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Nian-ping Luo
Jiangxi Cancer Hospital and Institute (The Second Affiliated Hospital of Nanchang Medical College)
Ya-hui Peng
Jiangxi Cancer Hospital and Institute (The Second Affiliated Hospital of Nanchang Medical College)
Yan Hu
Jiangxi Cancer Hospital and Institute (The Second Affiliated Hospital of Nanchang Medical College)
Xiao-song Wang
2523285149@qq.com
Jiangxi Cancer Hospital and Institute (The Second Affiliated Hospital of Nanchang Medical College)
Jin-hua Hong
Jiangxi Cancer Hospital and Institute (The Second Affiliated Hospital of Nanchang Medical College)

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Belief in Free Will, Job Crafting, and Professional Quality of Life among Chinese Nurses Caring for Dying Patients: A Cross-Sectional Study

Nian-ping Luo[1], Ya-hui Peng[1], Yan Hu[1], Xiao-song Wang[1†*] and Jin-hua Hong[1†]

[1] Phase I Clinical Trial Research Ward, Jiangxi Cancer Hospital and Institute (The Second Affiliated Hospital of Nanchang Medical College), Nanchang, Jiangxi Province, China

[†] These authors contributed equally to this work.

[*] Correspondence: Xiao-song Wang, 2523285149@qq.com

Email addresses: Nian-ping Luo: [email]; Ya-hui Peng: [email]; Yan Hu: [email]; Xiao-song Wang: 2523285149@qq.com; Jin-hua Hong: [email]

ORCID (corresponding author): 0009-0001-7644-9985

Abstract

Background: Nurses who care for dying patients on oncology, geriatric, and hospice wards in China carry a heavy emotional load. This study examined how belief in free will and job crafting relate to compassion satisfaction and emotional exhaustion in these nurses.

Methods: Registered nurses completed an anonymous online questionnaire. Of 199 returns, 187 passed consent, attention, and completeness checks. We then removed 57 respondents who gave the same answer to 15 or more consecutive items, leaving 130. Four short scales written for the study measured the main variables. Analyses included hierarchical regression adjusted for work and demographic characteristics, confirmatory factor analysis, and bootstrapped indirect effects; the main analyses were repeated in the unscreened data.

Results: Belief in free will was associated with job crafting ($\beta = .42$, $p < .001$), and job crafting with compassion satisfaction ($\beta = .70$, $p < .001$). Compassion satisfaction was the only variable independently associated with emotional exhaustion ($\beta = -.52$, $p < .001$). Belief in free will was linked to exhaustion mainly through job crafting and compassion satisfaction (indirect effect = −.15, 95% CI [−.32, −.04]). In the unscreened data, all three associations with exhaustion were close to zero. The four-factor measurement model fit marginally (robust CFI = .895, RMSEA = .081).

Conclusions: Nurses who saw their own choices as consequential changed their work more often and found more satisfaction in caring, and more satisfied nurses were less exhausted. Giving ward nurses room to adjust tasks and working relationships is a practical target for intervention studies.

Keywords: Nurses; Palliative care; Oncology nursing; Job crafting; Compassion satisfaction; Burnout; Free will; Cross-sectional study

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Background

In mainland China, most patients with advanced cancer and many frail older adults die in general hospitals rather than in hospice units. Their end-of-life care is usually given on oncology, geriatric, or mixed wards, where nurses manage symptoms, talk with families about prognosis, and carry an ordinary acute-care workload at the same time [1, 2]. The nursing role in this work is broad [3, 4], and so is its cost. Reviews of palliative care nurses report high levels of burnout [5, 6], and surveys of Chinese palliative and oncology nurses show the same picture [7, 8].

The Professional Quality of Life framework separates the rewarding side of caring work from its draining side [9, 10]. Compassion satisfaction is the pleasure of being able to help. Nurses who report more of it are more engaged and less likely to plan to leave [11, 12]. Emotional exhaustion, the sense of being worn out by work, is the core of burnout [13, 14] and has been tied to errors and worse patient outcomes [15, 16]. Oncology nurses tend to report both at once [17], which raises the question of what helps some nurses keep the reward while limiting the drain. Personal resources such as resilience are one answer that has been studied [18].

Job crafting is another. The term describes changes that employees make on their own initiative to the tasks, relationships, or meaning of their work [19, 20]. A nurse who asks to learn a new skill, reorganizes a routine, or builds closer ties with colleagues is crafting the job. In the job demands–resources model, such behavior adds resources and makes demands easier to carry [21]. Studies of hospital nurses have linked job crafting with engagement and well-being [22–25], and a recent study of palliative care nurses reported links with mental and physical health [26]. Less is known about why some nurses craft their jobs and others do not.

Belief in free will may be part of the answer. People differ in how strongly they believe that they choose their own actions and are responsible for them, and these beliefs can be

measured [27, 28]. Weakening the belief in experiments changes behavior [29], and people who hold it more firmly report better health behavior and well-being, partly because they feel more in control [30, 31]. Nurses who face deaths they cannot prevent may still believe that their response is their own choice, and that belief could make them more willing to change how they work. We found no study that had examined this belief in nurses.

We therefore surveyed nurses on wards that regularly care for dying patients and tested three hypotheses. H1: belief in free will is positively associated with job crafting and compassion satisfaction. H2: job crafting is positively associated with compassion satisfaction and negatively associated with emotional exhaustion. H3: belief in free will is associated with emotional exhaustion mainly through job crafting and compassion satisfaction, so that its direct association is small once both are taken into account. To keep the questionnaire short enough for nurses to complete during a shift, we wrote brief scales for all four constructs, and we report their measurement properties alongside the main results.

Methods

Study design

This was a cross-sectional online survey reported according to the STROBE guideline [32].

Setting and samples

Nursing managers in the participating hospitals sent a questionnaire link and QR code to ward WeChat groups. The survey was hosted on Questionnaire Star (wjx.cn), which allowed one submission per device and account. Because the link was forwarded through group chats, we do not know how many nurses received it and cannot report a response rate.

Eligible nurses were registered, gave direct care to adult inpatients, and worked on oncology, geriatric, hospice/palliative, or other wards that regularly care for patients at the end of life. Nurses in purely administrative roles, students, and nurses on long-term leave were excluded. Participation was anonymous and voluntary. No sample size was set in advance; we recruited as many nurses as the participating wards could reach. The analytic sample of 130 gave about 12 participants per predictor in the largest regression model (11 predictors).

Measurements

Background items covered age (five bands), gender, professional title (nurse, senior nurse, charge nurse or above), years of experience (four bands), type of hospital, ward, average number of night shifts per month (four bands), and whether the nurse had received formal palliative care training.

The research team wrote four short scales for this study. Items drew on published work on lay beliefs about free will [27, 28], on job crafting [19, 20], and on the compassion satisfaction and burnout components of professional quality of life [10]. The team checked the items for clarity and relevance to ward nursing. The scales were not adapted from existing instruments, and they did not go through expert content-validity rating or pilot testing. All items are listed in Additional file 1: Table S5.

Belief in free will had seven items, for example “Even when circumstances are unfavorable, I can still decide how to act,” rated from 1 (strongly disagree) to 5 (strongly agree); totals range from 7 to 35. Job crafting originally had nine items on seeking learning and challenge, improving work methods, building supportive relationships, and adjusting work to reduce pressure, rated from 1 (never) to 5 (always). One item, “I reduce or avoid the parts of my work that make me tense,” describes avoiding work rather than expanding it. In the full sample it

loaded .60 on the job-crafting factor, compared with .80 to .90 for the other eight items, and we dropped it after seeing these loadings. The eight-item total ranges from 8 to 40. Compassion satisfaction (five items, e.g., "My work gives me a sense of accomplishment") and emotional exhaustion (five items, e.g., "I feel emotionally drained at work") were rated from 1 (never) to 5 (very often), with totals from 5 to 25. Every item was worded in the direction of its construct. The questionnaire also contained one instructed-response item ("please select '3 = sometimes'").

Data collection and screening

Screening had two stages (Additional file 2: Figure S1). The first stage was planned before data collection. Questionnaires were removed if consent was not given, if the instructed-response item was answered incorrectly [33], or if more than 20% of the items on any scale were missing. This removed 12 of 199 questionnaires.

The second stage was added after we examined the 187 remaining questionnaires. The median completion time was 145 seconds for 31 items, and 21 respondents (11%) had chosen the same answer for every item. Since all items were positively worded, a respondent who rated compassion satisfaction and emotional exhaustion at the same extreme was unlikely to be reading the items. Following the literature on careless responding [34–36], we computed each respondent's longest run of identical consecutive answers across the 31 items (Additional file 2: Figure S2) and removed those with a run of 15 or more, about half the questionnaire. This removed 57 respondents (30.5%) and left 130. Respondents who were removed and those who were kept did not differ in any background characteristic (all $p > .08$), but those removed had answered faster (median 96 vs. 172 seconds). Because the cut-off was chosen after looking at the data, we repeated the main analyses in the full 187 and under three other screening rules.

Ethical considerations

The study was approved by the Medical Ethics Committee of Jiangxi Cancer Hospital (approval No. 2026ky019). The first page of the questionnaire explained the purpose of the study, the time required, and how the data would be stored. Nurses who selected "agree" were taken to consent and could leave at any time before submitting. No names, staff numbers, or other identifying information were collected.

Data analysis

Analyses were run in R 4.6 with the lavaan, semTools, psych, and car packages. Reliability was estimated with Cronbach's α and McDonald's ω. Pearson correlations are reported with 95% confidence intervals. Differences in the outcomes across background groups were tested with t tests or one-way ANOVA, followed by Bonferroni-corrected comparisons.

For confirmatory factor analysis we compared a four-factor model with a three-factor model in which job crafting and compassion satisfaction formed one factor, and with a one-factor model. Models were estimated with robust maximum likelihood (MLR) and, treating items as ordinal, with WLSMV. We read CFI and TLI of .90 or above as acceptable and .95 or above as good, and RMSEA and SRMR of .08 or below as acceptable [37]. Discriminant validity was judged from the average variance extracted [38] and the heterotrait–monotrait ratio [39]. Common-method variance was examined with Harman's single-factor test and by adding an unmeasured latent method factor [40].

We fitted hierarchical regressions for job crafting, compassion satisfaction, and emotional exhaustion. The first block contained age, title, years of experience, night shifts, training, and ward, with ward dummy-coded and oncology as the reference. Belief in free will, job crafting, and compassion satisfaction were then added one at a time where relevant. Ordinal background variables were entered as scores. Gender was left out because only one man remained in the

analytic sample, and hospital type was left out because nine of the 13 nurses from secondary hospitals worked on geriatric wards, which made the two variables nearly redundant. Collinearity was checked with generalized variance inflation factors. To test H3, we standardized the four study variables, estimated the paths with the same covariate-adjusted regressions, and computed indirect effects as products of coefficients with percentile confidence intervals from 5,000 bootstrap resamples. All tests were two-sided at $\alpha = .05$.

Results

Sample characteristics

Table 1 describes the 130 nurses. All but one were women. Most were aged 31 to 40 years (64.6%), held the title of charge nurse or above (65.4%), and had more than 10 years of experience (66.9%). Nine in ten worked in tertiary hospitals. By ward, 59.2% worked in oncology, 15.4% on other wards, 13.8% in geriatrics, and 11.5% on hospice/palliative units. Nearly half (47.7%) worked seven or more night shifts a month, and two thirds (66.2%) had received formal palliative care training.

Descriptive statistics and correlations

Reliability was good for all four scales ($\alpha = .846$ to $.919$; $\omega = .850$ to $.921$; Table 2). Belief in free will correlated positively with job crafting ($r = .42$, 95% CI [.27, .55]) and with compassion satisfaction ($r = .40$, 95% CI [.25, .54]) and negatively with emotional exhaustion ($r = -.32$, 95% CI [−.46, −.15]). Job crafting and compassion satisfaction were closely related ($r = .74$, 95% CI [.65, .81]). Exhaustion was lower among nurses who reported more job crafting ($r = -.42$) and more compassion satisfaction ($r = -.57$). All p values were below .001 (Figure 1).

Differences by background characteristics

Ward was the only background variable related to the outcomes (Additional file 1: Table S4). Geriatric nurses reported the most job crafting (M = 31.94), more than oncology nurses (M = 27.48, Bonferroni p = .012) and nurses on other wards (M = 27.05, p = .038). Hospice/palliative nurses reported the most exhaustion (M = 17.40), significantly more than geriatric nurses (M = 13.72, p = .034). Compassion satisfaction varied with years of experience in the omnibus test (p = .043), but no pairwise difference survived correction. With only 15 hospice/palliative nurses, the ward comparisons are imprecise.

Hierarchical regression

Background variables explained 10.0% of the variance in job crafting (p = .109). Belief in free will added 16.5% (p < .001; Table 3), and each additional point on the free-will scale went with 0.43 more points of job crafting (β = .42). Geriatric nurses scored 4.50 points higher than oncology nurses (p = .002).

For compassion satisfaction (Table 4), background variables explained 9.3% (p = .147), belief in free will added 15.6%, and job crafting added a further 36.1% (both p < .001), for a final R^2 of .609. Once job crafting was in the model, belief in free will was no longer significant (β = .11, p = .085), and job crafting carried most of the explained variance (β = .70, p < .001). Nurses on other wards reported more compassion satisfaction than oncology nurses (β = .16, p = .008).

Emotional exhaustion (Table 5) was higher on hospice/palliative wards (B = 2.49, p = .007) and lower among nurses with palliative care training (B = −1.20, p = .047); together with the other background variables these explained 13.4% (p = .022). Belief in free will added 7.6%, job crafting 8.7%, and compassion satisfaction 10.6% (all p < .001), giving a final R^2 of .404. In the final model only compassion satisfaction remained significant (β = −.52, p < .001). The

coefficients for belief in free will (β = −.08, p = .329) and job crafting (β = .02, p = .865) were close to zero. Generalized variance inflation factors did not exceed 2.41 in any model.

Indirect effects

Figure 2 and Table 7 show the standardized paths. The indirect association of belief in free will with compassion satisfaction through job crafting was .29 (95% CI [.10, .54]). For exhaustion, the total association with belief in free will was −.28 (95% CI [−.55, −.08]), of which −.20 (95% CI [−.34, −.07]) was indirect. Most of the indirect part ran through job crafting and then compassion satisfaction (−.15, 95% CI [−.32, −.04]). Job crafting was associated with exhaustion through compassion satisfaction (−.36, 95% CI [−.55, −.21]) but not directly. H1 was supported for job crafting and, for compassion satisfaction, only through job crafting. H2 held for compassion satisfaction; for exhaustion it held in the correlations but not after compassion satisfaction was controlled. H3 was supported.

Measurement model

The four-factor model fit better than the three-factor model (scaled $\Delta\chi^2 = 67.4$, df = 3, $p < .001$) and far better than the one-factor model (Table 6). Its own fit was borderline: robust CFI = .895, TLI = .882, RMSEA = .081, and SRMR = .069 under MLR, and CFI = .953, TLI = .948, and RMSEA = .089 under WLSMV. Standardized loadings ranged from .55 to .91 (Additional file 1: Table S1), and the average variance extracted was .57 to .71. Job crafting and compassion satisfaction correlated .80 at the latent level. Their heterotrait–monotrait ratio (.80) was below the .85 criterion, but the latent correlation was slightly larger than the square root of the average variance extracted for job crafting (.77), so the two constructs overlap considerably (Additional file 1: Table S2). The first unrotated factor accounted for 41% of item variance, and a latent method factor accounted for an average of 20% while improving fit only slightly (robust CFI =

.917, RMSEA = .076). Shared method variance is therefore present and probably inflates the correlations among the four variables.

Effect of response-pattern screening

The screening step changed the results for exhaustion (Additional file 1: Table S3). In all 187 questionnaires, exhaustion was essentially unrelated to belief in free will ($r = -.03$) and job crafting ($r = -.05$) and only weakly related to compassion satisfaction ($r = -.18$), and job crafting had a positive coefficient ($\beta = .28$) in the regression of exhaustion. Removing only the 21 respondents who gave identical answers to every item was enough to produce correlations of −.31, −.37, and −.47. The stricter rule used here gave −.32, −.42, and −.57, and adding a completion-time criterion ($n = 122$) changed nothing of substance. The associations among belief in free will, job crafting, and compassion satisfaction had the same direction and significance under every rule, though they were stronger in the unscreened data (for example, $r = .83$ for job crafting and compassion satisfaction). Keeping the original nine-item job-crafting scale made little difference ($r = .72$ with compassion satisfaction, .40 with belief in free will, and −.41 with exhaustion). Three respondents had free-will totals of 10 or lower; two of them chose 1 for every free-will item and 5 for every job-crafting and compassion item. Without these three, the correlation between belief in free will and job crafting rose from .42 to .60.

Discussion

In nurses who regularly care for dying patients, belief in free will went with more job crafting, job crafting went with more compassion satisfaction, and compassion satisfaction went with less emotional exhaustion. Belief in free will and job crafting had no direct association with exhaustion once compassion satisfaction was accounted for. The sequence matches our hypotheses, but data from one time point cannot show which variable comes first.

The association between belief in free will and job crafting fits the idea that people act on their work when they think their actions count. A nurse who believes that a hard shift still leaves room for choice may be more willing to ask for training, change a routine, or seek help from colleagues [19, 22, 25]. This is consistent with experimental and survey work outside nursing [29–31]. Belief in free will added little to compassion satisfaction once job crafting was known, which suggests that the belief matters through what nurses do with it.

The link between job crafting and compassion satisfaction was the strongest in the data. Some of it is likely real: nurses who learn new skills and build good working relationships have more occasions to feel effective. Some of it reflects the measures. Both scales were self-rated on the same occasion, a method factor accounted for a fifth of item variance, and the two constructs were hard to separate statistically. The coefficient of .70 is best read as an upper bound.

Compassion satisfaction was the variable most closely tied to lower exhaustion, as in studies of oncology, critical care, and palliative nurses that used the ProQOL [41–43]. In our data, the negative correlations of belief in free will and job crafting with exhaustion disappeared when compassion satisfaction was controlled, and the indirect paths through compassion satisfaction were significant. One reading is that agency beliefs and job crafting reduce exhaustion by keeping nurses in contact with what is rewarding in their work. The reverse is equally possible: exhaustion may wear down satisfaction, the willingness to craft, and even the sense of having choices.

Screening for careless responding changed the substantive conclusions. In the unscreened data, belief in free will and job crafting seemed unrelated to exhaustion, and job crafting even had a positive coefficient. Both results came largely from respondents who gave the same answer to most or all items. When all items point in one direction, such respondents raise the

correlations among positive constructs and hide the negative correlations with exhaustion. Short online questionnaires sent through WeChat groups are common in Chinese nursing research. Our experience suggests that such surveys should include reversed items, more than one attention check, and a planned minimum completion time, and that exclusion rules should be registered before the data are opened.

Background variables explained little, in line with earlier work on Chinese nurses in tertiary hospitals [44]. The exceptions were ward and training. Hospice/palliative nurses reported more exhaustion than oncology and geriatric nurses, which fits accounts of the emotional work and moral strain in Chinese palliative units [7, 45], and nurses with palliative care training reported less exhaustion. Both groups were small.

Implications for practice and research

For nurse managers, the findings point to two kinds of action that could be evaluated in trials. One is to make job crafting easier: allowing nurses to choose some tasks, to try a changed routine, or to arrange peer support. Peer support is something Chinese palliative nurses themselves ask for [46], and in high-intensity settings it has been linked with resilience [47]. The other is to protect the experiences that build compassion satisfaction, such as time to talk with families and team debriefing after a death. Burnout in palliative care has organizational causes as well [48], so these steps would add to, not replace, adequate staffing.

Two studies would test these findings directly. The first is a study that administers the brief scales alongside established measures, with reversed items and a planned screening rule, to see whether the associations hold. The second is a longitudinal design, measuring nurses at least twice, to test whether changes in belief in free will and job crafting come before changes in compassion satisfaction and exhaustion.

Limitations

The study has several limitations. The design was cross-sectional, so the order of the variables in our model is an assumption. The four scales were written for this study, were not compared with established instruments such as the ProQOL, the Job Crafting Scale, or the Free Will Inventory, and fit the four-factor model only marginally in a sample of 130. The second screening rule was chosen after inspecting the data and removed nearly a third of respondents; removed and retained nurses had similar backgrounds, but they may have differed in ways we did not measure. The decision to drop one job-crafting item was also made after seeing the data. Recruitment through WeChat groups did not allow a response rate to be calculated, almost all participants were women, and only 15 worked on dedicated palliative units, so the results speak mainly to oncology and geriatric nurses who provide end-of-life care. We did not measure staffing, team climate, or leadership.

Conclusions

Among Chinese nurses caring for dying patients, those with a stronger belief in free will reported more job crafting, job crafting was associated with greater compassion satisfaction, and compassion satisfaction was associated with less emotional exhaustion. Belief in free will and job crafting were related to exhaustion mainly through compassion satisfaction. In this sample, careless responding was enough to hide these relationships, which is worth keeping in mind for any short online survey of nurses.

Abbreviations

AVE: Average variance extracted; CFI: Comparative fit index; CI: Confidence interval; GVIF: Generalized variance inflation factor; HTMT: Heterotrait–monotrait ratio; MLR: Robust maximum likelihood; ProQOL: Professional Quality of Life; RMSEA: Root mean square error

of approximation; SRMR: Standardized root mean square residual; STROBE: Strengthening the Reporting of Observational Studies in Epidemiology; TLI: Tucker–Lewis index; WLSMV: Weighted least squares mean- and variance-adjusted

Supplementary Information

Additional file 1: Tables S1–S5. Factor loadings, convergent and discriminant validity, sensitivity analyses under different screening rules, group comparisons, and questionnaire items.

Additional file 2: Figures S1–S2. Flow of questionnaires through screening, and distribution of the longest run of identical answers.

Additional file 3: STROBE checklist.

Declarations

Ethics approval and consent to participate

The study was approved by the Medical Ethics Committee of Jiangxi Cancer Hospital (approval No. 2026ky019) and was conducted in accordance with the Declaration of Helsinki. All participants gave electronic informed consent before completing the questionnaire.

Consent for publication

Not applicable.

Availability of data and materials

De-identified item-level data, the questionnaire, and the analysis code will be deposited in a public repository before publication.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

X-SW and J-HH conceived and designed the study. N-PL and Y-HP coordinated recruitment and collected the data. X-SW analysed the data with input from YH. X-SW and J-HH drafted the manuscript. All authors interpreted the results, revised the manuscript, and read and approved the final version.

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Figure legends

Figure 1. Pearson correlations among the four study variables (n = 130). ***p < .001.

Figure 2. Standardized paths among belief in free will, job crafting, compassion satisfaction, and emotional exhaustion (n = 130), adjusted for age, professional title, years of experience, night shifts, palliative care training, and ward. Solid lines, p < .001; dashed lines, not significant. Arrows show the hypothesized order; the data are cross-sectional.

Table 1

Characteristics of the Participants (N = 130).

Characteristic	n	%
Age (years)		
≤25	16	12.3
26–30	20	15.4
31–35	47	36.2
36–40	37	28.5
>40	10	7.7
Gender		
Female	129	99.2
Male	1	0.8
Professional title		
Nurse	22	16.9
Senior nurse	23	17.7
Charge nurse or above	85	65.4
Years of experience		
<3	15	11.5
3–5	11	8.5
6–10	17	13.1
>10	87	66.9
Institution type		
Tertiary hospital	117	90.0
Secondary hospital	13	10.0
Department		
Oncology	77	59.2
Hospice/palliative care	15	11.5
Geriatrics	18	13.8
Other wards	20	15.4
Night shifts per month		
0–3	46	35.4
4–6	22	16.9
7–9	46	35.4
≥10	16	12.3
Palliative care training		
Yes	86	66.2
No	44	33.8

Note. Percentages may not total 100 because of rounding.

Table 2

Descriptive Statistics, Reliability, and Correlations Among Study Variables (N = 130).

Variable	Possible range	M	SD	α	ω	1	2	3	4
1. Belief in free will	7–35	25.68	5.39	.901	.904	—			
2. Job crafting	8–40	28.10	5.58	.917	.918	.42***	—		
3. Compassion satisfaction	5–25	19.08	3.86	.919	.921	.40***	.74***	—	
4. Emotional exhaustion	5–25	14.95	3.82	.846	.850	−.32***	−.42***	−.57***	—

Note. α = Cronbach's alpha; ω = McDonald's omega. ***p < .001.

Table 3

Hierarchical Regression of Job Crafting (Final Model, N = 130).

Variable	B	SE	95% CI	β	p
Age (band 1–5)	0.59	0.72	[−0.83, 2.02]	.119	.411
Professional title (1–3)	0.68	1.21	[−1.72, 3.09]	.094	.574
Years of experience (band 1–4)	−0.47	1.00	[−2.46, 1.52]	−.088	.640
Night shifts per month (band 1–4)	−0.13	0.46	[−1.04, 0.79]	−.025	.782
Palliative care training (yes = 1)	−0.70	0.96	[−2.59, 1.19]	−.059	.466
Hospice/palliative ward (vs. oncology)	1.07	1.44	[−1.78, 3.92]	.061	.459
Geriatric ward (vs. oncology)	4.50	1.41	[1.70, 7.30]	.280	.002
Other ward (vs. oncology)	−0.49	1.26	[−2.97, 2.00]	−.032	.698
Belief in free will	0.43	0.08	[0.27, 0.60]	.418	<.001

Note. Step 1 (covariates): $R^2 = .100$, $p = .109$. Step 2 (+ belief in free will): $R^2 = .265$, adjusted $R^2 = .210$, $\Delta R^2 = .165$, $p < .001$. Maximum GVIF^(1/(2·df)) = 2.41.

Table 4

Hierarchical Regression of Compassion Satisfaction (Final Model, N = 130).

Variable	B	SE	95% CI	β	p
Age (band 1–5)	0.21	0.37	[−0.51, 0.94]	.062	.558
Professional title (1–3)	0.55	0.62	[−0.67, 1.76]	.109	.376
Years of experience (band 1–4)	−0.15	0.51	[−1.16, 0.85]	−.042	.764
Night shifts per month (band 1–4)	0.14	0.23	[−0.33, 0.60]	.038	.562
Palliative care training (yes = 1)	0.11	0.49	[−0.85, 1.07]	.013	.825
Hospice/palliative ward (vs. oncology)	−0.88	0.73	[−2.33, 0.56]	−.073	.229
Geriatric ward (vs. oncology)	0.10	0.75	[−1.38, 1.58]	.009	.893
Other ward (vs. oncology)	1.72	0.64	[0.46, 2.98]	.162	.008
Belief in free will	0.08	0.05	[−0.01, 0.17]	.113	.085
Job crafting	0.48	0.05	[0.39, 0.58]	.701	<.001

Note. Step 1: $R^2 = .093$, $p = .147$. Step 2 (+ belief in free will): $R^2 = .249$, $\Delta R^2 = .156$, $p < .001$. Step 3 (+ job crafting): $R^2 = .609$, adjusted $R^2 = .577$, $\Delta R^2 = .361$, $p < .001$. Maximum GVIF^(1/(2·df)) = 2.41.

Table 5

Hierarchical Regression of Emotional Exhaustion (Final Model, N = 130).

Variable	B	SE	95% CI	β	p
Age (band 1–5)	−0.36	0.45	[−1.25, 0.53]	−.104	.428
Professional title (1–3)	0.56	0.76	[−0.94, 2.06]	.113	.461
Years of experience (band 1–4)	0.27	0.62	[−0.96, 1.51]	.075	.664
Night shifts per month (band 1–4)	0.49	0.29	[−0.08, 1.06]	.137	.093
Palliative care training (yes = 1)	−1.20	0.60	[−2.38, −0.02]	−.149	.047
Hospice/palliative ward (vs. oncology)	2.49	0.90	[0.70, 4.28]	.209	.007
Geriatric ward (vs. oncology)	0.46	0.92	[−1.36, 2.27]	.041	.620
Other ward (vs. oncology)	0.03	0.80	[−1.56, 1.63]	.003	.968
Belief in free will	−0.06	0.06	[−0.17, 0.06]	−.080	.329
Job crafting	0.01	0.08	[−0.14, 0.17]	.020	.865
Compassion satisfaction	−0.52	0.11	[−0.74, −0.29]	−.521	<.001

Note. Step 1: $R^2 = .134$, $p = .022$. Step 2 (+ belief in free will): $R^2 = .210$, $\Delta R^2 = .076$, $p < .001$. Step 3 (+ job crafting): $R^2 = .298$, $\Delta R^2 = .088$, $p < .001$. Step 4 (+ compassion satisfaction): $R^2 = .404$, adjusted $R^2 = .348$, $\Delta R^2 = .106$, $p < .001$. Maximum GVIF^(1/(2·df)) = 2.41.

Table 6

Fit of Alternative Measurement Models (N = 130).

			MLR				WLSMV			
Model	χ^2	df	CFI	TLI	RMSEA	SRMR	CFI	TLI	RMSEA	SRMR
Four-factor model	522.9	269	.895	.882	.081	.069	.953	.948	.089	.077
Three-factor model (job crafting and compassion satisfaction combined)	657.2	272	.836	.819	.101	.078	.929	.922	.109	.089
One-factor model	1171.8	275	.599	.562	.157	.133	.735	.710	.210	.158

Note. MLR = robust maximum likelihood; WLSMV = weighted least squares mean- and variance-adjusted with items treated as ordinal. Four-factor vs. three-factor model: scaled $\Delta\chi^2 = 67.4$, df = 3, $p < .001$.

Table 7

Standardized Direct, Indirect, and Total Effects (N = 130).

Type	Path	β	95% bootstrap CI
Direct path	Belief in free will → job crafting	.42	[.14, .74]
	Job crafting → compassion satisfaction	.70	[.55, .84]
	Compassion satisfaction → emotional exhaustion	−.52	[−.74, −.32]
	Belief in free will → compassion satisfaction	.11	[.00, .25]
	Belief in free will → emotional exhaustion	−.08	[−.35, .07]
	Job crafting → emotional exhaustion	.02	[−.17, .28]
Indirect effect	BFW → JC → CS	.29	[.10, .54]
	BFW → CS → EE	−.06	[−.14, .00]
	BFW → JC → CS → EE	−.15	[−.32, −.04]
	BFW → JC → EE	.01	[−.06, .18]
	Total indirect effect of BFW on EE	−.20	[−.34, −.07]
	JC → CS → EE	−.36	[−.55, −.21]
Total effect	Total effect of BFW on EE	−.28	[−.55, −.08]

Note. Estimates come from regressions adjusted for age, professional title, experience, night shifts, palliative care training, and ward; confidence intervals are percentile intervals from 5,000 bootstrap resamples. BFW = belief in free will; JC = job crafting; CS = compassion satisfaction; EE = emotional exhaustion.

Supplementary Files

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