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Data Analysis and Modeling to assess the effectiveness of planned teaching programme on knowledge regarding depression among care givers of depressive patients.

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Abstract.

In this paper we assess the pre test and post test knowledge regarding depression among care givers of depressive patients in selected hospitals of city. Then we assess the effectiveness of planned teaching programme on depression among care givers of depressive patients. We find out the significant difference between pre test and post test knowledge score regarding depression among care givers of depressive patients.

The pre-test the mean of the knowledge score obtained by the subjects was 8.00±3.08. The findings reveal that in pre test 63.33% of caregivers of depressive patients were having average knowledge, 23.33% had were having good, 10% poor and 3.33% had very good level of knowledge score. The minimum score in pre test was 2 and the maximum score was 19.

In the post test mean of the knowledge score was 20.61±2.40. It reveals that in post test 25% of caregivers of depressive patients were having very good knowledge, 73.33% were having excellent and only 1.67% were having good level of knowledge score. The minimum score in post test was 14 and the maximum score was 25.

The levels of knowledge during the pre test and post test are compared to prove the effectiveness of planned teaching programme. Significance of difference at 5% level tested with paired‘t’ test and tabulated ‘t’ value is compared with calculated ‘t’ value. Also the calculated ‘p’ values are compared with acceptable ‘p’ value i.e. 0.05.

The care givers do not have knowledge regarding depression in pre test. There was a significant increase in the knowledge of subjects after the introduction of planned teaching. To find the effectiveness of planned teaching‘t’ test was applied and t value was calculated, post test score was significantly higher at 0.05 level than pre test score. Thus it was concluded that planned teaching on depression was effective.

Keywords: Planned teaching; t-test; p-value; care givers; depressive patient; effectiveness; data analysis; modeling.

Introduction

The 18th century is fondly addressed by the Sociologists as the century of inventions, 19th as the century of progress and 20th, the century of anxiety by extrapolation, the 21st century is the century of depression.[1] Depression is among the 20 most Common causes of morbidity and disability in India, leading to substantial decrease in quality of life and productivity. Depression is one of the most common psychological disorders affecting 340 million people in the world today. Accounting for a full 10% productive years lost throughout the world. No one is immune from depression, as it occurs in people of all classes, all countries and all cultural settings.[2] World health Report (WHO,

2001) Defines Depression as a common Mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self worth, disturbed sleep or appetite low energy and poor concentration.[3]

Depression is a disorder of major public health importance, in terms of its prevalence and the suffering, dysfunction, morbidity, and economic burden. Depression is more common in women than men. The report on Global Burden of Disease estimates the point prevalence of unipolar depressive episodes to be 1.9% for men and 3.2% for women, and the one-year prevalence has been estimated to be 5.8% for men and 9.5% for women. It is estimated that by the year 2020 if current trends for demographic and epidemiological transition continue, the burden of depression will increase to 5.7% of the total burden of disease and it would be the second leading cause of disability-adjusted life years (DALYs) [4]. An article published by Saldanha (2012) explains about the role played by one family member; and his health status can influence the health and functioning level of the rest of the family. When a member is Sick he would discontinue from his normal social activities. So the other family members have to undertake the care of the sick person. Care givers of depressive patients have high levels of expressed emotions including critical, hostile, or over involved attitudes.[5] Care givers play an important and essential role in the care of patients with depressive disorders. According to Fink social support is an important factor in care giving of severely mentally ill persons. It plays a significant role in the care givers effective management of the has been shown to affect family well being.[6] Care givers of people with depressive disorder many experience a different quality of burden than is seen with other illnesses. A better understanding of their concern is necessary to improve the training of care givers. perception of care givers about depressive disorder have important effects on levels of burden experienced care giver burden is associated with depression, which affects patients recovery by adding stress to the living environment.[7] According to WHO survey, it reported the problem of caregivers of psychiatric patients. It is stated that 51% of all caregivers are suffering from stress. 25% of caregivers have no job satisfaction and 43% caregivers are expecting to reduce their working hours.

In this study, assess means to find out the value of planned teaching programme

Effectiveness means to the extent to which plan teaching programme had achieved the desired effect on knowledge of care givers regarding depression.

Planned teaching refers to, systematically providing information regarding depression among the care givers of depressive patients.

Depression is a person who is suffering from depressed mood loss of interest, reduced energy which leads to increased fatigability and diminished activity.

Care givers referred to any one of the patients close relatives (parents, in-laws, cousin, spouse, sibling, son or daughter) who is staying with or visiting the patient frequently in the hospital.

Knowledge it refers to the process of giving systematic information about depression.

HYPOTHESIS:

H_0:- There will be no significant difference between pre test and post test knowledge score regarding depression among care givers of depressive patients in selected hospitals of the city.

H_1:- There will be a significant difference between pre test and post test knowledge score regarding depression among care givers of depressive patients in selected hospitals of the city.

THE OBJECTIVES OF THE STUDY WERE:

1. To assess the existing knowledge regarding depression among care givers of depressive patients in selected hospitals of city.

2. To assess the effectiveness of planned teaching programme on depression among care givers of depressive patients in selected hospitals of city.

3. To associate post test knowledge score with selected demographic variables.

ORGANIZATION OF FINDINGS:

The analysis and interpretation of the observations are given in the following section:

Section A- Distribution of caregivers of depressive patients with regards to demographic variables.

Section B- Assessment of pre test knowledge regarding depression among care givers of depressive patients in selected hospitals of city.

Section C- Assessment of post test knowledge regarding depression among care givers of depressive patients in selected hospitals of city.

Section D- Evaluation of effectiveness of planned teaching programme on depression among care givers of depressive patients in selected hospitals of the city.

Section E- Association of knowledge score in relation to demographic variables.

SECTION A

Distribution of caregivers of depressive patients with regards to demographic variables.

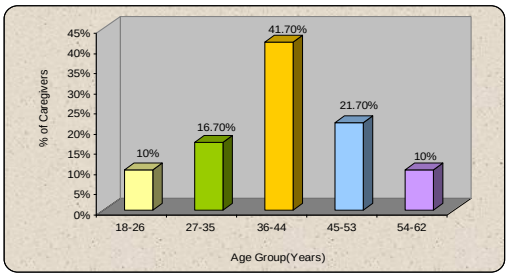
This section deals with distribution of caregivers of depressive patients with regards to their demographic variables. A convenient sample of 60 subjects was drawn from the study population, who were selected from selected hospitals of city. The data obtained to describe the sample characteristics including age, gender, type of family, education, occupation and source of information respectively.

Table-1: **percentage wise distribution of caregivers according to their demographic characteristics**.

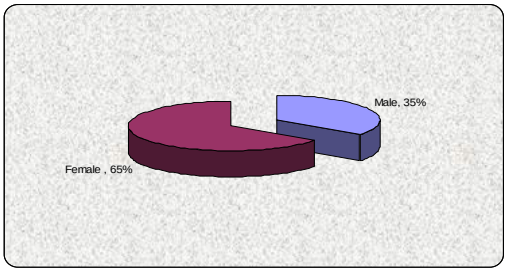
Demographic Variables	Frequency	Percentage (%)
Age(yrs)		
18-26	6	10.0
27-35	10	16.7
36-44	25	41.7
45-53	13	21.7
54-62	6	10.0
Gender		
Male	21	35.0
Female	39	65.0
Type of family		
Nuclear	20	33.3
Joint	40	66.7
Education		
Primary	15	25.0
Secondary	21	35.0
Higher Secondary	18	30.0
Graduate	5	8.3
PG	1	1.7
Other	0	0.00
Occupation		
Housewife	28	46.7
Private Employee	16	26.7
Govt. Employee	7	11.7
Others	9	15.0
Source of information		
Mass Media	5	8.3
Health Personnel	30	50.0
Friends	7	11.7
Relatives	12	20.0
Others	6	10.0

Distribution of caregivers of depressive patients in relation to their age shows that 10% of them were belonging to the age of 18-26 years, 16.7% in 27-35 years, 41.7% in 36-44 years, 21.7% in 45.53 years and 10% in 54-62 years respectively. Distribution of caregivers of depressive patients according to their gender reveals that 35% of them

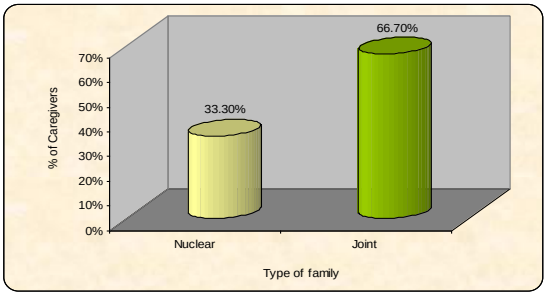
were males and 65% were females. Distribution of caregivers of depressive patients according to their type of family shows that 33.3% were belonging to nuclear and 66.7% in joint families respectively. Distribution of caregivers of depressive patients according to their educational status shows that 25% of them were having education up to primary, 35% up to secondary, 30% up to higher secondary, 8.3% were graduates and only 1.7% were postgraduate respectively Distribution of caregivers of depressive patients according to their occupational status shows that 46.7% of them were housewife, 26.7% were private employees, 11.7% were doing government jobs and 15% were doing other type of work. Distribution of caregivers of depressive patients in relation to source of information regarding depression shows that 8.3% of them had information from mass media, 50% from health personnel, 11.7% from friends, 20% from relatives and 10% had information from other sources respectively.



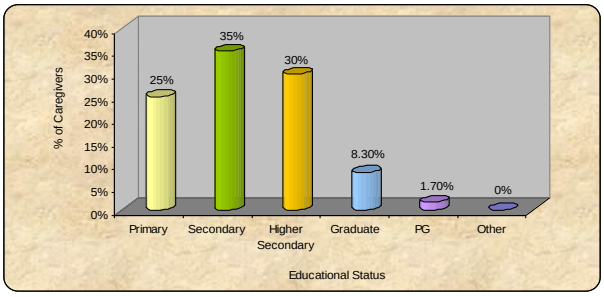
Graph 1: Percentage wise distribution of according to their age (years)



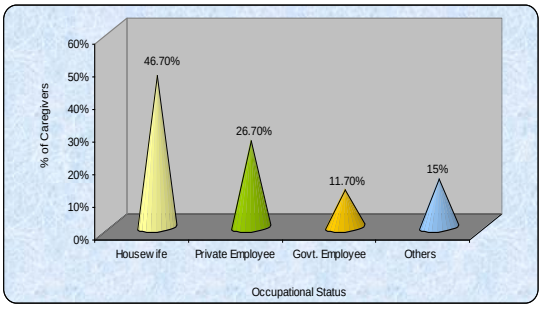
Graph 2: Percentage wise distribution caregiver according to their genders



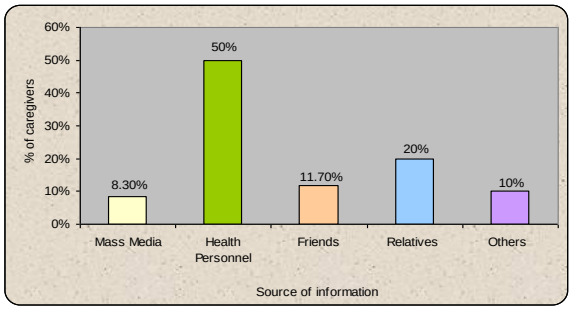
Graph3: Percentage wise distribution of caregivers according to their type of family



Graph4: Percentage wise distribution of caregivers according to their education



Graph5: Percentage wise distribution of caregivers according to their occupation



Graph6: Percentage wise distribution of caregivers according to caregivers according to their source of information.

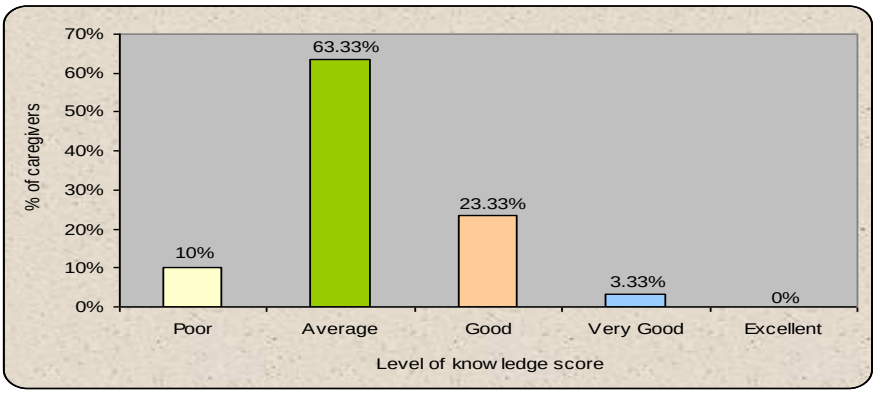
SECTION B

Assessment of pre test knowledge regarding depression among care givers of depressive patients.

This section deals with the assessment of pre test knowledge regarding depression among care givers of depressive patients in selected hospitals of city.

Level of knowledge score	Score range	Percentage score	Pre Test	
			Frequency	Percentage
Poor	0-5	0-19%	6	10.00
Average	6-10	20-39%	38	63.33
Good	11-15	40-59%	14	23.33
Very Good	16-20	60-79%	2	3.33
Excellent	21-25	≥80%	0	0.00
Minimum score	2			
Maximum score	19			
Mean score	8.00±3.08			
Mean %	31.90±12.54			

Table 2: General assessment with pre test Above table shows that in pre test 6(10%) poor knowledge, 38(63.33%) of caregivers of depressive patients were having average knowledge, 23.33% had were having good and 3.33% had very good level of knowledge score. The minimum score in pretest was 2 and the maximum score was 19, the mean score for the pretest was 8.00±3.08.



Graph 7: General assessment with pre test

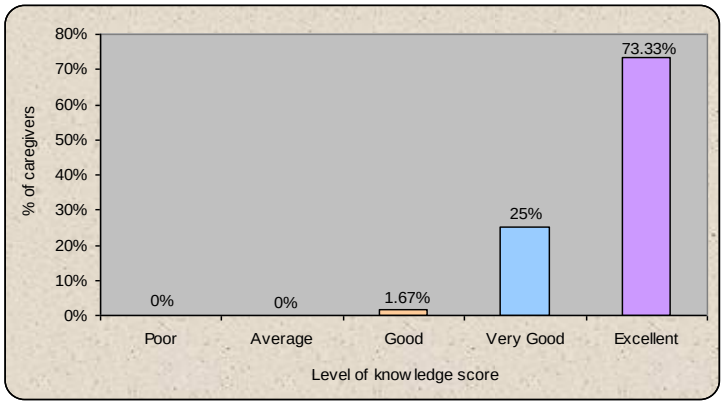
SECTION C

Assessment of post test knowledge regarding depression among care givers of depressive patients.
Table 3: General assessment with post test

Level of knowledge score	Score range	Percentage score	Post Test	
			Frequency	Percentage
Poor	1-5	0-19%	0	0.00
Average	6-10	20-39%	0	0.00

Good	11-15	40-59%	1	1.67
Very Good	16-20	60-79%	15	25.00
Excellent	21-25	≥80%	44	73.33
Minimum score	14			
Maximum score	25			
Mean score	20.61±2.40			
Mean %	82.46±9.60			

The above table shows that in post test 15(25%) of caregivers of depressive patients were having very good knowledge, 73.33% were having excellent and only 1.67% were having good level of knowledge score. The minimum score in posttest was 14 and the maximum score was 25, the mean score for the posttest was 20.61±2.40



Graph 8: General assessment with post test

SECTION D-

Evaluation of effectiveness of planned teaching programme on depression among care givers of depressive patients in selected hospitals of the city.

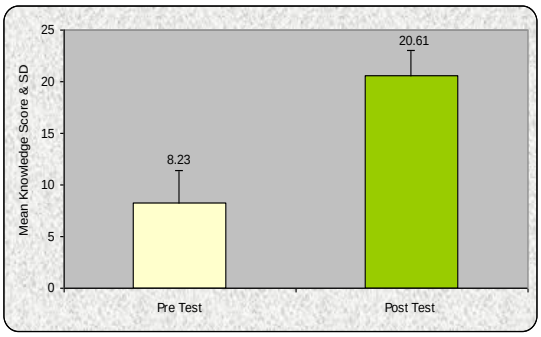
This section deals with the effectiveness of planned teaching programme on knowledge regarding depression among care givers of depressive patients in selected hospitals of city. The hypothesis is tested statistically with area wise distribution of pre test and post test mean and standard deviation mean difference in pre and post test knowledge score. The levels of knowledge during the pre test and post test are compared to prove the effectiveness of planned teaching programme. Significance of difference at 5% level of significance is tested with student's paired't' test and tabulated 't' value is compared with calculated 't' value. Also the calculated 'p' values are compared with acceptable 'p' value i.e. 0.05.

Table 4: Assessment of effectiveness of planned teaching programme knowledge scores regarding depression among care givers of depressive patients n=60

Overall	Mean	SD	SE	Mean Percentage	t-value	p-value
Pre Test	8.23	3.14	0.40	32.93	22.03	0.000 S,p<0.05
Post Test	20.61	2.40	0.31	82.46		

This table shows the comparison of pretest and post test knowledge scores regarding depression among caregivers of depressive patients. Mean, standard deviation and mean percentage score values are compared and student's

paired test is applied at 5% level of significance. The tabulated value for n=60-1 i.e 59 degrees of freedom was 1.98. The calculated values were 22.03 respectively for the knowledge regarding depression. The calculated 't' value are much higher than the tabulated value at 5% level of significance which is statistically acceptable level of significance. In addition the calculated 'p' values for knowledge regarding depression were 0.000 which is ideal for any population. Hence it is statistically interpreted that the planned teaching programme regarding depression was effective. Thus the H_1 is accepted.



Graph 9: Significance of difference between knowledge score in pre and post test of caregivers of depressive patients in relation to knowledge regarding depression

SECTION E

Association of knowledge score in relation to demographic variables.

Table5: Significance of difference on knowledge of depression in relation to age. n=60

Age (yrs)	No. of caregivers of depressive patients	Mean post knowledge score	F-value	p-value
18-26	6	21.16±1.47	0.86	0.49 NS,p>0.05
27-35	10	20.80±2.97		
36-44	25	21.04±2.49		
45-53	13	19.69±2.21		
54-62	6	20±2.09		

This table shows the association of post test knowledge scores with the age of caregivers of depressive patients. The tabulated 'F' values was 2.52(DF=4, 59) which is higher than the calculated 'F' i.e. 0.86 at 5% level of significance. Also the calculated 'p'=0.49 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that the age of the care givers of depressive patients is not associated with their post test knowledge scores.

Table 6: Significance of difference on knowledge of depression in relation to gender. n=60

Gender	No. of caregivers of depressive patients	Mean post knowledge score	t-value	p-value
Male	21	20.52±1.77	0.21	0.82 NS,p>0.05
Female	39	20.66±2.69		

This table shows the association of post test knowledge scores with the gender of caregivers of depressive patients. The tabulated 't' values was 1.98(df=58) which is higher than the calculated 't' i.e. 0.21 at 5% level of significance. Also the calculated 'p'=0.82 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that the gender of the caregivers of depressive patients is not associated with their post test knowledge scores.

Table 7: Significance of difference on knowledge of depression in relation to type of family. n=60

Type of family	No. of caregivers of depressive patients	Mean post knowledge score	t-value	p-value
Nuclear	20	20.30±2.88	0.71	0.47 NS,p>0.05
Joint	40	20.77±2.14		

This table shows the association of post test knowledge scores with the type of family of caregivers of depressive patients. The tabulated 't' values was 1.98(df=58) which is higher than the calculated 't' i.e. 0.71 at 5% level of significance. Also the calculated 'p'=0.47 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that the type of family of the caregivers of depressive patients is not associated with their post test knowledge scores.

Table8: Significance of difference on knowledge of depression in relation to education n=60

Education	No. of caregivers of depressive patients	Mean post knowledge score	F-value	p-value
Primary	15	18.60±1.99	9.71	0.000 S,p<0.05
Secondary	21	20.14±1.68		
Higher Secondary	18	22±2.11		
Graduate	5	23.40±1.67		
PG	1	22±0.00		
Other	0	0.00±0.00		

This table shows the association of post test knowledge scores with the educational status of caregivers of depressive patients. The tabulated 'F' values was 2.52(df=4,59) which is much less than the calculated 'F' i.e. 9.71 at 5% level of significance. Also the calculated 'p'=0.000 which was much less than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that the educational status of the care givers of depressive patients is statistically associated with their post test knowledge scores.

Table9: Significance of difference on knowledge of Depression in relation to occupation n=60

Occupation	No. of caregivers of depressive patients	Mean post knowledge score	F-value	p-value
Housewife	28	20.10±2.57	2.42	0.075 NS,p>0.05
Private Employee	16	20.75±1.87		
Govt. Employee	7	22.71±1.25		
Others	9	20.33±2.73		

This table shows the association of post test knowledge scores with the occupational status of caregivers of depressive patients. The tabulated 'F' values was 2.76(df=3,59) which is much higher than the calculated 'F' i.e. 2.42 at 5% level of significance. Also the calculated 'p'=0.075 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that the occupational status of the care givers of depressive patients is not associated with their post test knowledge scores.

Table 10: Significance of difference on knowledge of Depression in relation to source of information. n=60

Source of information	No. of caregivers of depressive patients	Mean post knowledge score	F-value	p-value
Mass Media	5	22±1.22	0.55	0.70 NS,p>0.05
Health Personnel	30	20.30±2.56		
Friends	7	20.57±1.71		
Relatives	12	20.75±2.73		
Others	6	20.83±2.48		

This table shows the association of post test knowledge scores with the source of information about depression of caregivers of depressive patients. The tabulated 'F' values was 2.52(df=4,59) which is much higher than the calculated 'F' i.e. 0.55 at 5% level of significance. Also the calculated 'p'=0.70 which was much higher than the acceptable level of significance i.e.'p'=0.05. Hence it is interpreted that the source of information of care givers of depressive patients is not associated with their post test knowledge scores.

Conclusion:

After the detailed analysis, this study leads to the conclusion that the care givers do not have 100% knowledge regarding depression. There was a significant increase in the knowledge of subjects after the introduction of planned teaching. To find the effectiveness of planned teaching 't' test was applied and t value was calculated, post test score was significantly higher at 0.05 level than that of pre test score. Thus it was concluded that planned teaching on depression was found effective as a teaching strategy.

Demographic variables did show a major role in influencing the pre test and post test knowledge score among the care givers.

Hence, based on the above cited findings, it was concluded undoubtedly that the written prepared material by the investigator in the form of planned teaching helped the care givers to improve their knowledge on depression.

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