CRNA Burnout: A Multicenter Survey Across the Veteran Affairs Health System

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Problem Description

Burnout is a syndrome resulting from chronic workplace stress that has not been successfully managed and is included in the 11th Revision of the International Classification of Diseases (ICD-11) (World Health Organization [WHO], 2019). Burnout is characterized by three components, including emotional exhaustion or energy depletion, decreased professional worth or efficacy, and disengagement such as cynicism or negativism (Lea et al., 2022; WHO, 2019). This syndrome tends to occur more in those working in human services when prolonged and unresolved occupational stress builds over time (Borritz et al., 2005). A high risk for burnout occurs when the threshold for either emotional exhaustion and/or depersonalization occurs, whereas burnout syndrome is characterized by both emotional exhaustion and depersonalization plus a low sense of personal accomplishment (Afonso et al., 2021).

Due to a lack of research specific to Certified Registered Nurse Anesthetist (CRNAs), it is challenging to quantify burnout within the local, state, and national context. Also, there is currently no research on this topic amongst CNRAs in the Veteran Affairs (VA) health system. However, some studies discuss burnout among all anesthesia providers (i.e., CRNAs, attending anesthesiologists, and anesthesia residents) and other healthcare providers. One study explored burnout during COVID-19 among CRNAs in Massachusetts and Texas and found 38% reported high levels of occupational burnout, with 80% reporting disengagement (Lea et al., 2022). In a Kansas tertiary care center, 32% of surveyed CRNAs reported high rates of emotional exhaustion, indicating burnout potential is high due to a strong correlation between emotional exhaustion and burnout (Shah et al., 2019). Among bedside nurses in 14 countries, burnout negatively affected self-perceived patient safety, quality of care, and patient experience (Jun et al., 2021). In studies of physicians measuring the consequences of burnout, recovery times were long, more major medication errors were made, and patient satisfaction was decreased (Niconchuk & Hyman, 2020). High levels of burnout affect all three of the major stakeholders in healthcare, the healthcare provider (HCP) themselves, the patients they care for, and the organization, all leading to significant consequences. While there is literature that explores burnout among all

anesthesia providers, research focusing on the CRNA perspective is limited, specifically among the VA health system CRNAs.

Available Knowledge

Several risk factors can lead to burnout across anesthesia. Anesthesia is a stressful environment with high levels of responsibility, including unanticipated events that occur at a moment's notice. Several studies demonstrate that female gender and younger age correlate with burnout, and a combination of the two demonstrates the highest risk (Romito et al., 2021; Shah et al., 2019). One systematic review found that risk of burnout is higher in younger anesthesia providers and postulated that this may be due to perceived increased responsibility early in one's career and increased stress to adverse events early at a younger age (Sanfilippo et al., 2017). In the context of age, several studies discuss the "survivor effect" that may justify why providers at a later age report less burnout; this theory explains that when a provider is younger, they may exit anesthesia early or develop coping strategies (Romito et al., 2021; Sanfilippo et al., 2017). In addition to this, a separate study found that for practitioners, more than 25 years of experience was a protective factor against all dimensions of burnout (Benhamza et al., 2023). Other risk factors that lead to high levels of burnout include, social isolation at work and/or home, personality traits (e.g., anxiety), and negative coping strategies (e.g., alcohol misuse) (Romito et al., 2021). One study found that providers who are parents may have an increased risk of burnout as they must be able to cope with the responsibilities of parenting and a significant workload (Sanfilippo et al., 2017). Burnout is also associated with longer working hours (greater than 60-70 hours worked per week) and night shift or a 24-hour on-call model (vs 16-hour on-call model) (Romito et al., 2021; Sanfilippo et al., 2017). A study from Morocco, although surveying anesthesiologists, nurse anesthetists, and nursing staff in the operating room and the intensive care unit, found that on-call systems for anesthesia providers contributed to all three components of burnout (Benhamza et al., 2023). The strength of evidence demonstrating a connection between these risk factors and increased burnout rates varies; however, younger age, longer work hours, and likely, female gender are particularly clear risk factors in the development of burnout in anesthesia.

Burnout in anesthesia can lead to significant consequences for patients, providers, and employers, and negatively affect the quality of healthcare. Burnout in anesthesia can lead to feelings of emotional exhaustion and disengagement at work. Employers face increased staff turnover, absences from work, and poor job performance (Salyers et al., 2016). Burnout has a "small to medium-sized" effect on quality and safety, with emotional exhaustion having the strongest relationship to quality. Safety concerns such as errors and adverse events could lead to negative consequences for patients and increase the liability for the organization (Salyers et al., 2016). Lea et al. (2022) confirms this finding, stating that medical errors are linked to high levels of burnout. Burnout has been linked to negative consequences across all domains of healthcare. Due to the lack of data on CRNA-specific observations and the CRNA's growing role in healthcare, more data should be gathered to assess and prevent some of these negative consequences.

Workplace dynamics may also contribute to anesthesia providers developing burnout. This condition may have a contagious nature and affect interpersonal dynamics in the workplace, leading to more conflict between colleagues (Maslach et al., 2001). According to a study from Afonso et al. (2021), the strongest associations with burnout syndrome were found to be a perceived absence of support in the workplace (with an odds ratio of 10.0 and a 95% confidence interval ranging from 5.4 to 18.3). In addition, a moderate amount of support both in and out of the workplace serves as a protective factor (Afonso et al., 2021). Del Grosso and Boyd (2019) highlight a correlation between workplace incivility and burnout. A negative workplace dynamic and/or characteristics of the work environment are congruent with an increased risk for burnout among providers.

Rationale

Several tools are currently available for assessing burnout. This project will use the Copenhagen Burnout Inventory (CBI) to assess burnout in VA-employed CRNAs across the country. The CBI distinguishes "between three types of exhaustion: personal burnout, work-related burnout, and client-related burnout" (Borritz et al., 2006, p. 50). Fatigue and exhaustion are at the core of burnout with the CBI (Kristensen et al., 2005). This encompasses multiple leading burnout researchers who all have similar

definitions of what burnout is and use phrases including “a state long term exhaustion state of physical, emotional and mental exhaustion...” or “a state of physical or emotional exhaustion caused by long-term involvement in situations that are emotionally demanding” (Kristensen et al., 2005, p. 196). The personal burnout (PB) section is considered the generic part that does not look to distinguish between psychological or physical exhaustion or fatigue (Kristensen et al., 2005). PB aims to look at the general degree of fatigue or exhaustion experienced by individuals. Work-related burnout (WB) is more specific and looks at the physical and emotional fatigue or exhaustion experienced by individuals as related to their work. Kristensen et al (2005), specifically states that comparing the PB and WB scales is useful in identifying people who are exhausted or fatigued and can attribute these feelings to work or non-work-related causes.

When deciding between the Malach Burnout Inventory (MBI) and the CBI one factor in the decision was the financial cost to acquire and disseminate. This project does not have funding to support the cost of the MBI. Another reason why the CBI will be used is that its framework centers around fatigue and exhaustion, which has been found to have the strongest correlation to burnout and has the widest acceptance as the main factor (Borritz et al., 2006; Del Grosso & Boyd, 2019; Kristensen et al., 2005). The MBI has been criticized because although it measures three components to burnout (different from the CBI), one component, depersonalization, is viewed as a coping strategy, and a second component, reduced personal accomplishment, is a consequence of burnout (Kristensen et al., 2005).

A root-cause-analysis and a fish bone diagram [Appendix B] visually represent this. Burnout does not have a singular cause, and as evidenced by the literature review there can be several confounding factors that lead to the development of burnout. Through the CBI framework and tool, along with the

root-cause analysis, this project will attempt to locate the greatest risks and general prevalence of burnout in the VA CRNA community.

Specific Aims

In response to the growing concerns of burnout among CRNAs within the Veteran Health Administration (VA), this project aimed to comprehensively assess the current levels of burnout among this specific group of healthcare providers. The primary objective was to provide a detailed understanding of the prevalence of burnout among VA CRNAs at local and national levels. Secondary aims included in this investigation were associations between burnout and age, years worked as a CRNA, years worked at the VA, and perceived job satisfaction. The results of this study did not only contribute to the body of knowledge surrounding burnout in healthcare but also closed some existing gaps in the literature as it pertains to CRNA-related burnout, specifically within the VA. Through this project, the aim was to shed light on the extent of burnout among VA nurse anesthetists, laying the foundation for future interventions and support mechanisms.

Context

The VA consists of over 170 hospitals across the US (i.e., rural, metropolitan, and suburban), and employs over 1,000 CRNAs with varying CRNA practice models. The scope of practice for CRNAs is consistent throughout the country, but the practice model of each individual entity varies across the VA system. The inconsistent practice models and the nationwide presence of CRNAs working in the VA system make this surveyed population representative of the national CRNA population. This makes the prospect of surveying the CRNAs in the VA system a very good indicator of the burnout levels CRNAs face in national context. An additional contextual element is the structure/function of the leadership, and the workplace environment differences that may exist among different VA locations within the same health system. Better administrative support for CRNAs and better perceived support are both correlated with lower burnout rates, and the former being linked to better job satisfaction and less staff turnover as well (Lea et al., 2022). Burnout is also an individual experience that may differ from one individual to another due to personality traits and coping strategies (Del Grosso & Boyd, 2019; Maslach

et al., 2021). Afonso et al (2021) said, “leadership drives culture, culture drives burnout” (p.690). These factors give context that data from surveys on burnout may vary due to these difference contextual elements.

Interventions

This burnout survey began with participant demographic questions, followed next by questions regarding workplace dynamics, and finished with the CBI tool [Appendix B]. The demographic and workplace dynamic questions were created by all team members involved and thoughtfully created to capture the variation in CRNA practices across the nation. The CBI was acquired, and permission was granted by a representative from Denmark’s National Research Centre for the Working Environment. The survey was distributed via a secure online survey platform, Qualtrics. No identifiable information was gathered, and consent was obtained via informed consent on the first page of the survey before participants proceeded. The survey was voluntary, and there were no negative consequences from non-participation. The survey was distributed to all members of The Association of Veteran's Affairs Nurse Anesthetists (AVANA) via their VA email addresses. Data was collected for 46 days (2024 was a leap year), during which time the CRNAs accessed and completed the survey at any time. After 2 weeks, a reminder email was sent out to those who had not yet completed the survey (this is done automatically via Qualtrics). At the end of the 46 day period, all the data gathered was analyzed. In the Fall of 2024, we will present our findings to the Association of Veterans Affairs Nurse Anesthetists (AVANA) Board of Directors, serving as a crucial resource for healthcare administrators and practitioners within the VA system. This presentation will enable them to make informed decisions aimed at mitigating burnout and improving the overall well-being of VA CRNAs.

Analysis

The goal was to achieve a response rate of 10%, which is based on similar survey studies of CRNAs and anesthesia providers. The survey platform Qualtrics tracked the response rate. The survey was then disseminated to VA CRNAs, with an allotted time of 46 days for survey completion. The data, including demographics, workplace dynamics, anesthesia department characteristics, and the CBI tool,

was analyzed after data collection was complete. The initial step in our exclusionary criteria was to include only those participants who provided informed consent. If an individual did not give informed consent, the survey was automatically terminated. Subsequently, we excluded participants who did not complete every question in the survey. Several individuals completed the demographic section but not the CBI portion, or vice versa. After thorough consideration, this decision was made to ensure the integrity and cleanliness of our dataset.

The CBI is broken into three sections that focus on personal burnout (PB), work-related burnout (WB), and client related burnout (CB), totaling 19 items. Per the CBI instructions, the word 'Client' will be replaced by 'Patient' since this is the term used for the recipients of care delivered (this will still be signified as 'CB'). All items have a possible of five responses, and each question was re-coded with '0' indicating "Never' or "To a very low degree" depending on the question and up to '100' for 'Always' or 'To a very high degree.' The mean score for everyone is then calculated for each of the three individual sections. Then, a cumulative mean score for all participants is calculated for each individual section (Borritz et al., 2006). When analyzing the mean values for the three categories, a lower number will indicate a low level of burnout, and a higher number will indicate a higher level of burnout. Additionally, according to the original PUMA study, a mean score greater than or equal to 50 is considered a high degree of burnout (Borritz et al., 2006). The CBI has performed well with all three sections (personal burnout, work-related burnout, and client-related burnout), each achieving a Cronbach's alpha of at least 0.85. The authors were confident that using the CBI to assess for burnout will fulfill the goal of closing knowledge gaps within the CRNA community.

Our analysis used descriptive statistics, including means, standard deviations, and frequency percentages to describe the demographics and workplace dynamics and answer the primary question of the prevalence of burnout in CRNAs. When describing the prevalence of burnout of CRNAs, we compared our cumulative mean scores for each section and the percentage of participants with an individual mean score for each section, that is equal to or greater than 50 with those in the original study population for reference. Secondary analysis was done using Spearman's correlation between the

mean scores for each section and age, years worked as a CRNA, and perceived satisfaction of their job. This was done because the associations made were between continuous and ordinal variables. Scatter plots were created to represent correlations visually.

Ethical Considerations

The project team ensured participant confidentiality and privacy throughout the entire process. No personal information was shared or collected during the survey, and all data for its purposes was stored in a password-safe cloud-based platform. Informed consent was obtained. Participants were informed about the study's purpose and potential benefits, and their participation was voluntary. Institutional Review Board (IRB) approval was granted via both OHSU and the VA's respective IRBs to ensure the study complied with ethical guidelines [Appendix C].

Results

Over a span of roughly six weeks, beginning February 24th, 2024, our survey [Appendix D] received an initial response rate of 18.8%. In total, 204 surveys were submitted. Two participants indicated they did not consent to complete the survey, and 39 responses did not meet the inclusion criteria to be counted as a complete survey. Despite the inclusion criteria, there were still 163 respondents for which analysis was performed. This final figure ensured a 15% response rate and eclipsed the stated goal of a 10% response rate.

Demographics

The survey gathered comprehensive demographic data from 163 VA CRNAs, providing a representative snapshot of the workforce. Participants' ages ranged from 25 years to over 65 years, with the largest age group being 41-45 years (22.1%). Only 14.1% of respondents were 40 or younger. Other age groups with a large distribution of participants were ages 46-50 years (17.2%), 51-55 years (20.9%), and 56-60 years (16.6%). Almost 10% (9.2%) of participants were older than 60 years old. The distribution of genders was predominantly male (57.1%), followed by female (39.3%), with 3.7% preferring not to disclose their gender identity. In terms of educational attainment, 74.2% of CRNAs held a master's degree, 23.3% had a DNP/DNAP, and 1.8% had a PhD.

The professional experience of respondents varied with the largest distribution showing 27% having worked as CRNAs for 11-15 years. Those with 10 years or less of experience were 22%, those with 11-30 years of experience were 71.2%, and those with greater than 30 years of experience as a CRNA were 6.7%.

Regarding tenure at the VA, 31.3% of CRNAs had 6-10 years of service, followed by 1-5 years (26.4%), 11-15 years (20.2%), less than 1 year (6.1%), 16-20 years (9.2%), 21-30 years (6.1%), and 31-40 years (0.6%). Employment settings were also diverse, with 49.1% of respondents with one place of employment as a CRNA, 35% at two employments, 9.2% at three, and 6.7% at four or more. Most respondents worked in urban settings (66.9%), followed by suburban (30.1%) and rural (3.1%). The VA facilities where these CRNAs practiced were spread across various states, with the highest number of responses from Georgia (12.3%), Florida (11%), California (9.2%), and South Carolina (8.0%). In total, 29 states responded to the survey.

Workplace

The number of anesthetizing locations across the VA facilities within the country varied with 39.3% delivering anesthesia in 5-8 locations, 14.1% in 1-4 locations, 16% in 9-11 locations, 9.8% in 12-14 locations, 17.2% in 15-20 locations, and 3.7% in more than 20 locations. Regarding workload, 44.8% reported never being contacted on their day off for overtime, while 55.2% of CRNAs reported being contacted on their day off to work overtime (reporting either seldom, sometimes, or always). Extra shifts worked without being asked were minimal, with 81% of respondents not working any extra shifts, 9.2% working one extra shift, and smaller percentages working more. Additionally, 71.8% of CRNAs were required to work holidays, weekends, nights, or take call, while 28.2% were not.

The survey results provide insight into the official policies on practice models within the respondents' facilities. Specifically, 33.7% of CRNAs report that their facility's official policy was a "Medically Directed" practice model, and that the cultural day-to-day workplace follows a "Medically Directed" practice model. However, 47.2% of CRNAs stated their policy was a medically supervised practice model and 15.3% stated their policy was an independent practice model (collaborative, team model); but in the cultural day-to-day, 10% less (37.4%) of the CRNAs stated they follow the medically supervised model with 8% of this difference accumulating in the independent practice model cohort. The survey also revealed mixed feelings among CRNAs regarding their ability to practice to the full scope of their education and training at their current facilities. Specifically, 41.7% of respondents felt they are "always" or "often" able to practice to their full scope. Meanwhile, 22.7% felt they can "sometimes" practice to their full scope, and 35.5% felt they can "seldom" or "never" practice to the full scope of their education and training.

Perceptions of adequate compensation among CRNAs were varied. There was a representation of 50.3% of CRNAs that feel "probably yes" or "definitely yes" they are adequately compensated, but 38.7% either feel "definitely not" or "probably not" adequately compensated. Additionally, 11.0% of CRNAs were uncertain, responding that they "might or might not" feel adequately compensated.

The survey results indicate a notable level of satisfaction among CRNAs with their current positions. Specifically, only 1.2% of respondents perceived their job satisfaction at the lowest level of 0 (out of 10, 10 being the highest). Satisfaction ratings gradually increased from 11.6% responding '1' to '3', 25.1% responding '4' to '6', and 51% responding '7' to '9'. 11% of the individuals scored job satisfaction at a perfect 10 out of 10. The mean was 6.77, with a median of 8 and upper quartile of 9. This indicated that while there are some lower values, most data points were concentrated at the higher end of the scale, suggesting overall positive or high values.

Copenhagen Burnout Inventory

Based on the 163 participants, the mean value for PB was 40.22 (SD = 22.65), for WB, the mean score was 44.24 (SD = 19.27), and for CB the mean score was 21.96 (SD = 20.47) [Table 1]. This data indicated that there is wide variation amongst the sample where many individuals score either very high or very low levels of burnout. In this sample, for PB, 61 (37.4%) participants had a mean score greater than or equal to 50, for WB there were 63 (38.7%), and for CB there were 19 (11.7%) participants. When analyzing the secondary objectives, we used a Spearman's Correlation, and this demonstrated there was a moderate negative correlation between PB and perceived job satisfaction ($r= -0.62$, $p<0.001$) and a strong negative correlation between WB and perceived job satisfaction ($r= -0.71$; $p<0.001$) [Table 2]. There was also a strong positive correlation between PB and WB ($r= 0.87$, $p<0.001$) [Figure 1]. No correlation was found between any of the three CBI components and age, years worked as a CRNA, or years worked at the VA [Table 3].

Table 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MeanPersonal	163	.00	100.00	40.21	22.66
MeanWork	163	10.71	89.29	44.24	19.27
MeanClient	163	.00	100.00	21.96	20.47
Valid N (listwise)	163				

Table 2

Correlations

			Mean Personal	Mean Work	Mean Client	Please indicate your satisfaction level with your current CRNA position
Spearman's rho	MeanPersonal	Correlation Coefficient	1.000	.867**	.677**	-.622**
		Sig. (2-tailed)	.	<.001	<.001	<.001
		N	163	163	163	163
	MeanWork	Correlation Coefficient	.867**	1.000	.691**	-.708**
		Sig. (2-tailed)	<.001	.	<.001	<.001
		N	163	163	163	163
	MeanClient	Correlation Coefficient	.677**	.691**	1.000	-.419**
		Sig. (2-tailed)	<.001	<.001	.	<.001
		N	163	163	163	163
	Please indicate your satisfaction level with your current CRNA position	Correlation Coefficient	-.622**	-.708**	-.419**	1.000
		Sig. (2-tailed)	<.001	<.001	<.001	.
		N	163	163	163	163

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3

Correlations

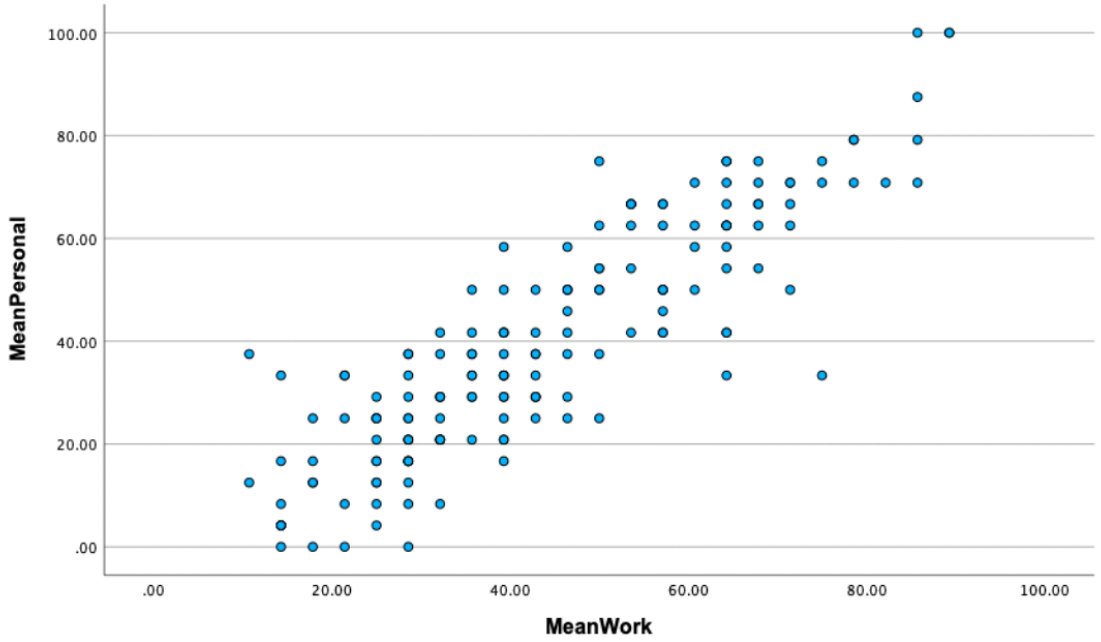
			How many years have you worked as a CRNA?	What age group do you fall into?	How many years have you worked at the VA as a CRNA?
Spearman's rho	Mean Personal	Correlation Coefficient	.004	.051	.014
	Mean Work	Correlation Coefficient	.068	.116	.089
	Mean Client	Correlation Coefficient	.005	.070	.047

N = 163

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 1

PB vs WB Correlation



What is promising is that the CB was the lowest amongst list of individual jobs and the overall mean for those 15 jobs measured in the original data set, as well as the frequency of participants that scored highly. The two individual scores from the entire CBI in our data set were from the questions 'Do you find it hard to work with patients?' (Mean = 15.18) and 'Do you find it frustrating to work with patients?' (Mean = 15.64). The overall low score for the CB category indicates that the patient interaction and interpersonal part of the job does not cause significant burnout.

Summary

To our knowledge, there are very limited studies that assess burnout in CRNAs only. A strength of this investigation is that it yielded a strong response rate (15%, n=163) that although only encompasses one healthcare system, contains multiple variations in practice models and workplace dynamics. If a score greater than or equal to 50 is considered a high degree of burnout, then this data sample indicates that 37% of CRNAs in the VA healthcare system experience a high degree of burnout. The strong correlation between PB and WB burnout indicates that this fatigue and exhaustion that is experienced can be attributed to work-related causes. It signifies that this burnout is less likely a cause of family demands, health causes, or patient-related causes, although outliers are always present. The strong correlation between WB and perceived job satisfaction indicates that the higher WB burnout the lower job satisfaction.

Interpretation

This data sample shows a good representation of CRNAs who work in the VA healthcare system with varying degrees of experience as CRNAs, years as employees of the VA, and differing care models. One takeaway from this data regarding age is that 25% of VA CRNAs over the age 55 and are likely looking at retirement in the next decade. A 2018 ASA survey looking at anesthesiologists and nurse anesthetists showed that 40% of the anesthesia provider population was over 55 years old, and a separate survey in 2020 showed that 45% of anesthesiologists in the US were over the age of 55 (Garfield & Garfield, 2021; Menezes & Zahalka, 2024). The general population's age is still expected to increase through 2030 while surgery demands, and thus the need for anesthesia providers, continue to grow every year. Higher surgery demands and an aging anesthesia population could lead to increased hours and an increased risk of burnout (Romito et al., 2021; Sanfilippo et al., 2017).

The project's main outcome was to assess burnout amongst the CRNAs who work in the VA healthcare system. This data suggests most CRNAs are burnt out due to personal and work-related factors and that patient-specific burnout is much lower relative to other areas. When comparing this data to the reference population data from the original PUMA study that used the CBI to measure 15 different jobs in the human service sector the data showed CRNA burnout is quite high (Kristensen et al., 2005). The mean scores for all three respective categories in the PUMA study were 35.9 (PB), 33.0 (WB), and 30.9 (CB). The highest score for each category was 44.7 (PB; Midwives), 43.5 (WB; Midwives), 41.2 (CB; Prison wards). When compared to this CRNA population, CRNA PB would rank 3rd and WB 1st among the jobs measured in the original PUMA study. Additionally, the frequency of CRNAs that scored greater than or equal to 50 for PB and WB was significantly greater than the original reference population (PB; 37.4% vs 22.2% and WB; 38.7% vs 19.8%). Additionally, there was a significant correlation between PB and WB amongst CRNAs, demonstrating that WB was a likely source of overall burnout (PB). This can be deduced through the explanation from Kristensen et al. (2005) that the high scores for PB are likely attributed to work-related factors because of this high correlation. If PB scores were elevated in the absence of a correlation between WB and CB, then the PB would not be attributed to work-related or client-related factors. The CB portion of the CBI had the lowest score for all participants, with a mean score of 21.96 (SD = 20.47), and only 11% of participants scored 50 or greater for CB. This data shows a high level of both PB and WB but a low level of CB. The high levels of burnout are likely attributed to general or work-related causes and unlikely to be attributed to client-related causes.

The secondary outcome aimed to investigate if there is an association between burnout and age, years worked as a CRNA, years worked at the VA, or perceived job satisfaction. Results showed no statistically significant correlation between PB, WB, or CB and age, years worked as a CRNA, or years worked at the VA. The fact that age was not correlated with the burnout scores in this population was of particular interest considering the aforementioned "survivor effect" that described providers at a later age report less burnout than their younger counterparts. Perceived job satisfaction, however, had a moderate negative correlation with PB and a strong negative correlation with WB. This is congruent with the current literature that job satisfaction and burnout are correlated.

The high level of WB (44.24), including the 38.7% who scored greater than or equal to 50 is concerning because it has been significantly linked to more sick days used, sleep problems, and intention to quit work (Kristensen et al., 2005). Poor sleep is a cause for concern given that poor or inadequate sleep is well documented to decrease performance in the workplace, increase morbidity and mortality long-term, and is associated with adverse mental health outcomes.

What is promising is that the CB scores were the lowest when compared to the list of individual jobs from the reference population. Additionally, the two individual scores from the entire CBI in our data set were from the questions 'Do you find it hard to work with patients?' (Mean = 15.18) and 'Do you find it frustrating to work with patients?' (Mean = 15.64). The overall low score for the CB category indicates that the patient interaction and patient care aspects of being a CRNA likely not a cause for burnout.

Limitations

There were some limitations to this project. First, given a response rate of less than 100% and responses from only 29 of 50 states, the findings do not fully represent the entire VA CRNA population. The states not included may have different populations for which care is delivered including but not limited to different demographic and socioeconomic populations. These VA facilities that were not represented also likely have different workplace dynamics. These factors could influence the survey

results. The geographical limitations restrict the generalization of the findings to states not represented in the survey. Second, one of the primary limitations of using an email-dispensed survey is the potential for sampling bias. Not all individuals have equal access to email, whether that is the time necessary to complete, the ability to navigate email links and survey platforms, or access to the internet. This can result in an overrepresentation of certain demographics, such as younger, more tech-savvy individuals, and an underrepresentation of others, thus skewing the results and limiting the generalizability of the findings.

Conclusions

This project aimed to fill knowledge gaps on the prevalence of burnout among CRNAs. Through a national approach, this project surveyed providers across the VA healthcare system and reached a response rate of 15%, totaling responses from 29 states. It demonstrated that burnout, specifically general and work-related, among this CRNA population, was high when considering the reference population used for the development of the Copenhagen Burnout Inventory. Both PB and WB were found to correlate with job satisfaction, and there was no correlation between any of the three domains of burnout in age, years worked as a CRNA, or years worked as a CRNA at the VA.

References

Afonso, A.M., Cadwell, J.B., Staffa, S.J., Zurakowski, D., Vinson, A.E. (2021). Burnout rate and risk factors among anesthesiologists in the United States. Anesthesiology, 134(5), 683–696. https://doi.org/10.1097/ALN.0000000000003722

Benhamza, S., Khalayla, M., Lahlou, L., Amine, Z., Lazraq, M., Miloudi, Y., Bensaid, A., & El Harrar, N. (2023). The prevalence and contributing factors of burnout among anesthesiologists and intensive care unit staff in Morocco: A cross-sectional analysis. Cureus, 15(9), e44956. https://doi.org/10.7759/cureus.44956

Borritz, M., Rugulies, R., Bjorner, J. B., Villadsen, E., Mikkelsen, O. A., & Kristensen, T. S. (2006). Burnout among employees in human service work: Design and baseline findings of the PUMA study. Scandinavian Journal of Public Health, 34(1), 49–58. https://doi.org/10.1080/14034940510032275

Borritz, M., Bültmann, U., Rugulies, R., Christensen, K. B., Villadsen, E., & Kristensen, T. S. (2005). Psychosocial work characteristics as predictors for burnout: findings from 3-year follow up of the PUMA study. *Journal of Occupational and Environmental Medicine*, *47*(10), 1015–1025. https://doi.org/10.1097/01.jom.0000175155.50789.98

Del Grosso, B., & Boyd, A. S. (2019). Burnout and the nurse anesthetist: An integrative review. AANA Journal, 87(3), 205–213.

Garfield, J., & Garfield, F. (2021). The ageing anasthetist: Lessons from the North American experience. British Journal of Anaesthesia, 21(1), 20–25. https://doi.org/10.1016/j.bjae.2020.08.007

Jun, J., Ojemeni, M.M., Kalamani, R., Tong, J., & Crecelius, M.L. (2021). Relationship between nurse burnout, patient and organizational outcomes: Systematic review. International Jounral of Nursing Studies, 119. 10.1016/j.ijnurstu.2021.103933

Lea, J., Doherty, I., Reede, L., & Mahoney, C. B. (2022). Predictors of burnout, job satisfaction, and turnover among CRNAs during COVID-19 surging. AANA Journal, 90(2), 141–147.

Niconchuk, J. A., & Hyman, S. A. (2020). Physician burnout: Achieving wellness for providers and patients. Current Anesthesiology Reports, 10(3), 227–232. https://doi.org/10.1007/s40140-020-00401-w

Maslach, C., Schaufeli, W.B., Leiter, M.P. (2001). Job burnout. Annual Review of Psychology, 52, 397-422.https://doi-org.liboff.ohsu.edu/10.1146/annurev.psych.52.1.397

Menezes, J., & Zahalka, C. (2024). Anesthesiologist shortage in the United States: A call for action. Journal of Medicine, Surgery, and Public Health, 2, 100048. https://doi.org/10.1016/j.glmedi.2024.100048

Romito, B. T., Okoro, E. N., Ringqvist, J. R. B., & Goff, K. L. (2021). Burnout and wellness: The anesthesiologist's perspective. American Journal of Lifestyle Medicine, 15(2), 118–125. https://doi.org/10.1177/1559827620911645

Salyers, M.P., Bonfils, K.A., Luther, L., Firmin R.L., White, D.A., Adams, E.L., & Rollins, A.L. (2017). The relationship between professional burnout and quality and safety in healthcare: A meta-analysis. Journal of General Internal Medicine, 32(4),475–482 https://doi.org/10.1007/s11606-016-3886-9

Sanfilippo, F., Noto, A., Foresta, G., Santonocito, C., Palumbo, G. J., Arcadipane, A., Maybauer, D. M., & Maybauer, M. O. (2017). Incidence and factors associated with burnout in anesthesiology: A systematic review. BioMed Research International, 2017. https://doi.org/10.1155/2017/8648925

Shah, A., Wyatt, M., Gourneau, B., Shih, G., & De Ruyter, M. (2019). Emotional exhaustion among anesthesia providers at a tertiary care center assessed using the MBI burnout survey. Psychology, Health & Medicine, 24(5), 620–624. https://doi.org/10.1080/13548506.2018.1546019

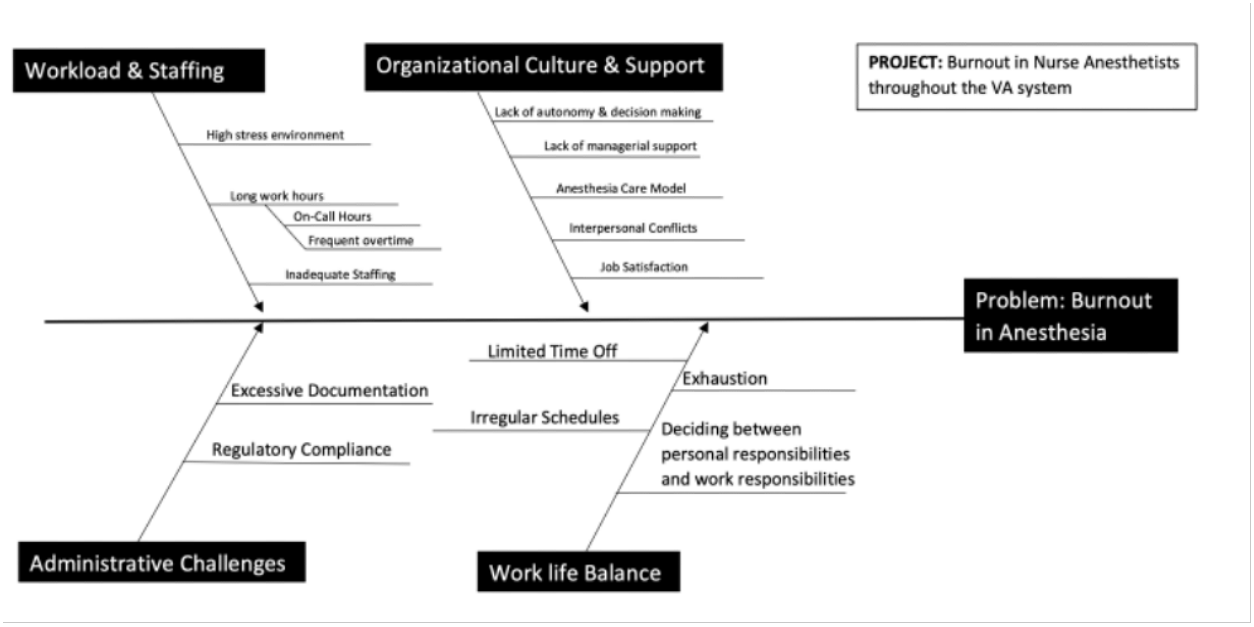
World Health Organization [WHO]. (2019, May 28). Burn-out an "occupational phenomenon": International classification of diseases. https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases

Montgomery et al., DOI: 10.1002/nur.22114 --- Psychometric properties of Copenhagen Burnout Inventory among nurses

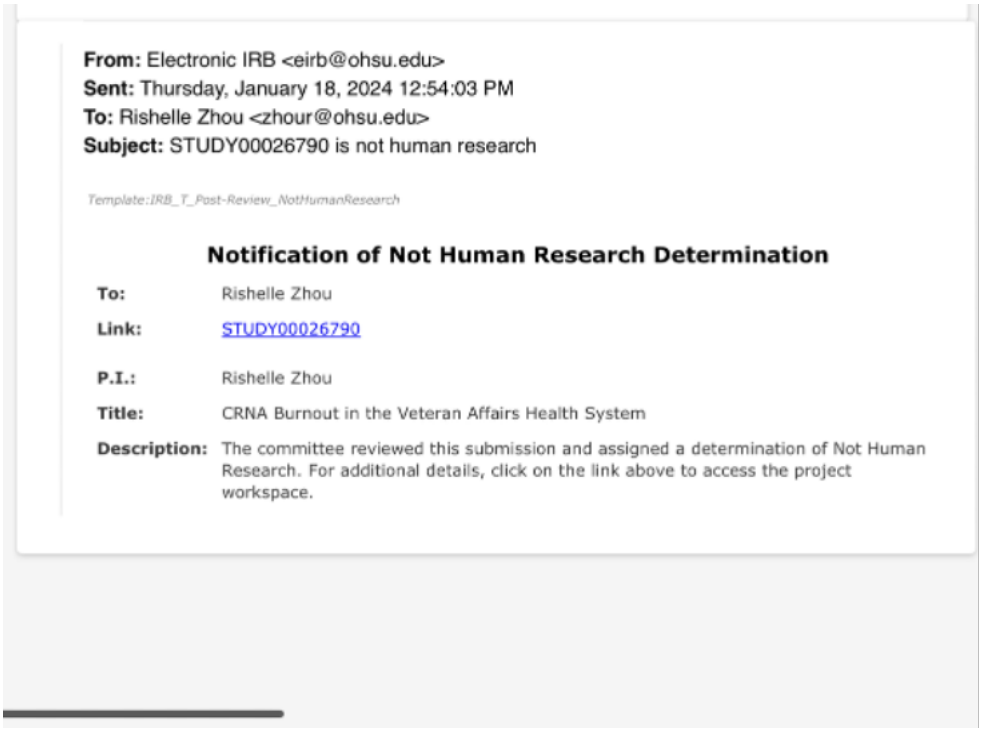
Appendix A (Project Timeline)

	Dec 2023-Jan2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	July 2024	Aug-Dec 2024
Finalize project design and approach (703A)	X							
Complete IRB determination or approval (703A)		X	X					
Send out Initial Questionnaire			X					
2 week follow up reminder for Questionnaire Completion			X Late March					
Final data analysis (703B)					X			
Write sections 13-17 of final paper (703B)						X	X	
Prepare for project dissemination (703B)								X

Appendix B (Cause & Effect Diagram [Fishbone])



Appendix C (IRB Approval)

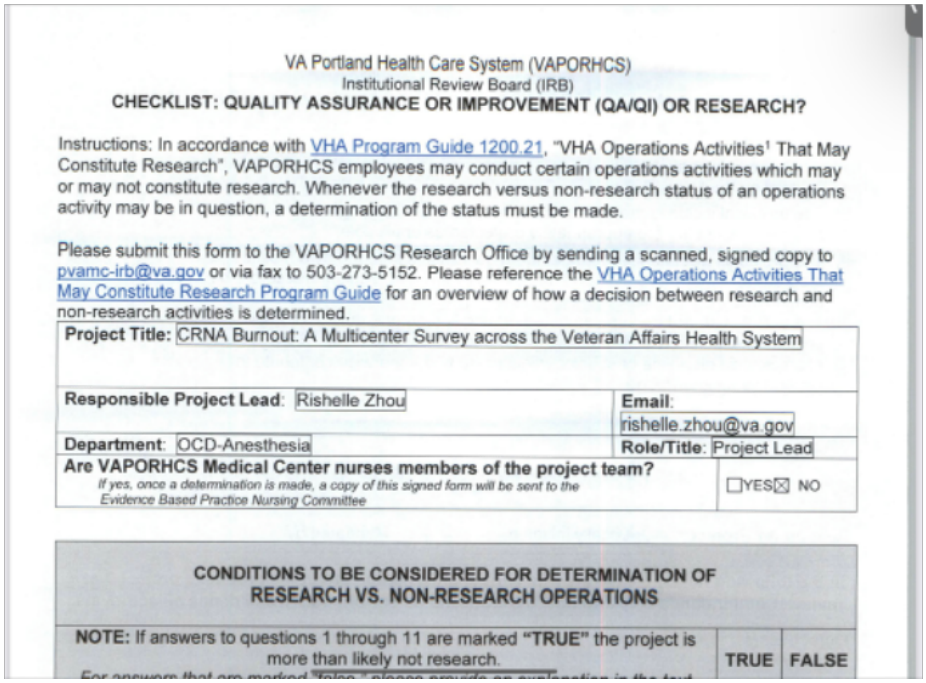


From: Electronic IRB <eirb@ohsu.edu>
Sent: Thursday, January 18, 2024 12:54:03 PM
To: Rishelle Zhou <zhour@ohsu.edu>
Subject: STUDY00026790 is not human research

Template:IRB_T_Post-Review_NotHumanResearch

Notification of Not Human Research Determination

To:	Rishelle Zhou
Link:	STUDY00026790
P.I.:	Rishelle Zhou
Title:	CRNA Burnout in the Veteran Affairs Health System
Description:	The committee reviewed this submission and assigned a determination of Not Human Research. For additional details, click on the link above to access the project workspace.



VA Portland Health Care System (VAPORHCS)
Institutional Review Board (IRB)
CHECKLIST: QUALITY ASSURANCE OR IMPROVEMENT (QA/QI) OR RESEARCH?

Instructions: In accordance with VHA Program Guide 1200.21, "VHA Operations Activities[1] That May Constitute Research", VAPORHCS employees may conduct certain operations activities which may or may not constitute research. Whenever the research versus non-research status of an operations activity may be in question, a determination of the status must be made.

Please submit this form to the VAPORHCS Research Office by sending a scanned, signed copy to pvamc-irb@va.gov or via fax to 503-273-5152. Please reference the VHA Operations Activities That May Constitute Research Program Guide for an overview of how a decision between research and non-research activities is determined.

Project Title: CRNA Burnout: A Multicenter Survey across the Veteran Affairs Health System	
Responsible Project Lead: Rishelle Zhou	**Email:** rishelle.zhou@va.gov
Department: OCD-Anesthesia	**Role/Title:** Project Lead
Are VAPORHCS Medical Center nurses members of the project team? *If yes, once a determination is made, a copy of this signed form will be sent to the Evidence Based Practice Nursing Committee*	☐YES ☒ NO

CONDITIONS TO BE CONSIDERED FOR DETERMINATION OF RESEARCH VS. NON-RESEARCH OPERATIONS		
NOTE: If answers to questions 1 through 11 are marked **"TRUE"** the project is more than likely not research.	**TRUE**	**FALSE**

Appendix D (VA CRNA BURNOUT SURVEY)

VA CRNA BURNOUT SURVEY

Start of Block: Informed Consent

Hello,

Thank you for participating in this brief questionnaire about VA CRNA burnout. This survey is being carried out by Binta Manneh, Trevor Sawyer, and Alex Geske as part of their Doctor of Nursing Practice project with Oregon Health and Science University Nurse Anesthesia Program.

Participation in the survey is completely voluntary and 100% anonymous. You may skip whatever questions you choose. Your individual responses will not reflect on you or your status with VHA in anyway. Our main objective is to comprehensively assess the current levels of burnout among VA CRNAs.

This questionnaire should take about 10-15 minutes to complete. Thank you again for helping to advance VHA CRNA practice.

Please indicate your willingness to participate in this voluntary survey by choosing the appropriate response below.
o I have read the above information and I voluntarily consent to participate in the questionnaire (1)
o I do not consent to participate in this voluntary questionnaire (2)

End of Block: Informed Consent

Start of Block: Demographics

Demographics

What age group do you fall into?
o <25 (1)
o 25-30 (2)
o 31-35 (3)
o 36-40 (4)
o 41-45 (5)
o 46-50 (6)
o 51-55 (7)
o 56-60 (8)
o 61-65 (9)
o >65 (10)

What is your gender identity?
o Male (1)
o Female (2)
o Non-binary / third gender (3)
o Prefer not to say (4)

What is the highest degree you have achieved? (Select all that apply)
o Masters (1)
o DNP/DNAP (2)
o PhD (3)
o J.D/Other (4)

How many years have you worked as a CRNA?
o <1 (1)
o 1-5 (2)
o 6-10 (3)
o 11-15 (4)
o 16-20 (5)
o 21-30 (6)
o 31-40 (7)
o >40 (8)

How many years have you worked at the VA as a CRNA?
o <1 (1)
o 1-5 (2)
o 6-10 (3)
o 11-15 (4)
o 16-20 (5)
o 21-30 (6)
o 31-40 (7)
o >40 (8)

How many places are you employed as a CRNA?
o 1 (1)
o 2 (2)
o 3 (3)
o ≥4 (4)

What community setting do you work in?
o Rural (1)
o Suburban (2)
o Urban (3)

In which city is the VA facility where you practice located? (Please specify one)

_____

In which state is the VA facility where you practice?

▼ Alabama (1) ... Wyoming (51)

End of Block: Demographics

Start of Block: Anesthesia/Department and Workplace Dynamics

Anesthesia Department & Workplace Dynamics

How many locations (e.g., ORs, Endo suites, MRIs, Cath Labs) do you provide anesthesia at your facility?

o 1-4 (1)
o 5-8 (2)
o 9-11 (3)
o 12-14 (4)
o 15-20 (5)
o >20 (6)

What are your primary responsibilities as a CRNA at the VA? Please select all that apply
☐ Administration (1)
☐ Teaching/precepting (2)
☐ Research (3)
☐ Quality Improvement (4)
☐ Clinical Practice (5)
☐ Other/ (6) _____

How often are you contacted on your day off and asked to work overtime?
o Always (1)
o Often (2)
o Sometimes (3)
o Seldom (4)
o Never (5)

How many extra shifts per month do you work without being asked?
o 0 (1)
o 1 (2)
o 2 (3)

o 3 (4)
o 4 (5)
o >5 (6)

Are you required to work holidays, weekends, nights, and/or take call?
o Yes (1)
o No (2)

Regardless of the cultural day-to-day environment, what is official policy on the type of practice model in your facility?
o Medically Directed (1)
o Medically Supervised (2)
o Independent Practice (Team Model) (3)
o Independent Practice (CRNA Only) (4)

In actual, day-to-day practice (regardless of the policy), how would you describe the practice model in your facility?
o Medically Directed (1)
o Medically Supervised (2)
o Independent Practice (Team Model) (3)
o Independent Practice (CRNA only) (4)

In your current facility, do you feel you are able to practice to the full scope of your education and training?
o Always (1)
o Often (2)
o Sometimes (3)
o Seldom (4)
o Never (5)

Do you feel there is adequate support from your colleagues?
o Always (1)
o Often (2)
o Sometimes (3)
o Seldom (4)
o Never (5)

Is there room for growth and opportunities to maintain skills at your current facility?
o Always (1)
o Often (2)
o Sometimes (3)
o Seldom (4)
o Never (5)

Do you feel adequately compensated for the demands of your job?
o Definitely not (1)
o Probably not (2)
o Might or might not (3)

o Probably yes (4)
o Definitely yes (5)

Please indicate your satisfaction level with your current CRNA position

0 (0)
1 (1)
2 (2)
3 (3)
4 (4)
5 (5)
6 (6)
7 (7)
8 (8)
9 (9)
10 (10)

End of Block: Anesthesia/Department and Workplace Dynamics

Start of Block: CBI

How often do you feel tired?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

How often are you physically exhausted?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

How often are you emotionally exhausted?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

How often do you think: “I can’t take it anymore”?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

How often do you feel worn out?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

How often do you feel weak and susceptible to illness?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

Is your work emotionally exhausting?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)
o To a very low degree (0)

Do you feel burnt out because of your work?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)
o To a very low degree (0)

Does your work frustrate you?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)
o To a very low degree (0)

Do you feel worn out at the end of the working day?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

Are you exhausted in the morning at the thought of another day at work?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never (0)

Do you feel that every working hour is tiring for you?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

Do you have enough energy for family and friends during leisure time?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

Do you find it hard to work with patients?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)
o To a very low degree (0)

Do you find it frustrating to work with patients?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)

o To a very low degree (0)

Does it drain your energy to work with patients?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)
o To a very low degree (0)

Do you feel that you give more than you get back when you work with patients?
o To a very high degree (100)
o To a high degree (75)
o Somewhat (50)
o To a low degree (25)
o To a very low degree (0)

Are you tired of working with patients?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)

Do you sometimes wonder how long you will be able to continue working with patients?
o Always (100)
o Often (75)
o Sometimes (50)
o Seldom (25)
o Never/Almost Never (0)
End of Block: CBI

Start of Block: Final Comments

Do you have any additional comments to explain/express how your work creates stress and burnout in your life, as well as suggestions to improve this?
_____

End of Block: Final Comments