A Quasi-Experimental Study on the effectiveness of a Structured Teaching Program on Knowledge regarding "Restless Leg Syndrome (RLS) among Nursing Students at selected Nursing Colleges, Mangalore.

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Abstract

Restless Leg Syndrome (RLS) is a neurological illness marked by uncomfortable leg sensations and a desire to move them to relieve the discomfort. It typically occurs during or shortly before sleep, making it difficult to fall asleep. Comparing the knowledge scores of B.Sc. Nursing Students in the experimental and control groups regarding Restless Leg Syndrome, Evaluating the effectiveness of STP on those scores in the experimental and control groups, and identifying the correlation between those scores and the student demographic variables are the objectives of this study. In this study, a quasi-experimental design was used, with a disproportionate stratified random selection procedure. A total of 200 samples(100 each) were chosen to represent either 'the experimental group' or 'the control group'. 200 B.Sc. Nursing students' Structured Knowledge and Demographic Questionnaires were used to gather the data. The experimental group has received Structured Teaching on RLS and the control group was facilitated with teaching booklet after the posttest. A Microsoft Excel Sheet was used to analyze the data. The pretest knowledge score's 'mean and standard deviation' was 10.39 ± 4.64 whereas the posttest 'mean and standard deviation' for the experimental group were 26.58 ± 2.3 respectively. The estimated 't' value was 40.17, which is higher than the value listed at the 0.05 level of significance (p0.001). According to the estimated t values at the 0.05 level of significance, there is a significant difference between pretest and posttest knowledge in every area. B.Sc. students' understanding had improved by the STP on RLS that was examined in this study. The RLS teaching program was successful, as evidenced by the noticeably improved posttest knowledge scores.

Key Words: "Restless Leg Syndrome, Structured Teaching Program, BSc nursing students, Randomized control trial"

Introduction

Restless Leg Syndrome, as per the International Classification of Diseases (ICD), is a neurological condition where individuals feel uncomfortable sensations in their legs, urging them to move for relief. Typically occurring before or during sleep, it hinders falling asleep[1]. Ekbom syndrome is an alternate term. Six out of ten individuals with Restless Leg Syndrome have a familial history, indicating a genetic risk with autosomal transmission. RLS, once initiated, progresses in various clinical ways, lasting a lifetime. It's categorized into primary RLS, affecting those without underlying conditions, and secondary Restless Leg Syndrome, caused by specific medical circumstances like pregnancy, end-stage renal failure, anemia, and polyneuropathies.[2].

In the last decade, approximately 50 community-based studies globally have explored restless legs syndrome (RLS), gaining significant attention. Researchers' interest has increased as a result of the establishment of precise screening standards in 1995, which were later modified. RLS has been investigated in community surveys based on meeting basic diagnostic criteria, specific frequency/severity, and a differential diagnosis according to IRLSSG. Prevalence estimates in the general adult population varied from 3.9% to 14.3% in the second instance, and from 9.4% to 15% in the first. Prevalence, when combining frequency and severity, varied from 2.2% to 7.9%, although estimates change when differential diagnosis is taken into account[3].

The practice nurse plays a vital role in addressing Restless Legs Syndrome (RLS), often considered an "overlooked health Concern" or "neglected medical condition." Patients frequently report sleep troubles to nurses initially. Given their position, practice nurses can inquire about potential medical issues indicating secondary RLS and quickly assess if medications may contribute to symptoms. They are crucial in identifying undiagnosed RLS, providing comfort and education to patients and families, ensuring it are not linked to other disorders. Utilizing their communication skills, practice nurses assist in reducing RLS symptoms and improving daytime functioning[4].
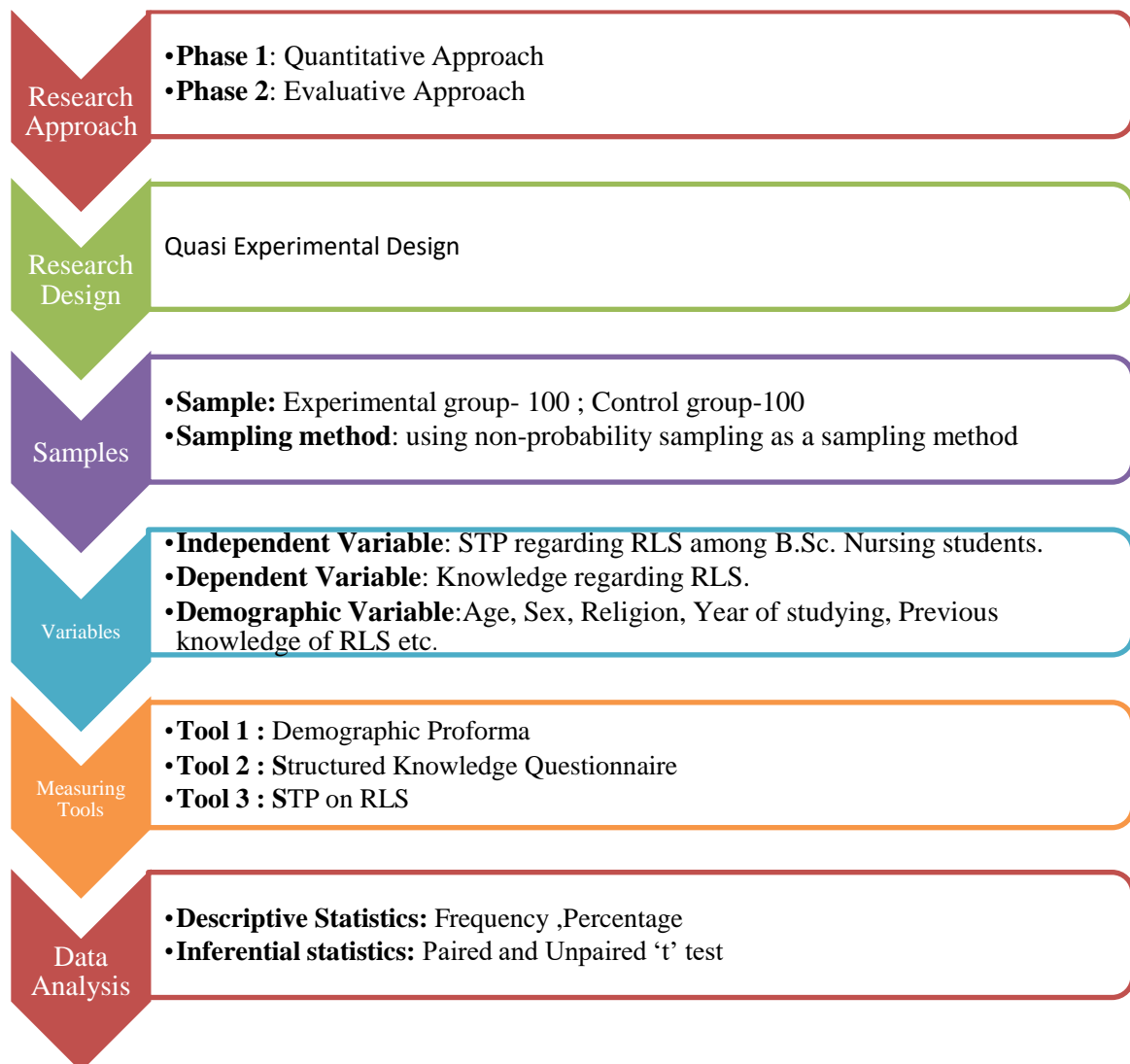
Since nursing students are future nurses, the investigator concluded after a comprehensive examination that they must acquire a sufficient understanding of RLS. Institutions, educators, and clinicians have the chance to comprehend nursing students' understanding of RLS and its causative components to develop therapies that will stop RLS from happening. Therefore, this study aims to investigate the perceived RLS knowledge level of students who are pursuing B.Sc. Nursing. They can take up a major role in educating further in improving patient's knowledge in preventing and reducing the complications of RLS when they are exposed to clinical experience which may reduce the incidence and prevalence of RLS.

Objectives of the study

Comparing the knowledge scores of B.Sc. Nursing Students in the experimental and control groups regarding Restless Leg Syndrome, Evaluating the effectiveness of STP on those scores in the experimental and control groups, and identifying the correlation between those scores and the student demographic variables are the objectives of this study.

Materials and Methods:

Study design and study setting

Research Approach
- **Phase 1**: Quantitative Approach
- **Phase 2**: Evaluative Approach

Research Design

Quasi Experimental Design

Samples
- **Sample:** Experimental group- 100 ; Control group-100
- **Sampling method**: using non-probability sampling as a sampling method

Variables
- **Independent Variable**: STP regarding RLS among B.Sc. Nursing students.
- **Dependent Variable**: Knowledge regarding RLS.
- **Demographic Variable**:Age, Sex, Religion, Year of studying, Previous knowledge of RLS etc.

Measuring Tools
- **Tool 1 :** Demographic Proforma
- **Tool 2 : S**tructured Knowledge Questionnaire
- **Tool 3 : S**TP on RLS

Data Analysis
- **Descriptive Statistics:** Frequency ,Percentage
- **Inferential statistics:** Paired and Unpaired 't' test

This is a Quasi-Experimental research. The goal of the current study was to evaluate the impact of an STP on RLS in B,Sc. Nursing students enrolled in particular Nursing Colleges. The researcher created the English Demographic and Structured Knowledge Questionnaire to collect data.

Subjects and methods

B.Sc nursing students who met the following criteria were chosen as participants: (1) those in attendance during the time of data collection; and (2) those who were eager to take part in the study. Two nursing colleges were first chosen at random, and samples were afterward chosen via unequal stratified random sampling. As a result, to prevent bias from contamination, the researcher chose 100 students from various cohorts from one college for the experimental group and 100 students(n=100) from another college as the control group(n=100).

Tool validity and Reliability

Demographic details including age, gender, religion, food preferences, place of residence, level of education attained, type of work, and source of RLS information and the 36-item structured knowledge questionnaire were thoroughly verified following expert consultation. The questions included the definition of RLS, incidence, prevalence, pathophysiology, kinds, causes, clinical manifestations, diagnostic assessment, therapy, and prevention of RLS. The Structured knowledge questionnaire's answer key and STP were submitted to the experts along with the criteria checklist to establish the content validity. The experts were from Medical-surgical Nursing- 7, doctor -2, and Bio-statistician-1. There was 100% agreement on all the items, with few suggestions to modify the certain questions and distracters and the tool was modified by the advice of experts.

The respondent was required to choose the best choice and mark the most relevant responses with a ($\sqrt{}$); each right answer received one mark. As a result, the total possible score for all 36 things was 36. The structured knowledge questionnaire's reliability coefficient was calculated using the Spearman-Brown Prophecy formula and was computed after being subjected to a split-half analysis. For the knowledge survey, it was discovered that the tool's reliability coefficient was r=0.81. Thus, it was determined that the instrument was accurate, trustworthy, and practical. Following a thorough explanation of the study's goals and value to them as well as a guarantee of the anonymity of their replies, the respondents provided their informed permission. The findings of the pilot study demonstrated that STP considerably boosts understanding of RLS and that research instruments are both possible and useful. After the pilot trial, therefore, no changes were made. The researcher continued with the main study.

About the STP

The most appropriate method of teaching adopted to educate the B.Sc. Nursing students in different colleges of Mangaluru was the lecture cum teaching method.Since group instruction allows for the sharing of ideas and increases knowledge through greater engagement, it was intended to be taught in groups. To improve teaching effectiveness, projectors, handouts, charts, models, and flashcards were used as needed.Prior approval was sought from the relevant authority before data collection. Before beginning data collection in the chosen nursing colleges, the investigator developed a solid rapport with all B.Sc. nursing students in their first, second, third, and fourth years of study. After getting each participant's oral consent and gathering background information, the data collection

Process was launched. The socio demographic profile and the RLS pre-test knowledge questionnaire were given to the experimental and control groups on the same day. Immediately following the pre-test, the experimental group received the STP. The participants actively engaged in active questioning to clarify things since they were curious. The same structured questionnaire was used for both the experimental and control groups' post-tests on the seventh day to determine the efficacy of the STP. The data analysis was done by using Excel-sheet

Ethical clearance
Masood College of Nursing granted ethical clearance for conducting the study**.**

Results

Section I: The distribution of percentages and frequencies between the experimental group and the control group's pre- and post-test knowledge levels.

TABLE 1: Pre- and post-test knowledge levels within the experimental and control groups, along with their frequency and percentage distribution

Knowledge level	score	Experimental group				Control group			
		Pre test		Post test		Pre test		Post test	
		f	%	f	%	f	%	f	%
Poor	**0-11**	54	54	0	0	48	48	47	47
Average	**12-25**	46	46	12	12	52	52	53	53
Good	**26-36**	0	0	88	88	0	0	0	0

TABLE 2: Total mean, standard deviation, mean difference, mean percentage, and Paired t-test of pre- and post-test knowledge of RLS among B.Sc. Nursing students in the experimental group and control group

N = 200

Group	Time of intervention	Mean score& SD	Mean difference	Mean%	't' value	df	Mean % gain
Experimental	**Pre test**	10.39±4.64	16.19	28.86	40.17*	99	45
	Post test	26.58±2.3		73.8			
Control	**Pre test**	11.61±3.4	-0.16	32.25	1.065	99	-0.44
	Post test	11.77±3.05		32.69			

df=99, tabled value=1.984, * highly significant

SECTION II: **STP's effectiveness on knowledge score between experimental and control group**

The data was presented as a table and the unpaired t test was used to determine whether there was a significant difference between the experimental and control group's knowledge scores. The following null hypothesis (H_{01}) was put forth in order to test statistical significance:

H_{01} : Before and after the administration of STP, B.Sc. Nursing students' knowledge scores regarding RLS will not differ significantly.

Table 3: Mean, SD, Mean difference and unpaired 't'test of post-test level of knowledge between experimental and control group

N = 100

Level of post test knowledge	Mean± SD	Mean%	Mean Difference	t value	P value
Experimental	26.58±2.3	73.8%	14.81	38.69	<0.0001*
control	11.77±3.05	32.69%			

df=198, t tabled value= 1.960, p<0.05, * highly significant

SECTION III: **Association between the knowledge score among nursing students and selected demographic variables in experimental and control group**

The following null hypothesis was tested to determine the relationship between the pre-test level of knowledge scores among B.Sc. Nursing students and particular demographic variables.

H_{02}: Selected demographic variables and the pre-test knowledge scores of B.Sc. Nursing students will not significantly correlate.

The median and above median values were computed for the data. The theory was examined at the significance level of 0.05. The table displays the results of the chi-square test of association

Table 4: Association between pre-test knowledge score of B.Sc. Nursing students and selected demographic variables of the experimental group.

N = 100

Sl. no	Variables	Pre test knowledge scores		χ^2 value	Df	P value	Remarks
		<Median (11)	≥Median (11)				
1.	**Age**						
a.	17	1	0	6.2	3	7.815	NS p>0.05
b.	18	9	5				
c.	19	15	11				
d.	20& above	22	37				
2.	**Gender**						
a.	Male	2	2	0.7	1	3.841	NS p>0.05
b.	Female	45	52				
3.	**Religion**						
a.	Hindu	16	10	3.8	3	7.815	NS p>0.05
b.	Muslim	2	1				
c.	Christian	29	42				
d.	Others	0	0				
4.	**Dietary Pattern**						
a.	Vegetarian	0	0	0	2	5.99	NS p>0.05
b.	Eggetarian	0	0				
c.	Mixed Diet	47	53				
5.	**Residence**						
a.	Hostel	45	52	0.5	2	5.99	NS p>0.05
b.	Home	2	1				
c.	PG	0	0				
6.	Education of father						
a.	Professional degree	2	2	4.5	5	11.07	NS p>0.05
b.	Graduate	3	3				
c.	Intermediate/Diploma	4	9				
d.	High school	32	28				
e.	Primary school	2	54				
f.	Middle school	4	6				
7.	**Education of mother**						
a.	Professional degree	5	4	3.05	5	11.07	NS p>0.05
b.	Graduate	5	6				
c.	Intermediate/Diploma	12	9				
d.	High school	20	29				
e.	Primary school	0	1				
f.	Middle school	5	4				

Sl. No	Variable			χ² value	Df	P value	Remarks
8.	**Occupation of father**						
a.	Farmer	19	20	5.04	4	9.48	NS p>0.05
b.	Daily wage worker	10	15				
c.	Private employee	5	6				
d.	Government employed	2	5				
e.	Business/ self employed	11	7				
9.	**Occupation of mother**						
a.	Farmer	2	0	6.9	5	11.07	NS p>0.05
b.	Daily wage worker	2	3				
c.	Private employee	4	12				
d.	Government employed	2	2				
e.	Business/ self employed	1	0				
f.	Home maker	36	36				
10.	**Source of information**						
a.	Mass media	0	8	14.22*	3	7.815	S p<0.05
b.	Health professionals	10	8				
c.	Friends/relatives	4	0				
d.	Magazine/journal	2	0				

p< 0.05, NS= not significant, χ2=3.85 at df1,χ2=5.85 at df 2 & χ2=7.82 at df3 & χ2=9.49 at df4 and χ2=11.07 at df5. * SIGNIFICANT

Table 5: Association between pre-test knowledge score of B.Sc Nursing students and selected demographic variables of control group.

N=100

Sl. No	Variables	Pre test knowledge scores < Median (11)	χ² value ≥Median (11)	χ² value	Df	P value	Remarks
1.	**Age**						
a.	17	1	0	6.1	3	7.815	NS p>0.05
b.	18	9	5				
c.	19	16	10				
d.	20& above	22	37				

Sl. No	Variables	Pre test knowledge scores < Median (11)	χ² value ≥Median (11)	χ² value	Df	P value	Remarks
2.	Gender						
a.	Male	3	0	3.4	1	3.814	NS p>0.05
b.	Female	45	52				
3.	**Religion**						
a.	Hindu	14	12	1	3	7.815	NS p>0.05
b.	Muslim	2	1				
c.	Christian	32	39				
d.	Others	0	0				
4.	**Dietary Pattern**						
a.	Vegetarian	0	0	0	2	5.991	NS p>0.05
b.	Eggetarian	0	0				
c.	Mixed Diet	48	52				
5.	**Residence**						
a.	Hostel	47	50	0.3	2	5.991	NS p>0.05
b.	Home	1	2				
c.	PG	0	0				
6.	**Education of father**						
a.	Professional degree	1	3	1.5	5	11.07	NS p>0.05
b.	Graduate	3	3				
c.	Intermediate/Diploma	6	7				
d.	High school	30	30				
e.	Primary school	4	3				
f.	Middle school	4	6				

7.	**Education of mother**						
a.	Professional degree	5	4	1.7	5	11.07	NS p>0.05
b.	Graduate	6	5				
c.	Intermediate/Diploma	10	11				
d.	High school	22	27				
e.	Primary school	0	1				
f.	Middle school	5	4				
8.	**Occupation of father**						
a.	Farmer	16	23	6.7	5	11.07	NS p>0.05
b.	Daily wage worker	15	10				
c.	Private employee	5	6				
d.	Government employed	1	6				
e.	Business/ self employed	11	7				
9.	**Occupation of mother**						
a.	Farmer	2	0	5.2	5	11.07	NS p>0.05
b.	Daily wage worker	3	2				
c.	Private employee	9	7				
d.	Government employed	1	3				
e.	Business/ self employed	1	0				
f.	Home maker	32	40				
10.	**Source of information**						
a.	Mass media	6	2	4.2	3	7.815	S p<0.05
b.	Health professionals	8	10				
c.	Friends/relatives	2	2				
d.	Magazine/journal	0	2				

p< 0.05,NS= not significant, S=significant $\chi2$=3.85 at df 1,$\chi2$=5.85 at df 2& $\chi2$=7.82 at df3&$\chi2$=9.49 at df4 and $\chi2$=11.07 at df 5

Discussion

The experimental group's post-test knowledge score was 10.39 ± 4.64, but their post-test mean and standard deviation (SD) were 26.58 ± 2.3, respectively. At the 0.05 level of significance (p0.001), the estimated "t" value was 40.17, which is greater than the value reported. The estimated t values at a significance level of 0.05 are higher than the table values in every area, indicating a significant difference in knowledge between the pre- and post-tests in every area. This indicates that improving B.Sc. nursing students' comprehension of RLS through a STP approach was successful. The controlled group's post-test mean and standard deviation, on the other hand, were 11.77 ± 3.05 and 11.61 ± 3.4, respectively, which were almost identical to the pre-test results. The study found no statistically significant correlation, at the 0.05 level of significance, between the pre-test knowledge score and the following variables: age, gender, religion, dietary habits, residence, educational attainment, occupation, and source of information regarding RLS in either the experimental or control groups. This leads to the acceptance of the null hypothesis and the rejection of the research hypothesis.

Conclusion

The study encompassed essential components related to RLS, and the results indicate a significant positive impact on the participants' understanding and readiness to handle RLS cases. Hence the study unequivocally supports the implementation of anSTP on RLS among BSc nursing students, thus advocating for the continued integration of such programs into nursing curricula.The study's conclusions have several implications for nursing practice, nursing education, and nursing research, including the following: (1) staff nurses' in-service education can be scheduled to keep them current on the information they need to know about RLS,(2) a program orientation related to diagnosis, treatment, and prevention of the RLS and staff nurse's role in diagnosing promptly the condition could be beneficial for the new graduates as it could ensure an effective performance towards achieving quality care

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