

Using SAS® to examine the relationship between nursing attitudes towards suicidal patients in the Emergency Department (ED)

Abbas S. Tavakoli, DrPH, MPH, ME, Belinda Beaver, DNP, APRN, CPNP-PC, Deborah McQuilkin, DNP, Stephanie Burgess, PhD, APRN, FNP

Abstract

Mental illness visits in Emergency Department (ED) are annually 12 million in United States. There is need to prepare staff with mental issues. The purpose of this paper is using SAS® to examine the impact of an educational initiative on nurses' attitudes about patients expressing suicidal ideation in the emergency departments 2 rural hospitals. Two rural communities ED were used for this study. Deliberate Self- Harm Questionnaire (ADSHQ) used to assess attitudes included confidence, empathy, dealing effectively, and coping. The outcomes were attitude of nurses towards suicidal patients were measured at baseline and after intervention. The intervention for this study required that specialized training be provided to nursing staff working. Aggregated data was collected from health stream when the study was completed. Each Item was analyzed and reported in a percentage or rate per item. Proc Mean, Freq, ttest, and univariate used to analyze this data. T-Test and Wilcoxon signed ranked test used to examine the difference of means for attitude of nurse pre and post of intervention. The results showed there was improvement in attitude nurses towards suicidal patients after intervention. However, the results were not statistically significant.

Keywords: SAS, ED
University of South Carolina, College of Nursing.

Background

Emergency departments (ED) have seen an increase in mental health and suicidal patients each year (Emergency Nurses Association {ENA}, 2013). Mental illness visits in Emergency Department (ED) are annually 12 million in United States (Emergency Nurses Association {ENA}, 2013). The ED was an important identification point for those who was suicidal ideation, and became a lifesaving decision moment for many suicidal patients (Wilson, Nordstrom, & Zellar, 2014). Suicide crisis management in the emergency department is a serious healthcare challenge for hospitals especially in rural area. Nurses expressed concern about their lack of preparation to care for suicidal patients in ED. Treatment and protection of people who attempt suicide presented a complex, expensive, and frustrating challenge for rural hospitals. Managing suicidal patients in the ED became a serious concern for rural hospitals. There are needs for training suicide risk screening and prevention care. Specialized suicide training improved nurse's attitude, confidence, and their competency (Clarke, 2014)

Purpose

The purpose of this paper is using SAS® to examine the impact of an educational initiative on nurses' attitudes about patients expressing suicidal ideation in the emergency departments 2 rural hospitals.

Methodology

This study was a descriptive cross-sectional analysis of self-reported data. Two rural communities ED were used for this study. Deliberate Self- Harm Questionnaire (ADSHQ) used to assess attitudes included confidence, empathy, dealing effectively, and coping. The ADSHQ survey included 33 items using a 4 point Likert scale. Also, four factors were measured using the ADSHQ; 1) perceived confidence in assessment, 2) dealing effectively, 3) empathy, and 4) ability to cope effectively with legal and hospital regulation (McAllister, et.al, 2002). The outcomes were attitude of nurses towards suicidal patients were measured at baseline and after intervention. The intervention for this study required that specialized training be provided to nursing staff working. Etiology of suicide and risk factors for suicides information were provided to nurses. This training was provided to increase general knowledge about suicide. The second portion of the training consisted of teaching nurses improved interview skills and tools for recognizing high risk suicide ideation. Aggregated data was collected from health stream when the study was completed. Each Item

was analyzed and reported in a percentage or rate per item. Proc Mean, Freq, ttest, and univariate used to analyze this data. T-Test and Wilcoxon signed ranked test used to examine the difference of means for attitude of nurse pre and post of intervention.

Data Analysis

Proc Mean and Freq used to describe the data. Proc Corr used to examine the linear relationship of total ADHQ for pre and post. Proc T-Test and Univariate used to examine parametric and nonparametric test for the difference of means for ADHQ and subscales score for pre and post. All data analyses were performed using SAS/STAT® statistical software, version 9.4 (SAS, 2013).

Results

Table1 showed the frequency distribution of items for subscales of ADHQ scale. The table showed the subscales included range from 4 items (empathy) to 8 items (Perceived confidence). Also, the result showed 9 items did not load in four subscales.

Table1. Frequency distribution of items for subscale of ADHQ

factors				
fact	Frequency	Percent	Cumulative Frequency	Cumulative Percent
perceived confidence	8	24.24	8	24.24
dealing effectively	6	18.18	14	42.42
empathy	4	12.12	18	54.55
ability to cope	6	18.18	24	72.73
not loaded	9	27.27	33	100.00

Table 2 showed means, standard deviation, minimum, and maximum total ADHQ for pre, post and difference of post to pre. The results showed the average of pre intervention for ADHQ was 2.66 with standard deviation of .45. The average of ADHQ score for post intervention was 2.71 with standard deviation of .47. The average of difference post to pre for ADHQ was .05.

Table2, N, means, standard deviation, minimum, and maximum for total ADHQ for pre, post and difference of post to pre.

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
preint	Pre intervention mean	33	2.66	0.45	1.66	3.44
postint	post-intervention mean	33	2.71	0.47	1.75	3.56
diffint	difference of post and pre intervention mean	33	0.05	0.36	-1.09	1.19

Table 3 showed means, standard deviation, minimum, and maximum total ADHQ for pre, post and difference of post to pre by subscales. The results showed the average of pre intervention for perceived confidence for pre and post were 3.17, and 3.21; respectively. The results indicated the average of pre intervention for dealing effectively for pre and post were 2.41, and 2.74; respectively. The results showed the average of pre intervention for empathy for pre and post were 2.20, and 2.13; respectively. The results revealed the average of pre intervention for ability to cope for pre and post were 2.51, and 2.46; respectively.

Table3. N, means, standard deviation, minimum, and maximum for total ADHQ for pre, post and difference of post to pre by subscales.

factors	Label	N	Mean	Std Dev	Minimum	Maximum
perceived confidence	Pre intervention mean	8	3.17	0.20	2.84	3.44
	post-intervention mean	8	3.21	0.40	2.31	3.56
	difference of post and pre intervention mean	8	0.04	0.47	-1.09	0.31
dealing effectively	Pre intervention mean	6	2.41	0.44	1.66	2.88
	post-intervention mean	6	2.74	0.29	2.56	3.31
	difference of post and pre intervention mean	6	0.34	0.56	-0.13	1.19
empathy	Pre intervention mean	4	2.20	0.38	1.72	2.59
	post-intervention mean	4	2.13	0.36	1.75	2.59
	difference of post and pre intervention mean	4	-0.07	0.10	-0.16	0.03
ability to cope	Pre intervention mean	6	2.51	0.18	2.31	2.81
	post-intervention mean	6	2.46	0.20	2.25	2.84
	difference of post and pre intervention mean	6	-0.05	0.09	-0.19	0.06
not loaded	Pre intervention mean	9	2.70	0.38	1.97	3.13
	post-intervention mean	9	2.67	0.39	2.00	3.38
	difference of post and pre intervention mean	9	-0.02	0.18	-0.25	0.25

Table 4 indicated matched paired t-test for total ADHQ (Parametric test). The result indicated there was not significant improvement for total attitude (ADSHQ) after intervention ($P=.4523$). However, the result indicated slight improvement in attitude of nurses after intervention. Also, the result of matched paired T-test for subscales for nurse's attitude did not reveal any significant difference after intervention. All of the P values were greater than .05.

Table4. Matched paired t-test for total ADHQ (Parametric test)

N	Mean	Std Dev	Std Err	Minimum	Maximum
33	0.0474	0.3575	0.0622	-1.0937	1.1875

Mean	95% CL Mean	Std Dev	95% CL Std Dev
0.0474	-0.0794 0.1741	0.3575	0.2875 0.4729

DF	t Value	Pr > t
32	0.76	0.4523

Table 5 indicated Signed Rank test for total ADHQ (Non-Parametric test). The result indicated there was not significant improvement for total attitude (ADSHQ) after intervention ($P=.4090$). However, the result indicated slight improvement in attitude of nurses after intervention. Also, the result of Signed Rank test for subscales for nurse's attitude did not reveal any significant difference after intervention. All of the P values were greater than .05.

Table5. Signed Rank test for total ADHQ (Non-Parametric test)

Moments			
N	33	Sum Weights	33
Mean	0.04735152	Sum Observations	1.5626
Std Deviation	0.35751294	Variance	0.1278155
Skewness	0.4286561	Kurtosis	5.85694128
Uncorrected SS	4.16408754	Corrected SS	4.09009606
Coeff Variation	755.019007	Std Error Mean	0.06223501

Basic Statistical Measures			
Location		Variability	
Mean	0.047352	Std Deviation	0.35751
Median	0.000000	Variance	0.12782
Mode	0.000000	Range	2.28120
		Interquartile Range	0.25000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	0.76085	Pr > t	0.4523
Sign	M	2	Pr >= M	0.5716
Signed Rank	S	37	Pr >= S	0.4090

Conclusion

We used SAS® to examine the impact of an educational initiative on nurses' attitudes about patients expressing suicidal ideation in the emergency departments 2 rural hospitals. Proc Mean and Freq used to describe the data. Proc Corr used to examine the linear relationship of total ADHQ for pre and post. Proc T-Test and Univariate used to examine parametric and nonparametric test for the difference of means for ADHQ and subscales score for pre and post. The result of matched paired T-test, and nonparametric test (Signed Rank) did not reveal any significant difference between attitude scales and subscales after intervention. All of the P values were greater than .05. SAS is power tool to assist clinician to analysis data in any levels. In this study simple procedures in SAS help clinician to examine and evaluate her/his question

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Contact Information

Abbas S. Tavakoli, DrPH, MPH, ME
Clinical Associate Professor
College of Nursing
University of South Carolina
1601 Greene Street
Columbia, SC 29208-4001
Fax: (803) 777-5561
E-mail: abbas.tavakoli@sc.edu

SAS Syntax

Part of Data steps:

```
proc format ;  
    value factf 1 =" perceived confidence "  
                2 =" dealing effectively "  
                3 =" empathy "  
                4 =" ability to cope "  
                5 =" not loaded " ;  
  
data one;  
set dis.adhq16;  
if item = 25 or item=23 or item =17 or item=12 or item=30 or item=20 or item=31 or item=18 then  
fact=1;  
    else if item = 24 or item=15 or item =27 or item=5 or item=1 or item=8 then fact=2;  
    else if item = 33 or item=11 or item =28 or item=14 then fact=3;  
    else if item = 16 or item=6 or item =26 or item=9 or item=19 or item=21 then fact=4;  
    else fact=5;  
  
diffint = postint - preint;  
  
label  
item = " items in scale"  
preint = "Pre intervention mean"  
postint = " post-intervention mean"  
diffint = " difference of post and pre intervention mean"  
fact = " factors";  
format fact factf. ;  
run;
```

Procedures:

```
ods rtf; ods listing close;  
  
proc freq data =one;  
tables t fact;  
title ' Frequency tables / ' ; run;  
  
proc means data=one maxdec=2;  
var preint postint diffint;  
TITLE 'means / ' ; run;  
  
proc means data=one maxdec=2;  
class fact;  
var preint postint diffint ; TITLE 'means / ' ;
```

```
run;

proc corr data=one ;
  var preint postint ;
  TITLE 'correlation / ';run;

ods rtf close; ods listing; quit; run;

ods rtf; ods listing close;
proc univariate data=one ;
  var diffint ;
  TITLE 'univariate / ';run;

proc sort data =one;  by fact;
proc univariate data=one ;
  var diffint ;
  TITLE 'univariate / by factor ' ; by fact; run;
ods rtf close; ods listing; quit; run;

ods rtf; ods listing close;
proc ttest DATA=one;
  paired POSTint*preint;
  TITLE 'MATCHED PAIRED TTEST ' ; run;

proc sort data =one;  by fact;
proc ttest DATA=one;
  paired POSTint*preint;
  by fact;
  TITLE 'MATCHED PAIRED TTEST ' ; run;
ods rtf close; ods listing; quit; run;
```