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Caregiver Burden in Primary Caregiver Spouses of Elderly Patients with Dementia/Cognitive Impairment

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Abstract

Background and Objective: Patients with dementia and cognitive impairment require regular care. In the present study, we assess the burden of care among primary caregiver spouses of elderly patients with dementia/cognitive impairment.

Material and Method: A total of 50 elderly patients (>60 years) having a history of dementia/ cognitive impairment for a minimum of two years who had spouses as their primary caregiver were enrolled in the study. Demographic and social profile of the patients and caregivers was noted. Severity of cognitive impairment was assessed using Mini Mental State Examination (MMSE). Burden assessment scale (BAS) was used to study the caregiver burden. Data was analyzed using Independent samples t-test and ANOVA.

Results: Mean age of patients was 74.52±5.94 years. Mean age of caregivers was 73.1±8.57 years. Majority of patients were males (64%), were from middle class (60%), lived in joint family (56%), were not able to perform their routine works (60%) and had mild cognitive impairment (56%). Mean BAS score was 68.22±10.57. No significant association of BAS scores was seen with different demographic and clinical characteristics except for severity of CI and duration of care.

Conclusion: There was a substantial caregiver burden on the primary caregiver spouses of elderly patients with dementia/cognitive impairment.

Keywords: Dementia; Cognitive impairment; Caregiver burden; Spouses; Primary caregivers.

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INTRODUCTION

Dementia can be defined as a clinical syndrome characterized by a cluster of symptoms and signs manifested by "difficulties in memory, disturbances in language and other cognitive functions, changes in behavior, and impairments in activities of daily living".[1] Cognitive decline and dementia are common problems associated with ageing and Alzheimer's disease.[2,3] Patients with

dementia and cognitive decline often require care. In the community, the burden of care of dementia patients is borne mainly by familial caregivers.[4] Caregiving to a dementia patient is strenuous and very demanding. Caregivers to dementia have been known to have high burden of care.[5] Caring for a patient with dementia is more stressful than caring for a person with a physical disability.[6-8] Spouses play an important role as familial caregivers, especially to elderly. Role of spouses as caregivers to elderly patients with dementia places them an additional burden as they themselves are old, often have poor health. Moreover, there physical and psychological well being is also compromised.[9] Hence, the present study was carried out to understand the burden of care and its association with duration and severity of dementia among elderly patients whose spouses play the role of primary caregivers.

MATERIAL AND METHOD

The present study was carried out at the Outpatient Dementia/Alzheimer Clinic of a specialized geriatric care facility in Lucknow, India after getting approval from the appropriate institutional authorities (Approval letter No. _____ dated _____) and receiving consent from the participating patients and their caregivers.

The inclusion criteria of the study was: (i) Spouse of an elderly patient (aged >60 years) with dementia; (ii) Index patient having a minimum two years history of dementia as per DSM-5 criteria; (iii) Acting as primary full-time caregiver with no other occupational commitment;. The exclusion criteria of the study was: (i) History of any psychiatric illness; (ii) medical/surgical illnesses requiring hospitalization during the entire caregiving period; (iii) Mental retardation or any other cognitive dysfunction; (iv) Presence of any other dementia/ psychiatric illness in any other member of the family than the index elderly patient.

Primary caregiving for the purpose of the study was defined as "staying with the dementia patient for at least two years with continuous contact, and actively involved in his/her care".

Sample size was determined on the basis of a previous article that found a correlation between severity of dementia and caregiver burden with "r" value 0.4210. In the present study we also expected a similar correlation. The sample size was calculated using the following formula: $n = [(z\alpha+z\beta)/C]2 + 3$, where $z\alpha = 1.96$ at 95% confidence, $Z\beta = 0.8416$ at 80% power and $C = 0.5 * \ln[(1+r)/(1-r)$ at a targeted 'r' value of 0.4, the value of C was derived as 0.4236. Thus the calculated sample size was 47. However, we targeted a sample size of 50.

METHOD

Spouses of dementia patients falling in the sampling frame were contacted during the Outpatient visit of the index patient and were invited to participate in the study. Those consenting to participate in the study were included in the assessment. Age and sex of index patient and caregiver was noted, details regarding socioeconomic status, family type and caregiver's educational status was noted. The caregiver's were also enquired regarding the ability of the index patient to perform all the routine works. Duration of caregiving was also noted and categorized as <5 years, 6-10 years and >10 years respectively.

Severity of dementia was assessed using Mini Mental State Examination (MMSE) scale.[11] The following criteria was used for the purpose of identification of cognitive status and its stratification:

MMSE Score	Cognitive Status
>26	No Impairment
21-26	Mild Impairment
13-20	Moderate Impairment
<13	Severe Impairment

Assessment of burden of care was done using Burden Assessment Schedule (BAS).[12] BAS is a 40-item schedule that covers burden of care on nine domains, viz., spouse related (5 items), physical and mental health (6 items), external support (5 items), caregiver's routine (4 items), support of patient (3 items), taking responsibility (4 items), other relations (3 items), patient's behavior (4 items) and caregiver's strategy (4 items). Each item is scored on a three point Likert scale with scores ranging from 1 ("not at all") to 3 ("very much") showing the degree of caregiving burden. The total burden is assessed by summation of scores obtained on all the 40 items and could range from 40 to 120 with higher scores representing higher burden of severity." It can be categorized into five categories, viz. <40 – No burden, 41-60 – Minimal burden, 61-80 – Moderate burden, 81-100 severe burden and 101-120 – very severe burden respectively.[13]

Data Analysis:

The data obtained from the patients was fed into computer using IBM SPSS Stats software version 21.0. Association of BAS scores with different sociodemographic factors, severity of dementia and duration of dementia was assessed using Independent samples 't'-test and ANOVA.

RESULTS

Age of index patients ranged from 62 to 82 years. Maximum patients (48%) were aged between 71-80 years. Mean age of patients was 74.52±5.94 years. Majority of patients (n=32; 64%) were males, came from middle class (60%), lived in a joint family (56%) and were not able to perform routine works (60%). Majority (56%) had mild dementia. There were 22 (44%) having moderate dementia. None of the patients had severe dementia (Table 1).

Table 1: Profile of Elderly Patients with Cognitive Impairment *(n=50)*

Characteristic	Number	Percentage
Age		
<70 Years	12	24
71-80 Years	24	48
>80 Years	14	28
Mean age±SD (Range) in years	74.52±5.94 (62-82)	
Sex		
Male	32	64
Female	18	36
Socioeconomic status		
Middle	30	60
Upper Middle	19	38
Upper	1	2
Family type		
Nuclear	22	44
Joint	28	56
Able to perform routine works	20	40
Severity of impairment		
Mild	28	56
Moderate	22	44

The age of caregivers ranged from 55 to 90 years with a mean age of 73.1±8.57 years. Maximum (46%) of caregivers were aged between 71 and 80 years and majority (64%) were females. Maximum caregivers were educated upto high school (30%) followed by intermediate (22%), illiterate (16%), graduates (14%), primary (12%) and postgraduation or above (6%) respectively. Majority (62%) were rendering care for <5 years. Mean total caregiver burden scores (BAS Total) were 68.22±10.57. Mean domain scores for spouse related, physical and mental health, external support, caregiver's routine, support of patient, taking responsibility, other relations, patient's behaviour and caregiver's strategy were 8.92±3.68, 10.74±2.48, 10.58±3.15, 8.18±1.78, 7.08±1.75, 7.22±2.18, 9.02±1.20, 6.48±1.171 and 8.62±2.00 respectively. The severity of caregiver burden was minimal, moderate and severe in 11 (22%), 33 (66%) and 6 (12%) cases (Table 2).

Table 2: Caregiver Profile and Burden of Care *(n=50)*

Characteristic	Number	Percentage
Caregiver's Age		
≤70 Years	18	36.0
71-80 Years	23	46.0
>80 Years	9	18.0
Mean age ± SD (Range) in years	73.1±8.57 (55-90)	
Caregiver's sex		
Male	18	36.0
Female	32	64.0
Caregiver's Education		
Illiterate	8	16.0
Primary	6	12.0
High School	15	30.0
Intermediate	11	22.0
Graduation	7	14.0
Postgraduation or above	3	6.0
Duration of Care		
≤5 Years	31	62.0
6-10 Years	11	22.0
>10 Years	8	16.0
Caregiver Burden	**Mean**	**SD**
Total	68.22	10.57
Spouse related	8.92	3.68
Physical and Mental health	10.74	2.48
External support	10.58	3.15
Caregiver's routine	8.18	1.78
Support of patient	7.08	1.75
Taking responsibility	7.22	2.18
Other relations	9.02	1.20
Patient's behavior	6.48	1.71
Caregiver's strategy	8.62	2.00
Severity of Burden		
Minimal	11	22.0

Table to be cont....

Moderate	33	66.0
Severe	6	12.0

No statistically association of mean BAS (Total) scores was seen with patient's age, sex, socio-economic status, family type and ability to perform routine works on their own. However, mean BAS scores were significantly higher among patients with moderate dementia (77.10±5.38) as compared to that among patients with mild dementia (61.25±8.18) (p<0.001) (Table 3).

Table 3: Association of Caregiver Burden with Patient Profile and Severity of Cognitive Impairment

Characteristic	Number	Mean BAS ±SD
Age		
<70 Years	12	68.08±10.92
71-80 Years	24	68.58±10.37
>80 Years	14	67.71±11.38
Statistical significance	F=0.030; p=0.970	
Sex		
Male	32	68.72±11.26
Female	18	67.33±9.47
Statistical significance	t=0.441; p=0.661	
Socioeconomic status		
Middle	30	69.33±10.34
Upper Middle	19	66.79±11.22
Upper	1	62
Statistical significance	F=0.503; p=0.608	
Family type		
Nuclear	22	67.23±10.36
Joint	28	69.00±10.86
Statistical significance	t=0.585; p=0.561	
Able to Perform Routine works		
Yes	20	67.90±10.27
No	30	68.43±10.93
Statistical significance	t=0.173; p=0.863	
Severity of Impairment		
Mild	28	61.25±8.18
Moderate	22	77.10±5.38
Statistical significance	t=7.891; p<0.001	

Caregiver burden scores did not show a significant association with caregiver's age and education but was found to increase significantly with increasing duration of care (p=0.007) (Table 4).

Table 4: Association of caregiver burden with caregiver profile

Characteristic	Number	Mean BAS Score±SD
Caregiver's Age		
≤70 Years	18	70.20±10.16
71-80 Years	23	67.30±9.71
>80 Years	9	67.47±12.44
Statistical significance	F=0.367; p=0.695	
Caregiver's Education		
Illiterate	8	63.50±12.92
Primary	6	73.50±8.12
High School	15	63.87±12.09
Intermediate	11	71.45±7.13
Graduation	7	72.43±5.56
Postgraduation or above	3	72.73±13.32
Statistical significance	F=1.691; p=0.157	
Duration of care		
≤5 Years	31	64.97±10.68
6-10 Years	11	70.91±7.42
>10 Years	8	77.13±8.10
Statistical significance	F=5.523; p=0.007	

DISCUSSION

In the present study, mean BAS score was 68.22±10.57. Majority of caregivers experienced moderate burden (66%). Caregiver burden was primarily determined by severity of dementia and duration of care. Mean caregiver burden scores in the present study are in close proximity with those reported by Pattanayak *et al*.[14] who reported the mean BAS scores as 67.50+13.98. Interestingly, the profile of patients and caregivers in their study also matched substantially with the profile of patients in the present study in the present study, mean age of patients was 74.52±5.94 years as compared to 71.75±9.66 years in their study. In the present study, 64% of patients were males (64%) and 64% of caregivers were females, similarly in their study, 62.5% of patients were males and 56.25% of caregivers were females. However, MMSE scores in their study were 16.72 which were lower than that in the present study in which they were recorded as 20.54, thus despite having a higher cognitive decline, the burden of care in their study was comparable to ours. However, the present study differed from their study from the point of view that in the present study, all the caregivers were spouses of the index patients whereas in their study, this condition was not essential and

only half the caregivers were spouses of the index patients. Similar caregiver burden with a relatively less severe cognitive decline in the present study could be attributed to the fact that the caregivers were spouses of the patients, and had a mean age above 70 years whereas in their study, owing to a large proportion of caregivers being other familial members (47% sons and daughters) they had a relatively much younger age profile (mean age 53.94 years) that seems to influence the overall coping ability of the caregivers. In the present study, the caregivers themselves were ageing elderly individuals and hence their coping abilities and resilience against caregiver burden were compromised to some extent.

In the present study, we did not find a significant association of caregiver burden with patient and caregiver's socio-demographic characteristics, however, both severity as well as duration of care had a significant association with burden of care. Although some studies report an association between caregiver's age and caregiver burden[15], however, it was not seen in our study as all the caregivers were in almost same life stage. Some other studies have shown the association of caregiver burden with socio-economic factors too.[16] Occupational commitments in different life stages have an impact on caregiver's burden, however, in the present study, none of the caregiving spouses had any other occupational commitment, and hence effect of age was not dominant. The role of other socio-economic factors also seemed less effective as most of the patients were retired persons with no major familial responsibilities that seem to add to the caregiver burden in otherwise younger family members acting as caregivers. The association of caregiving burden with severity and duration of caregiving as seen in the present study has been documented in other studies too.[10,17,18] The association of caregiver burden with duration of caregiving could also be attributed to the fact that with increasing duration of caregiving the spouses who also are in elderly age group tend to experience the physical and psychological stresses associated with ageing.

The present study had certain limitations, such as it did not study the psychological burden of caregiving, had limited covariates, however, it was one of the pioneering attempts to study the burden of care in elderly spouses who were playing the role of primary caregivers to dementia patients, thus exploring a rather unexplored area of geriatric health issues. With the changing social milieu and transformation of families into more nuclear forms, the elder generation today has to live away from their dependents and here the spouses play the caregiving role to each other, the present study tries to explore the caregiving burden of elderly spouses in this changing social context. Further studies with inclusion of comparative group and incorporation of other possible factors that may have an influencing role are recommended.

CONCLUSION

The present study showed a predominantly moderate burden of care among elderly spouses who play the role of primary caregivers to their partners with dementia. Severity of dementia and duration of caregiving had a significant association with increasing burden of care.

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A Study to assess the Effectiveness of Planned Teaching Programme on Knowledge Regarding Prevention and Management of Diarrhoea among Mother of Toddlers

Alka D. Tajne[1], Shruti P. Kanthariya[2], Shilpa M. Kavad[3], Dharmishtha B. Khandra[4], Bhagyavati P. Mahala[5], Kajal M. Panjwani[6], Isha D. Parmar[7]

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Abstract

Quantitative approach was used with pre-experimental one group pre-test & post-test design. The Planned teaching program regarding prevention and management of diarrhoea among mother of toddlers. The study was conducted at Ugat, Canal road, Surat, Gujarat. The samples of 60 mothers were selected through Non probability purposive sampling technique. A structured knowledge questionnaire was prepared to assess the knowledge of samples. Content validity of the developed tools and Planned teaching program was established by 6 experts and necessary modification were made as suggested by them. Reliability of the tool was ascertained by Karl Pearson's coefficient correlation (r) method. The mean pre-test knowledge score was 11.9 and mean post-test knowledge score was 21.63. Significance of the difference between pre-test and post-test knowledge was statistically tested using paired 't' test and it was found significantat 0.05 level (t-92.56, t2.00 respectively). There was significant increase in the knowledge of the samples after administration of the Planned teaching programre garding prevention and management of diarrhoea among mother of toddlers. Hence it is concluded that Planned teaching program was effective in improving the knowledge of the mother of toddlers.

Keywords: Prevention and management of diarrhea; Mother of toddlers; Planned teaching programme.

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INTRODUCTION

Diarrhoea is one of the most important gastrointestinal disorders in under five years of age children. Diarrhoea is ranked among the top three causes of childhood deaths in the developing countries.[4] Diarrhoea continues to a major cause of Morbidity and Mortality worldwide result in

an estimated thous and deaths among children each day the highest incidents in being developing countries of the world.[8]

OBJECTIVES

1. To assess the knowledge regarding prevention and management of diarrhea before and after administration of Planned teaching program among mother of toddlers.
2 To evaluate the effectiveness of Planned teaching program on prevention and management of diarrhea program among mother of toddlers.

Hypothesis

H_1: The mean post test knowledge score regarding prevention and management of diarrhoea is significantly higher than the pretest knowledge score among mother of toddlers in selected urban area of surat city. H=0.05 level.

CONCEPTUAL FRAME WORK

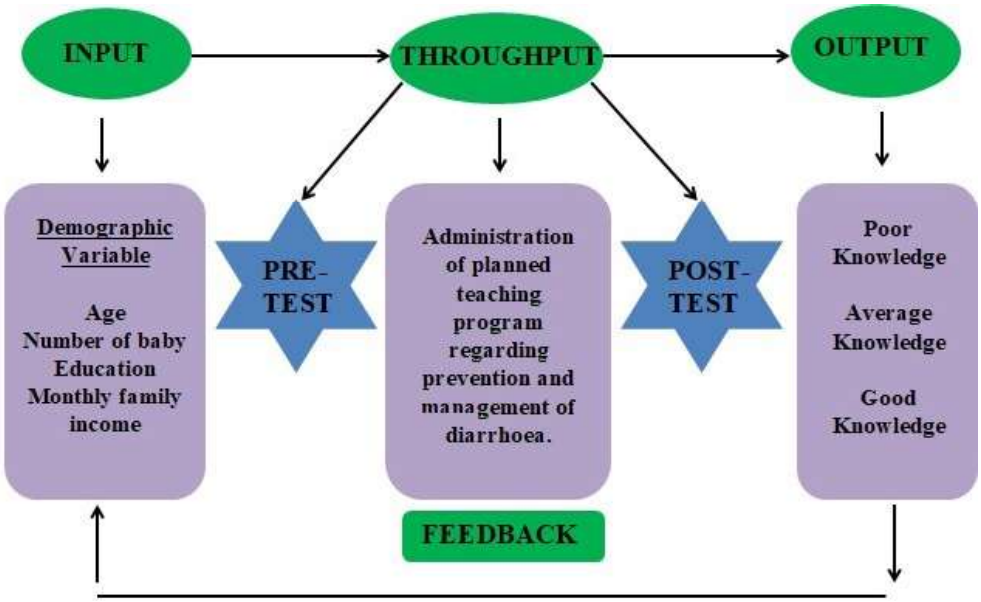

Fig. 1: Conceptual Framework on General System Model

METHODOLOGY

Methodology of research indicates the general pattern of organizing the procedure for the empirical study together with the method of obtaining valid and reliable data for problem under investigation.[1]

Research methodology is the way of systematically solving the research problem. It is a science of study how research is done scientifically.[2]

Research Approach

Quantitative research approach

Research Design

One group pretest post-test design.

Sample size

60 Mother of toddlers.

Sampling Technique

Non probability purposive sampling technique.

INDEPENDENT VARIABLE

Planned teaching programme on Prevention and management of diarrhoea. One group pre-test & post-test.

DEPENDENT VARIABLE

Knowledge regarding prevention and

management of diarrhoea among mother of toddlers.

RESEARCH SETTING

The present study was conducted at Anganwadi of urban area, Ugatcanal road, Surat, Gujarat.

TARGET POPULATION

In this study, the target population is consisted of the health Workers working in the primary health centre of all the selected districts of Gujarat state.

SAMPLE SELECTION CRITERIA

1. Mothers who were willinglyag reed to participate in study.
2. Mothers who have child between 1-3 years.
3. Mothers who can read and understand Gujarati and English.

DELIMITATIONS

1. The study is delimited to mother of toddlers.
2. The study is delimited to urban area of Surat city.
3. The study is delimited to only 60 sample size.

RESULTS

The data were analysed and interpreted in terms of objectives of the study. Descriptive and inferential statistic were utilized for the analysis. After analysis the major finding of the study wereas follows:

In term of Age, 35% samples were 18-24 years of age, 60% samples were 25-34 years of age and 5% samples were 35-45 years of age.

Regarding number of baby, (20%) mothers have 1 child, (65%) mothers have 2 child and (5%) mothers have 3 child.

Regarding (38.33%) mothers had primary education, (33.33%) mothers had secondary education, (23.33%) mothers are uneducated and (5%) mothers are graduate.

Regarding monthly income of the family among (28.33) had Rs. 5,000 to Rs. 10,000 per month, (45%) had Rs. 11,000 to 15,000 per month, (21.66%) had Rs. 16,000 to 20,000 per month and (5%) had morethan Rs. 30,000 per month.

The mean score for pre-test was 11.9 and post-test was 21.63. Therefore, the mean difference of pre-test and post-test is 9.73. So, there is significant increase in knowledge of mother regarding prevention and management of diarrhoea after the administration of Planned teaching program.

MAJOR FINDING OF THE STUDY

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The mean score for pre-test was 11.9 and post-test was 21.63. The refore, the mean difference of pre-test and post-test is 9.73. So, there is significant increase in knowledge of mother regarding prevention and management of diarrhoea after the administration of Planned teaching program.[5]

DISCUSSION

The findings of the study have been discussed with reference to the objectives and hypothesis. The pre-test knowledge score among the mother of toddlers were found less in selected urban area of surat city. This indicates the need of the mother of toddlers for improving necessary knowledge through treatment that was planned teaching program. In the post-test; knowledge score of mother regarding its prevention and management of diarrhoea was increased after administration of

the planned teaching program. This showed the effectiveness of planned teaching program.

Finding from the research analysis revealed the pre-test score of under graduate students was improved after exposure to planned teaching program.

CONCLUSION

The conclusion was drawn based on the finding of the study. The present study concluded that the assessment of effectiveness of planned teaching programme on knowledge regarding prevention and management of diarrhoea among toddler mothers of selected urban area of surat city is poor, the refore it is necessary to provide more knowledge regarding prevention and management of diarrhoea. This study will benefit the improve knowledge of toddler mothers regarding prevention and management of diarrhoea and identify the incidence of diarrhoea in toddler.

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Review Article

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Yoga for Sleep Quality, Postural Balance and Quality of Life in Geriatric Population: A Narrative Review

Priyanshi Kaushik[1], Abhishek K. Bhardwaj[2]

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Abstract

Yoga brings equanimity in our lives and it can play an exigent contribution in removing many psycho-physiological problems concerned to geriatric population. Present study is focusing to review the effectiveness of yoga for different psychological factors such as sleep quality, balance, gait and life satisfaction in geriatric population. Total 11 relevant review articles were found in PubMed (the medical database) using different keywords. Evidence showed that in comparison to other physical activities, yoga is providing to be a better solution. Daily practice of yoga is beneficial to increase balance and decrease the falls in geriatric population.

Keywords: Yoga; Geriatric population; Balance; Sleep quality; Quality of life.

INTRODUCTION

Yoga is an ancient art and science of healthy living which improves physical, mental, social and spiritual health with the quality of in expensiveness and without any side-effects. Yoga is one of the mind-body practices which are harmless, generalized and better solution to remove psycho-physiological illness. As per yogic scriptures, yoga is an inner science through which human can realize their existence and achieve their basic goal that is liberation. The aim of yoga is self-realization, wellness, freedom and finally liberation[1] (Basavaraddi, 2015). Yoga is a practical discipline that consists of a range of postures that are intended to promote good physical and mental health as well as wellbeing, inner peace and ultimately union with the supreme perfection of all things[2] (Aurobindo, 1999). Yoga as a supplemental medicine is more beneficial than regular exercise since it calls for active participation from both the body and the mind. It primarily focuses on developing body awareness and perception which helps older persons to maintain their balance[3] (Patel, Deshmukh and Parlekar, 2019).

According to a report, India's population consists of an adequate proportion of elderly people and 3.4 percent of those above the age of 45 years live alone. About 5.7 percent of the country's senior citizens live on their own without the support of family or friends[4] (Sengupta & Guha, 2021). These old people have to face a variety of physical, psychological and social changes. It is inevitable that these people lose

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their old friendship ties as they get older and they are hesitant to form new friendships. Loneliness and depression are common in old age, resulting in the inability of many to actively participate in close relationships as well as community activities[5] (Singh & Misra, 2009).

Globally, the population is increasing hurriedly. The population of people over 60 years will almost double in whole world between 2015 and 2050 from 12% to 22%. About 15% of people aged 60 and over are mentally unwell[6] (WHO, 2017). The geriatric population is large in general and growing due to advancement of healthcare education[5] (Singh & Misra, 2009). The level of satisfaction related to body and mind is decreasing due to aging[7] (Osth *et. al*., 2019). During this age many of the systems undergo deterioration. This has the potential to affect balance, restrict safe mobility as well as it adversely affects quality of life[3] (Patel, Deshmukh and Parlekar, 2019). These older people are facing a number of changes such as physical, psychological and social changes that challenge their ability to live happily. Altered balance is the largest collaborator for falls in geriatric population with advance correlation between balance deficiency and the event of falls[3] (Patel, Deshmukh and Parlekar, 2019). Sleep problems in older people make it difficult to stay awake during the day, hence the need for management that is free from side effects. Daily yogic practice improves the quality of sleep in old peoples[8] (Manjunath & Telles, 2005).

METHODS

Present study is focusing to review the effectiveness of yoga for different psychological factors such as sleep quality, balance, gait and life satisfaction in geriatric population. Total 11 relevant review articles were found on PubMed (the medical database) using different keywords (Table 1). Articles are eliminated only if they are not properly focused on selective variable and if they are on proceeding.

Table 1: Summary of searched article using different keywords.

Keywords	Available Review Articles on PubMed	Relevant Articles	Selected Articles for Review
Yoga, geriatric population, sleep	6 articles	Four are relevant and one is on proceeding.	4 articles
Yoga, geriatric population, balance	7 articles	Not relevant.	-
Yoga, geriatric population, balance gait	4 articles	All are relevant.	4 articles
Yoga, geriatric population, Life satisfaction	2 articles	1 is on proceeding and another one is not relevant.	-
Yoga, geriatric population, quality of life	6 articles	Four are satisfactory and 1 is on proceeding.	-
Yoga, old aged people, life satisfaction	4 articles	Three are relevant and 1 is on proceeding.	3 articles

YOGA AND SLEEP QUALITY

Sleep is an essential function of the human daily routine. Preferable physical, cognitive and psychological development hardily depends on restoring sleep. Actually, human sleep features and behaviour depends on different events both physiological and mental[9] (Crivella, Barsocchi, Girolami, Pulunto, 2019). A study was conducted to assess the effect of yoga and Ayurveda on quality of sleep in seniors having age range above 60 years. In this randomized trial there were three groups i.e., yoga (physical postures, relaxation techniques, breathing ways and speech on yoga philosophy), ayurveda and wait list control (no intervention). Self-assessment of sleep was done in the first week then after 3 months and then after 6 months during intervention. Result showed that a decrement in time taken for sleep, total number of hours slept is increased and increment in the feeling of being rested in the morning after six months. Apart from this, no change was seen in other groups. This study was concluded that daily yoga practice improves sleep in geriatric population[8] (Manjunath & Telles, 2005).

Another randomized controlled trial expressed the role of yoga therapy in improving digestive health and quality of sleep in an elderly population. Pittsburg sleep quality index (PSQI) and Patient assessment for constipation (PAC-QOL) were administered on 81 participants (Yoga = 48, waitlisted control = 33). They concluded that three months of yoga intervention can enhance sleep

quality, remove constipation and improve quality of life in geriatric population[10] (Ganesh, Subramanya, Raghvendra, Udupa, 2021).

In a review study, literature was searched by using PubMed and Science Direct search engines. Quality of sleep, cognitive functions were assessed in seniors having age range above 60 years. After giving different yogic interventions they conclude better results can be achieved in daily life by balancing sleep and cognitive functions with the practice of yoga. Evaluation of published studies stated that regular practices of yoga increase sleep and cognitive functions as well as autonomic function, structural changes, changes in metabolism, neurochemistry and also enhance functional brain network connectivity in key regions of the brain. They analyze the positive outcome of yoga on sleep and cognitive functions among healthy older adults as well as patients of some neurological diseases[11] (Panjwani, Dudani & Wadhwa, 2021).

In a systematic review on the effect of yoga on physical functioning and health related quality of life in geriatric population, self rated health status, aerobic fitness, strength, depression, sleep, and bone mineral density were assessed. The study evaluated that yoga is more effective in comparison to other conventional exercises on depression, sleep and bone mineral density. They concluded that regular practice of yoga is providing to be a better solution than other physical activities[12] (Patel, Newstead & Ferrer, 2012).

YOGA AND BALANCE

The capacity to maintain bodily equilibrium and regain balance following a shift in body parts is known as postural balance[13] (Ludwig, 2017). A comparative study stated that hath yoga influences positively the physical changes like reduce hip expansion. The assessment criteria were peak hip extension, average anterior pelvic tilt, and stride length at comfortable walking speed. This was a single group pre-post test exploratory study. Twenty three healthy adults with age range 62-83 years were participated and out of them 19 participants finalized the program. 8 weeks iyengar hatha yoga intervention was provided for 90 minutes classes per week with 20 minutes home practices on alternate days. Result indicated that peak hip extension and stride length both were raised. Study showed that regular practice of yoga can improve gait functions in healthy older people as well as reduce the expansion of the hips and decrease the pelvic tilt[14] (DiBenedetto *et. al.*, 2005).

Another study expressed that the intervention of Yoga, Tai-Chi, gait and balance training may improve the balance confidence and it also reduce the falling risk in geriatric population with type-2 diabetes. In this review, 21 studies search was made through CINAHL, Embase and PubMed. Assessment criteria were fear of falling and balance confidence. Decided group based interventions were given to the participants. Evaluation of published study concluded that gait and balance training, tai chi and yoga practices decreased falling risk and also minimize the low balance confidence[15] (Hewston & Deshpande, 2018).

A prospective study suggested that Wii Fit Balance Board is useful for the assessment for preventing falls among the older adults. In this study, 41 healthy participants were given Tree pose under yoga and a table tilt game. Assessment criteria were postural stability, fall reduction measured by Wii Fit Balance Board. This study was finalized that these tools are beneficial for the older adults for evaluation to prevent falls[16] (Rohof *et. al.*, 2020).

Another study with randomized control design indicates Yoga's effect on falls in rural, geriatrics. Under this study, 8 weeks of hatha yoga intervention with 10 minutes daily at home was given in 16 sessions to 38 participants (17 each group). Balance and self-reported fall were measured. Result showed that daily practices of yoga were beneficial to increase balance, decreases the falls in geriatric population[17] (Hamrick *et. al.*, 2017).

YOGA AND QUALITY OF LIFE

The cognitive component of subjective well being is satisfaction with life and because it is the main consistent factor in subjective well being, it entails an appraisal of all aspects of an individual's existence. The best predictor of one's perceived quality of life is most commonly recognised as life satisfaction. A study of 2011 in which a sixty nine year old women who was suffering from Parkinson's disease (PD) for the past eight years, one week baseline was followed by an eight weeks period of weekly 60 min yoga classes and a further 5 weeks of treatment withdrawal[18] (Hall, Verheyden and Ashburn, 2011). Assessment criteria were balance, mobility, quality of life. They concluded that there is no difference found in the quality of life as calculated by the PDQ-39 was noted but some positive changes was observed during intervention in balance measured by BBS (Berg Balance Scale) and mobility measured by TUG (Timed Up and

Go). These all improvements were not included because they are clinically insignificant[18] (Hall, Verheyden and Ashburn, 2011).

A Randomized controlled study investigated that for enhance life satisfaction and to reduce depression of older depressed females, Kataria's Laughter Yoga is also affecting positively same as group exercise program. There were 70 depressed old women with age range above 60 but only 60 participants finished study. Assessment Criteria were Depression, measured by Geriatric Depression Scale and quality of life measured by Life Satisfaction Scale. The investigation indicates decrement in the scores of depression in experimental groups. No considerable difference was found between Laughter Yoga and exercise therapy groups.[19] (Shahidi *et. al.*, 2011).

Another study of 2015 reported that there is no overall improvement of 12 week practices of Hath Yoga in quality of life as well as Gait functioning with spinal injury of a 59 years old male. Yoga affects positively balance; body movements, poses; muscle strength of the hip extensors, hip abductors and knee extensors. One hour session twice per week for twelve weeks hath yoga intervention given during study[20] (Moriello *et. al.*, 2015).

Table 2: Summary of relevant studies based on evidence

Sl. No.	Authors	Study Design	No. of Participants	Intervention	Assessment	Result
1	Ganesh, Subramanya, Raghvendra, Udupa, 2021	Randomized control trial	81 participants with age range 60-75	3 months yoga intervention with frequency of 3 session per week	Pittsberg sleep quality index (PSQI) and Patient assesement for constipation (PAC-QOL) were used	Yoga can improve sleep quality and remove constipation
2	Panjwani, Dudani, Wadhwa, 2021	Review	Above 60 years	Different Yogic interventions	Sleep quality and cognitive dysfunction	Intervention helps improving sleep quality and cognitive functions.
3	Patel, Newstead & Ferrer, 2012	Systematic review with both narrative synthesis and meta-analysis	<35 participants (above 60 years)	Yoga and conventional exercises	Self-rated health status, aerobic fitness, power, depression, sleep, and bone-mineral density	Yoga provides more effective benefits than conventional exercises on Depression, sleep and bone-mineral density.
4	Rohof, B. *et. al.*, 2020	Prospective study	41 participants (above 60 years)	Using two measurements: yoga task "tree" and balance game "table tilt"	Postural stability, fall reduction measured by Wii Fit Balance Board.	Wii Fit Balance Board is useful for the assessment for preventing falls among the older adults
5	Hewston & Deshpande, 2018	Review	≥65 years of age	Selected group-based interventions	Fear of falling, balance confidence	Gait and balance training, tai chi and yoga practices reduce the of falling risk and also minimize low balance confidence.
6	Hamrick, Mross, Christopher, Smith, 2017	Randomized Controlled Trial	38 participants (Above 65 years)	16 sessions of hath yoga over 8 weeks	Balance, Self reported fall.	Yoga is beneficial to improve balance and reduce fall.
7	Moriello, Proper, cool, Fink, Schock & Mayack, 2015	Case reports	1 participant with C3-C6 spinal cord injury (Above 60 year)	Hatha yoga for one hour sessions, twice per week for twelve weeks	Balance, power; body movements muscle strength of the hip extensors, hip abductors and knee extensors;	After yoga positive effect were observed in Balance, body movements, poses, muscle strength of the hip extensors, hip abductors and knee extensors.

table cont....

8	Shahidi *et. al.*, 2011	Randomized Controlled Trial	70 depressed old women (Above 60 year)	Laughter therapy, Exercise therapy	Depression, measured by Geriatric Depression Scale and Life satisfaction measured by Life Satisfaction Scale	Laughter yoga affects positively same as exercise program on depression and life satisfaction in geriatric females.
9	Hall, Verheyden, Ashburn, 2011	Case report	1 participant with 8 year history of Parkinson's disease (69 year)	One week baseline was followed by an eight-week period of weekly one hour yoga classes and a further five weeks of treatment withdrawal.	Balance measured by Berg balance scale, mobility measured by Timed Up and go and quality of life measured by PDQ-39.	No difference in quality of life but some positive changes are observed in balance and mobility during intervention period these change are not clinically significant.
10	DiBenedetto, M. *et. al.*, 2005	Single group pre-post test exploratory study	23 healthy adults (62-83 years)	Eight week Iyengar Hatha yoga program, 90 minute yoga classes per week, at least twenty minutes of home practice on alternate days.	Peak hip extension, average anterior pelvic tilt, and stride length at comfortable walking speed.	Yoga practice raised hip extension, stride length, and decrease anterior pelvic tilt in healthy elders.
11	Manjunath & Telles, 2005	Randomized clinical trial	69 participants, divided in three groups (above 60 years)	6 month intervention, Yoga (physical postures, relaxation techniques, breathing ways and speech on yoga philosophy), Ayurveda and control group	Self-rated sleep in older adults	Yoga practice enhanced different aspects of sleep in a older adults.

CONCLUSION

This is a narrative review article in which the selective studies related to yoga on geriatric population are observed. Yoga practices positively affect the daily lives of older adults. Yoga may play a prominent role in achieving better results in the quality of sleep, postural balance as well as life satisfaction in older adults. On the basis of above mentioned studies, we can say that the positive effect of yoga is seen in geriatric population. Some studies which are related to our topics and which have been scientifically investigated are shown here, although apart from these many other important studies have been done. The limitations of this review article are: (i) this is not a structured review and (ii) The search was limited to PubMed database only.

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Case Report

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Case Study on Idiopathic Intracranial Hypertension

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Abstract

Idiopathic Intracranial Hypertension IIH is a disorder of elevated cerebrospinal fluid pressure due to the unknown cause. The signs and symptoms are normal mental status with no localizing neurologic findings, increased cerebrospinal fluid pressure (Non obese may have >200 mm H2o, in the obese may have > 250 mm H2o), fatigue, headache, loss of peripheral vision, nausea and vomiting, shoulder and neck pain, temporary blindness, tinnitus. IIH is a potentially blinding condition that results in papilledema from increased intracranial pressure. Interestingly, both IIH and glaucoma produce similar visual field defects. Diagnosis of diabetes also doubles the risk for developing glaucoma. If left untreated, glaucoma can seriously impair the vision, and cause partial or total blindness.

Keyword: Idiopathic; Papilledema; Glaucoma; Intra cranial pressure.

INTRODUCTION

Idiopathic intracranial hypertension IIH means there is building up of CSF around the brain and spinal cord. "Idiopathic" means the cause is not known, "intracranial" means in the skull, and "hypertension" means high pressure. IIH happens when high pressure around the brain causes symptoms like vision changes and headaches.[1] Diabetes mellitus is a chronic disease related to abnormal insulin production, impaired insulin utilization, or both. Diabetes is the leading cause of adult blindness, and end stage kidney failure.[2]

A diagnosis of diabetes also doubles the risk for developing glaucoma. If a person affected with glaucoma, the retina and optic nerve are affected by building pressure around the eye. If left untreated, glaucoma can seriously impair the vision.[3] The term glaucoma refer to a group of ocular conditions characterized by elevated Intra Ocular Pressure (IOP). If left untreated the increased IOP damages the optic nerve and may cause loss of vision in some patients.[4]

CASE REPORT

A 43 year old male admitted in the medical ward with the complaints of uncontrolled diabetes mellitus, loss of vision in left eye, right eye pain, increase durination, thirsty, nausea, vomiting and abdominal discomfort for the past 1 week, and

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decreased concentration for 6 weeks. He is an alcoholic (100 ml per day) and smoker (5-6 cigarettes per day). He is a known case of Diabetes Mellitus (DM), Hypertension (HT) for past 5 years and on regular medication for DM (Tablet Metformin 500 mg BD) not on any treatment for HT. Known case of IIH and Glaucoma for past 3 years and started on Tab. Acetazolamide 250 mg, Bd. Due to the family problem patient stopped taking this tablet for the past one week. So he developed the above symptoms. On admission his BP was 150/100mmhg and laboratory findings showed RBS of 331 mg / dl, FBS of 206 mg/dl. Patient got treated for the hyperglycemia with Inj. Human Actrapid 6U, Subcutaneous, OD.

Disease Condition - Idiopathic Intracranial Hypertension (IIH)

Book Picture	Patient Picture
Causes of IIH[1,5,6]	
• Not known.	• The cause is not known
• Suspect hormones in young, overweight women.	
• Sometimes children and adults with infection, or using antibiotics, steroids or high doses of vitamin A.	
• Common in 20 to 50 years.	• Patient is 43 years old man.
• BMI above 30	• Patient BMI: 24.4kg/m^2
• Chronic intracranial hypertension usually because of blood clot or brain tumour, taking certain medicines.	
Clinical manifestation[5,6]	
• Alert and oriented	• Alert and oriented has decreased concentration for past 5 weeks
• No localizing neurologic findings.	• No localizing neurologic findings.
• Flattened globes and fully unfolded optic nerve sheaths.	–
• Headache	–
• Tinnitus	–
• Photophobia	–
• Eye pain	• Eye pain
• Vision loss - men with IIH were two times as likely as women to have visual loss.	• Visual loss patient is male
• Diplopia	
• Papilledema	–
• Visual field loss occurs in almost all cases	• Nausea and vomiting for past 1 week
• Nausea and Vomiting	–
• Fatigue	–
Diagnostic studies[5-7]	
• A physical exam	–
• CT or MRI scan	–
• Lumbar puncture and CSF analysis	–
• Visual acuity using snellen chart	–
• Vision field	• Not able to read from snellen chart
• Fundoscopic examination	• Fundoscopic examination showed lack of blood supply to right eye, and completely absence of blood supply to the left eye.

table cont.....

Management[5,6,8]	
• Weight loss	• Patient has normal BMI 24.22kg/m^2
• Steroids-occasionally used but their mechanism of action is not clear.	
• Acetazolamide: 0.5 to 1 gram a day and increased gradually to maximum 3-4 grams per day. It reduces CSF formation	• Tab. Acetazolamide 250mg, bd
• Furosemide	–
Surgical Management[5]	
• Subtemporal or suboccipital decompression	–
• Optic nerve sheath fenestration	• Patient did not undergo any surgical management
• CSF Shunting Procedures	–
• Gastric exclusion surgery	–
• Venous sinus stenting	–

CONCLUSION

Idiopathic intracranial hypertension, Diabetes mellitus, and glaucoma causes severe optic nerve dysfunction. Regular follow-up can control glaucoma and IIH symptoms. The cause of IIH remains unkown, but loss of vision is common and patients may progress to blindness if left untreated. IIH patient management includes medical and surgical management. Proper treatment may prevent or reverse vision loss. But there is no standard therapy available for IIH.

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