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Study on the Prevalence of type 2 diabetes Mellitus among women population of Bangalore, India

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Abstract - Today, type 2 diabetes mellitus is the most common form of the disease in India, and the prevalence is rising at an alarming rate (T2DM). The fast urbanization of the suburbs is to blame for the increased incidence of diabetes mellitus. Increasing urbanization, ageing populations, dietary shifts, decreased physical activity, and other bad habits are all leading to an increase in diabetes mellitus cases. The most effective therapy for decreasing complications and early mortality in women with T2DM is to develop and maintain good lifestyle practices. Bengaluru's female population is still lacking data on the prevalence of T2DM and its related variables. In light of this, researchers in Bengaluru, Karnataka, set out to find out how common diabetes mellitus is among women and whether or not it's linked to any of a number of risk factors. Among women under the age of 40, diabetes was found to be widespread, and it was shown to be prevalent among all three types of workers. BMI more than 25 and WHR greater than 0.85 were reported in the majority of diabetics, both of which raise the possibility of diabetes developing. Most of them had a good genetic profile and did not engage in physical activity or adhere to any food regimen. There was a strong link discovered between being older, having a lower level of education, being obese, having a larger waist circumference, and having diabetes. Women having a history of diabetes and other risk factors were shown to have a higher chance of getting the disease.

Keywords - Type 2 Diabetes Mellitus, BMI, WHR, Risk factors, prevalence

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INTRODUCTION

Throughout the 21st century, diabetes is becoming a serious public health issue. Diabetic disease has gone from being a minor health problem for the elderly to a severe health problem for young and middle-aged persons during the last 30 years. By 2025, the 84 million people now living with diabetes in SEAR are estimated to make up 20% of the global burden. Diabetes is expected to rise at the fastest rate in India, according to the WHO. According to the International Diabetes Federation, an estimated 40.9 million Indians have diabetes, and that number is anticipated to rise to 69.9 million by the year 2025 (IDF). In the National Urban Diabetes Survey, diabetes and prediabetes prevalence was 12.1% and 14.2%, respectively. At an annual cost of US\$850 per patient, the Bangalore Urban Diabetes Study found that patients seeking hospital treatment for diabetes incurred direct and indirect expenditures of US\$850. Medical expenses in the U.S. are expensive compared to those in other nations, particularly when

taking purchasing power parity into consideration. Diabetes and pre-diabetes were found to be prevalent in the city of Bangalore, India, and risk factors linked with both illnesses were examined in this research. Because of India's rapidly changing demographic and socioeconomic makeup, the nation has become a global hub for diabetic mellitus (DM) (Unnikrishnan et al., 2016). Type 2 diabetes mellitus (T2DM) affects 69.1 million Indians, the second-highest number in the world after China (Tripathy, 2017). Deficiencies in insulin uptake and insulin receptor mutations are the primary causes of diabetes. The insulin receptor mutation also has an impact on glucose metabolism. Three types of diabetes mellitus have been defined by the American Diabetic Association: Type 1, Type 2, and gestational. Type 2 diabetes affects around 90 to 95 percent of adults with diabetes, this is brought about by the pancreatic beta cell degeneration (Maahs et al., 2015). Eighty percent to ninety percent of those with bipolar I disorder are youngsters or teenagers



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(Mohan, 2004). Type I diabetes is caused by the T-cell-mediated death of pancreatic beta cells by the immune system. Type II diabetes occurs, target cells become resistant to insulin absorption. Type II diabetes affects people in their 20s until their 80s. Diabetes mellitus is becoming more prevalent among India's middle- and lower-class working people (DM), according to a study published in 2016. According to Metzger et al., diabetes is becoming more common among Indian women(2008). T2DM may be triggered by a number of reasons, including obesity, urbanization-related lifestyle changes, a large number of genetically related people, and insulin resistance (Mehta et al., 2009). The increased consumption of animal fats, complex carbs, and low fiber in Western diets has resulted in an impaired glucose tolerance in the Indian population, increasing their risk of diabetes (Mitra et al., 2019). According to Rimm et al. (1993), Chopra et al. (2013), and Agrawal et al. (2016), women with T2DM are more likely to smoke, gain weight, or be obese (2015).

LITERATURE REVIEW

Agrawal, S. (2015). Recent studies have indicated that dietary habits, particularly the frequency and kind of meals consumed, may help avoid the onset of diabetes. Indian adults are more likely to develop type 2 diabetes if they eat a specific kind of cuisine on a regular basis. This study's methodology was based on data from India's third National Family Health Survey, which was conducted in 2005-06 and comprised 99,574 women and 61,361 men aged 20 to 49. Estimating the link between food intake frequency (such as daily, weekly, occasionally or never) and diabetes prevalence was done using stratified multivariable logistic regression models adjusted for body mass index, tobacco smoking, alcohol consumption, television viewing habits and socioeconomic and demographic characteristics. In comparison to men who didn't consume milk/curd, pulses/beans, and fruits, those who consumed these foods had a decreased chance of acquiring diabetes; pulses, or fruits. This research confirms results from high-income nations that frequent eating of vegetarian foods, such as pulses, beans, fruits, and dairy products, may reduce the prevalence of diabetes in adult Indians. Uncontrolled confounding, on the other hand, cannot be ruled out as a reason for the connection since this is an observational discovery. In order to verify the results, further epidemiological research in poor countries is required, including more accurate estimates of dietary consumption and clinical indicators of diabetes.

Al Mansour, M.A. (2020). In Saudi Arabia, diabetes mellitus is a major health concern, affecting people, families, and whole communities and generating a significant financial burden. Researchers in Saudi Arabia studied a semiurban population to discover the prevalence of type 2 diabetes and its associated risk factors. The research was conducted

Majmaah, Saudi Arabia, at five primary health care facilities (PHCCs). The research had 353 participants in all. After receiving ethical clearance, data was gathered using a pre-tested questionnaire. For testing glucose levels and other parameters, blood samples were obtained. The most current version of SPSS was used to examine the data. There was a prevalence of 34.6 percent of the population with type 2 diabetic mellitus. It was more prevalent in the elderly than in younger age groups (44.6 percent versus 15.6 percent). Men and women were shown to have a statistically insignificantly different rate of contracting disease (34.9 percent vs 34.2 percent). Age (44 percent), commercial and profession in a personal capacity (38.5 percent), more than half (56.3%) of the patients were either divorced or widowed or had poor incomes (42.4 percent). High triglyceride (43.4 percent), low HDL (37.3 percent), and high total cholesterol were some of the risk factors for heart disease and stroke among the study participants (23.7 percent). In individuals with and without diabetes, these risk variables differed significantly. Obesity, high TG, low HDL, and high total cholesterol are all risk factors for heart attack or stroke are all connected with the condition, which is more common among the elderly.

Al-Goblan, A.S., (2014) Obesity is significantly connected to diabetes and insulin resistance. Nonesterified fatty acids, glycerol, proinflammatory markers, and other compounds associated to insulin resistance are all higher in obese individuals. Type 2 diabetes occurs when the pancreas' -islet cells, which control blood glucose, are destroyed. Diabetes is more likely to develop when insulin resistance and pancreatic -islet cell loss occur together. Weight gain and increased body mass are the primary causes of both type 1 and type 2 diabetes. Obesity is connected to insulin resistance and pancreatic cell dysfunction in this review of the literature. Obesity-related diabetes must be explored and investigated based on the facts, according to this review.

Anwer, Z., (2011) Diabetic and hypertensive disorders are on the rise. Patients with diabetes need to keep their blood pressure under strict control, according to research. Hypertension treatment in people with concomitant diabetes is not well understood. Both diseases significantly increase the likelihood of early microvascular and macrovascular problems in most individuals. More than seventy percent of persons with type 2 diabetes have high blood pressure, which is difficult to manage properly. In recent years, randomized, controlled studies have revealed new insights on how to improve treatment outcomes. It has now been shown that the previously recommended target blood pressure (130/80 mm Hg) is in fact too high. Multiple antihypertensive medications are often required to meet therapeutic objectives.

Arun, N., (2016) The number of people with diabetes has increased dramatically during the last three decades, with type 2 diabetes accounting for the vast majority of those newly diagnosed. Type 2 diabetes is anticipated to rise by more than 150 percent across South Asia between 2000 and 2035. In many developing nations, an unfavorable intrauterine environment and the accompanying epigenetic modifications might possibly play a role in the fast growth, in addition to aging, urbanization, and related lifestyle changes. There were 382 million individuals with diabetes in 2013, according to the International Diabetes Federation, a figure that was more than the organization had previously predicted. More than 60% of diabetes sufferers reside in Asia, with China and India accounting for over half of the total. Over 138.2 million individuals have diabetes in the Western Pacific, and that figure will climb to 201.8 million by 2035. For most countries in the area, this situation offers enormous social and economic issues and has the potential to obstruct national and even global progress. To confront the expanding global public health "tsunami," more effort is needed to understand the causes of the pandemic and give a justification for preventative initiatives. Social, economic, and health care issues will only become worse unless significant efforts are taken to halt the rising inclinations in all countries via national preventive initiatives.

RESEARCH METHODOLOGY

An organized survey was distributed to Bengaluru-based women through email, personal messaging, and other social media channels as a consequence of the ongoing pandemic. Sections of the questionnaire were separated into two. A few information about yourself may be found in Section 1. The report's second section included a variety of topics related to general health. The questionnaire included questions about socioeconomic status, demographics, personal history, past history, blood pressure and sugar level, lifestyle practices (smoking and tobacco chewing, as well as alcoholism and diet), physical activity (duration of work of more than 90 minutes per day, 60–90 minutes per day, 30–59 minutes per day, and sedentary) as well as the presence of disease and age at the time of the study. Height, weight, and hip and waist circumference were all calculated using anthropometrics. The BMI is calculated by dividing one's weight in kilograms (Kg) by one's height in meters squared (m²). The waist-to-hip ratio was computed by taking the average of two separate measurements of waist and hip circumference (WHR). Those with a history of diabetes or those on oral hypoglycemic medicines or insulin were categorized as having DM. Only women above the age of 18 were polled in the study. Hyperglycemia due to other organic diseases or conditions was not included in the analysis of the study participants. These conditions included pregnancy, corticosteroid medication, and other pharmacotherapies that might induce hyperglycemia.

(e.g., chronic calcific pancreatitis). For statistical reasons, the data was analyzed using the Statistical Package for the Social Sciences 21.0. Number and percentage were used to represent categorical variables. SPSS for Windows, version 21, was used to enter and analyze the data. We employed descriptive statistics and chi-square tests to determine the significance of our comparisons of qualitative data. A p value of less than 0.05 was required to be considered statistically significant.

DATA ANALYSIS

Women in Bengaluru, Karnataka, provided 128 complete and useable questionnaire replies for this research. As may be seen in Figure 1, a total of six people (4.7%) has been diagnosed with diabetes.

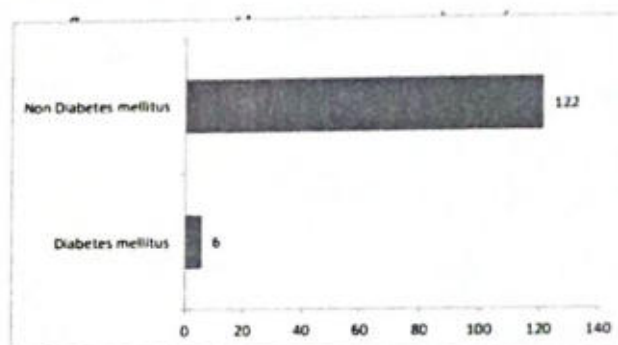


Fig.1. Type 2 Diabetes Mellitus (T2DM) prevalence (DMT2)

Socio-demographic Findings Associated with Type 2 Diabetes

Diabetes has been shown to be linked to a range of socioeconomic characteristics in Table 1. The prevalence of diabetes was shown to rise as the subjects became older. The majority of those who took part in the survey (75.8%) were under the age of 25, while just 4.6% were above the age of 40. Four of the survey participants under the age of 40 had diabetes. Only 8.6% of people had earned a postgraduate degree, compared to a national average of 39.8%. Diabetic incidence was highest among those with just a high school education, despite the fact that the majority of those with diabetes had a doctoral degree or above (18.1 percent). Diabetes was shown to be more common (14.2 percent) among professionals, despite the fact that the vast majority of those surveyed being students (67.2 percent). Nearly one-fifth of married people with diabetes were diagnosed with type 2.

There are a number of factors that increase the risk of developing type 2 diabetes.

The current investigation found that high blood pressure (hypertensive), obesity (overweight), and a history of diabetes in one's family were all linked to the condition. Table 2 shows that those who were slim (10.5 percent) or

overweight (10.3 percent) were more likely to have diabetes than those who were not. In contrast, just one (1.4 percent) of the normal respondents developed diabetes mellitus Type 2 (D2). 65 respondents (50.8 percent) had a family history of diabetes, with one or both parents having the disease, whereas 63 (49.5 percent) did not have a history of the disease. Sedentary or inactive, 59 (46.1 percent) of the participants were, and four of them had diabetes (6.8). Diabetes mellitus was found in 50% of those with hypertension. Two diabetic women (6.6%) had a larger waist circumference (>88cm) than the IDF's conventional cutoff, which was used in this investigation. Five (11.6 percent) of the 128 women who took part in the study had diabetes, they had greater WHRs or were truncal obesity, and this was the case for these ladies. For those with diabetes, smoking or drinking did not increase their likelihood of acquiring diabetes statistically. Diabetic complications were linked to a variety of health conditions, including thyroid dysfunction and irregular menstruation, as well as polycystic ovary disease (PCOD), gestational diabetes, juvenile diabetic state, kidney disease and nephropathy, amongst other things. (Thirty-three percent.)

Table 1: A Study of the Association Between DMT2 and a Range of Sociodemographic Factors

Covariates	Frequency (%)	Diabetic (%)	Non Diabetic (%)	Total	P value
Age					0.0263, S
18-25	75.8	0 (0)	97 (100)	97	
26-30	3.9	1(20)	4(80)	5	
31-40	15.6	3 (15)	17 (85)	20	
41-50	2.3	0 (0)	3 (100)	3	
51-60	2.3	2(66.7)	1(33.3)	3	
above 60	0	0 (0)	0 (0)	0	
Education					0.0213, S
School education	39.8	2(18.1)	9 (81.9)	11	
Graduate	35.9	0(0)	20(100)	20	
Post graduate	8.6	1(1.9)	50(98.1)	51	
Doctorate	15.6	3(6.5)	43(93.5)	46	
Occupation					0.0301, S
Business	5.5	1(14.2)	6(85.8)	7	
Service	18	1(4.3)	22(95.7)	23	
Labourer/ Household worker	0	0(0)	0(0)	0	
Housewife	7	0(0)	5(100)	5	
Student	67.2	4(4.4)	86(95.6)	90	
Unemployed	2.3	0(0)	3(100)	3	
Retired	0	0(0)	0(0)	0	
Marital status					0.0223, S
Married	23.4	6(20)	24(80)	30	
Unmarried	75.8	0(0)	97(100)	97	
Separated/ Widowed	0.8	0(0)	1(100)	1	
Place of residence (in Bengaluru)					0.0157, S
Urban	83.6	5(4.7)	102(95.3)	107	
Rural	16.4	1(4.8)	20(95.2)	21	

Key: S-Significant

Table 2: Factors that increase the chance of developing Type 2 Diabetes Mellitus



Covariates	Frequency (%)	Diabetic	Non diabetic	Total	P value
BMI					0.0213, S
Thin	14.8	2(10.5)	57(89.5)	59	
Normal	5.7	1(1.4)	72(98.6)	73	
Overweight	22.7	3(10.3)	26(89.7)	29	
Obese	5.9	0(0)	7(100)	7	
Hypertension					0.0199, S
Normal: <90/60mmHg-120/80mmHg	83.6	3(2.8)	104(97.1)	107	
Higher: >140/90mmHg	3.1	2(50)	2(50)	4	
Lower: <90/60mmHg	13.3	2(5.9)	25(94.1)	27	

Physical Activity	Frequency (%)	Diabetic	Non diabetic	Total	P value
Physical Activity					0.0238, S
Vigorous	8.6	1(9.1)	10(90.9)	11	
Moderate	28.1	0(0)	36(100)	36	
Mild	17.2	1(4.5)	21(95.5)	22	
Least Physical activity	46.1	4(6.8)	55(93.2)	59	
Smoking					0.157, NS
Yes	0.8	0(0)	2(100)	2	
No	88.4	6(4.8)	120(95.2)	126	
Alcohol					0.257, NS
Yes	7	1(11.1)	8(88.9)	9	
No	93	5(4.2)	114(95.8)	119	
Family History					0.0157, S
Yes	50.8	4(6.2)	61(93.8)	65	
No	49.2	2(3.2)	61(96.8)	63	
Waist Circumference					0.0132, S
Less (< 88cm)	74.2	4(4.1)	94(95.9)	98	
Greater (> 88 cm)	25.8	2(6.6)	28(93.3)	30	

Waist - Hip Ratio	Frequency (%)	Diabetic	Non diabetic	Total	P value
Waist - Hip Ratio					0.0273, S
<0.85	66.4	1(1.2)	81(98.8)	85	
>0.85 (Truncal obesity)	33.6	5(11.6)	38(88.4)	43	
Fasting Blood Sugar					0.0223, S
5.9 mmol/l (70 mg/dl) to 6.0 mmol/l (108mg/dl)	71.7	2(1.2)	85(98.8)	86	
6.1 (110mg/dl) to 6.9 mmol/l (124 mg/dl)	22.6	3(7.7)	36(92.3)	39	
Greater than or equal to 7.0 mmol/l (125mg/dl)	5.7	2(66.7)	1(33.3)	3	
Risk of being Diabetic					0.0265, S
Family history	42.1	4(7.4)	50(92.6)	54	
Diet and life style	15.6	0(0)	20(100)	20	
Lack of physical activity	24.2	1(2.2)	30(96.8)	31	
Stress factors	15.6	0(0)	20(100)	20	
Associated risk factors	2.3	1(33.3)	2(66.7)	3	
Age of Diagnosis					0.0285, S
<18 years	0	0(0)	0(0)	0	
18-25	75.7	0(0)	97(100)	97	
26-30	3.9	1(20)	4(80)	5	
31-40	14.8	3(15.8)	16(84.2)	19	
41-50	2.3	0(0)	3(100)	3	
>50	2.3	2(66.7)	1(33.3)	3	

Key: S-Significant, NS-NotSignificant

This demographic has a high prevalence of type 2 diabetes, with a prevalence rate of 4.7%. For those under 40, the frequency was 35%, while for those over 50, it was 66.7 percent. People above the age of 65 were found to have diabetes mellitus (P 0.05). Patil and Gothankar also came to the same conclusion (2019). Ahmad et al. discovered a nearly threefold rise in diabetes mellitus prevalence beyond the age of 60. (2011).

CONCLUSION

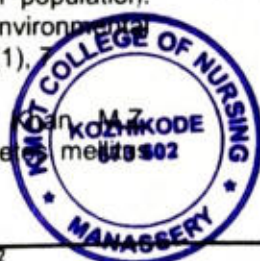
Diabetes and pre-diabetes rates in this region are comparable to those in other sections of the country, according to this research. According to our study, increasing age, female gender, a family history of diabetes, inactivity, and central obesity were the most important risk factors. All three types of workers, heavy, moderate, and sedentary, were found to have diabetes in the majority of women under 40 years of age. BMI >25 and WHR > 0.85 were found in the majority of those with diabetes, indicating that the condition was more likely to occur. The majority of women with diabetes had no

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history of the disease running in their families, and they did not engage in any physical activity or adhere to any dietary restrictions. There was a slew of risk factors associated with type 2 diabetes mellitus in the study subjects. Obesity, a larger waist circumference, and diabetes mellitus have all been linked to diabetes mellitus. There was a substantial link between diabetes mellitus and family history of diabetes, WHR in women, and WHR in males, but no link was found between smoking or drinking and diabetes. In light of the findings, it's clear that DMT2 isn't only a sickness of cities. According to a study published in the journal Diabetes Care, becoming older and having a family history of diabetes mellitus are both unchangeable risk factors for developing the disease. There is an urgent need in India for diabetes mellitus screening programs for high-risk populations and comprehensive health education campaigns for women. Despite the fact that many professional women are on their feet for the most of the day, they nonetheless engage in relatively little physical exercise. Many variables, including lack of understanding of dietary limitations and lifestyle changes and stress in managing both a professional and family life among working women, might contribute to the development of type 2 diabetes. Individuals who have a positive family history of diabetes are advised to implement stress management in the job, engage in regular physical activity, and get regular health checkups. Further thorough and prospective longitudinal studies are required to further understand the underlying reasons of this change in the female population and to study risk variables and their relationship or causal effects on the prevalence of DMT2. The study might be widened by doing physical surveys and investigations of low-income neighborhoods.

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Effectiveness of Coping Strategies Intervention on Caregivers' Burden among Caregivers of Dependent Elderly

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Abstract

The study was aimed at evaluating effectiveness of coping strategies intervention on caregivers' burden among caregivers of dependent elderly in selected hospital, Kozhikode. The objectives of the study was to assess the caregivers' burden among the caregivers of dependent elderly before administering the coping strategies intervention, to evaluate the effectiveness of coping strategies intervention on caregivers' burden among caregivers of dependent elderly, to find out the association between caregivers' burden and selected demographic variable. The research approach used for the study is quantitative approach, the research design used for the study is one group pre-test post-test design, and sampling technique used for the study is convenience sampling technique. 30 caregivers of dependent elderly were taken as the subjects. The study was conducted in selected general wards in MIMS hospital, Kozhikode. Demographic data and caregivers' burden scale were the tools used for conducting the research. Data analysis was done by descriptive and inferential statistics. The present study showed that 60% of subjects had mild to moderate burden and about 40% had little or no burden before administering coping strategies intervention. In posttest all the subjects had only little or no burden. The mean caregivers' burden in the intervention group decreased. Calculated paired t value (13.03) was greater than the table value (2.05) at df 29. Finally study showed that coping strategies interventions are effective in reducing the care givers' burden. And also there is a significant association between religion and caregivers' burden.

Keywords: Coping strategies intervention, Caregivers' burden, Dependent elderly.

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INTRODUCTION

Aging is a biological reality and ageism is the disliking of aging and older people based on the belief that aging makes people unattractive, unintelligent and unproductive. It is an emotional prejudice or discrimination against people based on age. Ageism allows the young to separate themselves physically, emotionally from the old [1].

Caregivers' burden is the stress which is perceived by caregivers due to the homecare situation. Coping strategies intervention are those intervention which can be used by caregivers in order to reduce the caregivers' burden. These include supportive education program on physical, psychological and social aspect of caring elderly, stress reduction strategies like physical exercise, breathing exercise and mental imagery, and emotional support by providing awareness on support group, counselling centers, government services etc.

An interventional study was conducted on effectiveness of problem focused coping strategies on the burden of caregivers of hemodialysis patients. 76 sample were taken. The intervention group received four training sessions on problem-focused coping strategies, but the control group did not receive any intervention. Both groups answered the caregiver's burnout inventory at the start and six weeks after the last educational session. The mean caregivers' burden in the intervention group decreased, and the two groups were significantly different at the end of the study. Finally study showed the effectiveness of problem-focused coping strategies on reducing the burden on caregivers of hemodialysis patients [2].

The purpose of the present study is to evaluate the effectiveness of coping strategies intervention on caregivers' burden among caregivers of dependent elderly by using caregivers' burden scale and also to find out the association between caregivers' burden and selected demographic variable.

OBJECTIVES

The study is aimed to:

- Assess the caregivers' burden among the caregivers of dependent elderly before administering the coping strategies intervention.
- Evaluate the effectiveness of coping strategies intervention on caregivers' burden among caregivers of dependent elderly.
- Find out the association between caregivers' burden and selected demographic variable.

MATERIALS AND METHOD

Research Design: One group pre-test post-test experimental design was adopted for the study.

Settings of the Study: The study was undertaken in selected general wards of Aster MIMS hospital, Kozhikode. It is a multi-specialty hospital for training undergraduate and postgraduate nursing and as well as the allied health professional students. It is a well-equipped hospital with 650 beds.

Population: The selected population of this study was caregivers of dependent elderly.

Sample: The sample selected for this study were 30 caregivers of dependent elderly in selected general wards of Aster MIMS hospital, Kozhikode.

Sampling Technique: Convenience sampling technique was used for the selection of 30 caregivers of dependent elderly.

Sampling Criteria

Inclusion Criteria

- Caregivers of patients who are bedridden for a period >3 years and admitted in general wards of Aster MIMS
- Caregivers who are taking care of patients for a period >6 months.
- Caregivers who are having blood relation with the patient.

Exclusion Criteria

- The caregivers who had attended similar program earlier.
- Caregivers who belongs to any health profession
- Caregivers of patients who are admitted in critical care area.

Data Collection Instruments

Tool-1: Socio-demographic profile of the subjects.

There were 11 items; age, gender, religion, and marital status, area of residence, type of residence, number of children, education and socio-economic

status of caregivers, how long caregivers care the elderly and name of disease affected.

Tool-2: Caregivers' burden scale.

Modified caregivers' burden inventory was used. Area of burden measures in the questions are financial burden, personal burden and social burden. All the items had 5 alternatives like never, rarely, sometimes, frequently and nearly always. Never carries mark 0, rarely carries mark 1, sometimes carries mark 2, frequently carries mark 3 and nearly always carries mark 4. Total maximum score was 88. Out of total score subjects with score ranging from 0-20 are considered to have little or no burden, score between 21-40 are considered to have mild to moderate burden, score between 41-60 are considered to have moderate to severe burden and score between 61-88 are considered to have severe burden.

Data Collection Process

After the permission and approval of the IEC, permission was obtained from the chief nursing officer of Aster MIMS hospital, Kozhikode. The main study was conducted in Aster MIMS hospital, Kozhikode for a period of 2 weeks. Purpose of the study was explained and information got was kept confidential. An informed consent was taken from the caregivers who participated in the study and subjects were selected conveniently and the willingness of the participants were considered. The data collection process started with the administration of the socio-demographic profile. Caregivers' burden scale was administered to assess the level of burden among caregivers of dependent elderly and coping strategies intervention was given for all participants on first day of admission. After one week, post-test was conducted. The data collected were subjected to statistical analysis.

Statistical Analysis

The data analysis include descriptive and inferential statistics. The sample characteristics were analyzed by using frequency and percentage. The level of caregivers' burden among caregivers of dependent elderly were assessed by using mean, standard deviation, frequency and percentage. The effect of coping strategies intervention were assessed by using paired t test. The association of level of caregivers' burden and selected demographic variables were analyzed by chi square test.

RESULTS

Section: 1 sample characteristics

This section deals with the frequency and percentage distribution of sample based on the demographic variables.

The findings show that about 33.2% of subjects were in the age group 30-40 years and 73% of subjects were females. About 67% of subjects were Hindu and majority of subjects (93.4%) were married.



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About 67% of the subjects have their domicile in the rural area and 44% of the subjects were sons/ daughters. The findings shows that 50% of the subjects have 2 children and about 50% of the subjects were educated up to upper primary class. About 60% of the subjects having a low income in between 1000-5000 and about 60% of the subjects care the patients for more than 3 years. The findings shows that about 43.3% of patients were belongs to renal diseases.

Section 2: Analysis of level of caregivers' burden among caregivers of dependent elderly

This section deals with analysis and interpretation of pre-test and posttest level of caregivers' burden among caregivers of dependent elderly. It include mean caregivers' burden score, standard deviation and percentage distribution of level of caregivers' burden. The caregivers' burden scores were arbitrarily classified in to little or no burden, mild to moderate burden, moderate to severe burden and severe burden.

Table-1: Pre-test and post test score of caregivers' burden among caregivers of dependent elderly, (N=30)

Category of burden	Range of score	Pre-test		Post test	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Little or no burden	0-20	12	40	30	100
Mild to moderate burden	21-40	18	60	-	-
Moderate to severe burden	41-60	-	-	-	-
Severe burden	61-88	-	-	-	-

(Maximum score-88)

Above table shows that in pre-test most of subjects (60%) had mild to moderate burden and about

40% had little or no burden. In posttest all the subjects had only little or no burden.

Table-2: Mean pre-test and post test score of caregivers' burden among caregivers of dependent elderly

	Mean	SD	Mean difference	Table t value	df	Calculated t value
Pre-test	29.3	46.5	15.9	2.05	29	13.03
Posttest	13.4	29				

Above table shows that the calculated paired t value (13.03) was greater than the table value (2.05) at df 29. Hence the null hypothesis stating that there is no significant difference in the level of caregivers' burden among caregivers of dependent elderly before and after coping strategies intervention is rejected and the research hypothesis was accepted. Thus it can be interpreted that there is significant difference in the level of caregivers' burden among caregivers of dependent elderly after coping strategies intervention.

$p < 0.05$ level of significance. Among the selected demographic variables religion had significant association with caregivers' burden among caregivers of dependent elderly.

CONCLUSION

Caregivers' burden is the stress which is perceived by caregivers due to the homecare situation. Coping strategies intervention are those intervention which can be used by caregivers in order to reduce the caregivers' burden. There is significant association between coping strategies intervention and caregivers' burden among caregivers of dependent elderly.

Section: 4 Association between the level of caregivers' burden among caregivers of dependent elderly and selected demographic variable.

Religion had significant association with the caregivers' burden at $p < 0.05$ level of significance.

ACKNOWLEDGEMENT

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DISCUSSION

The present study on effectiveness of coping strategies intervention on caregivers' burden among caregivers of dependent elderly shows that 60% of subjects were having mild to moderate burden and about 40% of subjects were having no or little burden in pre-test. The post test score of caregivers' burden is significantly less than pre-test score of caregivers' burden. And we conclude that there is significant reduction in the level of caregivers' burden after coping strategies intervention with a mean difference

Conflict of Interest: The authors declare no conflict of interest.

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Protocols Play a Crucial Role in Bio Psychosocial Assessment of Patients by Staff Nurses- A Methodological Explanation

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Abstract

Use of protocols in various nursing care activities do enhance the performance of nurses. This study was conducted with the aim of evaluating the effectiveness of the protocol on bio-psychosocial assessment of patients among the staff nurses in the general wards of a selected hospital. An evaluative approach was used to measure the effectiveness of the protocol on bio-psychosocial assessment of patients among the psychiatric nurses. The study was held among 60 staff nurses chosen by non-probability purposive sampling, who were working in the General ward of Father Muller Medical College hospital, Mangalore, India, on 60 admissions to the same general wards of the same hospital. The results revealed that post-interventional practice has increased from Day1 to Day5. The data demonstrated that there was a significant change in practice day by day. Participants have shown a great improvement in the bio-psychosocial assessment of the patients and 80% of the nurses accepted the procedure.

Keywords: Biopsychosocial assessment, staff nurses, practice, protocol.

Introduction

Developing research based protocols helps in improving quality nursing care. A research based nursing care standard may be written as a protocol that describes and defines how research findings are to be implemented in a specific clinical situation.¹ Protocols have evolved into comprehensive tools to direct the episodic care and management of patient problems and phases of hospitalization.²

The first step in caring for a patient and in soliciting active co-operation is to carefully gather a complete

history of the illness.³ A thorough clinical assessment consists of objective and subjective data related to the patient's present and past physical and mental health status. Performing assessment in a systematic manner helps to eliminate errors and oversights in data collection.⁴

Relationship of physical health with mental and social dimensions of health as evidenced by the study conducted by Desmond Deidre M, among 130 patients admitted to a community general hospital in Chennai for medical or surgical treatment showed that cognitive decline was diagnosed in 54 subjects (41.5%). On the Global Rating of Memory Decline (GRMD), 71 patients had subjective decline in memory, 62 of them reported that the decline interfered with their daily life. On Global Rating of Intellectual Decline (GRID) scale, subjective decline in intellectual function was found in 91 patients, with 55 reporting that the decline interfered with their lives.⁵

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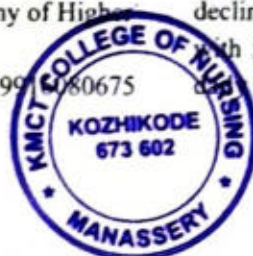
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A study conducted by Irish Research Council to investigate the prevalence of symptoms of depression and anxiety in a sample of predominantly elderly males with acquired limb amputations (n=138) and examined the contribution of coping strategies to the prediction of psychosocial adjustment by using a questionnaire. Results showed that the prevalence of significant depressive symptoms was 28.3%. Prevalence of significant anxiety symptoms was 35.5%. Coping styles emerged as important predictors of psychosocial adaptation. In particular, avoidance was strongly associated with psychological distress and pair adjustment.⁶

Simpson Nancy and Black William conducted a study among 25 brain damaged and 25 routine medical patients to assess memory using the Strub- Black Mental Status Examination and Wechsler Memory Scale. Results indicate that significant differences in almost all scores between the brain damaged and normal groups.⁷

Holmes Bentley, Cameron did a study in Chesterfield Royal Hospital to find out the effectiveness of protocol for consultant nurse role in developing mental health liaison. The Prevalence rates of mental health problems among older people in Chesterfield Royal Hospital have been reported up to the following rates: depression 53%, dementia 35% and delirium 61%. Also it is shown that the rates of detection and treatment of these mental health problems are frequently low. Around 20% referrals to old age psychiatric services come from general hospital wards. The majority of older people referred have multiple medical diagnoses with cardiac, cerebrovascular, neurological, endocrine, gastro intestinal and neoplastic disorders prominent.⁸

A descriptive study was conducted in an Irish intensive care unit to examine the experiences of nurses with a protocol on end tracheal tube suctioning. Focus group interview of 17 nurses in six focus groups provided a significant insight into the experiences of these nurses in relation to policies, protocols and guidelines. Analysis of the data afforded some highly relevant findings, including the fact that nurses adapt clinical protocols as they see fit, thus demonstrating the importance that they place on their own professional judgment and autonomy.⁹

Administering a protocol for staff nurses on bio-psychosocial assessment of patients admitted in general wards will facilitate integration of their physical, psychological, social, economic and spiritual.

Aim

To evaluate the effectiveness of the protocol on bio-psychosocial assessment of patients among the staff nurses in the general wards in a selected hospital in South India.

Objectives

1. To assess the practice of the staff nurses related to bio-psychosocial assessment before administering the protocol on bio-psychosocial assessment as measured by the bio-psychosocial assessment check list.
2. To prepare and validate the protocol related to bio psychosocial assessment.
3. To evaluate the effectiveness of the protocol on bio psychosocial assessment related to the practice of the staff nurses as measured by the bio-psychosocial assessment check list.

Materials and Method

Research approach

The evaluative research approach was used to evaluate a problem, treatment, practice or policy.

Research design

Pre-experimental one group pre test, post test design (O₁ X O₂) was adopted for the study.

- O₁ - Pre interventional practice assessment.
- X - Protocol.
- O₂ - Post interventional practice assessment.

Variables in the study

1 Independent variable

Bio psychosocial assessment protocol.

2. Dependent variable

Practice of bio-psychosocial assessment by the staff nurses.

3. Attribute variable

Age of the staff nurses.

Qualification of the staff nurses.

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Gender of the staff nurses.

Clinical experience of the staff nurses.

Research setting: Research was conducted in ten general wards of 1000 bedded multispecialty Father Muller Medical College Hospital, Mangalore, India.. Averages of 5 admissions were there to these general wards daily during the time of data collection.

Population: Staff nurses of general wards of selected hospital and admissions taking place to those general wards.

Sample: 60 staff nurses from the general wards of selected hospital and the 60 admissions to the same general wards.

Sampling technique: Purposive sampling technique was used to select samples.

Sampling criteria (staff nurses)

Inclusion criteria

1. Staff nurses working in general wards who have minimum 6 months of experience.
2. Staff nurses who have diploma or baccalaureate degree in nursing.

Exclusion criteria

1. Staff nurses working in specialty areas (OT, psychiatric ward, NICU, de-addiction ward, pediatric ward)
2. Staff nurses who are not willing to participate.

Sampling criteria (admission)

Inclusion criteria

1. Admissions taking place to the general wards.
2. Admissions in which patients are not critically ill.

Exclusion criteria

1. Admissions in which patients and nurses are relatives.
2. Re admissions to the same wards during the time of data collection

Data collection tool

The tool used for this study were: (1) Baseline proforma, (2) Bio-psychosocial assessment checklist (3) Opinionnaire regarding the acceptability of the protocol. The opinionnaire was pre tested by administering to 10 staff nurses. Reliability of opinionnaire was obtained by split half method. Karl Pearson's coefficient of correlation formula was utilized to find out the reliability of the test. The reliability quotient obtained for the tool was $r=0.78$ that indicated the opinionnaire was reliable.

Data collection process

Protocol and the user guidelines was given after the pre interventional practice assessment. Protocol consists of four parts in which admission / orientation, biological assessment, mental assessment and social assessment were included. Protocol was introduced in all ten general wards after the pre interventional practice assessment was done. Post interventional practice assessment was done on the 8th day with the same checklist. Fifty admissions were observed after the administration of protocol in which admissions were observed for 5 consecutive days in 10 general wards done by the 60 staff nurses. Admissions were observed in the morning as well as in the evening. The presence of ward in charge, the number of staff nurses and student nurses present at the time of admission were also considered during the post interventional practice assessment. After the post interventional practice assessment, the opinionnaire was collected from the 60 staff nurses to know the acceptability and applicability of the protocol.

Results

Evaluation of protocol in terms of practice scores

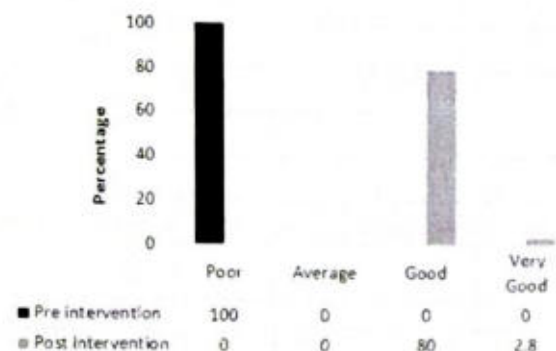
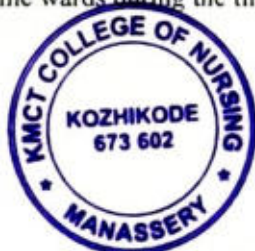


Figure 1: Frequency and Percentage Distribution of Sample According to the Practice Score.



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Pre- interventional practice score of nurses among admissions were 100% which indicates nurse were not practicing bio-psychosocial assessment in efficient. However in post interventional assessment 80% of the admissions nurse has shown an improvement in practice of bio-psychosocial

assessment procedure and 20% of them have shown a very good protocol practice. It indicates that there was considerable gain in practice scores on bio-psychosocial assessment procedure in the post interventional practice assessment than the pre interventional practice score.

Table 1: Mean, Mean percentage score and Standard deviation of pre interventional and post interventional (five consecutive days) practice scores of bio-psychosocial assessment

Mean		Mean % score										Standard deviation					
Pre inter- ventional practice	Post interventional practice					Pre inter- ventional practice	Post interventional practice					Pre inter- ventional practice	Post interventional practice				
	D1	D2	D3	D4	D5		D1	D2	D3	D4	D5		D1	D2	D3	D4	D5
28.5	85.9	113.9	117.7	129.2	139.9	16.2	49.0	65.0	67.2	73.8	79.9	3.43	20.5	5.78	7.02	6.17	10.95

The mean practice score and mean percentage practice score were higher in post interventional practice assessment than that of pre interventional assessment. Mean of the pre –interventional practice was 28.5 whereas post –interventional practice has

increased from Day 1(85.9) to Day 5(139). In pre - interventional assessment, the mean percentage of pre-interventional practice score was 16.2% which was escalated from the Day 1(49.0) to Day5 (79.9).

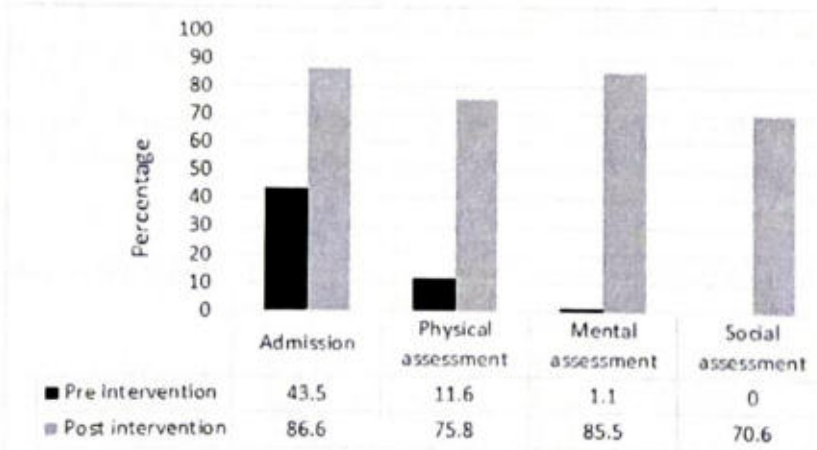


Figure 2: Bar diagram showing area wise distribution of mean percentage score of pre interventional practice and post interventional practice

In the area of admission the mean percentage score was increased to 86.6% from 43.5%. Physical assessment area has shown an improvement in mean percentage score from 11.6% to 75.5%. Mean percentage score of

mental assessment has increased from 1.1% to 85.5%. Mean percentage of the last area has shown an evident improvement in social assessment from 0% to 70.6%.



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Table 2: Area wise distribution of Mean \pm SD score of pre- interventional practice and post interventional practice
n=60

Area	Mean \pm SD					
	Pre interventional practice	Post interventional practice				
		D1	D2	D3	D4	D5
Admission/ orientation	20.9 \pm 2.07	29.9 \pm 3.07	38.1 \pm 3.84	39.1 \pm 3.63	41.3 \pm 2.79	41.6 \pm 4.29
Physical assessment	7.2 \pm 1.31	23.7 \pm 11.6	36.7 \pm 3.09	38.6 \pm 4.90	39.8 \pm 3.01	47.0 \pm 3.94
Mental assessment	0.4 \pm 0.51	18.5 \pm 5.83	24.2 \pm 3.58	23.7 \pm 3.33	29.6 \pm 1.71	30.8 \pm 1.31
Social assessment	0.00 \pm 0.00	13.8 \pm 2.25	14.9 \pm 2.23	16.3 \pm 1.15	18.5 \pm 2.67	20.5 \pm 3.53

$$F(5, 45) = 9.02; (p > 0.05)$$

A remarkable change is observed from Mean \pm SD scores of admission area from 20.9 \pm 2.07 in pre -interventional practice to 29.9 \pm 3.07, Physical assessment from 7.2 \pm 1.31 to 23.7 \pm 11.6, Mental assessment from 04 0.51 to 18.5 \pm 5.83 and social

assessment from 0.00 \pm 0.00 to 13.8 2.25. Observed data explained that a significant change was identified among nurse in terms of performing bio-psycho-social assessment of patients by using a protocol.

Table 3: Overall evaluation of the effectiveness of bio-psycho-social assessment protocol

Pre interventional practice	Mean \pm SD					Mean % score					F value	
	Post interventional practice					Pre interventional practice	Post interventional practice					
	D1	D2	D3	D4	D5		D1	D2	D3	D4		D5
28.5 \pm 3.43	85.9 \pm 20.5	113.9 \pm 5.78	117.7 \pm 7.02	129.2 \pm 6.17	139.9 \pm 10.95	16.2	49.0	65.0	67.2	73.8	79.9	*179.66

$$F_{(5,45)} = 9.02; (p > 0.05)$$

* significant

Mean post interventional practice score is significantly higher than that of mean pre interventional score in all the five days.

Mean \pm SD of pre -interventional practice 28.5 \pm 3.43. Mean \pm SD of post interventional

practice has clearly shown a improvement from day 1 to day 5 as indicated by the Mean \pm SD of five days such as Day 1(85.9 \pm 20.5), Day 2 (113.9 \pm 5.78), Day 3(117.7 \pm 7.02), Day 4(129.2 \pm 6.17) and Day 5(139.9 \pm 10.95).



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Hence the research hypothesis is accepted and null hypothesis is rejected as evidenced by the statistical value $F_{(5, 45)} = 9.02; (p > 0.05)$.

Discussion

Section I: Evaluation of protocol in terms of practice scores

The findings of the present study depicted that poor pre test scores among 100% admissions. However in post test interventional practice most (80%) of the nurses have improved the practice of the bio-psychosocial assessment procedure in the area of admission and 20% of the subjects have shown a very good practice. It indicates a considerable gain in practice scores on the bio-psychosocial assessment procedure in the post test.

The findings of the study is supported by another study conducted among 50 staff nurses in a selected hospital at Mangalore in 2006 to assess the effectiveness of the protocol on the discharge programme of the mentally ill patients. Poor pretest practice was found in all the (100%) of the discharges and in post test very good practice was noticed in almost all the (80%) of the discharges¹¹

We found that the mean percentage score of the all the four areas of bio-psychosocial assessment in the post interventional practice assessment demonstrated a remarkable rise than the pre-interventional practice score as evidenced by admission area the mean percentage score was increased to 86.6% from 43.5%. Physical assessment area has shown an improvement in mean percentage score from 11.6% to 75.5%.

Section II: Evaluation of effectiveness of bio-psychosocial assessment protocol

Study also revealed that the mean of post interventional practice score on 5th day (139.9) was higher than the mean of pre- interventional practice score (16.2). The computed 'F' value for all the areas (admission / orientation = 88.519), (biological assessment = 75.68), (mental assessment = 146.47) and (social assessment = 136.93) was higher than the tabled value $F(5, 45) = 9.02; (p > 0.05)$. This indicated the significant effectiveness of the bio-psychosocial assessment protocol in improving the practice of the staff nurse, which is consistent with the findings of another study conducted in Bangalore in 2016 to assess the effectiveness of the

protocol on the management of women in the 2nd and 3rd stage of labour. The findings revealed that the improvement Mean score of all level of knowledge of staff nurses between pre-test and post-test was 13.75% with 't' test value was 12.88, which was highly significant at $p < 0.05$. Hence, it is inferred that there is significant increase in the knowledge level of the staff nurses regarding maternal and neonatal outcome of induction of labour after used of Self Instructional Module.¹²

Section III: Acceptability of the protocol

We could find that there was a full acceptance of the protocol by a majority of the staff nurses. The staff nurses expressed that protocol is not effective in terms of time available and the present staff strength, which was well established by a study conducted in Mangalore which demonstrated that computed 't' value in all the areas are significantly higher than the tabled value $t_{(58)} = 2.000, p < 0.05$ which showed that the protocol was effective in improving the practice of staff nurses during the discharge of the mentally ill.

Conclusion

Guidelines of practice with rationale were given through the protocol which included step wise procedure during the admission of patients to the general wards helped the staff nurses to gain scientific knowledge and practice in the bio-psychosocial assessment procedure as evidenced by the introduction of the protocol among the staff nurses helped them to learn more about the bio-psychosocial assessment procedure which was evident, in post interventional practice assessment.

Ethical Clearance : Ethical clearance was taken from the Institutional Ethics Committee, Father Muller Medical College Hospital, Mangalore, India.

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Conflict of Interest: None declared.

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RESEARCH ARTICLE

A Study to Assess the Effectiveness of Inhalation Aromatherapy on Quality of Sleep and Fatigue among Elderly Residing in selected Old Age Homes of Kannur District.

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ABSTRACT:

The present study was undertaken to assess the effectiveness of Inhalation Aromatherapy on quality of sleep and fatigue among elderly. The objectives of the study were to assess the level of quality of sleep and fatigue, evaluate the effectiveness of Inhalation Aromatherapy, correlate quality of sleep and fatigue, and find the association between quality of sleep and fatigue with demographic variables. Pre-experimental one group pre-test post-test design was used for this study. Purposive sampling technique was used and 40 elderly people were taken from the Kripa Charitable Trust, Kannur. In pretest, Modified Pittsburgh Sleep Quality Index and Fatigue Severity Scale were used for assessing the quality of sleep and fatigue. Investigator administered Inhalation Aromatherapy by applying one drop of lavender angustifolia essential oil on a piece of cotton and placed under the pillow at the night before sleep for a period of 5 days. Posttest was done on 6th day. Descriptive and inferential statistics were used to analyze the findings of the study. The result revealed that the Mean Pretest MPSQI score (10.38) and the Mean Pretest FSS score (43.3) were significantly higher than the Mean Posttest MPSQI score (7.95) and the Mean Posttest FSS score (40.8). The computed 't' value for MPSQI was 4.38 and FSS score was 2.99 ($t_{39}=1.685$ at 0.05 level of significance). It indicated that there was a significant increase in the quality of sleep and decrease in level of fatigue after Inhalation Aromatherapy. There was a significant high positive correlation found between pretest quality of sleep and level of fatigue ($r=0.849$), and no association between quality of sleep and level of fatigue with demographic variables. The findings of the study interpreted that the practice of Inhalation Aromatherapy is effective in improving the sleep quality and reducing fatigue among elderly residing in old age home.

KEYWORDS: Effectiveness; Inhalation Aromatherapy; Quality of sleep; Fatigue; Elderly.

INTRODUCTION:

"Old age is not a disease, it is strength and survivorship, triumph over all kinds of vicissitudes and disappointments, trial and illness." Maggie Kuhn

Health is wealth. To keep body in good health is a duty otherwise we shall not be able to keep our mind strong and clear. So, health is something that should be taken into serious consideration and also it become one of most concerned issues of any human being¹. According to data from world population prospectus 2017 revision, the number of older persons those aged 60 years or over is expected to be more than double by 2050 and more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100².

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People in the old age home experience diverse health problems including physical and emotional problems such as anger, anxiety, helplessness and depression. For these reasons, elderly people in the old age home show physical and emotional symptoms and the symptoms are usually related to severe fatigue and a low quality of sleep³. Fatigue is defined as a subjective state in which one feels tired or exhausted and is related to depressive symptoms, paralyzed status, restlessness and poor sleep quality⁴. Sleeping is a necessary factor for normal activity and is related to well-being and the quality of life, an appropriate level of sleeping improves tissue restoration, functions of immune system, emotional functions and the quality of life. However, sleeping disturbances are general symptoms occurring in elderly people and they produce negative effects including physical and emotional problems. Sleeping disorder is a risk factor for fatigue, anxiety and depression⁵.

Because fatigue and sleeping disturbances are serious problems for elderly people, many non-pharmacological interventions are used to improve the problems, including music intervention, aromatherapy, horticulture therapy and image therapy. Of these interventions, Aroma therapy is an appropriate non-pharmacological intervention for elderly people because it is safe and easy to provide. Aromatherapy is defined as the "use of essential oils for therapeutic purposes that encompass mind, body, and spirit." and it is the therapeutic use of essential oils derived from plants and these oils can be absorbed into the body via the skin or the olfactory system. Each essential oil acts as olfactory stimulants via the olfactory bulb to the limbic system of the brain which includes the amygdala and the hippocampus. The amygdala governs emotional responses and the hippocampus involves in the retrieval of explicit memories⁶.

NEED FOR THE STUDY:

The previous studies have reported the positive effects of aromatherapy in alleviating physical problems such as pain, and emotional problems such as depression and anxiety. But these studies were limited to other health problems more than fatigue and sleeping. Because fatigue and sleeping problems are significantly related with well-being and the quality of life in elderly people, it is very important to decrease clients fatigue levels and improve their sleep quality. Therefore, there is a need to test the repeated use of an aromatherapy with inhalation and to test the long- term effects on fatigue and sleeping.

Better quality of life in elderly people can be achieved by increasing quality of sleep and reducing fatigue. In order to improve their quality of life and health status, the assessment of sleep characteristics and fatigue level by health care providers, especially nurses, is an important caring activity. Nurses play an important role

in recognizing the negative effect of sleep disturbances and fatigue on wellbeing and quality of life of elderly and to conduct research activities to solve such the problems. Since sleep disorders and fatigue are important factors influencing the well- being of elderly, Nurses can use aromatherapy as an independent nursing intervention, as it is safe, easily applicable and cost effective.

A study was conducted on fatigue and physical activity level of 65 and over older peoples living in rest home by Ferhan Soyver and Vesile senol and the result showed that fatigue is a symptom often found among older people, and higher fatigue was associated with lower physical activity level in older people⁷.

Nursing is the central to the delivery of high- quality care for old people. Geriatric nurses should play a major role in improving the quality of life of old age home residents. There are few number of nursing studies in our country regarding sleep quality, prevalence of fatigue among elderly and use of aromatherapy as a complementary therapy to treat sleep problems and fatigue among elderly. So the researcher has chosen this topic to identify the effect of Inhalation Aromatherapy on quality of sleep and fatigue among elderly.

STATEMENT OF THE PROBLEM:

A study to assess the effectiveness of Inhalation Aromatherapy on quality of sleep and fatigue among elderly residing in selected old age homes of Kannur district.

OBJECTIVES:

1. Assess the level of quality of sleep among elderly residing in selected old age homes of Kannur district.
2. Assess the level of fatigue among elderly residing in selected old age homes of Kannur district.
3. Evaluate the effectiveness of Inhalation Aromatherapy on quality of sleep among elderly residing in selected old age homes of Kannur district.
4. Determine the effectiveness of Inhalation Aromatherapy on fatigue among elderly residing in selected old age homes of Kannur district.
5. Correlate quality of sleep and fatigue among elderly residing in selected old age homes of Kannur district.
6. Find out the association between pre-test level of quality of sleep among elderly residing in old age homes of Kannur district with selected demographic variables such as age, gender, marital status and duration of stay in the old age home.
7. Find out the association between pre-test level of fatigue among elderly residing in old age homes of Kannur district with selected demographic variables such as age, gender, marital status and duration of stay in the old age home.



OPERATIONAL DEFINITIONS:

Inhalation Aromatherapy:

Refers to method of using dry inhalation of one drop of lavender angustifolia essential oil on a piece of cotton and placed under the pillow at the night before sleep for the whole night for a period of five days, and its effect on the sleep pattern and fatigue among the elderly inmates of the selected old age home.

Quality of sleep:

Refers to the subjective feeling of quality of sleep experienced by a person in terms of change in the sleeping pattern and is assessed using change in the seven component of Modified Pittsburgh Sleep Quality Index including Subjective sleep quality, Sleep latency, Sleep duration, Habitual sleep efficiency, Sleep disturbances, Use of sleeping medications, and Day time dysfunction over the last one month.

Fatigue:

Refers to discomfort and tiredness experienced by elderly people which is measured by Fatigue Severity Scale.

THE REVIEW OF LITERATURE:

In the present study has been taken up from different sources like text books, journals, articles and published research studies. The literature reviewed for the present study is organized and present in the following headings.

1. Incidence and prevalence of sleep problems and fatigue among elderly.
2. Complementary/ Alternative therapies to treat sleep problems and fatigue.
3. Aromatherapy and its effect on quality of sleep and fatigue.

RESEARCH METHODOLOGY:

Research approach:

A quantitative evaluative approach was adopted

Research design:

A Pre- experimental one group pre-test post-test design was used in the study.

Variables:

Independent variable:

Inhalation Aromatherapy.

Dependent variable:

Quality of sleep and level of fatigue among elderly.

Setting of the study:

The study was conducted in Kripa Charitable Trust (old age home), Thettuvazhi, Peravoor of Kannur district. The old age home consists of 200 elderly people.

Population:

The population is all elderly inmates, residing at Kripa Charitable Trust, Thettuvazhi, Peravoor, Kannur district.

Sample:

40 elderly inmates of Kripa Charitable Trust,

Thettuvazhi, Peravoor, Kannur district who fulfilled the inclusion and exclusion criteria.

Sample size:

40 samples (both male and female)

Sampling technique:

Non-probability -purposive sampling technique was used as they have fulfilled the inclusion criteria.

Description of the tool:

Tool 1: A structured Interview Schedule for the collection of demographic variables.

It includes Age, Gender, Marital status, educational status, Religion, Number of children, Hobbies and Interest, Medical illness, Religious practices/Spiritual activities and Old Age Home profile including Current source of income, Duration of stay, Reason for joining in the old age home, Recreational activities and Accommodation facilities.

Technique: Interviewing

Tool 2: Modified Pittsburgh Sleep Quality Index:

This tool measures 7 areas, Subjective sleep quality, Sleep intensity, Sleep duration, Habitual sleep efficiency, Sleep disturbance, Use of sleeping medications, and Day time dysfunction over the last one month. A total score of 5 or greater is indicative of poor sleep quality.

Scoring interpretation:

Global score range-0 to 21

0-4 – Good sleep quality

5-10– Mild insomnia

11-15– Moderate insomnia

16-21– Severe insomnia

Technique: Interviewing

Tool 3: Fatigue Severity Scale:

This scale contains 9 statements that rate the severity of fatigue symptoms. A total score of less than 36 suggest that the person may not be suffering from fatigue.

Scoring interpretation:

<36– No fatigue

37-45– Mild fatigue

46-54– Moderate fatigue

55-63– Severe fatigue

Technique: Interviewing

Reliability of the tool:

Reliability of the tools was established by using Test-retest method and the reliability of Pittsburgh Sleep Quality Index was 0.8 and reliability of Fatigue Severity Scale was 0.96. Hence both tools were reliable.

Data collection process:

The investigator obtained a formal clearance from institution ethical committee and a written permission from the concerned authority of Kripa Charitable Trust, Thettuvazhi, Peravoor to conduct data collection. Study subjects were selected by purposive sampling technique. Subjects were selected according to the inclusion and



exclusion criteria.

Data collection process for the study group:

The researcher spent three weeks for collecting data from the entire study group. First and second week the researcher collected information from 15 subjects respectively, and third week 10 subjects. Investigator explained the purpose of the study and confidentiality was assured. After taking consent from each subject pre-test demographic data were collected using Structured Interview Schedule, Pre-test quality of sleep was assessed by Modified Pittsburgh Sleep Quality Index and Pre-test level of fatigue was measured by Fatigue Severity Scale. The average time taken for pre- test was 15-20 minutes. From the same day, the investigator administered Inhalation Aromatherapy by applying one drop of lavender angustifolia essential oil on a piece of cotton and placed under the pillow at the night before sleep for the whole night for a period of five days. (duration of intervention for each subject per day is around 6-7 hours). Post-test was conducted on 6th day. Post-test quality of sleep was assessed by Modified Pittsburgh Sleep Quality Index and post-test fatigue was measured by Fatigue Severity Scale. The average time taken for the post-test was 15-20 min for each subjects.

RESULTS AND DISCUSSION:

Following were the findings of the study

- Majority of the subjects (37.5%) were in the age group of 66-70 years. Whereas 30% in the age group of 60-65, 15% in the age group of 71-75, 10% in the group of 76-80, and only 7.5% in the group of 81-85.
- Higher percentage of the subjects in the study (65%) were males and 35% were females.
- Among the subjects 40% were married and 35% were widow/widower. Another 17.5 % were unmarried and remaining 7.5 % were divorced.
- It reveals regarding the educational status that majority of them (47.5%) had completed primary education only. 32% had completed high school education, another 7.5% had completed higher secondary. 2.5% completed graduation and above. And 10 % has no primary education.
- Majority of the subjects belonged to Hindu religion (57.5%). And the remaining 40% belonged to Christian religion and 2.5 percentage belonged to Muslim religion.
- Among the subject's majority of them are having

(37.5%) three and more children. 22.5% are having two children. Another 12.5% are having one child and 27.5% are having no children.

- Majority of them (95%) are having medical illness like hypertension, diabetes mellitus, bronchial asthmas, arthritis and kidney diseases. And 5% are having no medical illness.

Level of quality of sleep among the study subjects:

Frequency and percentage distribution of subjects based on the level of quality of sleep:

It reveals that among 40 elderly people who participated in the study, 20 (50%) of them had mild insomnia, 19 (47.5%) of them had moderate insomnia and 1 (2.5%) had severe insomnia in the pre-test assessment. Where as in the post-test 28 (70%) of them had mild level of insomnia, 9 (22.5%) of them had moderate insomnia, none of them had severe insomnia and 3 (7.5%) had no insomnia

Level of fatigue among study subjects:

Frequency and percentage distribution of subjects based on the level of fatigue:

It reveals that among 40 elderly people who participated in the study 32(80%) of them had mild level of fatigue, 4(10%) of them had moderate level of fatigue, and 4 (10%) of them had severe level of fatigue in the pre-test assessment. Where as in the post- test 24 (60%) of them had mild level of fatigue, 5 (12.5%) of them had moderate level of fatigue. 1 (2.5%) of them had severe level of fatigue and 10 (25%) of them had no fatigue.

The findings are supported by the report of another study conducted to determine the effectiveness of Inhalation Aromatherapy on symptoms of sleep disturbance in the elderly. In 19 subjects, normal sleep was observed for a 20-day control period, Inhalation Aromatherapy was then applied for a 20-day intervention period, and the control and intervention periods were compared. The results indicated positive effects of Inhalation Aromatherapy on symptoms of sleep disturbance in elderly⁸

The current study finding is parallel with the study by Vineeth Joseph, and Jasmine Joseph. Their study from 40 inmates of old age home both males and females report that there was a significant increase in the quality of sleep after aromatherapy⁹

Pre-test and post-test mean and standard deviation of the quality of sleep in the study group

N=40

Sl. No	Variable	Maximum score	Pre-test		Post-test		Mean difference	't' value	df
			Mean	Sd	Mean	Sd			
1	Quality of sleep	21	10.38	2.65	7.95	3.04	2.42	4.382*	39

*0.05 level significant



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Pre-test and post-test mean and standard deviation of level of fatigue in the study group

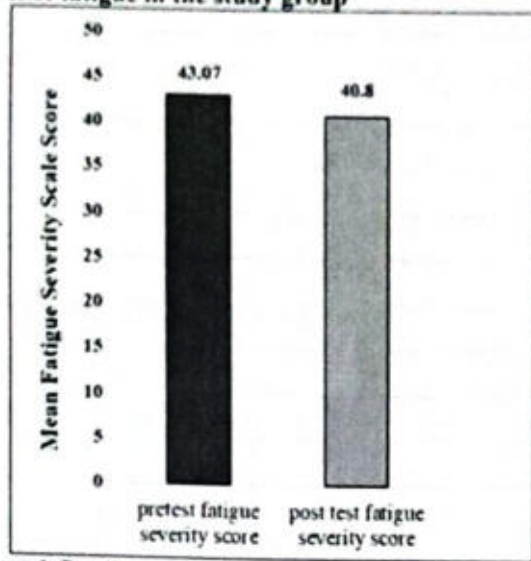


Figure 1: Bar diagram showing comparison of pre-test and post-test fatigue severity score of the subjects in the study group

The finding is supported by the report of another study conducted to determine the effectiveness of Inhalation Aromatherapy among elderly with osteoarthritis. The patients were randomly assigned to 3 equal groups of massage therapy, aromatherapy (Lavender essential oil), and control by blocked randomization. Data were collected using demographic characteristics questionnaire and the Multidimensional Fatigue Inventory (MFI). The result showed that there was a significant reduction in fatigue score in the Aromatherapy group when compared to the control group ($P < 0.001$)¹⁰.

So, Inhalation Aromatherapy is effective in reducing fatigue among elderly residing in the old age home. The researcher satisfied the intervention of Inhalation Aromatherapy among elderly people with fatigue and planned to apply it in nursing practice.

Pre-test mean, standard deviation and type of correlation between quality of sleep and fatigue in the study group

N=40

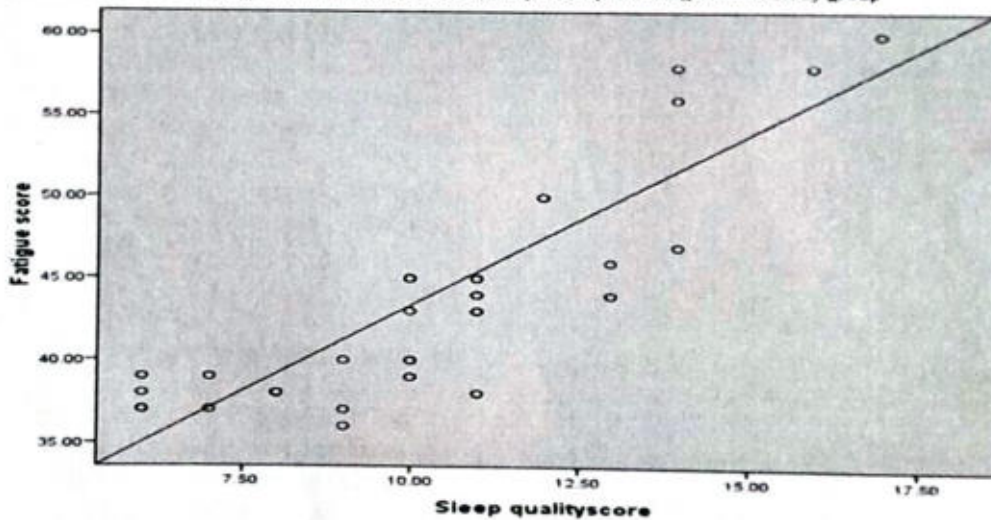


Figure 2 Pre-test mean, standard deviation and type of correlation between quality of sleep and fatigue in the study group

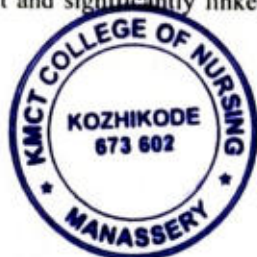
A scientific poster presentation by Cherif, W. Hamdi, I. Zouch on correlation between sleep disturbance, fatigue and psychological features in patients with Rheumatoid Arthritis give support to the present study finding that poor sleep quality is especially associated with fatigue, anxiety and depression¹¹. This study finding is parallel with another study done by G.A Hawker, et al. to find out multidimensionality of sleep quality and its relationship to fatigue in older adults with painful osteoarthritis. Study result showed that poor sleep quality is highly prevalent and significantly linked with fatigue¹²

Association of quality of sleep with demographic variables:

In the study there was no significant association found between the pre-test quality of sleep score with selected demographic variables such as age, gender, marital status, and duration of stay in the old age home.

Association of level of fatigue with demographic variables:

In the study there was no significant association found between the pre-test level of fatigue score with selected demographic variables such as age, gender, marital status, and duration of stay in the old age home.



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CONCLUSION:

The study deals with effect of Inhalation Aromatherapy on quality of sleep and fatigue among elderly. Considering the fact, it can be suggested that regular practice of Inhalation Aromatherapy is effective in improving quality of sleep and reducing fatigue among elderly. So, this intervention can be prescribed to patients with poor sleep quality and fatigue with proper monitoring along with medical therapy because it is cost effective and can be practiced at home setting.

NURSING IMPLICATIONS:

- Geriatric nurses have to realize their responsibility in creating the awareness regarding various complementary therapies to improve sleep quality and reduce fatigue including Inhalation Aromatherapy.
- The nurse educators and student nurses must gain thorough knowledge about various complimentary therapies for poor sleep quality and fatigue through research findings.
- This study finding will help the staff, nursing students and other health personnel to understand the factors that determines the quality of life of elderly.
- The nurse administrator should take active part in arranging Inhalation Aromatherapy classes for staff nurses as well as patients, thereby improving the standard of nursing and research-based nursing practice.
- This study can prove to be a baseline for future studies to build upon and motivate other researchers to conduct further studies.

RECOMMENDATIONS:

- Similar study can be replicated to a larger group of samples.
- Similar study can be conducted in community setup.
- Similar study can be conducted with increasing the duration of the intervention more than five days.
- A similar study can be replicated with a control group as a quasi-experimental design or experimental design.
- A comparative study can be done to find out the effectiveness of Inhalation Aromatherapy and other complimentary or alternative therapy.
- A similar study can be conducted focusing on different age group.

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REVIEW ARTICLE

CLABSI (Central Line-Associated Blood Stream Infection)

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ABSTRACT:

The microorganism uses the person's body to sustain itself, reproduce, and colonize. These infectious microscopic organisms are known as pathogens, and they can multiply quickly. A CLABSI is a serious infection that occurs in the blood stream due to catheter use. Central line-associated blood stream infections (CLABSI) are a major cause of healthcare -associated morbidity and mortality. This type of infection is serious, but often can be successfully treated with antibiotics. CLABSI can be prevented by choosing a vein where the catheter can be safely inserted and where the risk for infection is small, proper hand washing, use of protective equipment like gloves and a sterile gown and careful cleaning of the area around the catheter. Every day, healthcare providers should assess whether the patient needs to have the catheter, and remove it as soon as it is no longer needed.

KEYWORDS: CLABSI, central line, colonization, hand hygiene, health care providers.

INTRODUCTION:

Central Line-Associated Blood Stream Infections (CLABSI) are a major Cause of morbidity and mortality. According to the Centers for Disease Control and Prevention an estimated 80,000 CLABSIs occur in Intensive Care Units(ICUs) alone. A central line is a catheter that is placed into a patient's large vein, usually in the neck, chest, arms or groin. The central line is often used to draw blood, or to give fluids and medications for critically ill patients more easily. The line can be left in place for several weeks or months if needed.

A central line bloodstream infection (CLABSI) occurs when bacteria or other germs enter the patient's central line and then enter into their bloodstream. These infections are serious but can often be successfully treated. Health care workers, patients and families can play an active role in CLABSI prevention.

Most of these infections can be prevented with the correct insertion, cleaning, and care practice of a central line¹.



CLABSI (Central Line-Associated Blood Stream Infection)

Definition:

A Central Line-Associated BloodStream Infection (CLABSI) is defined as a laboratory-confirmed bloodstream infection not related to an infection at another site that develops within 48 hours of central line placement².

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Risk factors for CLABSI:

Patient-related risk factors for developing a CLABSI⁵:

- Immunosuppression;
- Increased age;
- Malnutrition;
- Impaired skin integrity;
- Multiple invasive procedures;
- Antibiotic therapy;
- Presence of gastrostomy tube, nonoperative cardiovascular disease
- ICU placement of central venous catheter.
- Certain comorbidities such as Diabetes and Hypertension
- Parenteral nutrition;
- Position of central line can also increase the risk of infection if it is femoral or internal jugular;
- Lengthy hospitalisation before venous catheterisation.

Other risk factors include:

- Poor patient hygiene;
- Healthcare workers using poor hand hygiene;
- Non-adherence to aseptic technique;
- Type of central line and number of lumens;
- If it was an emergency insertion;
- Non-compliance with central line maintenance, such as not using antiseptics or not completing dressing changes; and
- Prolonged duration of the catheter.

Pathophysiology:

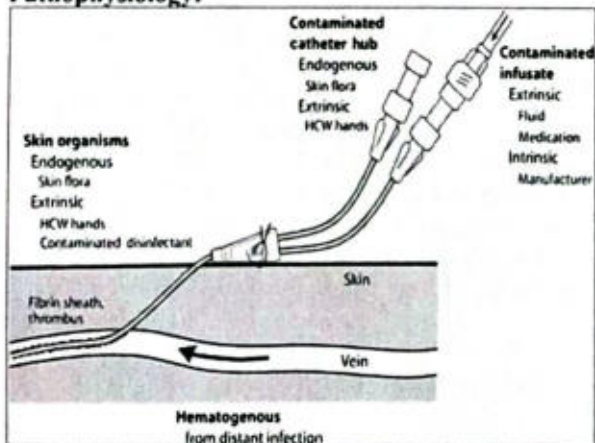


Fig. 1: Pathogenesis:

Colonization of the endovascular tip of the catheter precedes infection and arises by two main pathways:

The extraluminal and the intraluminal routes (Fig. 1).

Extraluminal:

Pathogens migrate along external surface of catheter from skin entry site. Often occurs >7 days of insertion

Intraluminal:

Hub contamination, migration along internal surface of catheter. More commonly occurs >7 days, intraluminal colonization

Migration of skin organisms from the insertion site into the cutaneous catheter tract with colonization of the catheter tip is the most common route of infection for short-term Central Venous Catheters (CVCs). For long-term catheters (i.e., catheters staying in place for more than 15 days). The main cause of colonization is manipulation of the venous line with migration of organisms along the internal lumen of the catheter. The adherence properties of microorganisms to host proteins, such as fibronectin, commonly present on catheter tips make this colonization easier. Coagulase-negative staphylo cocci are the most common microorganisms associated with catheter-related bloodstream infections. Other microorganisms commonly involved include Staphylococcus aureus, Candida species, Enterococci and Gram-negative bacilli⁶.

Grading of infection with site selection:

- **The subclavian site:** Associated with the lowest risk of infection.
- **Internal jugular site:** Associated with medium risk of infection
- **Femoral site:** Associated with the highest infection risk, should be used only as a last option with documentation of reason for use and removed within 48 hours. (Agency for Healthcare Research and Quality, 2013)

Clinical manifestations: (Hallmark signs)⁷

- Pain.
- Redness, swelling, or warmth around the central line site.
- Pus or bad smell around the central line site.
- Chills.
- Fever of 100.4 degrees or above.
- Tachycardia

Diagnosis:

- Patients may report pain, swelling, or discharge from the exit site and redness surrounding the exit site or along the subcutaneous track when exit site or tunnel infections are present. For long-term catheters, difficulty in drawing blood or poor flow are considered risk factors and manifestations of CLABSI
- CRBSI (Catheter Related Blood Stream Infection) diagnosis can be made when culture results identify the same organism in at least the culture obtained as a peripheral stick and from a culture of the catheter tip. If the catheter is left in place, the diagnosis can be made if there are two blood samples being drawn



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(one from the catheter hub and one from a peripheral vein) that meet specific criteria for quantitative blood cultures or differential time to positivity. For Multi-lumen catheters, quantitative cultures may be obtained through multiple lumens; results at least 3 times higher than one of the lumens are suggestive of CRBSI³.

Complications:

Pneumothorax
Tension pneumothorax,
Hematoma,
Cardiac dysrhythmias
thrombophlebitis
Nerve injury
infection

CLABSI care bundles⁴:

1. Central line insertion bundle:

Hand hygiene:

► Wash hands or use an alcohol-based, waterless hand cleaner when caring for central lines: Before and after palpating the catheter insertion site. Before and after inserting, replacing, adjusting or dressing the site. During palpation of the insertion site and after application of antiseptic and only if full asepsis is maintained.

Complete maximal barrier:

► The operator inserting the central venous catheter should adhere to strict aseptic techniques and wear sterile gloves, gown, surgical cap and surgical mask.

Chlorhexidine 2% skin antiseptis:

► Prepare skin with 2% chlorhexidine in 70% alcohol using swabs and a friction scrub for at least 30 seconds s. Do not wipe or blow dry and allow to dry completely before skin puncture: 30 s for a dry site. 2 min for a moist site (especially femoral).

Optimal catheter site selection:

► In adult patients, there is some evidence that the subclavian site has a lower risk of catheter-related blood stream infections. However, there is usually more experience with the internal jugular site. The subclavian and internal jugulars are the preferred sites for infection control purposes.

► Use of sterile, single-use jelly.

► Use sterile, single-use jelly for ultrasound-guided insertions.

2. Central line maintenance bundle:

Hand hygiene:

► Practice hand hygiene at five moments:

Before touching a patient.
Before clean/aseptic procedures.
After body-fluid exposure/risk.
After touching a patient.
After touching patient surroundings

Aseptic technique for accessing and changing needleless connectors:

► Scrub the access port or hub immediately prior to each use with an appropriate antiseptic.

Standardised tubing change:

► Intravenous medication administration tubing should be changed as per the recommendation in the local organisations policy.

Daily review of catheter necessity:

► Daily review of line necessity during rounds so that the necessity of the lines can be determined and unnecessary lines removed.

CONCLUSION:

Eliminating blood stream infections associated with central line is a national priority. Monitoring adherence to best practices for central-line maintenance is also an important part of CLABSI prevention. Regular cleaning of a patient's skin to eliminate pathogens is an intuitive CLABSI prevention measure.

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