

Psychological hardiness, social support, and emotional labor among nurses in Iran during the COVID-19 pandemic: A cross-sectional survey study

Elham SAEI^{a,*}, Raymond T. LEE^b

^a Department of Psychology, Shahid Chamran University, Ahvaz, Iran

^b Department of Business Administration, Asper School of Business, University of Manitoba, Winnipeg, Canada

ARTICLE INFO

Keywords:

Conservation of resources theory
Primacy of resource loss
Resource investment
Surface acting
Deep acting
Emotional support
Task support
COVID-19 pandemic

ABSTRACT

Background: Our study of nurses in Tehran was conducted in June of 2020, when the lockdown from the pandemic had been implemented. Nurses had been faced with how to effectively manage their own emotion responses during patientcare.

Objectives: Our study aims to evaluate how psychological and social resources were jointly related to the use of emotional labor through surface acting and deep acting among nurses at public hospitals.

Design: The study design was a single-wave, cross-sectional self-report questionnaire survey containing validated measures where the nurses reported on their work experiences during the pandemic.

Settings: The participants came from five out of 50 public hospitals within Tehran.

Participants: Of the 250 nurses chosen by using multi-stage randomly sampling, 224 were retained after listwise deletion of missing data and outliers.

Method: Through a survey questionnaire, participants responded to scale measures of psychological hardiness, social support, and emotional labor to investigate the joint impact of hardiness and social support on emotional labor. Their responses provided information on the (1) validity and reliability of all variables, and (2) the hypothesized structural relations, using SPSS-AMOS 22 software.

Results: Challenge and control were related to social support; coworker sympathy and supervisory support were related to surface acting; coworker sympathy was related to deep acting. Under strong support, high hardiness was most negatively related to surface acting and positively related to deep acting.

Conclusion: Through coworker and supervisory support, hardiness became an effective means for nurses to regulate their own emotions during interactions to enhance patientcare.

1. Introduction

Oh, I get by with a little help from my friends
Lennon and McCartney, 1967)

* Corresponding author.

E-mail addresses: e-saei@stu.scu.ac.ir (E. SAEI), raymond.lee@umanitoba.ca (R.T. LEE).

– Sgt. Pepper's Lonely Hearts Club Band by the Beatles

At the pandemic's onset, the rapid transmissions of COVID-19 led front-line nurses globally to worry about the likelihood of their families and themselves of being infected. Their concerns worsened into anxiety, burnout, and depression (Diogo et al., 2021). Nurses globally, including in Iran, faced challenges that increased their dependence on material, personal, and social resources to provide quality clinical care (Shen et al., 2022).

The support from colleagues and supervisors the nurses received helped to dampen the adverse impact of the pandemic on their quality of life and aided in their adaptive coping (Ebrahimi et al., 2021). Due to the lack of material resources like personal protective equipment during the pandemic, our study examined the joint impact of psychological and social resources on how nurses communicated with patients through emotional labor (Hobfoll, 2002; Halbesleben et al., 2014; Prapanjaroensin et al., 2017).

1.1. Pandemic contextual factors

We first address the broad question: What contextual factors made coping resources especially critical for nurses when providing clinical care through emotional labor? Three studies revealed that the pandemic, which while unplanned, led to transformative changes for front-line nurses in hospitals throughout Iran and other countries.

Zamanzadeh et al. (2021) noted that nurses from Tabriz University of Medical Sciences faced several inconsistencies at the pandemic's onset. These included: many nurses expressing empathy for their patients although many other colleagues were withdrawn; the threat toward the nurses' and their families' health; and media coverage of COVID-19 was undermining the nurses' resilience.

With the outbreak of COVID-19 in Iran, the average patient load increased dramatically. This had two knock-on effects: lifestyle change, and perceived care pressure. Many nurses preferred to self-quarantine outside their homes to prevent disease transmission. However, being away from the family led to stress among family members, a drop in the education quality of their children, and fear that this living arrangement would be prolonged. The wide spreading of the disease intensified the need for specialized care and treatment, including emotional care to address death anxiety, frustration, stress, especially in the absence of family members, and the fear of isolation, which all increased the nurses' sense of diminished control of their situation.

Zamanzadeh et al. (2021) observed the paradox for nurses that on the one hand, nurses were praised by the community and in the media, where they were referred to as 'health defenders' at the pandemic's start with telephone, letter messages or social media. On the other hand, whenever they appeared in public, strangers distanced themselves from them.

Atashi et al. (2023) found similar challenges among nurses from Isfahan University of Medical Sciences in 2020. The nurses reported a lack of information and guidelines for treatment protocols, leading to inconsistent standards in clinical care, and passive resource management, including chronic understaffing. These challenges led to eroding psychological hardiness and insufficient social support.

Behbahani et al.'s (2023) study of nurses at COVID-19 referral hospitals in Isfahan during the pandemic's start focused on their emotional reactions at work and organizational challenges. Nurses were worried and anxious about the effects of the virus, the efficacy of treatment plans, job insecurity, anger over the lack of management's presence and material support, heavy workload, insufficient staffing, and inadequate training. At the same time, many experienced greater responsibility and usefulness, while also feeling altruistic, as articulated by a study participant, "I stayed and worked with love because of my patriotism and the fact that I can't be indifferent, so, I was more satisfied" (Behbahani et al., 2023, P5).

Collectively, these studies underscore the dearth of object, energy, and personal resources (Prapanjaroensin et al., 2017) available to nurses.

1.2. Theoretical frameworks

Two theoretical models informed our research on the use of resources used by nurses during the pandemic. The first theory by Lazarus and Folkman (1984) concerns stress appraisal and coping. It posits that how events are perceived to be stress inducing, which affects the choice of coping, either problem-focused or emotion-focused. Lazarus and Folkman asked individuals about specific stressful events in their work and non-work domains. Their model underscores the importance of *situational context*, and the interplay between perceived psychological stress, cognitive appraisal and coping approach (i.e., what is happening, how one thinks of the event, and way to manage it). Their model also underscores the role of *emotional regulation* to cope with interpersonal stressors.

Building upon Lazarus and Folkman's (1984) work, Hobfoll's (1989) conservation of resources (COR) theory focuses on how and why *resources* are crucial for stress appraisal and management. COR theory has been examined across wide-ranging contexts. The model is especially relevant for front-line nurses, who draw upon resources to regulate their emotions during patientcare. Resources are things perceived to help one achieve his or her goals (Halbesleben et al., 2014). Fundamental goals are fulfilling one's need for autonomy, competence, and relatedness. Meeting these needs bolsters intrinsic motivation, such as the desire to connect with patients, and attain well-being, reflected in nurses' perceived quality of professional life during the COVID-19 outbreak (Zakeri et al., 2022).

COR has two key principles pertinent to our study. The first is the *Primacy of Resource Loss*, where the depletion of resources is more detrimental compared to a gain in the same amount of resources is beneficial (Hobfoll and Freedy, 1993). The second is *Resource Investment*, in which stockpiling of resources serves either to prevent future losses, recover from previous losses, or build up sufficient slack resources (Halbesleben et al., 2014). Changes in resources have two implications (Hobfoll, 1989, 2002): (1) Initial resource loss will lead to more future losses, whereas initial resource gain will lead to more future gains, and (2) A lack of resources will motivate workers to conserve their remaining resources. Our review of studies uncovered two critical resources for front-line nurses, namely, resilience in the form of psychological hardiness and perceived social support.

1.3. Psychological hardiness, social support and emotional labor

Psychological hardiness is a dispositional trait that fortifies resilience in the face of stressful situations (Kobasa, 1979). Resilience is the general tendency to bounce back quickly from adversity and to remain strong under stress (Bartone et al., 1989). Hardiness comprises of three key traits that contribute to resilient responding (Bartone et al., 2022). The first is *commitment*, a tendency to become involved in various life activities and to have a genuine interest in and curiosity about the surrounding world. The second is *control*, a tendency to believe in and act to influence the events taking place around oneself through one's efforts. The third is *challenge*, which is believing that change is to be expected. Embracing such challenge opens opportunities for personal and professional growth rather than threats to security (Kobasa et al., 1982).

Research on nurses found hardiness and social support to both independently and jointly impact nursing wellbeing. One study conducted found that nurses in Italy sought emotional and instrumental workplace support over time to facilitate clinical care (Baldassini Rodriguez et al., 2022). In a survey of nurses in the US, those with high hardiness levels had low burnout levels and used direct-active coping behaviors (Simoni and Paterson, 1997). Ullah and Budiani (2023) found that having resilience improved the quality of patientcare. Mazzetti et al.'s (2020) study of healthcare professionals found that emotional demands mediated the association between conflict with families and exhaustion. However, this relationship decreased among individuals with higher levels of hardiness.

Social support from other workplace members are found to be associated with wellbeing as well as buffered the effects of emotional labor on health outcomes (Zimet et al., 1988). Sarshar et al. (2021) found that social support increased psychological capacity in managing patients' emotional needs through reinforcing psychological hardiness. Both resources jointly influenced how nurses meet the emotional demands during clinical care.

Emotional Labor is an integral part of nursing that involves expressing certain emotions while hiding other feelings (Hochschild, 1983). Nurses are expected to regulate their personas during encounters with patients and their families. They must analyze and decide on the emotions to express, whether experienced or not, while suppressing feelings which should not be seen by others (Grandey, 2000).

With surface acting, the inauthenticity of faked expressions reduces one's self-worth and self-efficacy (Brotheridge and Lee, 2002). The suppression of other feelings consume energy, reflected in increased physiological arousal, higher glucose levels (Lee et al., 2010), and decreased motivation (Halbesleben et al., 2014). Service providers are likely to respond to uncivil recipients by hiding feelings, where such self-regulatory efforts lead to resource depletion (Jeung et al., 2018). Altering feelings, thoughts, and behaviors through the mix of faking and suppressing emotions requires sustained effort and energy, consuming both cognitive and emotional resources, which have been directly associated with all three burnout dimensions (Saei et al., 2024).

Although deep acting consumes energy to align feelings with displayed emotions, it does not require the same extent of self-regulation as one expresses authentic feelings (Brotheridge and Lee, 2002). Hence, deep acting does not incur the same amount of resource loss as surface acting. Kim's (2020) study of South Korean nurses found that surface acting was positively associated with burnout. Nam and Kabutey (2021) posited that social media use may help employees conserve their personal resources. Those with high social support can access a variety of resources, which in turn, helps to buffer them against the stress of emotional labor, leading to deep acting. Lam and Chen (2012) found that social support prompted hospitality providers to engage in less surface acting and more deep acting during service encounters.

The next section reviews studies of nurses conducted just before and during the pandemic on the effects of hardiness and social support.

1.4. Review of research

Pre-Pandemic: Çam and Büyükbayram's (2017) review of studies revealed that resilience was invaluable for helping nurses cope with job stress, mitigate burnout and turnover. To build resilience, however, social support was critical, where "nurses should be aware of support resources such as family, friends and colleagues, and social support networks such as associations, foundations and non-governmental organizations" (p. 124). Babaeiamiri's (2016) study of 400 general hospital ward nurses from Tehran found psychological hardiness and social support to be associated with mental health and negatively associated with burnout. Highly committed nurses were able to successfully perform activities through self-reliance. Nurses with high self-control believed that they could affect life and work events through personal efforts. Last, nurses with a defiant approach attempt to solve problems and consider both positive and negative events as learning opportunities rather than threats. Drawing from the same sample of nurses from Tehran (Babaeiamiri, 2016), Hatamipour et al. (2017) also found that both psychological hardiness and social support to be strongly associated with their own quality of life. This in turn, affected how well nurses maintained and improved the health and quality of life of their patients. Liu et al.'s (2021) study of 897 RNs giving direct patientcare at a Henan, China hospital for more than three months revealed that psychological capital and perceived social support mediated the impact of job stress on occupational burnout. Psychological capital encompassed self-efficacy, resilience, hope, and optimism.

Pandemic: Croghan et al.'s (2021) study of US Midwest healthcare workers from the General Internal Medicine division revealed that nurses experienced higher stress and lower resilience compared to other healthcare workers in 2019. Their heightened stress levels were due to providing social and emotional support to patients whose families were barred from visiting. Showing support often required both surface and deep acting. Sarshar et al.'s (2021) study of 206 nurses in Khorramabad, Iran found perceived social support to be related to psychological hardiness, surface acting and deep acting; psychological hardiness was related to surface acting and deep acting. Moreover, psychological hardiness mediated the effect of perceived social support on both forms of emotional labor.

Marey-Sarwan et al.'s (2022) study of eighteen nurses in a medical center providing service for the population of northern Israel reported that self-reliance was important for coping and strengthened through social and family support. Zhang et al.'s (2023) study of 992 nurses in China in late 2019 found that perceived social support mediated the impact of empathy on compassion fatigue. Their measure of compassion fatigue comprised the dimensions of compassion satisfaction, secondary traumatic stress, and burnout. Zakeri et al.'s (2022) study of 239 nurses from two medical centers in Rafsanjan, Iran in 2020 revealed that psychological hardiness and mindfulness were strongly associated with the quality of professional life, which includes a compassion satisfaction component (e.g., "I get satisfaction from being able to help people"). Their findings suggest that resilient and mindful nurses will interact in various ways, including emotional labor, to facilitate and derive satisfaction from patient care.

Our review showed how hardiness and support jointly influenced nurses' quality of life, indicators of wellbeing, and coping approaches. An outcome variable which has not been widely examined is emotional labor. As noted above, the expression of emotions and hiding of feelings require emotional regulation, which in turn, draw upon psychological and social resources. Our study's distinct contribution was evaluating the extent to which psychological hardiness and perceived social support were linked to surface acting and deep acting.

1.5. Hypotheses

The rationale of our hypotheses is based on the two COR principles (Hobfoll and Freedy, 1993; Halbesleben et al., 2014) and the empirical evidence reviewed above.

Nurses with high levels on the hardiness dimensions of challenge, control, and commitment will actively pursue resources leading to improvements in the working conditions through acquiring support from supervisors and coworkers. We predict that,

H1. Each hardiness dimension (challenge, commitment, and control) will be positively associated with each support dimension (coworker sympathy, coworker consultant, and supervisory support).

As noted above, given that surface acting requires more energy than deep acting, resources, relative to nurses with low levels of the hardiness dimensions, nurses with high levels will reduce resource loss by expressing less surface acting while simultaneously increase resource investment by expressing more deep acting. We predict that,

H2. Each hardiness dimension will be negatively associated with surface acting.

H3. Each hardiness dimension will be positively associated with deep acting.

Psychological hardiness alone may not be enough to staunch the resources needed for emotional labor. As noted above, social

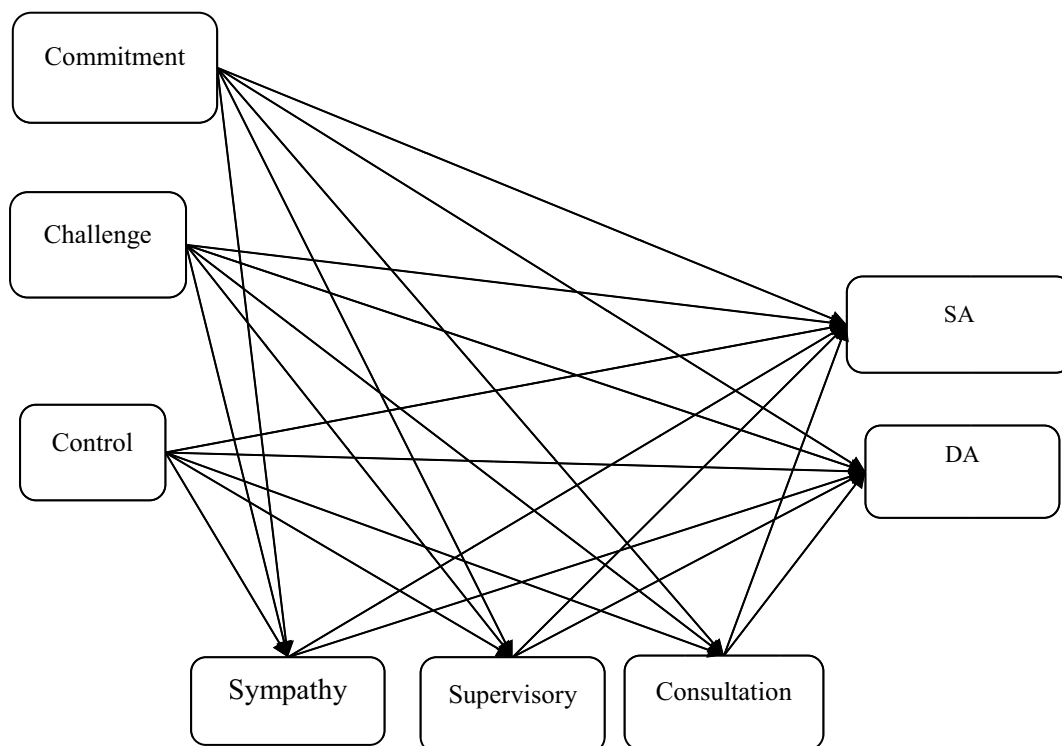


Fig. 1. The proposed Research Model.

support as an additional resource will discourage the expression of surface acting while encouraging the expression of heartfelt emotions during clinical care. We predict that,

H4. *Each support dimension will be negatively associated with surface acting.*

H5. *Each support dimension will be positively associated with deep acting.*

If H1 is confirmed, then support will facilitate hardiness to emotional labor, where surface acting will be less often expressed and deep acting will be more often expressed. We predict that,

H6. *Each support dimension will negatively mediate between each hardiness dimension and surface acting.*

H7. *Each support dimension will positively mediate between each hardiness dimension and deep acting.*

Fig. 1 summarizes the seven hypothesized structural relations.

Based on the primacy of resource loss principle (Hobfoll and Freedy, 1993), each support dimension will modify the effect of each hardiness dimension on surface acting. With low support, the frequency of surface acting will not differ between hardiness levels. With high support, surface acting will occur less often with high hardiness than with low hardiness. We predict that,

H8. *Each support dimension will negatively moderate between each hardiness dimension and surface acting.*

Based on the resource investment principle (Halbesleben et al., 2014), each support dimension will modify the effect of each hardiness dimension on deep acting. Under low support, the frequency of deep acting will not differ between hardiness levels. Under high support, deep acting will occur more often with high hardiness than with low hardiness. We predict that,

H9. *Each support dimension will positively moderate between each hardiness dimension and deep acting.*

2. Method

2.1. Research setting and context

Government-run public hospitals in Tehran were the sites of our research. When we collected survey in June of 2020, the lockdown from the pandemic was recently implemented. All hospital staff minimized close contact with patients and visitors, as they were experiencing heightened anxiety and distress. To worsen matters, several of the hospitals providing pulmonary care had several patients who died most likely from COVID-19. Although our sampling did not cover these wards, they included other wards with infected patients.

The challenges documented by Zamanzadeh et al. (2021), Atashi et al. (2023), and Behbahani et al. (2023) existed to varying degrees in our setting. Early in the pandemic, false information was misleading people to believe that COVID treatments are effective and readily available for purchase. Another major issue was the lack of job security. The management of hospitals had enacted legislation that dismissed nurses absent from work and replaced them with less experienced colleagues, but those who continued working did receive an extra stipend. For many, communication with close friends and coworkers was disrupted because of reassignments to other wards, placing greater workload pressures on the remaining nurses. After the lockdown, access to gyms and entertainment facilities was restricted. Some engaged in impromptu recreational activities like exercises, and dancing.

2.2. Design and data collection

The study design was a cross-sectional self-report questionnaire survey containing validated measures where the nurses reported on their work experiences during the pandemic. Using multi-stage sampling, five of 50 public hospitals within Tehran were randomly selected. Within these five hospitals from various wards, 250 nurses were randomly chosen.

Multistage sampling is cost and time-effective. This is because the large population is usually broken down into smaller clusters. Researchers can then concentrate on the most appropriate clusters to randomly sample. In our multi-stage sampling, five of 50 public hospitals within Tehran were randomly selected. In stage 1, we first listed all of Tehran's public hospitals and chose the five of them by simple random sampling. In stage 2, within these five hospitals, we listed the wards of these hospitals by their name and five wards were selected by simple random sampling. In stage 3, 250 nurses were randomly chosen from the staff rosters of these five wards.

The study participants were given ten days to return the informed consent form signed and the survey questionnaire completed.

2.3. Sample size

According to Machin et al.'s (2018) nomogram with the effect size = 0.40, power = 0.8 and alpha value = 0.05, the sample size was derived to be 220, considering a 10 % of invalid questionnaires; a minimum sample size of 250 was required. Due to 18 either unreturned or incomplete surveys, as well as the exclusion of eight outliers (see explanation below), the retained sample was 224, yielding an 89.6 % response rate. The mean effect size of our study variables, excluding the correlation between surface acting and deep acting, was .38, calculated from the intercorrelations in our Table 1. With a statistical power near 0.80, our $N = 224$ was sufficiently large enough to evaluate the study hypotheses.

Inclusion criteria: The study participants were required to hold a valid Iranian nursing license; had at least one year of clinical patient care experience; employed full-time or part of the regular hospital staff; and those who voluntarily agreed to participate in the study.

Exclusion criteria: Nurses excluded from our study were those not employed by the hospital (e.g., trainees, interns); those who were absent from work (e.g., on sick, personal, or study leave); nurses performing non-clinical roles (e.g., service or supply departments).

2.4. Study variables and measures

The variables evaluated in our hypotheses are as follows: psychological hardiness dimensions of challenge, commitment, and control (Kobasa et al., 1982), perceived social support (Zimet et al., 1988), and the emotional labor dimensions of surface acting and deep acting (Brotheridge and Lee, 1998, 2003). All the scales were validated by confirmatory factor analyses (CFA), as reported in the Results section.

Based on Maddi and Kobasa's (1984) study, the *Psychological Hardiness Scale* by Bartone et al. (1989) taps the three dimensions of commitment, control, and challenge. In both the pilot and research samples, 41 of the original 50 items loaded 0.40 or greater and were retained in the scales. Commitment has 14 items (e.g., "Most of my life gets spent doing things that are worthwhile"), control has 14 items (e.g., "Planning ahead can help avoid most future problems."), and challenge has 13 items (e.g., "I like it when things are uncertain or unpredictable."). Each item has a four-point Likert-type response scale: 1 ("not at all true"), 2 ("a little true"), 3 ("quite true"), and 4 "completely true."

Perceived social support measure was developed by Zimet et al. (1988), which references "special person," "friends," and "family." Their scale items were modified to fit our study context in referencing the nurse's colleagues and supervisor. The 12-item measure has three dimensions, each with four items: sympathy of coworkers (e.g., "I have colleagues with whom I can share my sorrows and joys"), consultation of coworkers (e.g., "My colleagues are really trying to help me"), and support of supervisor (e.g., "My supervisor is really trying to help me"). Each item has a seven-point Likert-type response scale: 1 ("strongly disagree"), 2 ("disagree"), 3 ("somewhat disagree"), 4 ("neutral"), 5 ("somewhat agree"), 6 ("agree") and 7 ("strongly agree").

Emotional labor pertains to emotional regulation and expression during in-role service encounters (Brotheridge and Lee, 1998). The surface acting and deep acting dimensions are from the *Emotional Labour Scale*, developed and validated by Brotheridge and Lee (2003). Surface acting has three items on the extent of faking (e.g., "Showing emotions that I don't feel") and suppression (e.g., "Hide my true feelings about a situation"). Deep acting has three items on the extent feelings were modified to align with display rules (e.g., "Try to actually experience the emotions that I must show"). Each item has a seven-point Likert-type response scale: 1 ("rarely or never"), 2 ("occasionally"), 3 ("usually"), 4 ("more than usual"), 5 ("almost often"), 6 ("often") and 7 ("always").

All measures were translated to Persian and back translated to English to check for accuracy.

2.5. Data analyses

The measurement models and structural relations models were evaluated using SPSS-AMOS 22. For the measurement models, the items are specified to load onto specific factors using confirmatory factor analysis. For the structural relations models, a hierarchical two-step procedure was used. In the first step, the predicted direct and indirect paths were specified as shown in Fig. 1. In the second step, the cross-product interaction paths were added. To evaluate the significance of each direct effect, we used the critical *t-ratio*.

2.6. Multivariate normality

An assumption in the maximum likelihood estimation of structural relations is that the observations are drawn from a continuous and multivariate normal population to yield unbiased parameter estimates (Mardia, 1970).

In AMOS 22, multivariate normality is measured by Mardia's (1970) multivariate elasticity. Outliers are indicated by their

Table 1

Means, standard deviations, Cronbach α 's and correlations among variables.

Variable	M	SD	1	2	3	4	5	6	7	8
Emotional labor										
1. Surface acting	16.20	6.72	(.89)							
2. Deep acting	13.51	4.18	-.36	(.91)						
Hardiness										
3. Commitment	31.52	7.64	-.38	.27	(.78)					
4. Challenge	31.87	7.61	-.41	.36	.64	(.85)				
5. Control	32.69	7.86	-.41	.31	.73	.68	(.87)			
Social support										
6. Coworker sympathy	12.94	5.91	-.38	.28	.22	.39	.33	(.88)		
7. Supervisory support	16.17	5.80	-.30	.18	.21	.27	.28	.53	(.88)	
8. Coworker consultation	15.87	6.31	-.34	.21	.24	.39	.31	.60	.50	(.91)

Note. $N = 224$, after listwise deletion of missing data and outliers. Cronbach α is scale internal consistency reliability estimate. All correlations are significant at the 0.001 level.

Mahalanobis distances, which represent the standard unit squared distances of an observation vector from the sample mean vector of the variables. Removing an outlier may reduce Mardia's multivariate skewness.

We performed the multivariate normality test and found that the critical t -ratio is 3.879, which was greater than 1.96 and indicative of non-normality. Eight observations were identified as major outliers as their Mahalanobis distances were much larger than the distances of others. Excluding them decreased both univariate and multivariate non-normality, indicating that these outliers heavily skewed the data's distribution.

3. Results

3.1. Sample characteristics

Of the 224 (out of 250) retained respondents, our sample had 125 females and 99 males. The mean age was 32.15 years and the standard deviation of 5.2 years. The mean years of work experience was 9 years and the standard deviation of 4.5 years. The distribution of highest education levels attained was 13 % (30) with an associate's degree, 51 % (114) with a bachelor's degree, 21 % (47) with a master's degree, and 15 % (33) with a doctoral degree.

3.2. Measurement models

We used CFA to evaluate the dimensionality of perceived social support and psychological hardiness separately. On support, the three-factor model [$\chi^2/df = 2.97$; NFI = 0.94; CFI = 0.94; RMSEA = 0.07] was superior in fit compared to the one-factor model [$\chi^2/df = 4.74$; NFI = 0.89; CFI = 0.91; RMSEA = 0.10]. On hardiness, the three-factor model [$\chi^2/df = 2.16$; NFI = 0.95; CFI = 0.98; RMSEA = 0.07] was superior in fit compared to the one-factor model [$\chi^2/df = 7.96$; NFI = 0.84; CFI = 0.87; RMSEA = 0.10].

We also used CFA to evaluate a multi-dimensional model, where items of each of the eight study variables are specified to load on their respective dimension, and a unidimensional common-method model, where all items were specified to load together. The eight-factor model [$\chi^2/df = 1.20$; NFI = 0.98; CFI = 0.99; RMSEA = 0.042] was superior in fit compared to the one-factor model [$\chi^2/df = 6.92$; NFI = 0.82; CFI = 0.86; RMSEA = 0.11].

3.3. Direct and mediated effects

Table 1 shows the study variables' means, standard deviations, Cronbach α of scale internal consistency reliability estimates, and their intercorrelations. The overall fit of the Fig. 2 model with direct and indirect effects entered in step one was adequate [$\chi^2 = 154.54$,

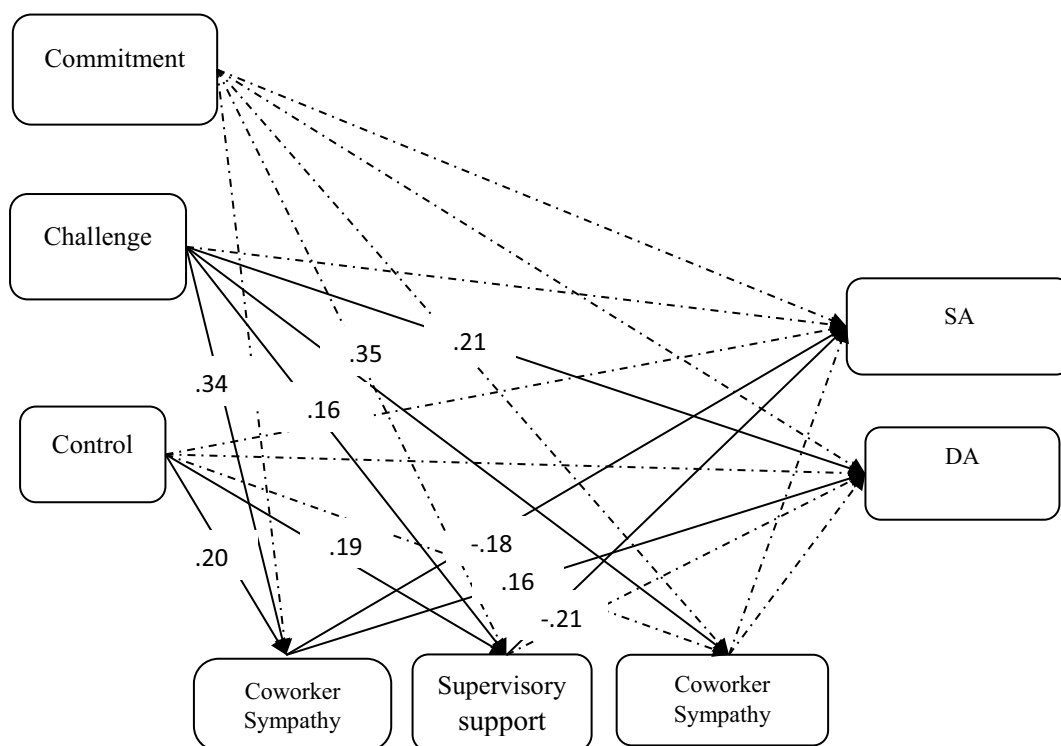


Fig. 2. The Estimated Parameters of the Research Model.

$df = 49$, $\chi^2/df = 3.15$; NFI = 0.93; CFI = 0.94; RMSEA = 0.08]. The interaction effects added in step two yielded an improvement in fit [$\chi^2 = 246.23$, $df = 88$, $\chi^2/df = 2.80$; NFI = 0.98; CFI = 0.97; RMSEA = 0.05]. The χ^2 difference of 91.98(39) between the steps 1 and 2 models was significant at the 0.001 level.

Table 2 shows the parameter estimates of all direct effects and their significance. For H1, none of the parameter estimates from commitment to the three dimensions of social support was statistically significant, all three parameter estimates from challenge to the three dimensions of social support parameter estimates were statistically significant, and two of the three parameter estimates from control to support were statistically significant. Thus, H1 was mostly supported. For H2, none of the parameter estimates from the three hardiness dimensions to surface acting was statistically significant. Thus, H2 was not supported. For H3, the parameter estimate from challenge to deep acting was statistically significant, whereas the parameter estimates from the other two hardiness dimensions to deep acting were not. Thus, H3 was mostly not supported. For H4, both the parameter estimates from coworker sympathy and supervisory support to surface acting were statistically significant, whereas the parameter estimate from coworker consultation to surface acting was not. Thus, H4 was mostly supported. For H5, the parameter estimate from coworker sympathy to deep acting was statistically significant, whereas neither of the other two parameter estimates to deep acting was statistically significant. Thus, H5 was mostly not supported.

Table 2 also shows the parameter estimates of the six statistically significant indirect effects. For H6, (1) coworker sympathy negatively mediated between challenge to surface acting, (2) coworker sympathy negatively mediated between control to surface acting, (3) supervisory support negatively mediated between challenge to surface acting, and (4) supervisory support negatively mediated between control to surface acting. Thus, H6 was moderately supported with four of the nine mediations statistically significant. For H7, (1) coworker sympathy positively mediated between challenge to deep acting, and (2) coworker sympathy positively mediated between control to deep acting. Thus, H7 was weakly supported with two of the nine mediations statistically significant.

3.4. Interaction effects

Fig. 2 summarizes the structural relations discussed above.

Table 3 shows the moderated regressions with surface acting. For H8, four interactions were statistically significant: interactions of supervisory support with (1) commitment and (2) challenge; interaction of coworker sympathy with (3) challenge; and interaction of coworker consultation with (4) challenge. Under low level of supervisory support, commitment and surface were unrelated ($\beta = -0.065$, *ns*), whereas, under high level of supervisory support, they were inversely related ($\beta = -0.273$, $p < 0.01$). Under low level of coworker sympathy, challenge and surface acting were unrelated ($\beta = -0.018$, *ns*), whereas under high level of coworker sympathy, they were inversely related ($\beta = -0.246$, $p < 0.05$). Under low level of supervisory support, challenge and surface acting were unrelated ($\beta = -0.039$, *ns*), whereas under high level of supervisory support, they were inversely related ($\beta = -0.285$, $p < 0.01$). Under low level of coworker consultation, challenge and surface acting were unrelated ($\beta = -0.071$, *ns*), whereas under high level of coworker consultation, they were inversely related ($\beta = -0.239$, $p < 0.05$).

Table 2

Direct and indirect effects parameter estimates.

Structural relations	B	SE	t-ratio	Low	Up	P
Commitment → Coworker sympathy	.049	.076	1.51			.130
Commitment → Supervisory support	.032	.078	.310			.758
Commitment → Coworker consultation	−0.070	.082	−0.700			.492
Commitment → Surface acting	−0.131	.038	−1.39			.164
Commitment → Deep acting	.041	.041	.410			.680
Challenge → Coworker sympathy	.345	.072	3.73			.001
Challenge → Supervisory support	.163	.074	2.49			.042
Challenge → Coworker consultation	.346	.077	3.71			.001
Challenge → Surface acting	−.115	.039	−1.21			.225
Challenge → Deep acting	.207	.041	2.07			.039
Challenge → Coworker sympathy → Surface acting	−.113	.014		−.162	−.043	.010
Challenge → Coworker sympathy → Deep acting	.111	.089		.005	.131	.010
Challenge → Supervisory support → Surface acting	−.097	.062		−.017	−.025	.010
Control → Coworker sympathy	.202	.078	2.54			.042
Control → Supervisory support	.188	.080	2.73			.035
Control → Coworker consultation	.124	.084	1.18			.236
Control → Surface acting	−.111	.040	−1.40			.160
Control → Deep acting	.091	.043	.85			.397
Control → Coworker sympathy → Surface acting	−.106	.026		−.121	−.013	.049
Control → Coworker sympathy → Deep acting	.098	.078		.009	.099	.049
Control → Supervisory support → Surface acting	−.119	.045		−.133	−.010	.011
Coworker sympathy → Surface acting	−.179	.036	−2.65			.008
Coworker sympathy → Deep acting	.156	.038	2.16			.030
Supervisory support → Surface acting	−.214	.035	−2.07			.047
Supervisory support → Deep acting	.075	.037	.210			.834
Coworker consultation → Surface acting	−.013	.033	−1.13			.137
Coworker consultation → Deep acting	.076	.035	.190			.853

Table 3
Hierarchical moderated regressions.

Model	Surface acting				Deep acting			
	R^2	ΔR^2	t-ratio	p	R^2	ΔR^2	t-ratio	p
Commitment, Coworker sympathy	.484*				.350*			
Commitment x Coworker sympathy	.494*	.010	1.64	.103	.414*	.044	3.374	.001
Commitment, Supervisory support	.440**				.300*			
Commitment x supervisory support	.463**	.023	2.329	.021	.370*	.070	3.352	.001
Commitment, Coworker consultant	.453*				.308*			
Commitment x Coworker consultation	.469*	.016	1.886	.061	.366*	.058	2.969	.003
Challenge, Coworker sympathy	.474*				.384*			
Challenge x Coworker sympathy	.503*	.029	2.721	.007	.408*	.024	2.075	.039
Challenge, Supervisory support	.454*				.365*			
Challenge x Supervisory support	.475**	.021	2.204	.029	.375*	.010	1.318	.189
Challenge, Coworker consultation	.453*				.362*			
Challenge x Coworker consultation	.499*	.046	3.392	.001	.391**	.029	2.22	.027
Control, Coworker sympathy	.496*				.364*			
Control x Coworker sympathy	.506*	.010	1.594	.113	.393*	.029	2.249	.026
Control, Supervisory support	.457*				.328*			
Control x Supervisory support	.461*	.005	.987	.325	.345**	.017	1.570	.118
Control, Coworker consultation	.498*				.333*			
Control x Coworker consultation	.484*	.014	1.468	.144	.355*	.023	1.809	.072

* $p < .001$

Fig. 3 shows the interaction plot of supervisory support moderating between commitment and surface acting. The other three interaction plots, with the same pattern as Fig. 3, are available upon request. They reveal that under low level of support, the frequency of surface acting did not differ significantly between hardiness levels, whereas under high level of support, surface acting occurred less often with high hardiness level than with low hardiness level. Thus, H8 was partially supported with four of the nine moderation effects statistically significant in the expected direction.

Table 3 also shows the moderated regressions with deep acting. For H9, six interactions are statistically significant: interaction of coworker sympathy with (1) commitment, (2) challenge, and (3) control; interaction of supervisory support with (4) commitment; and interaction of coworker consultation with (5) commitment and (6) challenge. Under low level of coworker sympathy, commitment and deep acting were unrelated ($\beta = 0.078$, *ns*), whereas under high level of coworker sympathy, they were related ($\beta = 0.292$, $p < 0.01$). Under low level of supervisory support, commitment and deep acting were unrelated ($\beta = 0.045$, *ns*), whereas under high level of supervisory support, they were related ($\beta = 0.264$, $p < 0.01$). Under low level of coworker consultation, commitment and deep acting were unrelated ($\beta = 0.040$, *ns*), whereas under high level of coworker consultation, they were related ($\beta = 0.231$, $p < 0.01$). Under low level of coworker sympathy, challenge and deep acting were unrelated ($\beta = 0.050$, *ns*), whereas under high level of coworker consultation, they were related ($\beta = 0.249$, $p < 0.01$). Under low level of coworker consultation, challenge and deep acting were unrelated ($\beta = 0.080$, *ns*), whereas under high level of coworker consultation, they were related ($\beta = 0.190$, $p < 0.01$). Under low level

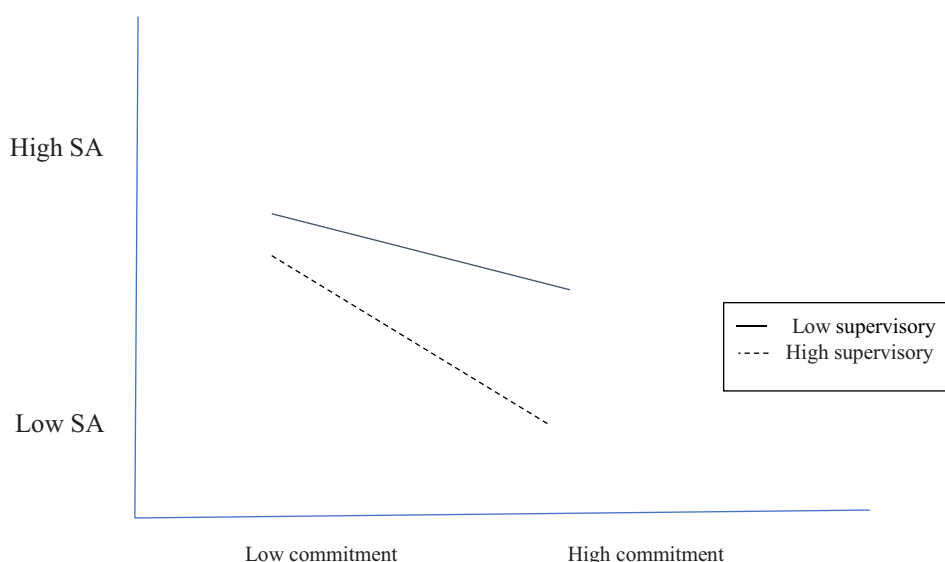


Fig. 3. Commitment and supervisory support for surface acting (SA).

of coworker sympathy, control and deep acting were unrelated ($\beta = 0.070$, *ns*), whereas under high level of coworker sympathy, they were related ($\beta = 0.271$, $p < 0.01$).

Fig. 4 shows the interaction plot of coworker sympathy moderating between commitment and deep acting. The other five interaction plots, with the same pattern as Fig. 4, are available upon request. They reveal under low level of support, the frequency of deep acting did not differ significantly between hardiness levels, whereas under high level of support, deep acting occurred more often with high hardiness level than with low hardiness level. Thus, H9 was mostly supported with six of the nine moderation effects statistically significant in the expected direction.

4. Discussion

Our results of the study were interpreted through the lens of stress appraisal and coping (Lazarus and Folkman, 1984) and COR (Hobfoll and Freedy, 1993) theories. While both address how nurses were motivated to find ways to regulate their emotions throughout patientcare, COR focuses on how they utilized a combination of resources when engaging in emotional labor (Jeung et al., 2018; Kim, 2020; Prapanjaroensin et al., 2017).

Our findings reveal that perceived social support was closely linked to hardiness. First, two of the three hardiness dimensions (challenge and control) were positively related to support. Second, two of the support dimensions (coworker sympathy and supervisory support) were negatively related to surface acting, and coworker sympathy was positively related to deep acting. Third, coworker sympathy and supervisory support mediated between hardiness and emotional labor: four for surface acting and two for deep acting were significant. Fourth, the support dimensions moderated between the hardiness dimensions and emotional labor, four for surface acting and six for deep acting. Overall, support intervened between hardiness and emotional labor, with six of 18 mediated effects significant and ten of 18 moderator effects significant.

Of the hardiness dimensions (Kobasa, 1979), commitment did not play as important a role as challenge and control. Among the nurses in our study, commitment through a sense of purpose, and the belief to be a vital and active participant in one's own life seemed too general and distal from their work roles. In contrast, control through believing that one could influence the course of events, even unpleasant ones, and where personal responsibility was undertaken for both failures and successes, were more relevant and proximal to their nursing roles. Challenge as the ability to view all situations as potentially yielding successful outcomes, became an incentive for growth and seeking resources when faced with external changes. Like control, this hardiness dimension was more relevant and proximal to their roles than commitment. Of the support dimensions (Zimet et al., 1988), coworker consultation played a less important role than either coworker sympathy or supervisory support.

As a linchpin variable, perceived social support operated in two ways. First, it was a conduit from hardiness to emotional labor, especially surface acting, much like a drawbridge connecting the fortress (psychological resources like resilience) on one side, over a moat (work environment obstacles during the pandemic), to the outside world (the way to interact with patients, patients' families, and coworkers) on the opposite side. Through coworker sympathy and supervisory support to manage task-related difficulties ("My supervisor is willing to help me make decisions"), nurses receiving greater support chose surface acting less often than colleagues receiving weaker support.

Second, perceived social support also modified the linkage between hardiness and emotional labor. With strong support, high hardiness led to the surface acting being expressed the least often compared with low hardiness and compared to weak support

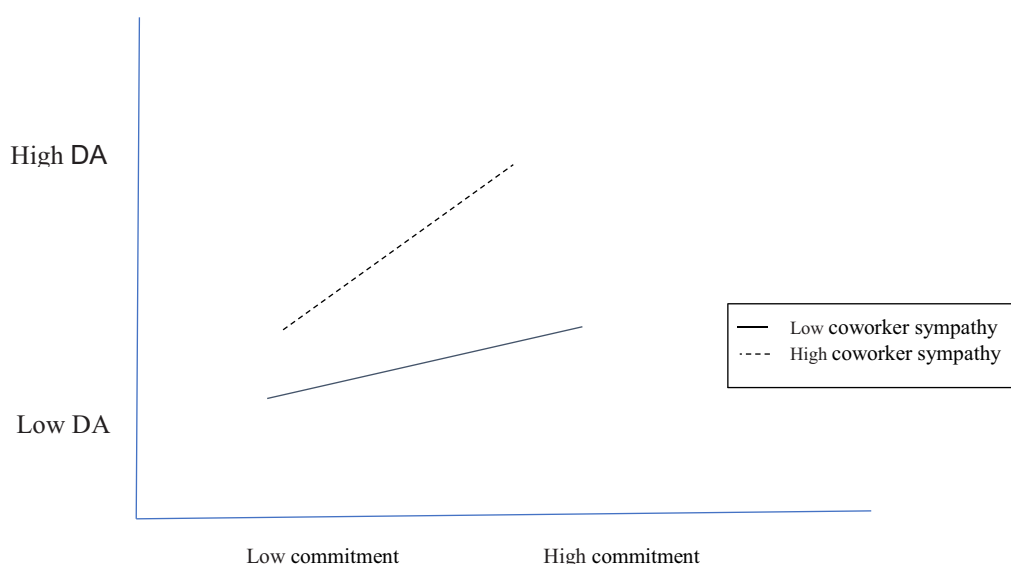


Fig. 4. Commitment and coworker sympathy interaction for deep acting (DA).

irrespective of hardiness levels. The primacy of resource loss principle (Hobfoll and Freedy, 1993) applies here, where having high levels of both support and hardiness led to the most conservation of emotional energies to prevent further losses from surface acting. Conversely, high support led to frequent use of deep acting, especially with a high level of hardiness, whereas with low support, deep acting was less frequently used irrespective of hardiness levels. The resource investment principle (Halbesleben et al., 2014) applies here, where the combination of high levels of support and hardiness led to the expenditure of emotional energy to gain future resources from deep acting. In sum, our study's major contribution was in showing the influence of social support on enhancing the impact of hardiness on emotional labor, where deep acting was increased while surface acting was decreased.

Only a few studies conducted before or during the pandemic, have evaluated the resources' joint impact, either in facilitating or hindering clinical care and patient outcomes.

Our findings, nevertheless, align with these studies. Hatamipour et al. (2017) reported that psychological hardiness and social support were strongly associated with nurses' perceived quality of life. This in turn, affected how well they maintained and improved the health and quality of life of their patients. Lee et al. (2020) found that surface acting was associated with anxiety and frustration, whereas deep acting was negatively associated with anxiety, anger, and frustration but positively associated with enjoyment and pride. Further, deep acting was associated with job satisfaction, whereas surface acting was unrelated to job satisfaction. Kılınc et al. (2021) found that psychological resilience strengthened as perceived social support increased among nurses in Turkey. Ha et al.'s (2021) review of research on nurses in Korea revealed that both coworker and supervisory support to be negatively associated with surface acting, whereas coworker support to be positively associated with deep acting. Liu et al. (2021) found that psychological capital, which included resilience, and perceived social support mediated the impact of job stress on burnout. Sarshar et al. (2021) found that psychological hardiness mediated the impact of perceived social support on emotional labor. Marey-Sarwan et al. (2022) reported that self-reliance was strengthened through social and family support. Zhang et al. (2023) found that perceived social support mediated the impact of empathy on compassion fatigue.

These and our own findings shed light on whether resources are universally valued or culture specific. Hardiness and social support were found to be relevant among nurses with a diverse range of cultural values. Pines et al. (2002) found similarities across four countries in the values attached to social support. Specifically, the perceived *availability* of social support had stronger impact on burnout than the perceived importance of social support. However, there was significant variation in ratings of importance and availability at the country level, suggestive of differences in how various cultures valued such resource. Halbesleben et al.'s (2014) review suggests that how dispositional and social resources are utilized should be compared across cultures in the service sector, especially among healthcare workers (Prapanjaroensin et al., 2017).

Diogo et al.'s (2021) qualitative study reveal how nurses drew upon their network of support, as an impromptu resource, especially when using emotional labor during patientcare. Emotional support came not from colleagues alone, but from their own patients and patients' loved ones. The lyrics quoted in our Introduction's opening give voice to the nurses' collective experience in Diogo et al.'s (2021) and our studies. For nurses in both settings, social support facilitated adaptation to the rapid, unpredictable, and uncontrollable changes brought on by the pandemic. For nurses showing emotions also, the care relationship involves expressing empathy, availability, sensitivity to the emotional state of patients, facilitating mutual sharing of feelings.

While emotional communications are expressed through both surface and deep acting, their frequency of use may fluctuate over time. Among nurses in Abadan, Iran, Saei et al. (2024) found that deep acting and surface acting had nearly identical frequencies of use during the fall of 2019 at the pandemic's onset. In contrast, among our sample of nurses in Tehran, Iran, as shown in Table 1, deep acting was less frequently used ($M = 13.51$, $SD = 4.18$) than surface acting ($M = 16.20$, $SD = 6.72$) during the summer of 2020 when the pandemic was approaching its apex. The prolonged pandemic likely created a *loss spiral* (Halbesleben et al., 2014). As surface acting became more commonplace relative to deep acting, nursing burnout levels increased concomitantly (Saei et al., 2024). This stoked increased reliance on one's resiliency and support from coworkers and supervisors over time. The implication is that hospital management should create a *gain spiral* by encouraging mutual support, sufficient staffing, adequate nurse training, and motivating the experienced staff to take on greater responsibilities. Taken together, these resources will improve the conditions of the workplace for nurses and patients alike.

4.1. Limitations and future research

Several study limitations are worth noting. First, with social support as a central resource, the obvious question is whether its mediating and moderating functions would have been comparable in our sample of nurses during the pre-and post-pandemic stages, which a repeated-measures design over three periods (before, during, and after) would have allowed us to compare its temporal impact (Halbesleben et al., 2014).

Second, based on Schierberl Scherr et al. (2021), compared to nurses who did not care for patients with COVID-19, those who did reported increased symptoms of PTSD, depression, and anxiety, therefore, treating patients with COVID-19 may have distinctly influenced how perceived social support was related to or modified the impact on emotional labor.

Third, each of the study participants was the sole information source on all study variables, increasing the likelihood of common method bias, which would not have explained the differential effects found between the two dimensions of emotional labor. So future studies could have coworkers and supervisors observe and rate the interactions of nurses.

Last, Although, developmental opportunities should be increased with the support of the health institutions, such as posting training opportunities for nurses working during the pandemic (Diogo et al. 2021), but in our study supervisory support just were examined, and the influences of organizational resources and community support were not considered.

4.2. Practical Implications

Based on [Diogo et al.'s \(2021\)](#) findings, among the most tangible areas of organizational support is through post-registered nurse training in emotional communications ([Chant et al., 2002](#)). Chant et al.'s review and evaluation of communication skills training and development programs in healthcare identified various methods being used for registered nurses. Among the most effective were skills practices through role-play and video demonstrations. The training content included dealing with emotional issues and relationship development, where in both, expressing empathy and support are emphasized, and providing support to relatives of seriously ill patients. Such training takes into consideration how these skills require the judicious use of emotional labor, especially deep acting ([Brotheridge and Lee, 2002](#)). While this review article was published twenty years before the pandemic, the training methods and content would have been applicable both during and following the pandemic.

According to [Chen and Yu \(2021\)](#), social support and empathy become increasingly "contagious" when those who first received social support themselves later supported other users. Moreover, those who received empathic support subsequently expressed higher levels of empathy with colleagues. Thus, in-person mentoring (the "buddy system") of inexperienced nurses may lead to acts of mentoring toward future newcomers. Over time, support pairs may grow larger and evolve from informal to formal networks. These mechanisms foster enduring close-knit connections, which are especially critical during emergencies and crises such as global pandemics ([Zhang et al., 2023](#)).

5. Conclusion

Our study examined how front-line nurses delivered patientcare drawing from a combination of psychological and social resources during the challenging pandemic period. The findings suggest that limited resource availability did influence their usage. Among our sample of nurses in Tehran, the use of surface and deep acting was critical during patient encounters. The emotional support from coworkers and task support from supervisors bridged the indirect impact of challenge and control, as aspects of psychological hardiness, to emotional labor, as well as moderated their negative impact on surface acting and positive impact on deep acting. Through such support, nurses were motivated and capable of handling patientcare challenges, negative feelings, and emotional responses from patients and their family members. Many transformed their experiences into opportunities for professional development while deepening relations with patients and coworkers alike.

What is already known

- Nurses globally face challenges that increase their dependence on material, personal, and social resources to provide quality clinical care
- Social support from other workplace members buffered the effects of emotional labor on health outcomes
- Social support increases psychological capacity in managing patients' emotional needs by reinforcing psychological hardiness.

What this paper adds

- Our study of nurses examined the intervening role of social support based on two conservation of resources principles: (1) *primacy of resource loss*, and (2) *resource investment*.
- On the resource loss side, nurses with high levels of both social support and hardiness reduced the expenditure of emotional energy to prevent further losses due to surface-acting
- On the resource investment side, nurses with high levels of both social support and hardiness increased expenditure of emotional energy through deep acting.

Ethics statement

The nurses who were willing to take part signed an informed consent form issued by the parent company and received additional information about the purpose of the study. In addition to voluntary participation in the research study, the confidentiality of the study participants was ensured.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability statement

The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

CRedit authorship contribution statement

Elham SAEI: Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation. **Raymond T. LEE:** Writing – review & editing, Methodology, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

This research would not have been possible without the exceptional support of HR of hospitals in Tehran. Their knowledge and exacting attention to detail have been an inspiration and kept our work on track from the first encounter with them. The authors thank Soheil Sarshar for assistance in the data collection and statistical analysis in the study.

References

- Atashi, V., Safazadeh, S., Taleghani, F., Sami, R., Ahmadi, S., Pourkermanian, P., 2023. Nursing care challenges for patients suffering from COVID-19 from nurses' perspective in Iran: a descriptive qualitative study. *Iran J. Nurs. Midwifery Res.* 28 (6), 764–771.
- Babaeiamiri, N., 2016. Predicting nurses' mental health based on their job burnout, perceived social support, and psychological hardiness. *Modern Care J.* 13 (2). <https://doi.org/10.17795/modernc.8856>.
- Baldassini Rodriguez, S., Bardacci, Y., El Aoufy, K., Bazzini, M., Caruso, C., Giusti, G.D., Rasero, L., 2022. Promoting and risk factors of nurses' hardiness levels during the COVID-19 pandemic: Results from an Italian cohort. *Int. J. Environ. Res. Public Health* 19 (3), 1523.
- Bartone, P.T., McDonald, K., Hansma, B.J., Solomon, J., 2022. Hardiness moderates the effects of COVID-19 stress on anxiety and depression. *J. Affect. Disord.* 317, 236–244.
- Bartone, P.T., Ursano, R.J., Wright, K.M., Ingraham, L.H., 1989. The impact of a military air disaster on the health of assistance workers: a prospective study. *J. Nerv. Ment. Dis.* 177 (6), 317–328.
- Behbahani, M.A., Masoumy, M., Khosravi, A., Bahrani, M., 2023. Experiences of nurses in caring for patients with COVID-19: a qualitative research. *Iran J. Nurs. Midwifery Res* 28 (3), 259–263.
- Brotheridge, C.M., Lee, R.T., 2003. Development and validation of the emotional labour scale. *J. Occup. Organ. Psychol.* 76, 365–379, 2003.
- Brotheridge, C.M., Lee, R.T., 1998. On the dimensionality of emotional labour: development and validation of the Emotional Labour Scale. In: Paper presented at the First Conference on Emotions in Organizational Life. San Diego, CA.
- Brotheridge, C.M., Lee, R.T., 2002. Testing a conservation of resources model of the dynamics of emotional labor. *J. Occup. Health Psychol.* 7 (1), 57–67.
- Çam, O., Büyükbayram, A., 2017. Nurses' resilience and effective factors. *J. Psychiatric Nursing/Psikiyatri Hemşireleri Derneği* 8 (2), 118–126.
- Chant, S., Randle, J., Russell, G., Webb, C., 2002. Communication skills training in healthcare: a review of the literature. *Nurse Educ. Today* 22 (3), 189–202.
- Chen, Y., Xu, Y., 2021. Exploring the effect of social support and empathy on user engagement in online mental health communities. *Int. J. Environ. Res. Public Health* 18 (13), 6855.
- Croghan, I.T., Chesak, S.S., Adusumalli, J., et al., 2021. Stress, resilience, and coping of healthcare workers during the COVID-19 pandemic. *J. Prim Care Community Health* 12. <https://doi.org/10.1177/21501327211008448>, 2021.
- Diogo, P.M.J., Rodrigues, J.R.G.D.V., Silva, T.A.D.A.M.D.A., Santos, M.L.F., 2021. Emotional labor of nurses in the front line against the COVID-19 pandemic. *Rev. Bras. Enferm.* 74. <https://doi.org/10.1590/0034-7167-2020-0660>.
- Ebrahimi, H., Jafarjalal, E., Lotfolahzadeh, A., Kharghani Moghadam, S.M., 2021. The effect of workload on nurses' quality of life with moderating perceived social support during the COVID-19 pandemic. *Work* 70 (2), 347–354.
- Grandey, A.A., 2000. Emotion regulation in the workplace: a new way to conceptualize emotional labor. *J. Occup. Health Psychol.* 5 (1), 59–100.
- Ha, D.J., Park, J.H., Jung, S.E., Lee, B., Kim, M.S., Sim, K.L., Choi, Y.H., Kwon, C.Y., 2021. The experience of emotional labor and its related factors among nurses in general hospital settings in Republic of Korea: a systematic review and meta-Analysis. *Sustainability* 13 (21), 11634.
- Halbesleben, J.B., Paustian-Underdal, S.C., Westman, M., 2014. Getting to the "COR": understanding the role of resources in Conservation of Resources Theory. *J. Manage* 40 (5), 1334–1364.
- Hatamipour, K., Hoveida, F., Rahimghaee, F., Babaeiamiri, N., Ashoori, J., 2017. The nurses' quality of life based on burnout, perceived social support and psychological hardiness. *J. Res. Developm. Nurs. Midwifery* 14 (1), 22–28.
- Hobfoll, S.E., 1989. Conservation of resources: a new attempt at conceptualizing stress. *Am. Psychol.* 44 (3), 513–524.
- Hobfoll, S.E., 2002. Social and psychological resources and adaptation. *Rev. Gen. Psychol.* 6 (4), 307–324.
- Hobfoll, S.E., Freedy, J., 1993. Conservation of resources: a general stress theory applied to burnout. In: Schaufeli, W.B., Maslach, C., Marek, T. (Eds.), *Professional burnout: Recent developments in Theory and Research*. Taylor & Francis, Milton Park, UK, pp. 115–133.
- Hochschild, A.R., 1983. *The Managed heart: Commercialization of Human Feeling*. University of California Press, Berkeley.
- Jeung, D.Y., Kim, C., Chang, S.J., 2018. Emotional labor and burnout: a review of the literature. *Yonsei Med. J.* 187–193. <https://doi.org/10.3349/ymj.2018.59.2.187>.
- Kılınc, T., Sığ Çelik, A., 2021. Relationship between the social support and psychological resilience levels perceived by nurses during the COVID-19 pandemic: a study from Turkey. *Perspect. Psychiatr. Care* 57 (3), 1000–1008.
- Kim, J.S., 2020. Emotional labor strategies, stress, and burnout among hospital nurses: a path analysis. *J. Nurs. Scholarsh.* 52 (1), 105–112.
- Kobasa, S.C., 1979. Stressful life events, personality, and health – Inquiry into hardiness. *J. Pers. Soc. Psychol.* 37 (1), 1–11.
- Kobasa, S.C., Maddi, S.R., Kahn, S., 1982. Hardiness and health: a prospective study. *J. Pers. Soc. Psychol.* 42 (1), 168–177.
- Lam, W., Chen, Z., 2012. When I put on my service mask: determinants and outcomes of emotional labor among hotel service providers according to affective event theory. *Int. J. Hosp. Manag.* 31 (1), 3–11.
- Lazarus, R.S., Folkman, S., 1984. *Stress, appraisal, and Coping*. Springer, New York.
- Lee, M., Jang, K.S., 2020. Nurses' emotions, emotional labor, and job satisfaction. *Int J Workplace Health Manag* 13 (1), 16–31.
- Lee, R.T., Lovell, B.L., Brotheridge, C.M., 2010. Tenderness and steadiness: relating job and interpersonal demands and resources with burnout and physical symptoms of stress in Canadian physicians. *J. Appl. Soc. Psychol.* 40 (9), 2319–2342.
- Lennon, J., McCartney, P., 1967. *With a little help from my friends*, In Sgt. Pepper's Lonely Hearts Club Band, Sony/ATV Music Publishing LLC, New York.
- Liu, Y., Aunguroch, Y., Gunawan, J., Zeng, D., 2021. Job stress, psychological capital, perceived social support, and occupational burnout among hospital nurses. *J. Nurs. Scholarsh.* 53 (4), 511–518.
- Maddi, S.R., Kobasa, S.C., 1984. *The Hardy executive: Health under Stress*. Dow Jones-Irwin, Homewood, IL.
- Machin, D., Campbell, M.J., Tan, S.B., Tan, S.H., 2018. *Sample Size For clinical, Laboratory and Epidemiology Studies*, 4th ed. Blackwell Science, Oxford, UK.

- Mardia, K.V., 1970. Measures of multivariate skewness and kurtosis with applications. *Biometrika* 57, 519–530.
- Marey-Sarwan, I., Hamama-Raz, Y., Asadi, A., Nakad, B., Hamama, L., 2022. It's like we're at war": nurses' resilience and coping strategies during the COVID-19 pandemic. *Nurs. Inq.* 29 (3), e12472. <https://doi.org/10.1111/nin.12472>.
- Mazzetti, G., Guglielmi, D., Topa, G., 2020. Hard enough to manage my emotions: how hardiness moderates the relationship between emotional demands and exhaustion. *Front Psychol* 11, 1194.
- Nam, T., Kabutey, R., 2021. How does social media use influence the relationship between emotional labor and burnout? The case of public employees in Ghana. *J. Global Inf. Manag.* 29 (4), 32–52.
- Pines, A.M., Ben-Ari, A., Utasi, A., Larson, D., 2002. A cross-cultural investigation of social support and burnout. *Eur. Psychol.* 7, 256–264.
- Prapanjaroensin, A., Patrician, P.A., Vance, D.E., 2017. Conservation of resources theory in nurse burnout and patient safety. *J. Adv. Nurs.* 73 (11), 2558–2565.
- Saei, E., Sarshar, S., Lee, R.T., 2024. Emotional labor and burnout among nurses in Iran: core self-evaluations as mediator and moderator. *Hum Resour Health* 22 (1). <https://human-resources-health.biomedcentral.com/articles/10.1186/s12960-024-00896-y>.
- Sarshar, S., Rafezi, Z., Saei, E., Rostami Malkhalifeh, R., 2021. The effect of perceived social support on emotional labor mediated by psychological hardiness. *Transf. Manage. J.* 13 (1), 189–208.
- Schierberl Scherr, A.E., Ayotte, B.J., Kellogg, M.B., 2021. Moderating roles of resilience and social support on psychiatric and practice outcomes in nurses working during the COVID-19 pandemic. *SAGE Open Nursing* 7. <https://doi.org/10.1177/23779608211024213>.
- Shen, Y.J., Wei, L., Li, Q., Li, L.Q., Zhang, X.H., 2022. Mental health and social support among nurses during the COVID-19 pandemic. *Psychol. Health Med.* 27 (2), 444–452.
- Simoni, P.S., Paterson, J.J., 1997. Hardiness, coping, and burnout in the nursing workplace. *J. Prof. Nurs.* 13 (3), 178–185.
- Ullah, B.B., Budiani, M.S., 2023. Relevance of strictly related and emotional work in regional general hospital nurses. *Jurnal Penelitian dan Pengukuran Psikologi* 12 (1), 11–23.
- Zakeri, M.A., Ghaedi-Heidari, F., Khaloobagheri, E., et al., 2022. The relationship between nurse's professional quality of life, mindfulness, and hardiness: a cross-sectional study during the COVID-19 outbreak. *Front Psychol* 13, 866038.
- Zamanzadeh, V., Valizadeh, L., Khajehgoodari, M., Bagheriyeh, F., 2021. Nurses' experiences during the COVID-19 pandemic in Iran: a qualitative study. *BMC Nurs* 20 (1), 1–9.
- Zhang, J., Wang, X., Chen, O., et al., 2023. Social support, empathy and compassion fatigue among clinical nurses: structural equation modeling. *BMC Nurs* 22 (1), 425.
- Zimet, G.D., Dahlem, N.W., Zimet, S.G., Farley, G.K., 1988. The multidimensional scale of perceived social support. *J. Pers. Assess.* 52 (1), 30–41.