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# Joy at work and vocational identity during COVID-19: A structural equation model

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## Abstract

**Objective:** This study aims to explore the interrelations between joy at work, vocational identity, and COVID-19-related latent variables.

**Design:** A cross-sectional design was adopted to survey 253 registered nurses through nursing organizations and social networking sites during the time of the COVID-19 pandemic.

**Methods:** Structural Equation Modeling through Partial Least Squares (SEM-PLS) was employed to accurately analyze and estimate relationships among joy at work, vocational identity, and COVID-19-related constructs in compliance with published standards and guidelines.

**Results:** Thirty-one items received convergent validity measures to represent the five study constructs related to joy at work, vocational identity, and Work life Impact of COVID-19 pandemic: Meaning, Engagement, and Growth (MEG), Compassion, Sensitivity, and Respect (CSR), Trust, Support, and Flexibility (TSF), Vocational Identity Questionnaire (VIQ), and Work life Impact of COVID-19 pandemic (CI). The generated model exhibited good model fit and consistent quality indices. The data fit statistically with the model: (Average Path Coefficient = 0.195,  $p < 0.000$ ); Average R-Squared = 0.156,  $p < 0.003$ ; Average Adjusted R-Squared = 0.151,  $p < 0.004$ ; Average Variance Inflation Factor = 2.193 (within the ideal range); Average Full collinearity VIF = 2.388 (within the ideal range), and Tenenhaus Goodness of Fit (GoF) = 0.329. The perceived Work life Impact of COVID-19 pandemic (CI) was a significant predictor of joy at work constructs (MEG, CSR, and TSF) and VIQ with direct effects. It also exerted a negative influence over MEG and TSF, but positively on CSR and VIQ. Notably, joy at work constructs significantly mediated the effects of CI on VIQ.

**Conclusion:** A structural model was developed that offers insights and a parsimonious explanation for the interrelations of COVID-19, joy at work, and vocational identity variables. The pandemic unquestionably influences the nurses' perceived joy, sense of

Carole Liske: Psi Upsilon, Phi Gamma, Omicron Delta, Beta Omega and Theta Pi Chapters. Naomi Tutticci: Phi Delta At Large Chapter. Michael Joseph Diño: Phi Gamma and Nu Beta Chapters.

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calling, and meaning in life's work, and joy at work enhances nurses' work-life worth during challenging times.

**Clinical Relevance:** An increased understanding of nurses' joy at work during challenging times can potentially influence work culture, informs individual nurses, nurse leaders, and healthcare systems in all professional domains of practice and provides the foundational information to identify barriers to joy and strategies that enhance joy.

**KEYWORDS**

COVID-19 pandemic, joy at work, structural equation modeling, vocational identity

## INTRODUCTION

Joy is a distinct emotion from happiness, which tends to be transient and often reliant on external triggers. When cultivated, joy can be lasting and provides nurses with a different paradigm in viewing their workplace interactions and developing resilience. However, current definitions of joy fail to differentiate it from other positive emotions (e.g., happiness and contentment), attitudes (e.g., optimism), and traits (e.g., positive facets of extraversion). Further clouding of its balanced view can stem from the unknown assimilation of eudaimonic characteristics of joy (Jena & Pradhan, 2017) among nurses into their work lives. Understanding what drives nurses to live a more fulfilling working life remains a challenge for researchers. Joy at work, a critical positive emotion in ensuring resilience and longevity in the workplace, has therapeutic effects and can restore psychological equilibrium and in treating worker burnout (Jena & Pradhan, 2017).

Nurse burnout and dissatisfaction with work have been the dominant indicator of workforce integrity and wellbeing (Shah et al., 2021). The recent spike in stress and distress for all, including nurses, due to the COVID-19 pandemic has identified challenges for perceived individual autonomy, value and worth from an organizational perspective (Zaghini et al., 2021). This is problematic at individual and organizational levels. Nurses can become confused about workplace expectations for professional demeanor and organizations can falter when it comes to providing a workplace that enables eudemonic joy. Therefore, it is critical that research is undertaken to understand and describe nurses' experience of joy at work.

Globally, employer expectation is for a resilient and happy workforce, an untapped asset that healthcare systems have largely ignored (Balik, 2018). A nurse's ability to be internally joyful is a key component of an adaptive and robust workforce (Dempsey & Assi, 2018). Nurses comprise most of the healthcare workforce and possess a central role in the provision of health-care services (Zaghini et al., 2021). A collective of nurses who experience personal fulfillment and sense of purpose in work will provide better health services to users. A healthy work climate, where nurse burnout is proactively mitigated at an organizational level, can optimize patient safety, clinical outcomes, patient satisfaction, nurses' productivity, and financial viability (Shah et al., 2021). Burnout mitigation in nurses has been of particular importance prior to and during the

COVID-19 pandemic, at which time workplaces exposed vulnerable nurses to unsafe and unpredictable, healthcare situations wrought with exposure to environmental pathogens (Zaghini et al., 2021).

Nurses experience high and continuing rates of burnout (Balik, 2018; Boyle et al., 2019) attributed to excessive workloads, time pressures, lack of leadership and governance, poor interprofessional team dynamics, and the increasing load of electronic health record (EHR) documentation (Boyle et al., 2019). The Institute for Healthcare Improvement (IHI) Framework for Improving Joy in Work was developed in response to this prevailing trend of burnout and nurse attrition (Perlo et al., 2017). A joyless workforce has consequences for the individual, core leaders, and overarching senior leadership. Positively leveraging and engaging individual nurses in a paradigm shift from a depleted state to one of internal renewal is critical in the success of organizations having a happy, healthy, and productive workforce (Perlo et al., 2017). A greater understanding of an individual nurse's experience and perception of work from a global perspective will indicate the individual's level of joy within the nursing workforce, and the reach and efficacy of this framework in generating change in workplace practice and policy around joy.

## LITERATURE REVIEW

Joy is a critical emotion in ensuring resilience and longevity in the workplace, particularly nursing, characterized by physical and emotional tensions. It is crucial for nurses to be able to identify what their internal experience and understanding of joy is, and how that relates to the workplace. Enhanced awareness, performance, and productivity significantly impacts clinical outcomes for the patient and financial burdens for the healthcare system (Galuska et al., 2018).

This study is unique in that it considers the nurse's experience of joy in the workplace, rather than focusing on the individual's happiness at work. Happiness is a transient, positive emotion (Carter & Hawkins, 2019), whereas cultivated joy is long lasting and provides a different perspective from which the nurse views workplace interactions and tensions. Similarly, satisfaction is linked in the literature with burnout and counters the view that nurses can find deeper meaning in their work. Galuska et al. (2018) challenge the cursory nature of satisfaction or hedonic joy with a concise explanation of meaning in work described as passion, inspiration, potential, and

fulfillment, transcending the superficial contentment of satisfaction (Jena & Pradhan, 2017).

Individual and organizational joy are intertwined. Neither the person nor the environment in isolation can be the sole contributor to the experience of joy at work (Jena & Pradhan, 2017). The significant shift in organizational thinking from burnout to joy at work was led by IHI with the launch of the Framework for Improving Joy in Work. The framework underpinned by a 'systems' view describes workplace organizational structures and levels and their symbiotic interaction, rather than focusing solely on the individual and their hedonic satisfaction. Most importantly, the framework considers the individual within the context of a dynamic organism and their active participation in employing strategies to improve joy at work. Leaders are now encouraged to learn how employees experience joy, deep eudemonic contentment at work as well as how they deliver the work (Shuck & Wollard, 2008).

The IHI Triple Aim framework addressed patient care, improvement of population health, enhanced patient experience, and cost reduction to optimize health systems performance (Perlo et al., 2017). This framework was subsequently expanded to include a fourth aim, the Quadruple Aim (Fitzpatrick et al., 2019). The fourth aim focused on the work environment for healthcare providers and the creation of work cultures in which nurses find meaning and experience joy in their work (Dempsey & Assi, 2018; Fitzpatrick et al., 2019; Sikka et al., 2015). Joy, or the lack thereof, in the workplace can contribute significantly to employee satisfaction and retention as well as organizational function or dysfunction. Limiting the measurement of work and workplaces to a 'happiness quotient' will not facilitate effective governance nor quality improvement processes aiming for eudemonic joy. An increased understanding of the individuals' joy in work can assist organizations to refine the implementation of the IHI's joy at work strategies.

The purpose of this study is to explore how nurses understand joy within and at work, whilst addressing the research question: what is the perception of nurses' individual joy?

## METHODS

### Research design, sampling and ethics approval

A cross-sectional design was adopted to explore and investigate the interrelations between joy at work, vocational identity, and COVID-19-related latent variables. The study was conducted during the period of the coronavirus disease of 2019 (Umakanthan et al., 2020). The study population consisted of registered or licensed nurses in practice with a minimum qualification of a bachelor's degree and with work experience of a minimum of 6 months during the pandemic before survey completion. The respondents were recruited via posters published through their professional nursing organizations' virtual platforms and social media accounts with prior approval and coordination from their officers and social media managers.

The minimal sample size was determined using a power analysis in R version 4.2.1. A power of 0.80, significance level of 0.05, and root mean square error of approximation (RMSEA) value not exceeding 0.10 were selected and from the computations conducted, the sample size must be at least  $n = 106$ . Ethical clearance was provided by XXX prior to data collection with reference number: 2000001123.

### Study instruments

Four instruments were compiled into one survey and converted into digital format:

**Respondents' Personal Information:** The respondents' personal information consisted of survey items related to the country of practice, age, gender, years of practice, type of work (clinical, education, research), and the highest level of education (bachelors, master, doctorate).

**Joy at Work Scale:** The joy at work scale (JWS) is an 18-item Likert-type rating scale from 1 to 5 in which 1 = strongly disagree and 5 = strongly agree (Jena & Pradhan, 2017). The scale comprises three subscales: Meaning, Engagement, and Growth (MEG); Compassion, Sensitivity and Respect (CSR), and Trust, Support, and Flexibility (TSF). The questionnaire demonstrated good convergent validity [Average variance extractor (AVE) values of 0.72, 0.68, and 0.74 > 0.50] and discriminant validity [Maximum shared variance (MSV) values 0.36, 0.38, and 0.32 less than AVE values of 0.72, 0.68, and 0.74, respectively] (Jena & Pradhan, 2017). Both discriminant and divergent validity confirmed construct validity. Reliability was tested through internal consistency [Cronbach's alpha values: 0.86, 0.92, and 0.81; composite reliability = 0.9] (Jena & Pradhan, 2017).

**Vocational Identity:** The Vocation Identity Questionnaire (VIQ) (Dreher et al., 2007) is a 9-item scale in which 5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree, 1 = strongly disagree. The questionnaire measures an individual's sense of calling and the extent of joy and meaning in their life's work, including both paid and unpaid occupations. Preliminary studies reported good concurrent validity through positive correlation with existing questionnaires ( $r = 0.69, p < 0.01$ ) and high internal consistency and reliability (0.84) (Dreher et al., 2007). There are significant positive correlations with large effect sizes ( $r = 0.69, p < 0.01$ ;  $r = -0.65, p < 0.01$ ;  $r = -0.37, p < 0.01$ ) for the VIQ and the three set of constructs from a similar questionnaire (Dreher et al., 2007).

**Work life Impact of COVID-19 Pandemic:** A separate COVID-19 Likert scale instrument, consisting of four researcher-developed questions with options from 1 (strongly disagree) to 5 (strongly agree), was also employed. The questions inquire about the nurses' perception of the COVID-19 impact on their work (hours and perceived workload) and social connections (relationships with peers and superiors) during the pandemic. Reliability testing yields an internal consistency reliability score of 0.91. Its content and construct validity were achieved through expert consultation. They were attained through the conscientious process of defining and

listing down the logical contents and definable constructs of Work life impact of the COVID-19 pandemic. After this stage, items were refined, and corresponding scales and weights were determined. Lastly, the expert panel approved the final tool after their thorough review, and the pilot respondents deemed it understandable.

## Data collection

Instrument items were converted into an online survey using a password encrypted survey platform. Pilot testing revealed that the survey took approximately 10 min to complete. All participants received the same information containing a participant information form and a general overview of the survey intent (without prompting responses). The survey remained active for 8 weeks to allow for global time differences and the impact of shift work on accessing and completing the survey. Virtual videoconference backgrounds and badges as tokens were given upon completing the survey. A total of 253 complete responses were obtained from the survey platform from consented participants.

## Data analysis

Structural Equation Modeling (SEM) through Partial Least Squares (PLS) was employed because of its powerful ability to precisely analyze and estimate relationships among a set of constructs (Teo, 2019; Diño & de Guzman, 2015). This study adopted the published guidelines on sequential stages in analyzing and interpreting PLS models (Hulland, 1999). The assessment of the measurement model in SEM-PLS is based on the reliability and convergent validity of the measures associated with individual constructs and discriminant validity (Hulland, 1999).

Construct reliability assessment allows the extent to which an item or set of items is consistent in what it intends to measure and is usually assessed using composite reliability and Cronbach's alpha (Hair et al., 2021; Kock, 2015; Straub & Gefen, 2004). Convergent validity is a measure of the quality of the measurement instrument that is typically a set of items. A measurement instrument has an excellent convergent validity if the items associated with each construct are understood by the respondents as intended by the designers of the items (Kock, 2015). There are two approaches to assessing convergent validity. In the first approach, the item loadings associated with the construct should be statistically significant ( $p < 0.05$ ) and be  $\geq 0.50$  (Kock, 2015). Item loading is a correlation between the item and construct. The second approach is the average variance extracted (AVE). Average variance extracted quantifies the amount of variance that a construct captures from its items relative to the amount due to measurement error (Chin, 1998),  $> 0.50$  (Hair et al., 2012; Kock, 2015).

A measurement instrument demonstrates good discriminant validity if the items associated with the construct are not confused by the respondents with the items related to other

constructs, particularly in terms of the meaning of the items (Kock, 2015). Average variance extracted can be used to test if an instrument has discriminant validity. The square root of the AVE of each construct should be greater than its correlations with the other constructs to possess discriminant validity (Fornell & Larcker, 1981).

Validity and reliability testing of the measurement model was completed to identify viable data responses. The next step was the testing of the structural model on the effect of joy at work variables on vocational identity, as moderated by COVID-19 attributes using the PLS Graph software package (Hair et al., 2021).

## RESULTS

### Participants' demographic characteristics

As shown (Table 1), the nurse respondents of this study are predominantly female (32.41%), 31–40 years of age (38.74%), working in the clinical area (52.17%), and have less than 6 years of service (35.57%). In addition, a large majority are from the Western Pacific region (83%).

### Measurement model assessment

Thirty-one items were measured as attributes and indicators to ensure good representations of the five study constructs related to joy at work, vocational identity, and Work life Impact of COVID-19 pandemic: MEG, CSR, TSF, VIQ, and Work life Impact of COVID-19 pandemic (CI). Table 2 presents the indicator loading of each attribute and the AVE, composite reliability, and Cronbach's alpha of the study constructs.

The loadings-approach criteria (Amora, 2021) were used in concluding that the variables of the study have satisfactory convergent validity. The criteria included the following: (a) the indicator loadings should be 0.50 or higher (Kock, 2015); (b) the  $p$ -values associated with the indicator loadings should be  $< 0.05$  (Kock, 2015); and (c) the cross loadings should be low relative to the indicator loadings. Indicators for which these criteria are not satisfied may be excluded from the analysis. In this paper, after the exclusion of some items (MEG1, MEG2, CSR4, TSF7, VIQ1, VIQ3, VIQ5, VIQ6, CI3, and CI4), the variables have satisfactory convergent validity because the  $p$ -values, indicator loadings, and cross loadings are within the acceptable ranges.

All significant indicator loadings were  $> 0.70$ . There is a strong convergent validity for both indicators and constructs, as evidenced by the AVE values of more than 0.50. The composite reliability and Cronbach's alpha values of the constructs are above the 0.70 thresholds, and prove sufficient construct reliability and validity (Fornell & Larcker, 1981; Kock, 2015). The defining measurements for MEG, CSR, TSF, VIQ, and Work life Impact of COVID-19 Pandemic (CI) are the items MEG5, CSR2, TSF2, VIQ9, and CI1-2.

**TABLE 1** Demographic characteristics of the respondents (N = 253).

Demographic	Frequency	Percentage
Gender		
Male	82	32.41
Female	171	67.59
<b>Total</b>	<b>253</b>	<b>100</b>
Age		
20–30	60	23.72
31–40	98	38.74
41–50	61	24.11
51–60	29	11.46
61 and above	5	1.98
<b>Total</b>	<b>253</b>	<b>100</b>
Years of service		
6 months–5 years	90	35.57
6–10 years	42	16.60
11–15 years	55	21.74
16–20 years	35	13.83
21–25 years	10	3.95
26–30 years	10	3.95
31–35 years	8	3.16
36–40 years	3	1.19
41 years and above	0	0
<b>Total</b>	<b>253</b>	<b>100</b>
Area of work		
Clinical	132	52.17
Education	98	38.74
Research	12	4.74
Administrative	11	4.35
<b>Total</b>	<b>253</b>	<b>100</b>
Region		
American	14	5.53
European	3	1.19
Southeast Asia	16	6.32
Western Pacific	210	83.00
East Mediterranean	10	3.95
Africa	0	0
<b>Total</b>	<b>253</b>	<b>100</b>

In **Table 3**, the values in the “diagonal” (shown in bold text) are square roots of the AVE. Values below the diagonal are correlations among the variables. To have discriminant validity, the square roots of the AVE should be larger than the correlations (Fornell & Larcker, 1981). Values above the diagonal are the Heterotrait-Monotrait Ratio of Correlations (HTMT) (Henseler et al., 2015). Discriminant validity is best if the HTMT is <0.85 and good if HTMT is <0.90 (Henseler et al., 2015). The model measurements are considered valid as evidenced by equal or higher inter-construct

correlations of on-diagonal elements compared to off-diagonal elements (Fornell & Larcker, 1981).

## Structural model evaluation

Structural estimates of the parameters are summarized in **Table 4** and **Figure 1**. The generated model demonstrated good model fit and consistent quality indices. Path analysis revealed that all the direct and indirect effects coefficients are significant at 0.05 level. The perceived Work life Impact of COVID-19 Pandemic (CI) was a significant predictor of joy at work constructs (MEG, CSR, and TSF) and VIQ with direct effects. It also exerted a negative influence over MEG and TSF, but positively on CSR and VIQ. Notably, joy at work constructs significantly mediated the effects of CI on VIQ. The data fit statistically with the model: (APC = 0.195,  $p < 0.000$ ); ARS = 0.156,  $p < 0.003$ ; AARS = 0.151,  $p < 0.004$ ; AVIF = 2.193 (with the ideal range); AFVIF = 2.388 (with the ideal range). Further, the Tenenhaus GoF is large (GoF) = 0.329.

## DISCUSSION

The current study explored the interrelations between joy at work constructs, vocational identity, and COVID-19-impact variables as perceived by multinational nurses.

## Participant demographics

Demographic data of the nurse respondents revealed the preponderance of female young adults who had up to and including 10 years of clinical experience in the Western Pacific region. This demographic feature mirrors the current statistics of healthcare workers and users of social media. For instance, the 2020 state of the world's nursing document reported that nine out of 10 nurses are women under the age of 35 years (World Health Organization, 2020). However, although 81% of the world's nurses come from the American, European, and Western Pacific Regions (World Health Organization, 2020), the majority of the social media users are from Asia (Mun, 2018; Tapsell, 2020). This outcome was reflected in the current findings showing most responses come from nurses in Asian countries such as the Philippines and Indonesia. The use of social media is an effective method to communicate, engage, and recruit study participants for health research studies amidst challenges of heterogeneity, ethics, and representativeness (Golder et al., 2017). Not surprisingly, increasing age was associated with decreasing social media use among nurses (Lefebvre et al., 2020) which may underrepresent older nurses. Despite nurses being tagged as a problematic group to recruit using social media for participation in online surveys, the researchers opted for this approach based on published evidence supporting data collection via online surveys for a highly dispersed sample (Bethel et al., 2021).

TABLE 2 Convergent validity statistics.

Latent variables/ items	Indicator loading	AVE	Composite reliability	Cronbach's alpha
Joy at Work Scale				
Meaning, Engagement, and Growth (MEG)		0.62	0.89	0.85
MEG1: I realize the meaning of the work that I do	-			
MEG2: When I am working, I forget everything around me	-			
MEG 3: I experience a sense of delight at work	0.80			
MEG 4: I feel proud for the job that I do	0.67			
MEG 5: My learning and growth are interconnected with my organization's mission and vision	0.81			
MEG 6: Organization takes due care to boost my spirit at work	0.82			
MEG 7: I feel like going to work every day	0.84			
Compassion, Sensitivity, and Respect (CSR)		0.72	0.85	0.80
CSR1: I am considerate in understanding others	0.89			
CSR2: I am conscious of others and empathize with them	0.90			
CSR3: Shared responsibility of organizational tasks brings my colleagues to get united with each other	0.75			
CSR4: I can certainly feel the distress of others at my workplace.	-			
Trust, Support, and Flexibility (TSF)		0.69	0.93	0.91
TSF1: Well-being of employees has properly been addressed by my organization	0.85			
TSF2: There is a connection between me and the vision of my organization	0.87			
TSF3: I am optimistic with the value system of my organization	0.86			
TSF4: Parental care is extended by my organization to all its employees	0.82			
TSF5: I do convey my opinions freely	0.72			
TSF6: I feel like home at my workplace	0.85			
TSF7: Mutual understanding among people should exist in an organization	-			
Vocational Identity Questionnaire (VIQ)		0.62	0.89	0.84
VIQ1: If I were independently wealthy, I would quit my current work	-			
VIQ2: Most of the time I genuinely enjoy the work I do	0.78			
VIQ3: My daily routine is often so tedious that I feel I'm just putting in time until the end of the day	-			
VIQ4: I get a sense of personal satisfaction completing projects and solving problems that come up	0.72			
VIQ5: I sometimes get so involved in my work that I lose track of time	-			
VIQ6: My major motivation in my work is making money	-			
VIQ7: I have a calling that enables me to develop my skills and talents and use them in a meaningful way	0.78			
VIQ8: In my daily life I often feel connected to larger patterns of joy and meaning	0.79			
VIQ9: I see my work as a way to make a positive difference in the world	0.85			
Work life Impact of COVID-19 Pandemic (CI)		0.84	0.91	0.80
CI1: COVID 19 pandemic increased on my work hours	0.91			
CI2: COVID 19 pandemic increased my workload	0.91			
CI3: COVID 19 pandemic improved my work relationship with my superior(s)	-			
CI4: COVID 19 pandemic improved my work relationship with my peer(s)	-			

Abbreviations: MEG, Meaning, Engagement, and Growth; CSR, Compassion, Sensitivity, and Respect; TSF, Trust, Support, and Flexibility; VIQ, Vocational Identity Questionnaire; CI, Work life Impact of COVID-19 Pandemic.

TABLE 3 Discriminant validity statistics.

	Meaning, engagement, and growth (MEG)	Compassion, sensitivity, and respect (CSR)	Trust, support, and flexibility (TSF)	Vocational identity questionnaire (VIQ)	COVID-19 impact (CI)
Meaning, Engagement, and Growth (MEG)	<b>0.79</b>	0.69	0.83	0.79	0.10
Compassion, Sensitivity, and Respect (CSR)	0.56	<b>0.85</b>	0.56	0.78	0.06
Trust, Support, and Flexibility (TSF)	0.32	0.47	<b>0.83</b>	0.68	0.11
Vocational Identity Questionnaire (VIQ)	0.67	0.64	0.59	<b>0.79</b>	0.07
Work life Impact of COVID-19 Pandemic (CI)	-0.05	0.05	-0.08	0.14	<b>0.91</b>

Bold values are the diagonal elements; the square root of variances shared between the constructs and its measures and are meant to be in bold text.

### Joy at work scale responses

Joy at work constructs (MEG, CSR, and TSF), CI, and VIQ demonstrated commendable validity and reliability via convergent and discriminant measures. This outcome confirms the applicability of the joy at work and vocational identity tools from industrial and educational situations to the healthcare workplace settings. The joy at work and vocational identity questionnaires are particularly useful in highly complex and demanding jobs centered on caring and caregiving, such as clinical nursing, in identifying measures that will promote human-resource welfare.

As documented in previous studies, fostering joy reduces burn-out and enhances workplace retention that are necessary in promoting a healthy and efficient workplace. (Fitzpatrick et al., 2019; Galuska & Bursch, 2020; Koo & Kim, 2016). The ability of joy to mediate the effects of work stress is a key finding from this study. Transient emotional experiences typically described by employees as being 'happy' is a superficial indicator of social and emotional investment by nurses and organizations in the work of nursing. Joy is a powerful state of being that can be cultivated on both an individual and organizational level to sustain nurses, despite the constant and unexpected external challenges that operate locally and globally. Change is a constant in nurses' experiences of work. The aim of explicitly cultivating joy at work is to make the change process rewarding and effective (Perlo et al., 2017). The IHI framework for improving joy at work acknowledges that change resilience must be intentionally addressed to foster joy at work. Organizational leadership must value and advocate for nurses physical and psychological safety; meaning and purpose in work; choice and autonomy; camaraderie and teamwork; and fairness and equity.

Joy at work specifically mediated the COVID-19 impact on VIQ, such that joy enhances nurses' work-life worth during challenging times. This finding reinforces the need to implement interventions to improve the sense of joy as a psychological protective factor in enhancing resilience and line of defense during challenging times as emphasized in the Neuman Systems Model (Hannood & Dhamoon, 2022; Turner & Kaylor, 2015). Scholars have suggested various approaches that may enhance joy at work. McGrath and Brandon (2019) highlighted the importance of collaborative work environments in which collegial support and the positive influence of building true interprofessional teams enhance joy at work (Boyle et al., 2019). Koprowski et al. (2021) focused on the value of mitigation strategies such as implementing resiliency activities and developing playbooks. Initiatives that build and sustain joy serve as a buffer system to mitigate the impact of the COVID-19 pandemic and improve personal fulfillment in professional work.

This study successfully generated a structural model that offers insights and a parsimonious explanation into the interrelations of COVID-19, joy at work, and vocational identity variables. The COVID-19 pandemic undeniably influences the nurses' perceived joy, sense of calling, and meaning in life's work. As highlighted in a report by the International Council of Nurses (2022) and systematic review by Galanis et al. (2021), the pandemic delivered an extra



TABLE 4 Structural estimates.

Paths	Path coefficient ( $\beta$ )	Standard error	p-value	Effect size ( $f^2$ )
<b>Direct effects</b>				
H1a: CI → MEG	-0.148	0.061	0.008	0.022
H1b: CI → CSR	0.142	0.061	0.011	0.020
H1c: CI → TSF	-0.129	0.061	0.018	0.017
H2: CI → VIQ	0.106	0.062	0.043	0.021
H3a: MEG → VIQ	0.341	0.059	0.000	0.230
H3b: CSR → VIQ	0.359	0.059	0.000	0.230
H3c: TSF → VIQ	0.138	0.061	0.013	0.083
<b>Indirect effects</b>				
H4a: CI → TSF → VIQ	-0.077	0.044	0.041	0.015
H4b: CI → CSR → VIQ	0.089	0.044	0.022	0.017
H4c: CI → MEG → VIQ	-0.098	0.044	0.013	0.019

Note:  $f^2$  is the Cohen's (1988) effect size: 0.02 = small, 0.15 = medium, 0.35 = large.

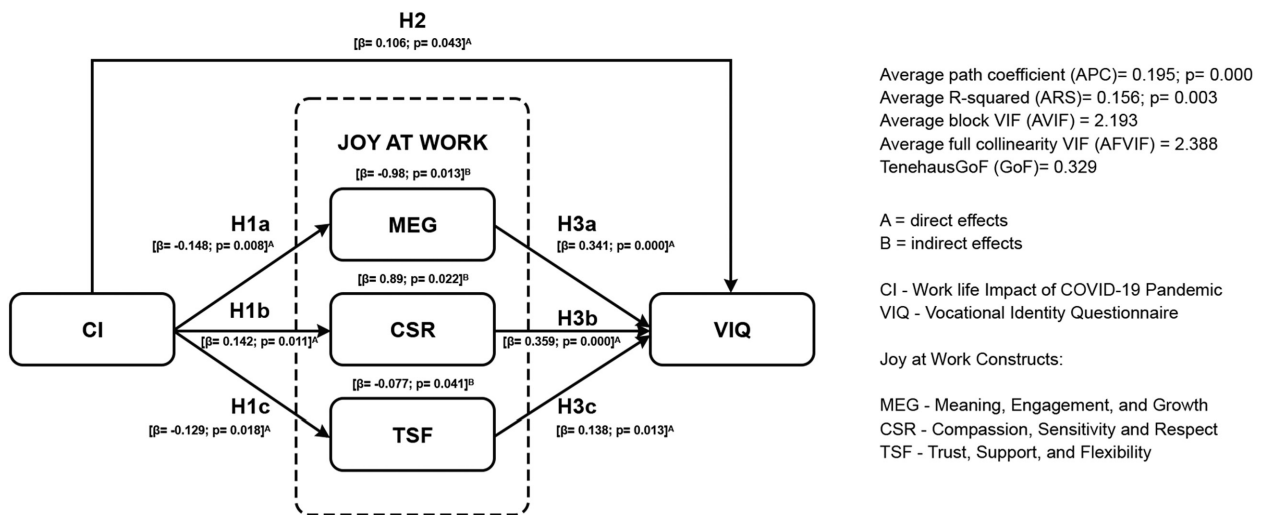


FIGURE 1 Model Fit, Quality Indices, and Structural Estimates (direct and indirect effects).

burden to the nursing workforce. Specifically, the pandemic decreased nurses' engagement and flexibility at work. However, the pandemic experience heightened nurses' compassion for others and sense of calling. As a result, the nurses were labeled as "super," "angels," and "heroes" for their courage and spirit at the height of the pandemic (Boulton et al., 2021; Einboden, 2020; Stokes-Parish et al., 2020). Unfortunately, these labels are negatively viewed to normalize their risk exposure, enforce subjectivities of being a model citizen, and preserve existing power differentials (Mohammed et al., 2021). While public recognition and appreciation contribute to nurses' empowerment, there exists a much needed call to deploy more concrete strategies that optimize nurses' experience of joy at work. Strategies should focus on prioritizing the welfare of nurses to address increasing shortages, issues of traumatization, lack of protection, and a continuously aging workforce (International Council of Nurses, 2022) whilst proactively using data to drive and refine improvement (Perlo et al., 2017).

## CONCLUSION

Joy, burnout, resilience, psychological protective factors, and COVID are all terms and states of being studied and discussed in the nursing literature. However, each of these concepts cannot be fully understood without data to describe the internal perceptions of these professional experiences on nurses and identify the interrelationships among these uniquely divergent conceptual variables. This study has shown the value of data derived using social media platforms from predominately female registered nurses with up to 10 years clinical experience from the Western Pacific region, to inform nursing workplaces about their current state of joy.

This study has developed a first of its type, structural model that offers insights and a parsimonious explanation into the interrelations of COVID-19, joy at work, and vocational identity variables. The pandemic unquestionably influenced the nurses' perceived joy, sense of calling, and meaning in life's work, and joy at work enhances nurses'

work-life worth during challenging times. Understanding nurses' perceptions of joy and how their experiences influence work culture, informs individual nurses, nurse leaders, and healthcare systems in all professional domains of practice and provides the foundational information to identify barriers to joy and strategies that enhance joy. Achieving an internal state of joyful equilibrium in professional work in all professional domains is essential to the creation and mitigating risk to the sustainment of an external culture of joy. The negative influence of external factors such as organizational dynamics, unhealthy work cultures, and critical global health issues, is a challenge individual nurses and the nursing profession can moderate and manage when joy at work is valued and invested in from both an individual and organizational perspective.

Findings of the study must also be interpreted based on inherent limitations present in every research. Survey studies are prone to self-reporting bias and findings may not be generalized globally. The survey items which are in English language might have limited the scope in some areas. Further research is recommended to expand the body of knowledge about eudemonic joy and the effectiveness of individual and workplace strategies in developing eudemonic joy in professional work to optimize patient safety, clinical outcomes, patient satisfaction, nurses' productivity, and financial viability. The authors recommend test modeling in diverse settings, such as education and practice, comparison of variables among diverse settings with larger sample sizes, and a longitudinal study to assess joy at work over a professional time-span. Additional research is recommended on topics related to joy such as, but not limited to, the impact of joy on a nurse's intent to remain in nursing, effectiveness of strategies/interventions to mitigate barriers to joy at work, and the effect of corporate business models in academe.

To advance population and individual health—of patients, clients, and nurses—every professional domain in which nurses work, including education, clinical healthcare, and entrepreneurial/health-related settings, must establish proactive mechanisms and related policies for nurses to create and sustain joy at work.

## CLINICAL RESOURCES

Harvard Business Review: Making Joy a Priority at Work (2019): <https://hbr.org/2019/07/making-joy-a-priority-at-work>.

Institute for Healthcare Improvement Framework for Improving Joy in Work.: <http://www.ihl.org/about/Pages/default.aspx> and <http://www.ihl.org/resources/Pages/IHIWhitePapers/Framework-Improving-Joy-in-Work.aspx>

Labor Management Partnership: Kaiser Permanente and the Partnership Unions (2022): <https://www.lmpartnership.org/focus-areas/joy-in-work>

National League of Nursing's Healthful Work Environment Toolkit: [https://www.nln.org/docs/default-source/uploadedfiles/professional-development-programs/healthful-work-environment-toolkit.pdf?sfvrsn=87d8da0d\\_0](https://www.nln.org/docs/default-source/uploadedfiles/professional-development-programs/healthful-work-environment-toolkit.pdf?sfvrsn=87d8da0d_0)

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## CONFLICT OF INTEREST STATEMENT

Authors have no conflicts of interest and funding to disclose.

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