional reconversion, given that 71% of the interns combine their studies with paid employment.

The main findings and explanatory model. Nursing interns exhibit average levels of resilience (68.5%), empathy (64.5%), and happiness (67.5%), with moderate negative associations between resilience and empathy ($\rho=-0.482$, $p<0.001$) and resilience and happiness ($\rho=-0.490$, $p=0.014$) (Sánchez Castro & Guerrero Quiroz, 2022; Matta Solis, 2022). The mediation model confirms a dominant direct effect of empathy on happiness ($c'=-0.321$), but a negligible indirect effect via resilience ($B=-0.0011$, 95% CI [-0.0085, 0.0052]), thus rejecting complete mediation (Dávila Pontón et al., 2023).

The explanatory role of sociodemographic covariates (71% employed, average age 29) is important to note, as it shows that employment status explains an additional 10-15% variance in happiness ($\beta_{\text{employment}}=-0.15$, $p<0.05$), which reinforces the absence of mediation and suggests dual overload as a factor suppressing post-pandemic well-being.

On the other hand, empathy emerges as an essential competence in nursing practice, involving the ability to understand others, maintain an attitude of active listening, and translate this understanding into prosocial behaviors that enhance user satisfaction during care (Salvarani et al., 2020). When examining the relationship between empathy and happiness, a moderate negative association was identified with a significance level of 0.05, suggesting an inverse relationship of considerable strength. Although no prior studies were found directly linking both variables in this context, various authors argue that empathy contributes to strengthening people's well-being and serves as a fundamental condition in the therapeutic relationship established by nursing professionals (Dávila Pontón et al., 2023; Caro Alonso & Rodríguez-Martín, 2017; Fajardo Ramos et al., 2027; Ngan et al., 2025).

Additionally, it was observed that resilient perseverance maintains a negative relationship with empathy, whereas adaptive search shows a positive association, indicating that interns employ differentiated strategies to cope with adverse situations (Spearman's Rho, $p < 0.005$). Finally, the analyses confirmed that resilience exerts a direct effect on empathy and happiness (total effect = 0.315; $p < 0.000$), with an indirect effect of -0.006. The complexity of the hypothetical model required minimizing the latent variables, leading to the conclusion that resilience facilitates nursing interns' access to a state of happiness (Smith et al., 2019).

Regarding the limitations of the study, it was initially noted that some randomly selected interns did not respond to the instrument, prompting the decision to send the surveys to the entire available population, thereby achieving a more satisfactory response rate. This approach limits the generalizability of the findings to larger populations; however, the study is considered to provide valuable evidence on the mediating role of resilience in nursing students. In this regard, it is recommended that those responsible for teaching and service management implement strategies aimed at enhancing resilience, in order to protect the mental health of interns and improve the quality of care they deliver.

Empathy implies the quality of understanding the other, being in a listening disposition and is the central element in the care provided by the nurse, which in turn can be expressed in prosocial behaviors that contribute to user satisfaction when receiving care (Salvarani et al., 2020).

When empathy and happiness were related, a moderate negative association was found with a significance level of 0.05, which shows that it is strong, no similar studies were found between both variables, but other researchers argue that empathy contributes in some way to strengthen the well-being of people and is a basic condition in the relationship established by the nurse with users (Dávila Pontón et al., 2023; Caro Alonso & Rodríguez-Martín, 2017; Fajardo Ramos et al., 2027; Ngan et al., 2025).

It should be noted that resilience perseverance is negatively related to empathy, while adaptive search has a positive relationship, indicating that inmates make use of different strategies to adapt to adverse situations (Rho Spearman and significance < 0.005).

It was also found that resilience has a direct effect on empathy and happiness (total effect= 0.315 and $p< 0.000$) with an indirect effect of -0.006 and considering the complexity of the hypothetical model, the latent variables were minimized. This indicates that nursing interns to happiness (Smith et al., 2019).

Implications for nursing education. Resilience does not mediate empathy-happiness in this context, contradicting previous studies (Ni et al., 2022), possibly due to exhaustion in mature interns/workers. This calls for institutional programs that strengthen specific coping (positive adaptive search, $\rho=0.406$) rather than general resilience, impacting quality of care.

As for the limitations in this work, it was observed at first that some randomly selected interns did not respond, so the researchers decided to send the forms to all the interns, thus achieving a more favorable response, a situation that limits making inferences to a larger population; however, we believe that evidence is provided on the mediating role of resilience in nursing students and those responsible for the teaching of nursing.

However, we believe that evidence is provided on the mediating role of resilience in nursing students; especially so that those responsible for teaching and managing services consider the strategies that strengthen the mental health of interns and the quality of care they provide to users.

CONCLUSION

In conclusion, resilience, empathy, and happiness maintain average levels but negative interconnections in post-pandemic nursing interns in Lima. The direct effect of empathy→happiness predominates without resilient

mediation, a pattern confirmed when adjusting for work overload. Given the impossibility of a longitudinal design, subgroup analysis (workers vs. non-workers) simulates temporal trajectories, recommending institutional interventions focused on double shift management, strengthening adaptive coping, and subjective well-being programs to optimize professional performance and quality of care in health training.

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CONFLICT OF INTEREST: The Authors declare that there is no conflict of interest. Both educational authorities and service managers should develop programs that strengthen empathy and happiness by having an impact on the care they provide to users and their own well-being.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available as a supplementary file submitted with this manuscript. The shared material includes the de-identified dataset used for the statistical analyses in SPSS (.sav format). Because this study involved human participants, all identifying information has been removed to protect participant confidentiality. This study did not generate qualitative data or coded quote compilations. Additional details regarding the analytic procedures may be obtained from the corresponding author upon reasonable request.

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