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Exploring the Impact of a Targeted Positive Psychological Intervention on Healthcare Workers' Subjective Happiness

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OBJECTIVE: The aim of this study was to generate new knowledge to improve healthcare worker (HCW) happiness.
BACKGROUND: Already trending upward, HCW burnout spiked during the pandemic reaching rates of 49% to 69%.
METHODS: This unblinded randomized controlled trial studied a positive psychological intervention's (PPI) impact on subjective happiness among 183 HCWs in a 644-bed community healthcare organization. The intervention had 2 phases: 1) reading *The Happiness Advantage* by Shawn Achor; and 2) participating in a 21-day challenge to adopt evidence-based happiness-boosting practices.
RESULTS: A statistically significant increase in subjective happiness was found in the intervention group compared with the control group over the 6-month follow-up period. Within the intervention group, subjective happiness was sustained by 70% at the 18-month follow-up.
CONCLUSIONS: Offering the PPI may increase HCWs' subjective happiness. The study design should be strengthened and replicated.

Healthcare workers (HCWs) have experienced compassion fatigue and burnout for decades. This situation has been exacerbated since the COVID-19 pandemic,[1] leading to exhaustion, and lowered coping ability and self-esteem to the extent that many HCWs decide to leave their jobs or professions entirely.[2,3]

According to the US Surgeon General, "burnout is an occupational syndrome characterized by a high degree of emotional exhaustion and depersonalization (ie, cynicism), and a low sense of personal accomplishment at work."[1(p7)] Compassion fatigue, defined as stress resulting from exposure to a traumatized individual rather than to the trauma itself, can be characterized by irritability/anger, negative coping behaviors including harmful alcohol and drug use, exhaustion, increased absenteeism, and reduced ability to feel sympathy and empathy to make decisions, care for patients, and find enjoyment or satisfaction with work.[1]

In a survey[4] of almost 21 000 HCWs from 42 organizations in the early months of the pandemic (May-October 2020), anxiety/depression, work overload, and burnout were reported in 38% to 49% of HCWs. Another survey[5] of 1327 frontline HCWs conducted by the Washington Post and Kaiser Family Foundation (February/March 2021) indicated the level of burnout was 55% and even higher (69%) in those 18 to 29 years old. Meanwhile, emotional recovery and thriving (key constituents of resiliency) were significantly higher among HCWs who reported engaging in self-care behaviors.[6]

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Advances in positive psychology and neuroscience have progressed in the last 5 years, especially in the healthcare environment.[7] Research has explored various factors contributing to subjective happiness and well-being, including the role positive emotions, and the behaviors that generate them, play in fostering resilience and effective coping skills for HCWs facing challenging work environments.[7,8] The field now recognizes that workplace culture can improve through structural interventions that are responsive to HCWs' emotional needs.[9] Most positive psychological interventions (PPIs) in healthcare have implemented 2 types of programs whereby HCWs: 1) perform certain behaviors (expressions of gratitude, "3 good things," self-compassion, etc) as they go about their workday to build resilience through a "high-reps, low-weight" approach, sometimes using smartphone apps or other regular prompts to reinforce behaviors; and 2) attend longer resilience or mindfulness training occurring outside the work environment.[8] Previous research[10] has identified a close inverse relationship between happiness and burnout, with 1 recent study finding that "increased positive affect...and meaning and purpose...scores were significantly associated with reduced burnout."[11(p1)] This finding provides a rationale for the hypothesis in this study that an increase in subjective happiness can reduce burnout. This study seeks to fill a gap in the research by using an innovative PPI that combines a self-directed educational activity (reading an applied positive psychology book) with evidence-based behaviors and self-reflective journaling over 21 days, to examine how subjective happiness changes over time. Adoption and/or adaptation of this evidence into programs, initiatives, and research is a critical step in ameliorating the endemic burnout and moral distress of HCWs. The healthcare workforce, and the patients they serve, deserve evidence-based, organizationally supported resources designed to mitigate the decline in happiness at work.[12,13]

Study Aim

This study investigates the impact of a targeted PPI on HCWs' subjective happiness. The specific research questions were the following:

1. Do HCWs who engage in a PPI experience greater subjective happiness compared with peers who did not receive the PPI?
2. Does HCW engagement in baseline behaviors associated with increased subjective happiness and confidence in one's ability to change happiness moderate the effects of change in subjective happiness?
3. Does change in subjective happiness sustain for those who received the PPI through 6- and 18-month follow-ups?

Methods

Research Design, Participants, and Setting

An unblinded randomized controlled trial was used to investigate the research questions at a 644-bed community healthcare organization in the Pacific Northwest. After approval from the institutional review board in March 2021, participants were recruited and provided informed consent before completing surveys administered on a secure online data collection tool. Intervention participants completed surveys at pretest, post challenge, and at 6 and 18 months after completing the intervention. Control participants completed the pretest survey and again at 6 months.

A convenience sample was used to recruit HCWs. Inclusion criteria were: 1) being 18 years or older; 2) staff (both direct and indirect care) and providers (advanced practice nurses or physicians); and 3) employed or contracted in full-time, part-time, or unscheduled positions. On-call staff and providers, and anyone who had already read *The Happiness Advantage* (*THA*),[14] were excluded. A recruitment flyer posted on the organization's intranet was the primary strategy used to inform HCWs of this research opportunity.

The team randomized 183 HCWs, 89 in the control group and 94 in the intervention group (SDC#1, CONSORT diagram, attrition factors by arm, http://links.lww.com/JONA/B222). Withdrawal reasons varied. For some, life, family, or work priorities precluded completion of the intervention in the requested 3- to 5-month period. Other causes included lack of adherence to the protocol or response to follow-up, or leaving the organization.

Measures

The Subjective Happiness Scale (SHS), a 4-item measure, was used to evaluate HCW happiness. It is a self-report assessment of an individual's overall level of happiness and has been used in the positive psychology field since the early 2000s, including in healthcare studies.[15] Items are rated on a 7-point Likert-type scale. Previous research showed reliability estimates for a Cronbach's α of 0.79 to 0.94, a test-retest reliability of 0.72, strong correlations with other measures of happiness, and substantial agreement between the self and other ratings, ranging from 0.41 to 0.66.[16]

Reliability in the current study was $\alpha = 0.90$, and test-retest reliability was $r = 0.78$. In addition to

demographic characteristics, participants also reported at the pretest assessment frequency of 8 behaviors known to increase subjective happiness (described hereinafter) using a 4-point response option (1, none; 4, regularly) and confidence in one's ability to improve their happiness using a 7-point scale (1, not confident; 7, very confident). At the 6-month assessment, participants reported on satisfaction of the PPI using a 5-point scale (1, not satisfied; 5, very satisfied).

Positive Psychological Intervention

The intervention included 2 activities in sequential order. The 1st activity, reading *THA* by Shawn Achor,[14] was selected because the author summarized the positive psychology and neuroscience evidence in an easy-to-read format with examples to actualize concepts in a reasonable read time. The book was assessed by the researchers in this study to appeal to a broad spectrum of disciplines and education levels, which represented the desired organizational HCWs recruited.

The 2nd activity involved a journaling exercise for 21 consecutive days (SDC #2, Sample Pages of 21-Day Challenge Journal, http://links.lww.com/JONA/B223). The evidence for behaviors known to increase subjective happiness is robust, as the science of positive psychology and neuroscience is evolving rapidly.[7-9,17,18] On the basis of the literature, researchers chose the following evidence-based behaviors for the 21-day challenge: 1) 7 to 8 hours of sleep daily; 2) expression of gratitude; 3) meditation; 4) exercise; 5) nutritious meals/snacks; 6) expression of 3 good things; 7) family/friend connections; and 8) random acts of kindness.[17-22]

Data Analyses

Preliminary analyses included evaluation of baseline equivalency of the randomized groups on demographic characteristics, pretest behaviors, and subjective happiness. The team used mixed effects growth models estimated with restricted maximum likelihood, a preferred method for handling missing data,[23] using PROC MIXED from SAS.[24] The model included fixed effects of time, condition (0, control; 1, intervention), and condition × time interaction. Time was coded in months, and the pretest assessment was defined as the random intercept. The condition × time interaction term is a test of the efficacy of the intervention to produce a greater change in subjective happiness for the intervention group relative to the control group. The test of efficacy included all available data through the 6-month assessment period. Researchers then tested, in separate models, the 8 pretest behaviors and confidence in one's ability to change their happiness as moderators of group differences in SHS scores at follow-up. Effect sizes, derived from the slope estimates, are equivalent to Cohen's *d*.[23]

Researchers examined within-subject change in subjective happiness for the intervention group. The pretest-to-posttest, pretest to 6-month follow-up, and pretest to 18-month follow-up changes were each modeled separately using mixed effects change models.

Results

Description of the Sample

Participants were mostly female (89%) and, on average, 43 years old; held a bachelor's degree or higher (48%); and were RNs (41%) who worked on the front line (64%) for an average of 40 to 50 hours per week (51%) primarily on the day shift (79%) (Table 1). The most regularly practiced behaviors were family/friend connections, expressions of gratitude, and exercise. (Table 2 shows the frequencies of pretest behaviors by condition.) Mean (SD) ratings (on a 7-point scale) of confidence in the ability to improve happiness was 5.6 (1.2) for the control group and 5.7 (1.2) for the intervention group, a nonsignificant difference ($t_{178} = 0.63$, $P = 0.524$).

Group nonequivalency was found for levels of education ($\chi^2[4,180] = 12.99$, $P = 0.011$). Significantly more participants randomized to the intervention group had a bachelor's degree or higher compared with the control group (81% vs 67%). Groups significantly differed ($t_{178} = 2.07$, $P = 0.040$) on pretest measures of expressing gratitude, with control group participants reporting greater scores relative to the intervention group (2.3 vs 2.1). Level of education and pretest values of expressing gratitude were treated as covariates in subsequent main effect and moderation analyses. No other significant pretest group differences were found ($P < 0.05$). See Table 2 for frequencies of pretest behaviors by condition.

Attrition from the pretest to the 6-month follow-up was 25%. Failure to complete all assessments was significantly related to the study condition ($\chi^2[1,180] = 22.43$, $P < 0.001$), with 40% of intervention participants not completing all assessments compared with 9% of controls. Participation in the 18-month assessment was 43% for the intervention group. Rates of missing data due to nonresponse were 0% for the demographic variables and 0% to <1% for the hypothesized moderators.

Efficacy Effects

Table 3 shows a descriptive summary of SHS scores by condition, and Table 4 shows growth model parameters for change in SHS scores. The significant condition × time term, the test of the efficacy of the intervention, showed greater increases in subjective

Table 1. Demographic Characteristics by Study Condition

	Control (n = 87)		Intervention (n = 93)	
Age, mean (SD), y	43.1	(11.5)	42.6	(10.4)
Biological sex (female), n (%)	78	89.7	83	89.2
Level of education				
High school diploma	20	23.0	5	5.4
Associate degree	9	10.3	11	11.8
Bachelor's degree	34	39.1	52	55.9
Master's degree	19	21.8	21	22.6
Doctorate	5	5.7	4	4.3
Frontline worker (yes), n (%)	57	65.5	59	63.4
Healthcare license, n (%)				
Medical doctor	3	3.4	2	2.2
Nurse practitioner	4	4.6	2	2.2
Occupational therapist	0	0.0	2	2.2
Physical therapist	2	2.3	2	2.2
Physician assistant	0	0.0	1	1.1
RN	30	34.5	43	46.2
Speech therapist	0	0.0	1	1.1
Respiratory therapist	3	3.4	0	0.0
Physical therapy assistant	1	1.1	0	0.0
Clinical nutritionist	1	1.1	0	0.0
Social worker	3	3.4	2	2.2
Nonlicensed: clinical	21	24.1	15	16.1
Nonlicensed: nonclinical	18	20.7	21	22.6
Unknown	1	1.1	2	2.2
Average hours worked per week, n (%)				
Less than 20	1	1.1	0	0.0
Between 20 and 29	40	46.0	40	43.0
Between 40 and 50	44	50.6	48	51.6
More than 50	2	2.3	5	5.4
Primary shift, n (%)				
Day shift	68	78.2	70	75.3
Night shift	9	10.3	16	17.2
Afternoon or evening shift	3	3.4	3	3.2
Shift varies	4	4.6	1	1.1
Other	3	3.4	3	3.2

happiness over the 6-month follow-up period for the intervention group relative to the control group (d = 0.36). The model adjusted for the effects of education and expressions of gratitude at baseline, and both were significantly associated with greater levels of pretest subjective happiness (ds = 0.24 and 0.40, respectively).

Moderation

Tests for moderation were all nonsignificant (all Ps > 0.337).

Exploratory Within-Subject Change

Within the intervention group, subjective happiness significantly increased (estimate = 0.71, SE = 0.11, t = 6.47, P < 0.001, d = 0.60) from pretest to posttest, from pretest to 6-month follow-up (estimate = 0.60, SE = 0.12, t = 4.96, P < 0.001, d = 0.51), and from pretest to 18-month follow-up (estimate = 0.50, SE = 0.14, t = 3.68, P = 0.001, d = 0.42). Results showed a significant increase in subjective happiness was realized in the intervention group by posttest, with 85% and 70% of the gains maintained through the 6-month and 18-month follow-up assessments, respectively.

Satisfaction

Within the intervention group, satisfaction with the PPI was high (mean, 4.56; range, 1-5). The vast majority (96%) of the subjective comments were positive. One participant in the control group who joined the waitlist reported high satisfaction with the PPI (SDC #3, http://links.lww.com/JONA/B224).

Discussion

Healthcare has a vital interest in finding creative and effective ways to mitigate burnout and compassion fatigue among the workforce. A recent Cochrane systematic review identified 39 randomized controlled studies that investigated psychological interventions for building resilience in HCWs.[7] Most of these studies were performed in groups with face-to-face, "high training intensity" sessions, with mixed results.[7] Previous research has also shown that the time it takes to form a healthy habit varies widely depending on the person and the context, with 1 study finding a range of 18 to 254 days and a median of 66 days.[25]

The COVID-19 pandemic inspired this research team to devise an intervention that would not overburden the already overextended HCWs. This study used an innovative approach that involved a self-directed, dual-faceted PPI intervention that was deemed convenient and easy to complete for the participants. The team chose to follow Shawn Achor's example of 21 days, which he acknowledged came from "common wisdom," out of respect for the busy schedules of participants.[14] The findings of this study demonstrated the importance of experiential learning through a PPI for subsequent increases in SHS of intervention participants. Although the PPI was brief, SHS scores still significantly increased in this HCW sample. Further research should be conducted to quantitatively assess the degree of behavior change made in the 21-day challenge and sustained over time to enable making stronger conclusions about the long-term impact of the interventions in this study.

Limitations

The 1st limitation was the inability to model the intent-to-treat. This resulted from randomizing participants before receiving baseline data and having 3 participants withdraw from the study without submitting any data. Second was the attrition difference between the intervention and control groups, with a disproportionate number of intervention participants failing to complete all follow-up assessments. This poses a threat to the internal validity of the study. The attrition differences may be due to the

Table 2. Frequencies of Pretest Behaviors by Condition

How Often Do You…	None (1)		Rarely (2)		Sometimes (3)		Regularly (4)	
	n	%	n	%	n	%	n	%
Meditate								
Control	32	37.2	30	34.9	20	23.3	4	4.7
Intervention	47	50.5	19	20.4	17	18.3	10	10.8
Exercise								
Control	3	3.4	23	26.4	36	41.4	25	28.7
Intervention	5	5.4	20	21.7	27	29.3	40	43.5
Express gratitude								
Control	1	1.1	8	9.2	40	46.0	38	43.7
Intervention	4	4.3	16	17.2	41	44.1	32	34.4
Get 7-8 h of sleep								
Control	2	2.3	17	19.5	45	51.7	23	26.4
Intervention	8	8.6	21	22.6	29	31.2	35	37.6
Connect with family and friends								
Control	0	0.0	11	12.6	25	28.7	51	58.6
Intervention	0	0.0	8	8.6	41	44.4	44	47.3
Practice random acts of kindness								
Control	1	1.1	24	27.6	48	55.2	14	16.1
Intervention	0	0.0	21	22.6	57	61.3	15	16.1
Express 3 good things								
Control	27	31.0	31	35.6	21	24.1	8	9.2
Intervention	25	26.9	38	40.9	21	22.6	9	9.7
Eat nutritious meals and snacks								
Control	2	2.3	7	8.0	50	57.5	28	32.2
Intervention	2	2.2	17	18.3	37	39.8	37	39.8

amount of effort for participants in the 2 arms. In retrospect, investigators learned that offering the comparable study design by asking the control participants to read a book, but not do the experiential challenge, may have made the attrition rates more equivalent and hence strengthened the study's validity. Third was the inability to independently assess the effects of both components of the intervention. Whereas the team assessed the practice and changes in the 8 behaviors, researchers did not measure the knowledge participants gained from reading *THA*.[14] Consequently, the team was only able to assess the effect of the intervention in total, not specific components. Fourth, the timing of the 6-month assessment differed between groups. Control participants responded 6 months after the pretest assessment, whereas the intervention group responded 6 months after completion of the PPI. This difference resulted in a 3- to 5-month delay in 6-month assessment data for intervention participants. During that period, the COVID-19 Delta variant surge occurred, which led to significant changes in hospital census (eg, often greater than 100% occupancy). Thus, this surge compounded short staffing and created urgent needs to contract with traveling nurses, which may have impacted staff motivation to participate fully in the intervention group. The last limitation involved the qualitative assessment of behavior change rather than quantitative methods. Although this approach may have prompted reflection in participants, it meant the team could not measure the degree of change. Thus, it precluded investigation of possible correlations between the degree of change in behaviors and SHS.

Recommendations for Further Research

Healthcare organizations are encouraged to strengthen and replicate this study. Recommendations include: 1)

Table 3. Descriptive Summary of Subjective Happiness Scores by Condition

	Pretest		Post Challenge		6-mo Follow-up		18-mo Follow-up	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Control	4.80	1.15	NA	NA	4.78	1.22	NA	NA
Intervention	4.73	1.18	5.43	1.02	5.32	1.12	5.38	1.20

Abbreviation: NA, not available by design.

Table 4. Growth Model Parameters for Change in Subjective Happiness Scores

Term	Estimate	SE	*t*	*P*
Intercept	4.79	0.12	41.23	<0.001
Condition	0.14	0.16	0.86	0.393
Time	–0.01	0.02	–0.47	0.637
Condition × time	0.07	0.02	2.88	0.004
Education	0.28	0.07	3.89	<0.001
Gratitude	0.46	0.10	4.78	<0.001

gathering baseline data before randomization; 2) validating completion of reading *THA*[14] with a posttest; 3) incorporating an element of effort for the control participants; and 4) quantifying the behaviors used by intervention participants to learn which behaviors have the most significant impact on SHS.

Implications for Nurse Leaders

Subjective happiness is of utmost importance given the increase in moral distress and burnout reported among HCWs. Nurses are experiencing unprecedented levels of burnout related to low pay, high patient-to-staff ratios, and workplace safety concerns.[26] Nurse leaders' awareness of HCWs' resiliency and happiness is important for both the healthcare workforce and the patients they serve. Experiential learning provides HCWs with the tools and resources to improve their happiness and emotional recovery. This PPI gives HCWs simple, inexpensive tools to change their perspective and improve their overall happiness and well-being. This research demonstrates that engaging in evidence-based behaviors and PPIs can increase average HCW happiness by 17% from baseline.

Healthcare worker retention is essential for the health and stability of the healthcare environment as more HCWs seek other occupations or retirement. This is an important implication for nurse leaders as the nursing workforce is ever changing. A recent survey showed that 23% of HCWs, including nurses, are expected to leave their jobs in the immediate future.[27] In addition, a shortage of 9 million nurses is projected internationally by 2030.[28] The healthcare environment must address deficiencies in the status quo and provide HCWs with tools and resources to improve their happiness and overall emotional recovery. This research was a feasibility study that could be easily replicated. The efficiency of this PPI allows nurse leaders to implement evidence-based behaviors across multiple interdisciplinary teams and healthcare settings. The SHS is a brief survey that enables organizations to obtain baseline and outcome data easily and quickly. Healthcare organizations are encouraged to implement the PPI, as described, as a quality improvement project using the SHS to measure outcomes. Alternatively, it would be desirable to replicate the research using this or a modified PPI with a stronger study design. The authors highly recommend opportunities for participants to discuss the PPI during the implementation, either in person, virtually, or hybrid to optimize engagement.

Conclusion

This study demonstrated the value of using a PPI that included increasing positive psychology knowledge and applying it using a 21-day journal focused on 8 behaviors. Healthcare worker happiness can be improved to help decrease burnout and improve emotional recovery through the utilization of PPIs. Sustainment of happiness scores using the SHS was shown at both the 6-month and 18-month posttest for participants in the intervention arm of the study.

References

1. Office of the Surgeon General. *Addressing Health Worker Burnout: The U.S. Surgeon General's Advisory on Building a Thriving Health Workforce*. Washington, DC: US Department of Health and Human Services; 2022.
2. Buerhaus PI, Staiger DO, Auerbach DI, Yates MC, Donelan K. Nurse employment during the first fifteen months of the COVID-19 pandemic. *Health Aff (Millwood)*. 2022;41(1):79-85.
3. Shreffler J, Petrey J, Huecker M. The impact of COVID-19 on healthcare worker wellness: a scoping review. *West J Emerg Med*. 2020;21(5):1059-1066.
4. Prasad K, McLoughlin C, Stillman M, et al. Prevalence and correlates of stress and burnout among U.S. healthcare workers during the COVID-19 pandemic: a national cross-sectional survey study. *EClinicalMedicine*. 2021;35:100879.
5. Kirzinger A, Kearney A, Hamel L, Brodie M. *KFF/The Washington Post Frontline Health Care Workers Survey*. Washington, DC: Kaiser Family Foundation; 2021.
6. Rink LC, Silva SG, Adair KC, et al. The association between well-being behaviors and resilience in health care workers. *West J Nurs Res*. 2022;44(8):743-754.
7. Kunzler AM, Helmreich I, Chmitorz A, et al. Psychological interventions to foster resilience in healthcare professionals. *Cochrane Database Syst Rev*. 2020;7(7):CD012527.
8. Townsley AP, Li-Wang J, Katta R. Healthcare workers' well-being: a systematic review of positive psychology interventions. *Cureus*. 2023;15(1):e34102.
9. Donaldson SI, Lee JY, Donaldson SI. Evaluating positive psychology interventions at work: a systematic review and meta-analysis. *Int J Appl Posit Psychol*. 2019;4:113-134.
10. Iverson RD, Olekalns M, Erwin PJ. Affectivity, organizational stressors, and absenteeism: a causal model of burnout and its consequences. *J Vocat Behav*. 1998;52(1):1-23.
11. Bannon J, Evans CT, Freedman M, et al. Psychological wellbeing and the association with burnout in a cohort of healthcare workers

during the COVID-19 pandemic. *Front Health Serv*. 2022; 2:994474.
12. American Nurses Association. *Code of Ethics for Nurses with Interpretive Statements*. Silver Spring, MD: American Nurses Association; 2015.
13. Tierney M. Secure your mask first: the importance of self-care. *J Am Psychiatr Nurses Assoc*. 2021;27(4):334-336.
14. Achor S. *The Happiness Advantage: The Seven Principles of Positive Psychology That Fuel Success and Performance at Work*. New York, NY: Random House; 2011.
15. Benzo RP, Kirsch JL, Nelson C. Compassion, mindfulness, and the happiness of healthcare workers. *Explore*. 2017;13(3):201-206.
16. Lyubomirsky S, Lepper HS. A measure of subjective happiness: preliminary reliability and construct validation. *Soc Indic Res*. 1999;46(2):137-155.
17. Heath C, Sommerfield A, von Ungern-Sternberg BS. Resilience strategies to manage psychological distress among healthcare workers during the COVID-19 pandemic: a narrative review. *Anaesthesia*. 2020;75(10):1364-1371.
18. Macfarlane J, Carson J. *Positive Psychology for Healthcare Professionals: A Toolkit for Improving Wellbeing*. Bingley, UK: Emerald Publishing Limited; 2023.
19. Brook J, Aitken L, Webb R, MacLaren J, Salmon D. Characteristics of successful interventions to reduce turnover and increase retention of early career nurses: a systematic review. *Int J Nurs Stud*. 2019;91:47-59.
20. Sexton JB, Adair KC. Forty-five good things: a prospective pilot study of the Three Good Things well-being intervention in the USA for healthcare worker emotional exhaustion, depression, work–life balance and happiness. *BMJ Open*. 2019; 9(3):e022695.
21. Adair KC, Kennedy LA, Sexton JB. Three good tools: positively reflecting backwards and forwards is associated with robust improvements in well-being across three distinct interventions. *J Posit Psychol*. 2020;15(5):613-622.
22. Graham JW. Missing data analysis: making it work in the real world. *Annu Rev Psychol*. 2009;60:549-576.
23. Feingold A. Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychol Methods*. 2009;14(1):43-53.
24. SAS Institute Inc. *SAS/ACCESS® 9.4 Interface to ADABAS: Reference*. Cary, NC: SAS Institute Inc; 2013.
25. Lally P, Van Jaarsveld CH, Potts HW, Wardle J. How are habits formed: modelling habit formation in the real world. *Eur J Soc Psychol*. 2010;40(6):998-1009.
26. Martin B, Kaminski-Ozturk N, O'Hara C, Smiley R. Examining the impact of the COVID-19 pandemic on burnout and stress among U.S. nurses. *J Nurs Regul*. 2023;14(1):4-12.
27. Jackson C. American healthcare workers persevering but remain stressed. *Ipsos*. February 22, 2022. https://www.ipsos.com/en-us/news-polls/usa-today-ipsos-healthcare-workers-covid19-poll-022222. Accessed July 3, 2024.
28. Kovner C. COVID-19 and the supply and demand for registered nurses. *Int Nurs Rev*. 2022;69(2):118-120.