Original Research

Wellbeing and Burnout of Nurses Undergoing Sexual Assault Nurse Examiner Education Before and During the Covid-19 Pandemic

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Abstract

Background: Burnout is defined as work-related emotional exhaustion, depersonalization, and lack of personal accomplishment. Sexual assault nurse examiners (SANEs) may be at increased risk for burnout. Wellbeing practices protect against burnout. The purpose of this study was to evaluate the wellbeing and burnout of nurses undergoing education to become SANEs, considering the potential impacts of the Covid-19 pandemic. *Methods:* Data were from the SANE Wellbeing Study offered in conjunction with a SANE education program. The SANE Wellbeing Survey included the Nurse Wellbeing Self-Assessment (NWSAT), Maslach Burnout Inventory (MBI), Connor-Davidson Resilience Scale (CD-RISC), Perceived Stress Scale (PSS), and General Self-Efficacy (GSE) scale. Backward stepwise regression was used to identify factors that predicted NWSAT wellbeing scores. *Results:* A total of 68 nurses participated; most were female, white/non-Hispanic, bachelor's-prepared, and worked in non-rural settings. About two-

thirds completed the SANE Wellbeing Survey prior to the Covid-19 pandemic. Higher MBI Emotional Exhaustion and PSS scores were associated with lower wellbeing on some NWSAT domains. Working in an emergency department as their primary setting, working in a rural hospital, and lower education level were associated with lower scores on some wellbeing domains. Nurses who completed the survey during the pandemic had lower MBI Personal Accomplishment, CD-RISC, and GSE scores, and higher PSS scores. *Conclusion:* Nurses who self-select to become SANEs may have good baseline wellbeing and low burnout. *Implications for Clinical Forensic Nursing Practice:* Strategies to promote wellbeing and prevent burnout after beginning SANE practice can support a healthy SANE workforce and prevent attrition.

Keywords: Sexual assault nurse examiners, wellbeing, burnout, Covid-19

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The term "burnout" was first applied to the work setting by Freudenberger (1974) to refer to feelings of exhaustion, emotional lability, and cynicism experienced by persons in helping professions. Maslach and colleagues (Maslach & Jackson, 1981; Maslach & Leiter, 2016) identified three key dimensions of burnout: *emotional exhaustion* (e.g., feeling worn out, energy loss, fatigue); *depersonalization* (e.g., negative attitudes about people served, irritability, loss of idealism, and withdrawal); and diminished feelings of *personal accomplishment* (e.g., reduced productivity, low morale, inability to cope). Nursing is recognized as a high-burnout profession due to long and irregular work hours, continual time constraints, staffing issues, organizational stressors, and exposure to other people's trauma (Abellanoza et al., 2018; Adriaenssens et al., 2015; Jun et al., 2021).

Sexual assault nurse examiners (SANEs) are registered nurses with specialized education to provide care to patients after sexual assault (American Nurses Association/International Association of Forensic Nurses, 2017). Due to the nature of the work, SANEs are at increased risk of burnout (Bouchard et al., 2022; Maier et al., 2011). Burnout is also associated with intention to leave nursing (Kelly et al., 2021; Shah et al., 2021), and retention is an ongoing challenge for SANE programs (Iritani et al., 2016). Providing care to patients after acute sexual assault increases the risk for SANEs to experience vicarious traumatization (Horvath & Massey, 2018; Raunick et al., 2015; Tabor, 2011; Wies & Coy, 2013), which refers to a person's repetitive exposure to other people's trauma that negatively impacts their personal feelings, beliefs, values, and judgments (Tabor, 2011). Vicarious traumatization is associated with nurse burnout (Beck et al., 2011; Isobel et al., 2022) and intention to leave forensic nursing (Hite et al., 2022). Many SANEs have primary nursing roles in other settings and provide SANE care on an as-needed (i.e., "prn") and on-call basis (Bouchard et al., 2022; Green et al., 2021), increasing risk of exhaustion. Insufficient organizational support for SANE programs is another risk factor for burnout (Bouchard et al., 2022; Green et al., 2021). The primary setting for many SANEs is the emergency department (ED). This exposes them to additional traumatic events and traumatic exposure dose is associated with greater burnout risk (Tabor, 2011). Burnout and intention to leave nursing have been exacerbated by the Covid-19 pandemic due to additional demands and concerns for personal safety (de Cordova et al., 2021; Falatah, 2021).

Recent research demonstrated that regular engagement in wellbeing practices both inside and outside the workplace is associated with lower burnout in nurses (Bogue & Ferren Carter,

2022). Wellbeing practices are activities that decrease stressors and can be engaged in by individuals and supported by workplace leadership to decrease burnout and improve retention (Ferren-Carter & Bogue, 2022). The purpose of the present study was to examine self-reported wellbeing of nurses undergoing education to become SANEs, taking into consideration potential impacts of the Covid-19 pandemic.

Methods

Setting and Sample

Data used in this analysis were from the SANE Wellbeing study that was offered in conjunction with a SANE education program funded by a U.S. Health Resources & Services Administration (HRSA) Advanced Nurse Education-SANE grant to Texas A&M University. Details about the setting and sample were described in an earlier publication (Mitchell et al., 2022). Briefly, 127 registered nurses throughout Texas participated in educational offerings between February 2019 and June 2021 for initial education as SANEs. Educational offerings included a didactic SANE course (online or in-person), an in-person sexual assault medical forensic examination simulation course, a mock testimony course, assistance with arranging clinical preceptor opportunities, and ongoing support and mentoring through a virtual Community of Practice. Communities of Practice are groups of individuals who engage in collective learning around a shared practice to learn to improve their practice (Wenger, 1998). Nurses were not required to be currently working in a facility with an established SANE program, though the intent of the SANE education program was to increase access to SANEs in rural and underserved areas.

Nurses participating in SANE educational offerings were invited to participate in the SANE Wellbeing Study. Nurses were invited via email and informed of the study during in-person courses. Emails were sent to participants after enrolling in one of the educational offerings and follow-up reminders were emailed two weeks after the initial invitation. Since it was important to maintain anonymity, emails were sent to all nurses in our enrollment system every time a new cohort joined the SANE education program. Therefore, some nurses completed the Wellbeing Survey after taking initial SANE education or simulation course. In some cases, nurses had completed an initial 40+-hour didactic SANE education course prior to participating in the SANE education program and enrolled in the program to participate in simulation courses or to receive assistance with clinical preceptorship.

All nurses enrolled in the SANE education program were given unique identifiers (IDs). which were used when completing the SANE Wellbeing surveys so responses would be confidential. A crosswalk linking names and unique IDs was accessible to the SANE education coordinator and the principal investigator and only the principal investigator had access to both the crosswalk and SANE Wellbeing survey results. The crosswalk was necessary to match participant demographic data with SANE Wellbeing survey results. The statistician on the project had access to the data with unique IDs but not to the crosswalk. The principal investigator was not involved in providing SANE education.

Measures

The measures used in this study are outlined in Table 1, including a brief description of the scales and how they are scored. The primary outcome of interest, the wellbeing of nurses undergoing education to be SANEs, was measured with the Nurse Wellbeing Self-Assessment Tool (NWSAT). The NWSAT includes discrete 10-item scales measuring four aspects of

wellbeing: Bio-Physical (BIO), Psycho-Emotional (EMO), Socio-Relational (RELA), and Religio-Spiritual (RELA).

Table 1.
SANE Wellbeing Survey Measures

Construct	Measure/Subscales	# Items	Participant rating	Scale	Scoring	Range
Wellbeing	Nurse Wellbeing Self-Assessment ([NWSAT], Bogue & Ferren Carter, 2022)		How true each statement is about them regarding their wellbeing behaviors	1 – 9 1 = Not at all true of me 5 = Neutral 9 = Very true of me	Total mean for each subscale is calculated; higher scores indicate higher wellbeing	10-90 per subscale
	Four subscales Bio-Physical (BIO)	10				
	Socio-Relational (RELA)	10				
	Psycho-Emotional (EMO)	10				
	Religio-Spiritual (SPIR)	10				
Burnout	Maslach Burnout Inventory ([MBI], Maslach & Jackson, 1981)		How frequently they have each job-related feeling	0 – 6 0 = Never 1 = A few times/year or less 2 = Once/month or less 3 = A few times/month 4 = A few times/week 6 = Every day	Total mean for each subscale is calculated; higher scores on the EE and DP and lower scores on PA indicate higher burnout	
	Three subscales Emotional exhaustion (EE)	9				
	Depersonalization (DP)	5				EE: 0-54 DP: 0-30 PA: 0-48
	Personal accomplishment (PA)	8				
Resilience	Connor-Davidson Resilience Scale-10 ([CD-RISC-10], Connor & Davidson, 2003)	10	How true each item is about their resilience when encountering difficulties	0 – 4 0 = Not true at all 1 = Rarely true 2 = Sometimes true 3 = Often true 4 = True nearly all the time	Total mean is calculated; higher scores indicate greater resiliency	0-40
Self-efficacy	General Self-Efficacy Scale ([GSE], Schwarzer & Jerusalem, 1995)	10	How true each item reflects their feelings about their effectiveness at work	1 – 4 1 = Not true at all 2 = Hardly true 3 = Moderately true 4 = Exactly true	Total mean is calculated; higher scores indicate greater self-efficacy	10-40
Perceived stress	Perceived Stress Scale-10 ([PSS], Cohen et al., 1983)	10	How frequently they had feelings and thoughts in the past month about work and personal stressors	0 – 4 0 = Never 1 = Almost never 2 = Sometimes 3 = Fairly often 4 = Very often	Total mean is calculated; higher scores indicate greater perceived stress	0-40
Total # items		82				

The four scales were originally developed to measure physician wellbeing (Bogue et al., 2011). They were subsequently adapted and evaluated for their psychometric properties with several nurse populations; minor modifications were made in the wording to reflect "health care" rather than "medical care" (Bogue & Ferren Carter, 2022). Sample items are shown in Table 2.

Table 2.
Nurse Wellbeing Self-Assessment Sample Items

NWSAT scale	Sample items
Bio-Physical Wellbeing (BIO)	I feel healthy and full of energy
	*I do not get adequate rest or sleep
Psycho-Emotional Wellbeing (EMO)	*I often feel worried, tense, or anxious
	I have sufficient opportunities for personal growth
Socio-Relational Wellbeing (RELA)	I have positive relationships with my peers
	*I feel frustrated by organizational policies
Religio-Spiritual Wellbeing (SPIR)	I trust in a higher power
	I engage in spiritual self-care

*Item is reverse scored

The following survey measures were used to evaluate their impact on wellbeing as measured using the NWSAT: Maslach Burnout Inventory-Human Services Scale (MBI; Maslach & Jackson, 1981); Connor-Davidson Resilience Scale (Connor & Davidson, 2003); General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995); Perceived Stress Scale (PSS; Cohen et al. 1983). The MBI has been used in thousands of studies on work-related burnout and validated in a variety of professions including nursing (e.g., Fauzia et al., 2019). The MBI consists of 22 items in three subscales: Emotional Exhaustion, Depersonalization, and Personal Accomplishment. It is important to note that depersonalization in the context of burnout theory applies to an individual's thoughts, feelings, and attitudes toward others; whereas, in psychiatry and psychology, depersonalization is characterized by feelings about oneself (e.g., feeling detached or unreal; American Psychiatric Association, 2022). While both types of depersonalization can occur in nurses, the current study focuses on depersonalization as conceptualized by Maslach and colleagues to refer to negative and cynical feelings toward patients. The Connor-Davidson Resilience Scale consists of 10 items that participants rate according to how true each item is about their resiliency when encountering difficulties. The General Self-Efficacy Scale consists of 10 items that participants rate according to how true each item reflects their feelings about their effectiveness at work. The Perceived Stress Scale consisted of 10 items related to how frequent respondents' feelings and thoughts were in the past month related to work and personal stressors.

Demographic data related to SANEs and their work environment were examined as potential predictors of wellbeing. We obtained participants' informed consent to match their demographic data obtained from them when they enrolled in the SANE education program to their Wellbeing Survey data. Continuous variables, including age and number of sexual assault medical forensic exams completed in the past year, were expressed as means. Categorical variables were expressed as dichotomies to maximize the number of participants in each category. These variables included: educational attainment (associate vs. bachelor's degree or higher), race (white/non-Hispanic vs. other), primary nursing setting (ED vs. other), hospital service location (rural vs. non-rural), employment (full-time > half-time vs. ≤ half-time), and nurse background (disadvantaged vs. not disadvantaged). Disadvantaged background was determined based on a "yes" response to any of the following variables used by HRSA: attended a high school with lower than state-average SAT/ACT scores, 50% or less students attended college, or at least 30% were eligible for free lunch; diagnosed with a physical or mental impairment that limited educational experiences; primary language other than English or English a barrier to higher education; first-generation college student.

Data Analysis

With limited prior data to support selection or exclusion of variables that might affect the wellbeing of nurses in our sample, we used a backward stepwise regression model (Hays, 1994; Mark & Goldberg, 2001; Ghavimi, 2021) for each NWSAT subscale (BIO, EMO, RELA, SPIR) to identify factors that predicted higher or lower wellbeing. Using backward stepwise regression permits all potential predictor variables to be entered initially, with variables removed one by one, over a series of regressions, leaving those variables that predict the outcome variable. The co-authors identified variables they judged to be potential predictors of higher or lower wellbeing based on professional experience and data on burnout in nurses and forensic nurses.

Due to the exploratory nature of this study and relatively small number of observations, predictors were permitted to remain in regression models if they contributed to the predictions of wellbeing at or below the 0.10 level of significance (Rubin, 2013). Factors that predicted

wellbeing at or below the 0.05 level of significance would be considered to contribute a larger and more prominent impact on wellbeing.

The Covid-19 pandemic disrupted in-person SANE education for almost one year during the program. More importantly, it significantly disrupted the lives of nurses (Galanis et al., 2021). Therefore, we compared demographic data and results on the SANE Wellbeing Survey between nurses who completed the survey before the pandemic began (defined by the date the Texas Governor declared a state of emergency on March 13, 2020) and after that date. Since some nurses entered the program after completing initial didact SANE education, we compared baseline demographics between the groups as well as compared their Wellbeing Survey results to test for differences that might impact results.

Ethical Approval

The SANE Wellbeing Study was approved by the Texas A&M University institutional review board (approval number IRB2018-1268D).

Results

Sixty-eight participants completed the SANE Wellbeing Survey between March 20, 2019, and May 16, 2021. Participant demographics are described in Table 3. All but two participants were female (97.1%). Most were white/non-Hispanic (61.8%); other race/ethnicities included Hispanic (22.1%), Black (11.8%), Asian (1.5%), American Indian (1.5%), and Native Hawaiian/Pacific Islander (1.5%). The most common highest education level was bachelor's degree (44.1%), followed by associate (36.8%), master's (17.7%), and doctorate (1.5%). Almost three quarters of the sample responded yes to at least one question indicating they were from a disadvantaged background (73.5%). Most worked in non-rural hospitals (63.2%). Almost one third of our sample listed their primary nursing setting as the emergency room (32.4%), while 22.1% were in women's health or labor and delivery, and 41.2% listed "other" (commonly listed settings included critical care, psychiatric, mental health, and school nursing). Most were staff nurses (70.6%), while 14.7% were administrators and another 14.7% listed "other". Mean number of medical forensic examinations completed by participants in the past year was 2.9, with a range from 0–50; 42 participants had never completed a medical forensic examination prior to participating in the SANE education program. Approximately equal numbers of participants completed the SANE Wellbeing Survey before ($n = 30$) and after ($n = 31$) an initial didactic SANE course. The average interval between completion of the SANE Wellbeing Survey and an initial didactic SANE course ranged from almost one year before to just over two years after taking an initial SANE course, with an average interval of 33 days after taking an initial SANE course. No significant differences in SANE Wellbeing Survey results were found between those who completed the survey before or after didactic SANE education. The only demographic difference between the two groups was a higher proportion of ED nurses in the group who completed the survey after completing a didactic SANE course. There were no significant differences in demographic variables between nurses who completed the SANE Wellbeing Survey before and during the Covid-19 pandemic.

Table 3.

Sample Demographics (n=68)

Age	41.0 [range 25-63]
Gender	*n* (%)
Female	66 (97.1)
Male	2 (2.9)
Race/ethnicity	*n* (%)
White/non-Hispanic	42 (61.8)
Hispanic	15 (22.1)
Black	8 (11.8)
Asian	1 (1.5)
American Indian	1 (1.5)
Native Hawaiian/Pacific Islander	1 (1.5)
Education (degree)	*n* (%)
Associate	25 (36.8)
Bachelor's	30 (44.1)
Master's	12 (17.7)
Doctorate	1 (1.5)
Disadvantaged background	*n* (%)
Yes	50 (73.5)
No	18 (26.5)
Hospital setting	*n* (%)
Non-Rural (population >50,000)	43 (63.2)
Rural (≤50,000)	25 (36.8)
Primary nursing setting vs. other	*n* (%)
Emergency room	22 (32.4)
Women's health/labor & delivery	15 (22.1)
Other (e.g., critical care, psychiatric/mental health, school nursing	28 (41.2)
Missing	3 (4.4)
Job title	*n* (%)
Staff nurse	48 (70.6)
Administrator	10 (14.7)
Other	10 (14.7)
Full-time vs.half-time	55 (80.9)
< half-time	12 (17.7)
Missing	1 (1.5)
MFEs completed past year (mean)	2.9 [range 0-50]
Completed SANE Wellbeing Survey prior to SANE education	n (%)
Yes	31 (45.6)
No	30 (44.2)
Missing	7 (10.3)
Completed SANE Wellbeing Survey prior to COVID-19 pandemic lockdown	n (%)
Yes	46 (67.6)
No	22 (32.4)

Results of all measures in the SANE Wellbeing Survey are presented in Table 4. Results are presented for the total sample and separately for groups who completed the survey before (*n* = 44) and during (*n* = 22) the Covid-19 pandemic. Means on all NWSAT scales were > 5, even during the pandemic. While NWSAT trended lower during the pandemic, differences were not significant. Notable differences in SANE Wellbeing Survey measures between the groups included lower scores on the MBI Personal Accomplishment ($t = 2.54$, $p = 0.01$), Connor-

Davidson Resilience (t = 2.19, p = 0.03), and General Self-Efficacy (t = 2.35, p = 0.02) scales, and higher scores on the Perceived Stress Scale (t = -2.07, p = 0.04) during the pandemic.

Table 4.

Total Sample and Comparison Between SANE Wellbeing Survey Before and During Covid-19

Measure	Total sample (*N*=68) Mean (SD)	Before pandemic (*n*=46) Mean (SD)	During pandemic (*n*=22) Mean (SD)	*t*	*p*
NWSAT – BIO	6.24 (1.28)	6.21 (1.38)	6.30 (1.06)	-0.27	ns
NWSAT – EMO	6.26 (1.37)	6.40 (1.41)	5.98 (1.29)	1.16	ns
NWSAT – RELA	7.33 (1.22)	7.36 (1.09)	7.28 (1.49)	0.26	ns
NWSAT – SPIR	7.62 (1.23)	7.74 (1.15)	7.38 (1.36)	1.13	ns
MBI – EE	13.8 (10.64)	13.2 (10.11)	14.91 (11.81)	-0.61	ns
MBI – DP	3.9 (4.71)	3.40 (4.59)	4.95 (4.87)	-1.28	ns
MBI – PA	41.1 (7.10)	42.58 (4.19)	38.09 (10.29)	2.54*	.01
PSS	11.08 (5.15)	10.93 (4.16)	13.64 (6.50)	-2.07*	.04
CD-RISC	33.35 (4.59)	34.17 (4.12)	31.64 (5.14)	2.19*	.03
GSE	33.79 (3.59)	34.48 (3.38)	32.36 (3.67)	2.35*	.02

Key: NWSAT = Nurse Wellbeing Self-Assessment; BIO = Bio-Physical; EMO = Psycho-Emotional; RELA = Socio-Relational; SPIR = Religio-Spiritual; MBI = Maslach Burnout Inventory; EE = Emotional Exhaustion; PA = Personal Accomplishment; DP = Depersonalization; PSS = Perceived Stress Scale; CD-RISC = Connor-Davidson Resilience scale; GSE = General Self Efficacy scale.

Table 5 presents variables that predicted higher or lower wellbeing on NWSAT subscales in the backward stepwise regression models. Predictors of both higher and lower wellbeing are represented in Table 5 by plus (+) or minus signs (-), respectively. Overall, the strongest predictors of wellbeing on the NWSAT included the MBI Emotional Exhaustion scale and the Perceived Stress Scale. The MBI Emotional Exhaustion scale was a consistently strong and inverse predictor of wellbeing across all four wellbeing domains. The PSS demonstrated a strong and inverse relationship with BIO, EMO and RELA wellbeing, but not with SPIR. Working in non-rural hospital positively affected both BIO and EMO to a significant degree, but not RELA or SPIR. MBI PA and Self-Efficacy were strongly and positively associated with SPIR wellbeing.

Table 5.

Backward Stepwise Regression Model Results

Factors affecting NWSAT Bio-Physical Wellbeing (BIO)

Variable	Coef.	SE	95% CI	*t*	*p*
Perceived Stress Scale	-0.11	0.03	-0.17, -0.05	-3.74	<0.001
MBI – Emotional Exhaustion	-0.03	0.02	-0.06, 0.002	-1.85	0.070
Rural vs. *non-rural hospital	0.53	0.27	-0.02, 1.08	1.94	0.057
(constant)	7.00	0.54	5.91, 8.10	12.80	<0.001

Note: R^2 adjusted = 0.36, $F_{(3,56)}$ = 12.15, p < 0.001

Factors Affecting NWSAT Psycho-Emotional Wellbeing (EMO)

Variable	Coef.	SE	95% CI	*t*	*p*
Perceived Stress Scale	-0.11	0.03	-0.16, -0.06	-4.35	<0.001
MBI – Emotional Exhaustion	-0.06	0.01	-0.09, -0.03	-4.47	<0.001
Rural vs. *non-rural hospital	0.45	0.25	-0.04, 0.95	1.83	0.072
(constant)	7.17	0.56	6.05, 8.28	12.86	<0.001

Note: R^2 adjusted = 0.58, $F_{(4, 55)}$ = 21.61, p < 0.001

Factors Affecting NWSAT Socio-Relational Wellbeing (RELA)

Variable	Coef.	SE	95% CI	t	p
Perceived Stress Scale	-0.10	0.02	-0.15, -0.06	-4.36	<0.001
MBI – Emotional Exhaustion	-0.05	0.01	-0.08, -0.02	-4.22	<0.001
ED vs. *other primary nursing setting	-0.47	0.22	-0.91, 0.03	-2.12	0.04
(constant)	10.01	0.44	9.13, 10.89	22.87	<0.001

Note: R^2 adjusted = 0.56, $F(4, 55)$ = 26.00, $p < 0.001$

Factors Affecting NWSAT Religio-Spiritual Wellbeing (SPIR)

Variable	Coef.	SE	95% CI	t	p
MBI – Emotional Exhaustion	-0.04	0.01	-0.07, -0.02	-3.28	0.002
MBI – Personal Accomplishment	0.06	0.02	0.02, 0.09	3.12	0.003
General Self-Efficacy	0.08	0.04	0.01, 0.16	2.30	0.03
Associate vs. *higher degree	0.44	0.27	-0.10, 0.99	1.64	0.11
(constant)	2.27	1.34	-0.43, 4.96	1.69	0.10

Note: R^2 adjusted = 0.39, $F(4, 55)$ = 10.44, $p < 0.001$

Key: *Variable associated with higher wellbeing scores on the measure; (constant) is used to reduce bias during modeling and is not meant to be interpreted.

The overall model predicting NWSAT BIO was sufficiently strong (Adjusted R^2 = 0.36, $F(3,56)$ = 12.15, $p < 0.001$). The Perceived Stress Scale was the strongest predictor of BIO, with higher PSS scores predicting lower wellbeing (t = -3.74, $p < 0.001$). Meanwhile, working in a non-rural hospital contributed to higher BIO wellbeing (t = 1.94, p = 0.57) and higher MBI Emotional Exhaustion scale contributed to lower BIO wellbeing (t = -1.85, p = 0.70).

The NWSAT EMO model followed a similar pattern to BIO wellbeing, but was supported with even stronger evidence (Adjusted R^2 = 0.58, $F(4, 55)$ = 21.61, $p < 0.001$). Here, the t-test of the contributions of the Perceived Stress Scale and MBE Emotional Exhaustion were, again, inversely related with EMO wellbeing (t = -4.35 and t = -4.47 respectively, both $p < 0.001$). Working in a non-rural hospital demonstrated a more modest but still positive association with higher EMO wellbeing (t = 1.83, p = 0.72).

The NWSAT RELA prediction model was also strong (Adjusted R^2 = 0.56, $F(4, 55)$ = 26.00, $p < 0.001$). Again, the Perceived Stress Scale and MBI Emotional Exhaustion were very strong predictors (t = -4.36 and t = -4.22 respectively, both $p < 0.001$). Working in an ED as a primary setting rather than another primary setting significantly predicted lower RELA wellbeing (t = -2.12, p = 0.04).

The model predicting NWSAT SPIR was sufficiently strong (Adjusted R^2 = 0.39, $F(4, 55)$ = 10.44, $p < 0.001$). MBI Emotional Exhaustion strongly and inversely predicted SPIR wellbeing (t = -3.28, p = 0.002). For SPIR, MBI Personal Accomplishment (t = 3.12, p = 0.003) and General Self-Efficacy (t = 2.30, p = 0.03) also contributed positively to SPIR wellbeing. Having a degree higher than an associate degree predicted greater SPIR wellbeing but did not reach significance at the 0.01 level (t = 1.64, p = 0.11).

Discussion

Sexual assault nurse examiners may experience lower wellbeing and higher burnout due to the work often being a second nursing role and because of frequent exposure to persons who have experienced acute trauma. We were interested in learning the baseline wellbeing and burnout of nurses prior to SANE practice. While SANE education might have a negative impact on nurse wellbeing due to exposure to vicarious traumatization (Hite et al., 2022), there were no significant

differences in SANE Wellbeing Survey scores between nurses who completed the SANE didactic education before taking the survey and those who took the survey before exposure to SANE education. This finding suggests didactic SANE education did not significantly impact nurse wellbeing.

In general, NWSAT scores indicated nurses in our sample had positive wellbeing, with means above 5.90 on all scales, including for those who completed the SANE Wellbeing Survey during the Covid-19 pandemic (Table 4). However, regression models did identify variables that predicted lower NWSAT wellbeing scores in our sample. Resiliency and self-efficacy scores did not predict NSWAT Wellbeing outcomes so were not included in the final regression models. While NWSAT wellbeing scores trended lower for nurses who completed the SANE Wellbeing Survey during the pandemic, differences were not significant.

Higher scores on MBI Emotional Exhaustion were associated with lower wellbeing in all four domains of the NWSAT (BIO, EMO, RELA, and SPIR). Emotional exhaustion is a known contributor to nurses' intention to leave their nursing jobs (Kelly et al., 2021). Higher Perceived Stress Scale scores contributed to lower wellbeing in all domains except SPIR. Lower MBI Personal Accomplishment and General Self-Efficacy scores were associated with lower SPIR in our sample. Our findings are consistent with a prior study that found greater self-rated spiritual wellbeing was associated with lower MBI Emotional Exhaustion and higher MBI Personal Accomplishment in nurses working in high-intensity areas (Rushton et al., 2015).

Nurses whose primary work setting was the ED reported lower RELA wellbeing. This finding should be further explored to identify potential explanations. Perhaps the nature of ED work limits time for satisfying engagement with patients and colleagues (Staempfli & Lamarche, 2020). Vicarious traumatization can also adversely affect interpersonal relationships for SANEs (Wies & Coy, 2013). This is important to explore further since most SANE programs are based in EDs (Logan et al., 2007). Almost a third of nurses in our sample worked in the ED as their primary setting. Nurses working as SANEs who have primary roles in the ED may be especially at risk for reduced wellbeing and higher burnout due to frequent exposure to other types of trauma in their ED roles. A study comparing burnout scores among SANEs found that nurses who worked in dual SANE and ED roles and were no longer working in either setting had over four times higher burnout scores on the MBI than all other SANEs in the sample, and those currently working in dual SANE and ED roles had almost three times greater burnout scores than nurses who used to work in dual roles or were only working as SANEs (Zelman et al., 2021).

Working in a non-rural hospital was associated with higher BIO and RELA wellbeing compared with nurses working in rural areas. In the United States, physical health is poorer in rural areas compared to urban areas (Abrams et al., 2021), which might be reflected in lower BIO wellbeing scores in our sample. Rural hospital nurses face unique challenges, which can contribute to relational conflict between nurses and other healthcare staff within and beyond their hospitals (Smith et al., 2019). Nurses working in rural hospitals may experience increased stress due to threats of hospital closures, higher workloads, and decreased organizational support (American Hospital Association, 2022; Bai et al., 2020), issues further exacerbated by the coronavirus pandemic (Segel et al., 2021).

In addition to identifying factors that contributed to NWSAT scores in our sample, we identified differences in other measures of wellbeing and burnout when comparing nurses who completed the SANE Wellbeing Survey before and during the COVID-19 pandemic. During the Covid-19 pandemic, vicarious trauma, burnout, and intent to leave their jobs were prevalent

among ED nurses (de Cordova, 2022; Falatah, 2021; Gualano et al., 2021). In our sample, mean MBI Emotional Exhaustion scores were higher among nurses who completed the survey during the pandemic compared to those who completed it before the pandemic, but the difference was not significant and were much lower than those in a systematic review of pandemic-related burnout in healthcare workers (Gualano et al., 2021). Personal Accomplishment was the only burnout indicator that differed between nurses who completed the measure before and during the pandemic, with lower scores during the pandemic. Compared to nurses who completed baseline measures before the pandemic, those who completed them during the pandemic scored higher on the Perceived Stress Scale and lower on the CD-RISC-10 resiliency, General Self-Efficacy, and MBI Personal Accomplishment scales. These findings highlight additional challenges to wellbeing faced by nurses during the pandemic. Nevertheless, Perceived Stress Scale scores even during the pandemic were low in our sample compared with front-line healthcare workers in one study, 80% of whom were nurses (13.64 vs. 21.43; Di Giuseppe et al., 2021) and lower than those in a large normative U.S. sample before the pandemic (Cohen & Janicki-Deverts, 2012). Scores on the Connor-Davidson Resiliency Scale in our sample were consistent with normative samples (Davidson, 2018), while General Self-Efficacy scores were slightly higher than in normative samples (Schwarzer, 2014).

Overall, we were surprised that scores on all SANE Wellbeing Survey measures indicated better wellbeing compared to other published samples, especially considering the SANE role was an additional nursing role for most of our participants, which could be assumed to decrease wellbeing. Compared to a sample of 1174 nurses who were not SANEs across a hospital system in a large Eastern state (Bogue & Ferren Carter, 2022; Downing et al., 2022), our sample scored higher on NWSAT RELA (7.33 vs. 6.57) and SPIR (7.62 vs. 6.63) wellbeing measures, higher on MBI Personal Accomplishment (41.1 vs. 37.57), and lower on MBI Emotional Exhaustion (13.76 vs. 22.28) and Depersonalization (3.97 vs. 5.92). Nurses in our sample were just beginning SANE practice and their scores might be different once they have practiced as SANEs. For example, our sample scored lower on MBI measures compared with practicing nurses with dual ED and SANE roles in a study (Zelman et al., 2022) who had a median MBI Emotional Exhaustion score of 23.5 (vs. 13.8 in our sample) and median MBI Depersonalization score of 8.5 (vs. 3.9 in our sample). Commonly used cutoff scores are > 26 for Emotional Exhaustion and > 9 for Depersonalization (e.g., Rotenstein et al., 2018). Large standard deviations in our sample indicate some nurses in our sample might have experienced scores that exceeded these thresholds.

While there are no current national level data published about SANE characteristics, for many nurses, practicing as SANEs is an on-call, part-time job on top of working in another nursing setting (Green et al., 2021; Zelman et al., 2022). Since most nurses voluntarily pursue SANE education, it is possible that nurses with good wellbeing and low burnout symptoms are more likely to pursue SANE education. Nurses who choose to be SANEs may value social relations, feel spiritually drawn to nursing work, and experience lower burnout than other nurses, which could account for our findings. Empathy has been found to protect against burnout in nurses (Wilkinson et al., 2017). It is possible that nurses with higher empathy are drawn to SANE work, though we did not measure this in our study. Empathy is protective against depersonalization and depersonalization was the largest predictor of intent to leave nursing in one study (Leiter & Maslach, 2009). The nurses in our study were new to SANE practice. With repeated exposure to vicarious traumatization and working in dual nursing roles over time, these nurses may have increased risk for decreased wellbeing and increased burnout.

Limitations

The purpose of this study was to examine the wellbeing and burnout of nurses undergoing education to practice as SANEs. Regression modeling methods were selected to maximize the ability to identify significant predictors of wellbeing in our sample. Findings were limited to variables collected; there might be other factors that better predict wellbeing. Some variables collected and not included in regression models might have predictive power in larger samples. The small sample size resulted in large standard deviations on some measures, limiting the ability to state there were meaningful differences in perceived stress and personal accomplishment between nurses who completed the SANE Wellbeing Survey before and during the Covid-19 pandemic.

Due to the small sample size and exploratory nature of our study, we did report findings with level of significance up to $p = 0.10$ rather than the conventional 0.05. We did this to identify potential areas for intervention that might impact SANE wellbeing. Intervention studies with larger samples and longitudinal designs will provide further information on factors that are associated with SANE wellbeing. Additional research examining the dual role of being an ED nurse and a SANE would provide greater insight into why this combination is associated with higher risk for burnout compared with SANEs who do not work as ED nurses. Results of further research could be used to identify specific interventions to promote wellbeing in this population. Our sample also does not represent U.S. nursing demographics generally, which is 9.4% male, 80.6% White, 6.7% Black, 5.6% Hispanic/Latinx (Smiley et al., 2021), with mean age 50 (National Center for Health Workforce Analysis, 2019), although it might be more representative of the SANE workforce. We are unsure the significance of the high percentage of nurses in our sample who indicated they were from disadvantaged backgrounds. Criteria for that designation were broad and self-reported. Our sample included almost a third of nurses from rural backgrounds, which was a focus of recruitment in our SANE education program. Historically, there is a shortage of SANEs in rural areas (Government Accountability Office, 2016), indicating our sample may have included more nurses from rural areas than are present in the SANE population generally.

Our original intent was to follow nurses every six months and one year after completing our SANE education program. Unfortunately, due to low response rates for follow-up surveys, we are unable to analyze these data. A 2018 study found no significant relationship between years of forensic nursing practice and levels of vicarious traumatization (Rostron & Furlonger, 2017), which supports our conjecture based on findings of the current study that nurses who choose to be SANEs may have higher wellbeing and less burnout risk compared to non-SANE nurses. On the other hand, Hite and colleagues (2022) found secondary traumatic stress and burnout scores increased in a small sample of nurses after SANE training and performing medical forensic examinations compared with pre-SANE education levels. Future studies using larger sample sizes and longitudinal methods might provide greater insights into the impacts of SANE work on the wellbeing and burnout of nurses.

Implications for Clinical Forensic Nursing Practice

Our findings suggest nurses who self-select as SANEs have good baseline wellbeing and low burnout. However, because prior studies indicate burnout rates are high in nurses who practice as SANEs (Hite et al., 2022; Zelman et al., 2022), there is a need for evidence-based interventions to support nurses entering SANE practice. Nurses working in dual ED and SANE

roles might require additional interventions to support wellbeing and prevent burnout (Zelman et al., 2022). To our knowledge, there is only a single study involving an intervention to address SANE wellbeing (Flarity et al., 2016). In this very small pilot of nine forensic nurses, Flarity and colleagues used a compassion fatigue resilience intervention that improved compassion satisfaction scores after the intervention. Nevertheless, several SANE education programs are implementing interventions to promote SANE retention, many supported by federal grants from the Health Resources and Services Administration Advanced Nurse Education SANE grants (Colbert & Sekula, 2022). These interventions target SANEs in rural areas and include content and interventions related to vicarious traumatization, monitoring for burnout, promoting resilience, providing opportunities for debriefing, supporting new SANEs through communities of practice, and offering mental health counseling (Bouchard et al., 2022; Burton et al., 2022; Hite et al., 2022; Mitchell et al., 2022; Thomas et al., 2020).

Healthcare leaders can promote wellbeing and prevent burnout by promoting skills such as resilience, mindfulness, compassion satisfaction, and empathy to protect nurses from burnout (Mahon et al., 2017; Salvarani et al., 2019). Targeted self-care measures and intentional organizational strategies to increase resiliency and wellbeing may protect nurses against vicarious traumatization and burnout and promote retention (Ferren Carter & Bogue, 2022; Thomas et al., 2020). A systematic review of effective interventions to reduce burnout in physicians and nurses (Aryankhesal et al., 2019) showed successful interventions included virtual mental health consults, psychosocial training, yoga, meditation, and mindfulness significantly reduced burnout. A recent publication provided concrete guidance for forensic nurses to integrate mindfulness practices into their work (Bhattarai et al., 2024).

Conclusion

Prior studies indicate SANEs are at risk for higher burnout as they typically work in dual nursing roles and are exposed to other people's trauma (Hite et al., 2022; Zelman et al., 2022). Nurses in our study had higher wellbeing and lower burnout scores than a national sample, suggesting nurses who self-select to undergo SANE education might be at less risk for burnout as they have higher wellbeing than nurses who do not seek SANE education. At the same time, nurses in our study were just beginning their SANE journeys. Studies examining evidence-based interventions to support SANE wellbeing are needed to decrease burnout and attrition.

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