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Analysis of Insulin Resistance in Newly Detected and Thyroxine Supplemented Cases of Subclinical Hypothyroidism with Special Reference to Geriatric Population

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Abstract

***Context*:** Thyroid hormone causes significant changes on the regulation of glucose homeostasis including IR [Insulin resistance]. There are no remarkable studies researching IR in geriatric and nongeriatric patients of Subclinical Hypothyroidism [SCH] and the changes observed with thyroxine treatment.

***Aims*:** To analyse Insulin resistance in newly detected SCH and Thyroxine supplemented cases of SCH and its comparison in elderly.

***Settings and Design*:** It was an observational cross-sectional hospital-based study.

***Methods and Material*:** It involved 120 SCH patients aged more than 18 years. Group A comprised 60 cases of newly diagnosed SCH cases and Group B was 60 SCH patients on thyroxine treatment for at least 3 months. For both the groups FBS, Fasting Insulin levels and HOMA IR [Homeostatic model assessment -estimated Insulin resistance] was calculated.

***Statistical analysis used*:** Inferential statistics was done using Mann Whitney U test and Pearson product moment correlation tests.

***Results*:** Group A consisted of 17 geriatric patients and group B had 19. Females made up 71% in group A and 83% in group B in both age groups. Comparison of Fasting Insulin levels and HOMA IR between A and B groups showed a significant difference (at 0.01 level). The duration of treatment had inverse correlation with HOMA IR with p=0.007 in non-geriatric population but not in geriatric population.

***Conclusions*:** Insulin resistance is present substantially in patients with newly detected SCH and decreases after administration of thyroxine in both geriatric and nongeriatric population.

Keywords: BMI; Fasting Insulin levels; Geriatric; HOMA IR; Non-geriatric; Subclinical hypothyroidism;

Key Message: Insulin resistance in Subclinical hypothyroidism-a major contributing factor of metabolic syndrome can be reduced by thyroxine treatment. Nevertheless, caution has to be exercised while treating SCH especially in elderly who havenon-specific and non-uniform cut offs.

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Introduction

Subclinical hypothyroidism is clinically referred to as a condition when TSH is raised with T3 and T4 being normal. Prevalence of subclinical hypothyroidism is 6-8% in women and 3% in men.[1] Thyroid hormones have significant influence on all major organ systems and appropriate levels are important for optimal function. The alterations in serum insulin levels, counter regulatory hormones as well as the glucose absorbed by intestine and produced by liver is regulated by thyroid hormone.

The levels of glucose uptake in peripheral tissue are also affected by thyroid hormones which in turn determines the Insulin resistance and it is one of the major causes for complications occurring in patients with Type II Diabetes mellitus especially cardiovascular.[1] There are many causes and clinical conditions associated with Insulin and thyroid resistance. Thyroid dysfunction is one of the them. There is sufficient literature about insulin resistance in hyperthyroid patients, however there are relatively fewer studies in humans dealing with subclinical hypothyroidism and insulin resistance.[2]

There is consensus beyond doubt to treat frank hypothyroidism due to its varied detrimental clinical effects but there is always a dilemma to treat subclinical hypothyroidism as there are reports which claim about 62% of TSH levels between 4 and 10 mIU/L normalising without intervention within five years[20] Many a times patients of subclinical hypothyroidism are treated when the clinician feels the symptoms and signs of the patient are due to low thyroid levels even when the lab values of T3 and T4 are not low and it is only the TSH which is raised. Most patients of subclinical hypothyroidism are treated in special circumstances like infertility menstrual irregularities and in severe dyslipidaemia but insulin resistance is not one of the entities which is considered for routine treatment. When it comes to treating elderly patients for subclinical hypothyroidism it is important to consider multiple factors like age dependent TSH increase and comorbidities. When treatment is necessary, a tailored therapy should be chosen, considering poly-pharmacy and frailty which is most common among the geriatric patients. In the elderly who are above 80 years of age, the upper limit of TSH of the 95% interval of confidence is around 6.0 mIU/L and this value of TSH raises reaching 8.0 mIU/L in over people who are aged more than 90 years[3]Although careful identification of individuals with persistent SCH who could benefit from levothyroxine treatment is necessary, current evidence suggests that individuals with TSH levels greater than 10 mIU/L who test positive for antithyroid antibodies or are symptomatic may benefit from levothyroxine treatment to reduce the risk of progression to overt hypothyroidism, decrease the risk of adverse cardiovascular events, and improve their quality of life. After treatment is initiated, careful monitoring is essential.[4] Despite the fact that insulin resistance is considered to be a major event in the face of cardiovascular illness there are no studies which consider treating patients of subclinical hypothyroidism based on the same. Our study intends to analyse if subclinical hypothyroid patients have notable insulin resistance and whether it is significantly different from patients of SCH who are already receiving thyroxine supplement. Additionally, this study is also undertaken to especially evaluate if there are any additional and comparable differences in insulin resistance when geriatric population is considered.

Materials and Methods

This was a cross sectional study involving 120 subjects divided in to two groups A and B each comprising of 60 participants. Group A was inclusive of newly detected SCH, Group B consisted of patients of SCH who are on treatment with thyroxine for at least 3 months. Both groups were inclusive of geriatric participants aged more than 60 years in a significant proportion. This study was undertaken in patients attending JSS Hospital, Mysore, India for a period of one and half years.

Inclusion criteria

- Age more than 18 years
- Patients who are newly diagnosed to have subclinical hypothyroidism i.e. (normal T3 and T4 values and TSH more than normal levels[5]
- Patients of Subclinical Hypothyroidism on treatment (Thyroxine) for at least for 3 months.

Exclusion criteria

- Hypothyroid patients
- Patients with Diabetes Mellitus.
- Hypertension.
- Known cases of Chronic diseases (chronic kidney diseases, liver diseases, heart diseases)
- Pregnancy or Post partum period or women on oral contraceptives.
- Previous thyroid surgeries.
- Known cases of polycystic ovarian syndrome.
- Patients on Hypolipidemic, Antiepileptic Drugs.

Methodology

All patients for the study were selected as per inclusion and exclusion criteria. Demographic data of the patients were obtained. Patient's past medical history and records were reviewed for evidence of

frank hypothyroid status and overt DM, or any history suggestive of menstrual irregularities for women. Patient drug history was reviewed to identify any drugs that alter thyroid function. BMI was calculated from patients' height and weight. Patients were subjected to investigations FBS, PPBS, fasting insulin levels. Insulin resistance was calculated by HOMA-IR formula.[HOMA-IR = [glucose (nmol/L) x insulin (μU/mL)/22.5], using fasting values]

Statistical Analysis

Summary statistics was done by measuring mean, standard deviation and proportion. Inferential statistics done using Mann Whitney U test and Pearson product moment correlation tests. Statistical package for social sciences (IBM SPSS version 26) was used for statistical analyses. Statistical significance was set at conventional 5% threshold(alpha=0.05)

Results

Age wise distribution

We had varied age distribution among patients in both group A and group B. Elderly made up 30 % of patients in group A and 28% in group B.

The mean age among non-geriatric group A was 38 years and in geriatric age group was 62 years similarly it was 33 and 65 years in group B.

Table 1: Mann Whitney U Z and p values comparing fasting serum insulin and HOMA IR values between group A and group B subjects [inclusive of geriatric and non geriatric]

	Fasting Serum Insulin			Homo IR value		
	U value	Z value	p value	U value	Z value	p value
Geriatric	7	4.99	0.001	6	5.02	0.001
Non geriatric	76.5	7.12	0.001	41.5	7.48	0.001

Sex distribution:

In the group A participants of newly detected subclinical hypothyroid patients the number of men in the non geriatric age group was 17% and in elderly it was 26%. In group B patients, who were non-geriatric, men comprised of 44 % and in geriatric age group it was 28%. Similarly, percentage of women in group A geriatric was 74% and group B geriatric 72%. Among non geriatric participants females were 83% in group A and 56% in group B Table 2.

Table 2: Pearson's corelation of HOMA IR and duration of treatment in geriatric adults.

		Duration of treatment	HOMA IR
Duration of treatment	Pearsons correlation	1	0.84
	Sig [2 tailed]		0.466
	N	18	18
HOMA IR	Pearsons correlation	0.184	1
	Sig [2 tailed]	0.466	
	N	18	18

BMI:

The mean BMI of geriatric patients in group A and group B was 22.93 and 22.79. The mean calculated BMI among non-geriatric patients was 23.21 and 23.04 respectively.

FBS

The mean FBS of non-geriatric population in group A was 101.49mg/dl. And that in group B was 96 mg/dl whereas in the geriatric group the mean FBS was 102mg/dl in group A and 99mg/dl in group B respectively.

Fasting insulin levels:

In the non-geriatric population, among the group A cases the mean fasting insulin level was 12.43 with SD 3.81 and in the group B, mean was 5.11 with SD 2.57. The geriatric population showed similar pattern where in Group A non-geriatric population the mean fasting insulin level was 12.8 with SD 5.85 and group B geriatric population it was 4.3 with SD 2.27. In both geriatric and non-geriatric population, the mean insulin level was significantly lower in the group B than the group A.

HOMO IR:

HOMA IR was calculated for both groups using fasting sugars and insulin values and the results were compared in the Mann Whitney U test. It revealed a significant difference in the Homo IR levels of the two groups in both geriatric and non-geriatric population. Mann Whitney U value, z value and p values are given in the Table 1.

Fig 1 is comparison of HOMA IR between Group A and B geriatric patients and Fig 2 is comparison of HOMA IR between Group A and B non-geriatric patients.

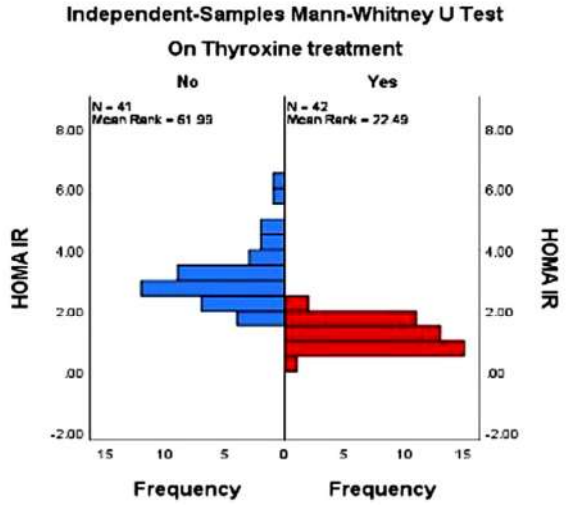

Fig. 1: Comparison of HOMA IR between group A and Group B Geriatric patients.

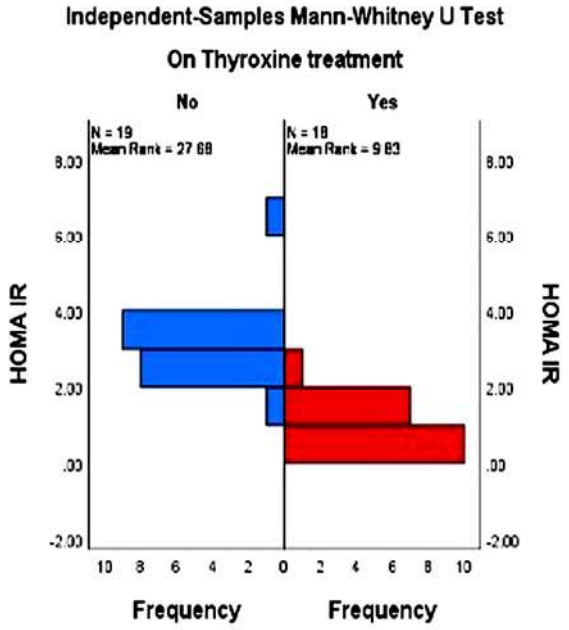

Fig.2: Comparison of HOMA IR between group A and Group B Non-Geriatric patients.

HOMO IR and duration of treatment

Group B patients were divided in to two cohorts [< 2 years of treatment and >2 years of treatment] to corelate the duration of treatment and HOMA IR in the geriatric and non-geriatric population. In the adult, non-geriatric population 24 out of 42 patients were receiving treatment for more than 2 years and among elderly there were 10 out of 18 who were receiving treatment for a duration longer than 2 years. Pearson product moment correlation revealed no significant association between duration of treatment and Homo IR level in geriatric group [Table 2] whereas there was a significant negative correlation between duration of treatment and Homo IR level in the non-geriatric population (r= 4.01; p=0.007) [Table 3]

Table 3: Pearson's corelation of HOMA IR and duration of treatment in non geriatric adults.

		Duration of treatment	Homa IR
Duration of treatment	Pearsons corelation	1	0.408
	Sig [2 tailed]		0.007
	N	42	42
HOMA IR	Pearsons corelation	0.408	1
	Sig [2 tailed]	0.007	
	N	42	42

Discussion

Subclinical hypothyroidism is a challenging disease for both patients and doctors because of its non-uniformity in treatment protocols. It is more common in women and among elderly females it becomes even more commoner. Canaris GJ found that 10% of men and 16% of women in the age group of 65-74 years had TSH levels that were increased above the upper limit of the reference range, while 16% of men and 21% of women age 75 and older had increased TSH levels.[7]

The number of geriatric patients in our study were less than non-geriatric patients because of the fact that many elderlies with subclinical hypothyroidism also had diabetes or on certain drugs or known conditions of insulin resistance who had to be excluded from the study. It is accounted from a cross-sectional study of patients with type 1 or 2 diabetes conducted in Brazil, 12% of patients with T2D also had subclinical hypothyroidism.[18]

Women outnumbered men in all the age groups of SCH which is comparable to most of the subclinical hypothyroidism studies done world-wide. This difference was very well accentuated in our study as well. We also found more elderly women in group B than group A. This may be due to the fact the female elderly with SCH had more somatic symptoms prompting physicians to start early treatment. It has been suggested by some studies that subclinical hypothyroidism may lower the threshold for the occurrence of depression and

may be a risk indicator for depression. This also adds on to the fact that subclinical hypothyroid patients have significant alterations in memory mood, anxiety and somatic symptoms. And it is also suggested people with major depression may not respond to their treatment if their subclinical hypothyroidism is not corrected.

The correlation of FBS among the group A and group B patients did not show any significance in our study although some of the literature available showcase that the FBS values do tend to increase in patients as TSH was increased.[19] The mean TSH value among our newly diagnosed group A patients was 8.2[non geriatric] and 7.6[geriatric].

Unlike the FBS, the fasting insulin levels in both the groups showed remarkable variations. There was striking correlation across treated and non-treated group of both geriatric and non-geriatric population when the fasting insulin levels were compared. The fasting insulin levels were considerably elevated in newly diagnosed group A patients than group B patients. In a study done by Shyam Rameshwar Adhau et al titled as Insulin resistance in sub clinical hypothyroidism showed that TSH levels were positively related to fasting insulin levels in patients with SCH.[1]

Subsequently when the HOMA IR was calculated using the FBS and fasting insulin levels, we found that HOMA IR was significantly raised in newly detected subclinical hypothyroidism patients than subjects who were already on treatment. There are literature emphasizing the presence of insulin resistance in subclinical hypothyroidism in addition to the occurrences of insulin resistance in hypothyroid patients.[8]

Some of the other studies like the one done by Dessein et all observed Subclinical hypothyroidism was encountered as a cause of insulin resistance and its related dyslipidaemia in patients with rheumatoid arthritis.[9]

Similarly in a study done by Sapna V et al titled as Insulin Resistance in Subclinical Hypothyroidism showed that IR levels were significantly increased in SCH when compared with euthyroid.[2] Supporting this were seen in studies done by Rahimtaj B et al and Al Sayed A et al [6 10] Another study done by Garduño-Garcia et al. reported a relationship between insulin and HOMA-IR levels with raised TSH in subclinical hypothyroid elderly, but there was no difference in the prevalence of the MetS[metabolic syndrome] between euthyroid and subclinical hypothyroid individuals.[11] The cause for this increase in insulin resistance in subclinical hypothyroidism has been very well explained in a study done by Eirini Maratou et al. which showed that insulin resistance was increased in patients with hypothyroidism or subclinical hypothyroidism due to decreased translocation of GLUT4 glucose transporters on the plasma membrane.[12]

The acceptance of increased insulin resistance in subclinical hypothyroid patients has not been universal. There are literature contradicting these findings. Brenta et al.[13] did not find significant differences in insulin sensitivity or lipid profile before and after thyroxine replacement in subclinical hypothyroidism. Supporting the same a very recent study by Roxana Adriana stoica et al.[14] who found that there was no association between the thyroid function tests (TSH, fT4) and IR indices in adult Romanian women. This was a case control study with one year retrospective follow up.

Studies which consider only elderly with subclinical hypothyroidism dealing with insulin resistance are very few. Particular mention about this is done in Health ABC study[15] which suggests, that in elderly; even within the normal range of thyroid hormones, there may be a higher prevalence of metabolic abnormalities as TSH levels increase. In our study we observed that insulin resistance in elderly with newly detected subclinical hypothyroidism [group A] was remarkably higher than group B patients. This is a finding very similar in non-geriatric patients also. Thus, our results showed beyond doubt that increased insulin resistance was an important finding in patients of newly detected subclinical hypothyroidism with striking reduction in IR in patients who were already on treatment with thyroxine with normalised TSH. However, this decrease in insulin resistance in patients who are on thyroxine treatment translating to decrease in cardiovascular morbidity requires further follow up of the patients for a longer period of time.

We further wanted to analyse if duration of treatment had any impact on the degree of insulin resistance among the treated cases.

It was been observed in many studies that thyroid functional parameters improved more rapidly in patients when there were given the full dose rather than lower doses but there was no difference in the time it took for hypothyroid symptoms to resolve, although the initial assessment of symptoms was considered only after 12 weeks.[16]

There is no literature pertaining to the duration of treatment for the follow up on the HOMA IR parameters when a patient is being treated for

subclinical hypothyroidism.

Since we did not know the initial degree of IR in group B participants prior to the start of treatment we compared the HOMA IR between patients of less than 2 years of treatment and patients who have been on treatment for a longer period of time. This was also compared across the geriatric population.

It was found that decrease in HOMA IR corelated significantly with duration of treatment in the non-geriatric population but we did not find the same corelation when we compared it among the geriatric population. This finding can be useful when considering treatment in patients of subclinical hypothyroidism.

Conclusion

The study supports that insulin resistance is present in patients of subclinical hypothyroidism across all age groups. The severity of insulin resistance is significantly higher in newly detected cases of subclinical hypothyroidism than in thyroxine treated patients of subclinical hypothyroidism. Additionally, we also found that the duration of treatment with thyroxine corelated with IR among non-geriatric population but not in the geriatric population. Thus, the decision to treat subclinical hypothyroidism for the reason of insulin resistance especially in elderly should be carefully weighed against the adverse effects of over treating the same. Elderly SCH patients have to be followed up for a longer period of time to build a consensus for treatment.

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A Study to Assess the Effectiveness of Structured Teaching Program on the knowledge of Caregivers of Schizophrenic Patients in Psychiatric ward, New Civil Hospital, Surat

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Abstract

Problem Statement: "A study to assess the effectiveness of structured teaching program on the knowledge of caregivers of schizophrenic patients in Psychiatric ward, New Civil Hospital, Surat."

Objectives

- To assess the knowledge of caregivers of schizophrenic patients.
- To implement a structured teaching program to the caregivers regarding schizophrenia.
- To assess the effectiveness of a structured teaching program on caregivers of schizophrenic patients.
- To correlate the demographic data of the caregivers of schizophrenic patients to Post test knowledgescore.

***Methodology*:** The research design is pre experimental one group pre test post test design; research setting selected was Psychiatric Ward, New Civil Hospital, Surat, 30 caregivers of schizophrenic patients were selected as sample. Structured questionnaire was used as tool for data collection, lesson plan was prepared which was used as intervention. Pre test was conducted and structured teaching program was administered and after a time of 7 days post test was done to assess the effectiveness of structured teaching program.

Data Analysis: Collected data was presented and analysed in both descriptive and inferential statistics. Pre - test and post test results were assessed, then demographic variables were correlated with the post - test knowledge score.

***Results*:** The mean post test knowledge score was higher than mean pre - test knowledge score with the mean difference of 5.1 which was statistically proved and it revealed that the structured teaching program was effective. The calculated 't' was greater than tabulated ' t ' and so the investigator concluded that there was significant increase in the mean post - test knowledge score as compared to the mean pre - test knowledge score after the administration of the structured teaching program . The calculated chi - square value was greater than tabulated value for selected demographic variables which proved that there was significant relationship between selected demographic variables and mean post test result.

***Conclusion*:** Knowledge deficit existed in all the caregivers of Schizophrenic patients regarding Schizophrenia admitted in Psychiatric ward of New Civil Hospital, Surat. The Structured teaching program was found to be effective in enhancing the knowledge of samples regarding Schizophrenia. Samples gained significant knowledge and enhance the skill after expose to Structured Teaching Program. There is significant relationship between selected demographic variables and the post test knowledgescore.

Keywords: Schizophrenic patients; New Civil Hospital; Research design; Deficit existed.

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Introduction

'The talent submerged, the promise broken, the future lost, the life has taken, this is schizophrenia, aimless, hopeless, wandering, waiting...waiting for the brain to reconnect'.

Mental health is a level of psychological, or an absence of a mental illness. It is the "psychological state of someone who is functioning at a satisfactory level of emotional and behavioural adjustment ".

From the perspective of positive psychology or holism, mental health may include an individual's ability to enjoy life, and create a balance between life activities and efforts to achieve psychological resilience. According to the World Health Organization, mental health includes " subjective well being, perceived self efficacy, autonomy, competence, inter generational dependence, and self actualization of one's intellectual and emotional potential, among other. "The WHO further states that the well being of an individual is encompassed in the realization of their abilities, coping with normal stresses of life, productive work and contribution to their community.

A mental disorder is a diagnosis of a behavioural or mental pattern that can cause suffering or a poor ability to function in ordinary life. Such features may be persistent, relapsing and remitting, or occur as a single episode. Many disorders have been described, with signs and symptoms that vary widely between specific disorders. Mental disorders are usually defined by a combination of how a person behaves, feels, perceives or thinks.

Schizophrenia is a psychotic condition characterized by a disturbance in thinking, emotions, volitions and faculties in the presence of clear consciousness, and is prevalent in all cultures across the world. About 15% of new admissions in mental hospitals are of Schizophrenic patients. Schizophrenia is a brain disorder that probably comprises several separate illness. The hallmark symptom of Schizophrenia is psychosis, such as experiencing auditory hallucinations and delusions. Impaired cognition and disturbances in information is less vivid symptom that interferes with day to day life. People with Schizophrenia have lower rates of employment, marriage and independent living compared with other people.

Need for the Study

In developing countries like India, 90 % of people with schizophrenia are untreated. More than 50 % persons with schizophrenia are not receiving appropriate care. The global burden of disease study showed that by the year 2020, mental disorders are projected to increase and major depression will be the first leading cause of disease burden. The people thinks that Schizophrenia is an intrusion of spirit and the way to clear their misconceptions related to disease is to literate the people for appropriate care of Schizophrenic patient. Although Schizophrenia existed but never had been recognized as a health problem that are uniquely responsive subjected to non therapeutic treatments such as to the set of investigations. Instead of that it is defined a religious, political and philosophical problems and is exorcism, imprisonment and social out racism.

Many people are still unaware that there are effective treatments for Schizophrenia nearly 50-60% and family support to the patient. Schizophrenic patients recovers in 3-8 months by combination of regular medication and effective care giving. Misconceptions about schizophrenia are pervasive, and the lack of understanding can have serious consequences for millions of people who have schizophrenia and it can contribute to stigma which leads many peoples to be ashamed and prevent them from seeking help.

Caregivers of Schizophrenic patients are unaware about the disease condition. Caregivers are having misconceptions and misunderstandings related to Schizophrenia. Schizophrenia has been rated as being the fifth major leading cause of lost years as a result of disability in men while, It is the sixth major leading cause amongst women. Contrary to popular, the belief the disorder does not involve having split personality but is a separate. The condition all together schizophrenia affects approximately 2.2 million Americans and has been observed to be the most common psychotic diseases accounting for high costs in mental health care.

It is therefore important and vital for the community to be well informed and educated on schizophrenia , its symptoms and how best to handle patients suffering from the disorder in order to ensure that such individuals lead fulfilled lives in the end.

Methodology

The study was carried out in Psychiatric ward, New Civil Hospital, Surat. Pre experimental approach with one group pre-test post-test research design was used. Target population were the care givers of Schizophrenic patients. 30 samples were selected through non probability convenient sampling technique. Structured questionnaire was used as tool for data collection and lesson plan was prepared which was used as intervention.

Description of the tool

A structured questionnaire was prepared consisting of two sections to assess the knowledge of caregiver of Schizophrenic patient regarding Schizophrenia. The questionnaire contains 20 questions, each questions has four options. The caregiver has to choose answer among that four option. Each correct

answer was scored as 1 mark.

Section 1: Demographic Data

Section 2 : A Questionnaire on

a. Mental health and illness
b. Introduction to Schizophrenia.
c. Risk factor and causes.
d. Clinical Manifestations.
e. Treatment.
f. Management.
g. Prevention

Before performing data analysis written permission was taken from the concerned authority. Pre test was conducted and structured teaching program was administered. After a time of 7 days post test was done to assess the effectiveness of structured teaching program.

Result

Table 1: Frequency distribution of demographic data. (n=30).

Variables	Frequency	Percentage
Age		
20-30	10	33.33%
30-40	11	36.67%
40-50	7	23.33%
More than 50	2	6.67%
Sex		
Male	14	46.67%
Female	16	53.33%
Marital Status		
Single	7	23.33%
Married	23	76.67%
Divorced	0	0%
Widow/ Widower	0	0%
Educational Status		
Illiterate	5	16.67%
Primary Education	8	26.67%
Secondary Education	9	30%
Higher Secondary Education	6	20%
Graduate	2	6.66%
Post Graduate	0	0%
Residential Area		
Urban	12	40%
Rural	13	43.33%
Suburban	5	16.67%
Occupation		
Labourer, Farmer	9	30%
Self Employed	7	23.33%
Business, Unemployed	5	16.67%
Any other	9	30%
Relationship With Patient		
Parents	9	30%
Siblings	5	16.67%
Daughter	3	10%
Son	2	6.67%
Spouse	6	20%
Any other	5	16.67%
Duration of Illness		
1-2 years	11	36.67%
2-3 years	7	23.33%
3-4 years	5	16.67%
More than 4 years	7	23.33%

Out of 30 caregivers 36.67 % (11) caregivers belongs to age of 30-40 years, 53.33 % (16) caregivers were Female, 76.67% (23) caregivers were Married, 30 % (9) were having Secondary education, 43.33 % (13) belongs to Rural area, 30 % (9) caregivers were Labourer, Farmer, 30 % (9) caregivers are parents of the patients, 36.67% (11) caregivers are care giving to the patients from 1- 2 years.

Table 2: Comparison of pre test and post test result.

	MEAN	MEAN %	MEDIAN	MODE	SD	SD %	MEAN DIFFERENCE	MEAN DIFFERENCE %
PRE TEST	11.7	58.5	11.5	10	1.985	9.75	5.1	25.5
POST TEST	16.8	84	17	17	1.126	5.53		

The mean post test knowledge score was higher than mean pre test knowledge score with the mean difference of 5.1 which is statistically proved and revealed that the structured teaching program was effective.

Table 3: Correlation of demographic variables with post test knowledge score.

Demographic variables	Practices		df	Chi square x^2	p value	Table value	Inference
	Above 17 or 17	Below 17					
AGE							
20-30 years	7	3	3	5.75	0.05	7.81	NS
30-40 years	11	0					
40-50 years	4	3					
>50 years	3	0					
SEX							
Male	13	1	1	3.85	0.05	3.84	Significant
Female	10	6	0				
MARITAL STATUS							
Single	6	2	3	0.016	0.05	7.81	NS
Married	17	5					
Divorced	0	0					
Widow/ Widower	0	0					
EDUCATIONAL STATUS							
Illiterate	2	3	4	9.67	0.05	9.49	Significant
Primary	1	6					
Secondary	8	2					
Higher Secondary	1	5					
Graduate	1	1					
Post Graduate	0	0					
RESIDNETIAL AREA							
Urban	8	4	2	1.9	0.05	5.99	NS
Rural	11	3					
Suburban	4	0					
OCCUPATION							
Labourer	2	6	3	10.17	0.05	7.81	Significant
Self Employed	1	6					
Business	1	4					
Any other	8	2					
RELATION WITH PATIENT							
Parents	8	1	5	11.7	0.05	11.07	Significant
Siblings	1	4					
Daughter	1	2					
Son	1	1					
Spouse	1	5					
Any other	1	4					
DURATION OF ILLNESS							
1-2 years	9	3	3	8.47	0.05	7.81	Significant
2- 3 years	2	5					
3-4 years	1	3					
>4 years	1	6					

The calculated chi - square value was greater than tabulated value for selected demographic variables like Sex, Educational Status, Occupation, Relationship with patient and duration of illness which proved that there was significant relationship between selected demographic variables and mean post test score.

Conclusion

1. Knowledge deficit existed in all the caregivers of Schizophrenic patients regarding Schizophrenia admitted in Psychiatric ward of New Civil Hospital, Surat.
2. The Structured teaching program was found to be effective in enhancing the knowledge of samples regarding Schizophrenia.
3. Samples gained significant knowledge and enhance the skill after expose to Structured Teaching Program.
4. There is significant relationship between selected demographic variables and the post test score.

Recommendation for Further Study

The following recommendations are made on the basis of the findings of the study.

1. A similar study can be replicated on large samples.
2. A comparative study can be conducted related to Knowledge of Schizophrenia of caregivers of Schizophrenic patients in another research setting.
3. A similar study can be undertaken with a control group design.
4. A comparative study can be conducted to find out the effect of different teaching methods in improving knowledge of caregivers.

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Review Article

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A Comparative Study to Assess the level of depression among Elderly Men and Women in Selectedold age home, Surat, Gujarat

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Abstract

Depression is a potentially preventable disease if appropriate screening and prophylactic strategies are employed. However, lack of knowledge and awareness can result in underutilization of the preventive strategies. We assessed the knowledge among men and women in selected old age home of Surat district. We conducted a comparative study on men and women of selected area. Data were collected using a survey method and self-administered questionnaire related to geriatric depression scale. Data analysis was done using descriptive and inferential statistics. *Results*. Data from 60 participants were included in the final analysis.Difference between men and women was 3.7, the median difference between men and women was 4.1, the mode difference between men and women was 2, the standard deviation difference between men and women was 0.54. That is indicate men have more depression rather than women. *Conclusions*. Our study population showed depression of men and women. Preventive interventions including education for individuals with chronic illness, behavioural activation, cognitive restructuring, problem-solving skills training, group support, and life review have also received support

Keywords: WHO-World health organization; SD-Standard deviation; HO-Null hypothesis; H1-Research hypothesis.

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Alka D Tajne/ A Comparative Study to Assess the level of depression among Elderly Men and Women in Selectedold age home, Surat, Gujarat/RFP Journal of Gerontology and Geriatric Nursing. 2020; 3 (2) : 63–64.

Introduction

Depression in old age is an emerging public health problem leading to morbidity and disability worldwide. According to World Health Organization, Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration. The WHO estimated that the overall prevalence rate of depressive disorders among the elderly generally varies between 10 and 20%, depending on the cultural situations Although India is the second most populated country in the world, in terms of elderly population of 60 years and above, elderly depression is not yet perceived as a public health problem in India. Depression is a major mental health problem, which is yet to be recognized as an important public health challenge. About 322 million people affected with depression worldwide. Depression is the single largest contributor to global disability (7.5%, 2015) and a major contributor to suicides (~800,000 annually). In India, elderly persons (60 years and above) constitute 8.6% of the total population (India Census 2011), which is projected to reach 19% by 2050. Thus, depression among elderly population is likely to be a major cause of disease burden in the future.

Objectives

1. To assess the level of depression among the elderly men in selected old age home.
2. To assess the level of depression among the elderly women in selected old age home.
3. To compare level of depression among elderly

men and women in selected old age home.

Hypothesis

H_{01}=There is no significant difference in depression level among elderly men and women.

Material &Method

Research Approach: Quantitative approach

Research Design: Non-experimental comparative survey design.

Variables

Demographic variable: The demographic variables of the study is Age, Gender, type of family, income, no. of children, education, etc.

Selection Createria

Setting of the study

The selection of the men and women was done on the basis of:

- Feasibility of conducting study
- Availability of sample

***Population*:** In the present study the population consists were elderly men and women of old age home of Surat, Gujarat.

***Sample/Sample size*:** The samples selected for the present study comprises of "The 60 People of Old age home of Surat (30 men and 30 women).

Recommendation

- A similar study may be conducted on a larger sample for a wider generation.
- Planned heath care teaching program can be conducted for providing education to women.
- Study can be conducted by including control and experimental group in the study.

Finding of the study

The overall mean percentage the mean difference between men and women was 3.7, the median difference between men and women was 4.1, the mode difference between men and women was 2, The standard deviation difference between men and women was 0.54 and the range difference between men and women 0.which shows that both men and women have depression but somewhere men have more depression than the women in old age home.

Conclusion

Based on the findings of the study, the conclusion to be noted that:

- Elderly Men were having more depression score compare to elderly women.
- There is significant difference regarding depression among elderly men and women.
- There is no significant relationship between socio-demographic variables and depression level of men and women.

Referance

1. Website: Depression common problem, URL :https://www.nia.nih.gov/health/depression-and-older-adults.
2. Website: Serious mood disorder, URL :
3. Website: Leads to morbidity and disability URL https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3016701/
4. Website: Depression in old age, URL : https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3016701/
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1. https://www.nia.nih.gov/health/depression-and-older-adults.

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[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540–7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003; 61: 347–55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone-iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3–9.

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[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000; 71: 1792–801.

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[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O,

Kidd EAM, editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. pp 7–27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979–2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7–18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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