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# Exploring the Relationship Between COVID-19 Unit Designation and Nurse Burnout Syndrome

Jamie K. Roney, DNP, RN, NPD-BC, CCRN-K; Gisele Bazan, BSN, RN, CCRN-K; Tiffany Patterson, BSN, RN; Kelsey Sawyer, BSN, RN, CCRN-K; Erin Whitley, MSN, RN-BC; Sahar Mihandoust, PhD, M.Arch.; and JoAnn Long, PhD, RN, NEA-BC



## Introduction

The COVID-19 pandemic impacted healthcare due to surges in infected patient and respiratory failure.

(Bateman et al., 2020; González-Gil et al., 2020; Lasater et al., 2020; Morgantini et al., 2020; Xinghuang Liu et al., 2020)

Nursing burnout syndrome (NBS) results from occupational factors leading to mental health problems.

(Giusti et al., 2020; Hu et al., 2020; Kok et al., 2019; Meltzer et al., 2004; Mihandoust et al., 2021; Morgantini et al., 2020; Moss et al., 2016; Murat et al., 2020; Poncet et al., 2007; Salazar et al., 2020; Sanghera et al., 2020; Sayilan et al., 2020; Xinghuang Liu et al., 2020)

## Background

Intensive care units (ICUs) dedicated to caring for COVID-19 infected individuals may be more susceptible to NBS due to:

- increased burdens of futile care
- high mortality rates
- overstretched healthcare systems

(Giusti et al., 2020; Hu et al., 2020; Kok et al., 2019; Meltzer et al., 2004; Mihandoust et al., 2021; Morgantini et al., 2020; Moss et al., 2016; Murat et al., 2020; Poncet et al., 2007; Salazar et al., 2020; Sanghera et al., 2020; Sayilan et al., 2020; Xinghuang Liu et al., 2020)

## Significance

Identifying socio-demographic, work-related, and psychological predictors of NBS may help organizations mitigate or minimize, the negative psychological impact on ICU nurses working during future pandemics.

## Purpose

The purpose of this study was to compare burnout levels in ICU nurses providing direct care to COVID infected patients with nurses caring for non-COVID infected patients.

## Setting

Eight units: South 4, South 5, MICU, SICU, AED, HC5, PICU, and NICU at Covenant Health

## Methods

A comparative descriptive study was conducted:

1. Neonatal and pediatric ICU to cardiac and medical ICU survey scores measuring predictors of NBS
2. NBS scores for nurses working in six critical care units captured in 2019 prior to the COVID-19 pandemic to scores captured in an ICU after conversion to dedicated COVID-19 ICUs in 2020

Maslach Burnout Inventory (MBI) instrument surveys used to measure burnout subscales:

- emotional exhaustion (EE)
- depersonalization (DP)
- personal accomplishment (PA)

## Sample

- Female nurses working day shifts were surveyed in February and March 2019 in six critical care units.
- In November 2020, four ICUs were used for sampling of both male and female nurses working either day or night shifts.

## Data Analysis

- Data was entered into SPSS version 27
- Descriptive, frequencies, & Q-Q plots run to explore data in both comparison groups
- Independent sample t-tests compared differences in mean scores on EE and DP subscales between COVID-19 and Non-COVID-19 units
- Mann-Whitney U test compared differences in mean PA scores between independent groups

## Results

- Independent Sample t-test results support a statistically significant difference in EE and DP scores between COVID and Non-COVID designated units.

	COVID-designated units (n=52)	Non-COVID units (n=38)	p-value
EE	18.2 (moderate)	8.6 (low)	0.0001
DP	12.8 (high)	5.0 (low)	0.0001
PA	32.6 (high)	36.8 (moderate)	0.08

- Statistical significance not noted pre and post COVID-19 pandemic using independent sample t-test
- Clinical significance noted by an EE sub-scale increase (indicating more burnout) from low pre to moderate

	Pre-COVID critical care RNs (N=51)	COVID critical care RNs (N=52)	p-value
EE	15.41 (low)	18.2 (moderate)	.59
DP	10.29 (high)	12.8 (high)	.74

- Nurses self-reported an acute stress score was much higher in 2020 ( $1.22 \pm 5.9$ ) compared to both before and after their worked shift in 2019 ( $-5 \pm 6.21$ ) ( $-5 \pm 7.45$ ).

**Supplemental Table 1.** Demographics and workload variables for study participants across all three comparison groups.

Data collection date	February-March 2019		November 2020		November 2020	
Sample group	Critical Care Units		COVID-19 ICUs		Non-COVID-19 ICUs	
Demographics	N = 51	Mean (%)	N = 52	Mean (%)	N = 38	Mean (%)
Age						
21-30	n = 22	43%	n = 24	46%	n = 18	47%
31-40	n = 14	27%	n = 14	27%	n = 9	24%
41-50	n = 6	12%	n = 6	12%	n = 3	8%
51-60	n = 8	16%	n = 8	15%	n = 6	16%
61-70	n = 1	2%	n = 0	0%	n = 2	5%
Gender						
Female	n = 51	100%	n = 43	83%	n = 36	95%
Male	n = 0	0%	n = 9	17%	n = 2	5%
Race						
Asian			n = 1	2%	n = 4	11%
Black/African			n = 5	10%	n = 1	3%
Hispanic			n = 9	17%	n = 6	16%
White			n = 31	60%	n = 24	63%
Other			n = 6	12%	n = 3	8%
Education Level						
ADN	n = 22	43%	n = 6	12%	n = 4	11%
BSN	n = 22	43%	n = 28	54%	n = 23	61%
Diploma	n = 3	6%	n = 16	31%	n = 9	24%
MSN	n = 4	8%	n = 2	4%	n = 2	5%
Years of Nursing Experience						
< 2	n = 0	0%	n = 14	27%	n = 5	13%
2 - 5	n = 2	13%	n = 17	33%	n = 11	29%
6 - 10	n = 5	31%	n = 6	12%	n = 9	24%
11 - 15	n = 1	6%	n = 3	6%	n = 4	11%
16 - 20	n = 1	6%	n = 4	8%	n = 0	0%
21 - 25	n = 7	44%	n = 5	10%	n = 1	3%
26 - 30	n = 0	0%	n = 1	2%	n = 1	3%
> 30	n = 0	0%	n = 2	4%	n = 7	18%
Shift worked						
Day	n = 51	100%	n = 28	54%	n = 23	61%
Night	n = 0	0%	n = 24	46%	n = 15	39%
Extra Shifts Worked Bi-Weekly						
0			n = 16	31%	n = 27	71%
1			n = 10	19%	n = 2	5%
2			n = 12	23%	n = 5	13%
3			n = 7	13%	n = 1	3%
4			n = 3	6%	n = 0	0%
N/A			n = 4	8%	n = 2	5%

## Discussion

Important differences in EE and DP scores between COVID and non-COVID units were supported. Further research is required to establish relationships between socio-demographic and work-related psychological predictors of NBS.

Understanding relationships between variables may guide development of strategies to build nurse resilience and decrease NBS in ICU settings impacted during future pandemics.

## Conclusion



NBS has been identified as a global problem facing ICU clinicians.



Pinpointing associations between COVID-19 infection and nurse burnout may lead to strategies to mitigate burnout in those caring for individuals during future pandemics.

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