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Nursing

EFFECTIVENESS OF THE MULTIDIMENSIONAL INTERVENTION ON SELF-MANAGEMENT AND QUALITY OF LIFE OF TYPE 2 DIABETES PATIENTS AT HOSPITAL, MEDICAL COLLEGE HOSPITAL KOTTAYAM.

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ABSTRACT

Background: In India as well as in the world diabetes has become a major public health issue (Chavan et al., 2015), where one in every 11adults has diabetes. In this 21st century diabetes is one among the largest global health emergencies, as around 425 million people are suffering from diabetes throughout the world and by the year 2045 this number may increase to 629 million (IDF Atlas, 2017). New case is diagnosed every 40 seconds (King et al., 1998). In the year 2015 approximately, 5 million adults died from diabetes and its complications. Approximately, 75% people with diabetes are from countries limited income in which majority of them is in the age group of 40-59 years. According to International Diabetes Federation (IDF) further rise in the status of diabetes can be expected as the trend shows the clear indication of rise of diabetes incidences globally. Considering South East Asia, 82 million are suffering from diabetes and 72.9 million cases are from India alone (IDF Atlas, 2017).

Methods: A quantitative approach was used as the aim of study was to determine the effectiveness of multidimensional intervention (MDI). A quasi-experimental design and sample size of 180patients was adopted, experimental group (n=90) and control group (n=90). Purposive sampling technique was used to select the sample. The patients in the experimental group received routine care along with MDI and patients in the control group received only routine care. After baseline assessment experimental group received educational session and self-management booklet were given before discharge. Control group did not receive Abstract ii these interventions and follow up was done for both the groups respectively during the third and sixth month at outpatient department. Baseline measures and post-tests were carried out before and after the intervention in both the groups. The data collection instruments used in the study were demographic proforma, quality of life Instrument for Indian Diabetes Patients (QOLID) and Diabetes self-management questionnaire (DSMQ), Diabetes knowledge questionnaire. Data were analyzed using descriptive and inferential statistics.

Results: The analysis related to sample characteristics revealed that, patients in the experimental group and the control group were having similar characteristics. The present study conducted to determine the effectiveness of a multidimensional intervention in terms of change in HbA1c, BMI, quality of life, self-management and knowledge of diabetes. A total of among 68.8% in the experimental group and 58.8% in the control group had HbA1c level was in excess of 7 gm%. The mean pre-test HbA1c value of 9.22 ± 2.67 was decreased to 7.75 ±1.71 in experimental group against the mean pretest HbA1c value of 8.09 ± 2.11 to post test HbA1c value of 7.61 ±1.61 in control group. Significant reduction is evident in post test HbA1c value among type 2 diabetes patients who received multidimensional intervention (1.47 ± 0.96) in comparison with control group (0.48 ± 0.5). The repeated measures on HbA1c value between the groups revealed a higher statistical significance. The mean pretest BMI value of 25.04 ± 2.77 was decreased to 24.84 ± 2.54 in experimental group against the mean pre-test BMI value of 24.79 ± 2.82 to post test Abstract iii BMI value of 24.85 ± 2.61 in control group. Slight reduction was found in post test BMI value of type 2 diabetes patients who received multidimensional intervention (0.2 ± 0.23) in comparison to control group (0.06 ± 0.21) where it increased fractionally. Reduction of BMI value was not statistically significant (p<0.5)

There was a significant improvement in the mean post test score of self management was evident. 23.21 was the mean self-management score in both experimental group (SD + /- 4.04) and control group(SD + /-3.76) at baseline, which has been increased significantly to 30.30(+ /-4.20) in experimental group and 24.66 (+ /-4.25) in control group. Quality of life mean score at baseline in the experimental group was 87.86 (+ /- 9.86) and control group was 85.81(+ /-6.92) which were significantly increased in the experimental group 103.93(+ /-10.03) and control group 90.54 (+ /-6.91) at post-test. Mean knowledge score of type 2 diabetes patients at baseline in the experimental group was 8.17 (+ /-2.29) and control group was 8.79 (+ /-1.83) which were significantly rose in the experimental group 13.09 (+ /-2.05) and control group 9.72(+ /-1.69) at post-test.

CONCLUSION: The focus of this trial was to formulate a multidimensional intervention for type 2 diabetes patients and evaluate the effectiveness of the interventions on HbA1c, BMI, knowledge about diabetes, self-management and quality of life. The multidimensional intervention provided for the experimental group proved its effectiveness on improving on selected outcome measures among type 2 diabetes patients Halt the rise: beat diabetes was the theme for the world health day theme by WHO, which focused on preventive care (Roglic, 2016). In prevention and effective management understanding the condition becomes important where level of understanding among people with diabetes in India remains low. Low level of health literacy was found where estimates range from 15 to 40 % (Cavanaugh et al., 2009). For people with diabetes, it means increased blood glucose can be easily handled through diet control and medications and unawareness regarding disease related complications. This indicates the need for creating awareness regarding disease and its management (Ramachandran et al., 2007). Quality of life of an individual is affected by the prolonged effects of a non communicable disease (King et al., 1998). Therefore, quality of life can be improved through multidimensional interventions which include glycemic control, educational sessions and counselling that would help to improve coping skills required for diabetes management (Porojan et al., 2009).

KEYWORDS :

Background

In India as well as in the world diabetes has become a major public health issue (Chavan et al., 2015), where one in every 11adults has diabetes. Diabetes became one of the health emergency globally in this 21st century, as around 425 million people are suffering from diabetes throughout the world and by the year 2045 this number may increase to 629 million (IDF Atlas, 2017). New case is diagnosed every 40 seconds (King et

al., 1998). In the year 2015 approximately 5 million adults died from diabetes and its complications. Approximately, 75% people with diabetes are from countries limited income in which majority of them is in the age group of 40-59 years. According to International Diabetes Federation (IDF) further rise in the status of diabetes can be expected as the trend shows the clear indication of rise of diabetes incidences globally. Considering South East Asia, one in five adults live with diabetes, overall 82 million are suffering from diabetes and 72.9 million cases are from India alone (IDF Atlas, 2017). Mortality due to diabetes and its complications is1.1 million in south East Asia and India accounts for one million (IDF, 2017).Studies show that diabetes is more prevalent among migrant Indians at various regions of the world when compared to their native population (Ahmed, 2000). In the estimated global health expenditure, amount spent on diabetes is about 12% of their income (IDF, 2015) and in India it is around 25% (Javalkar SR, 2019). In diabetes management, cost effective methods has to be developed since the cost involved in diagnosis and management of diabetes is high (Joshi, 2015).

Self-management is a vital aspect to be considered and advised for people with diabetes in order to acquire knowledge and skills in managing their condition (Khunti, 2012). Current concept of care stresses on self-management in which patients are responsible in making decisions regarding their condition and the challenges placed on them to achieve good glycemic control to delay complications (Stahl et al., 2001). Self- management comprise of diet adjustment, adequate exercise, monitoring of blood glucose, compliance to medication and foot care (Diabetes care, 2019).

Improved quality of life was observed among poorly controlled type 2 diabetes patients when rigorous multi-therapy was carried out for 12 months. Multi-therapy included self-management, monthly visit, diabetes education and medication adjustment (Menard et al., 2007).

People with diabetes has central role in diabetes management and it is essential to acquire knowledge as much as possible as they need to manage it lifelong with appropriate decision regarding treatment (Close, 1993). Julie, 2002 demonstrated that patient's self-management ability is affected by the insufficient knowledge about disease and its management. Type 2 diabetes patients who experience frequent fluctuations in blood glucose level, especially hypoglycemia, would be benefited by self-management education as it is essential part of diabetes management (Kirk et al., 2010).

METHODS
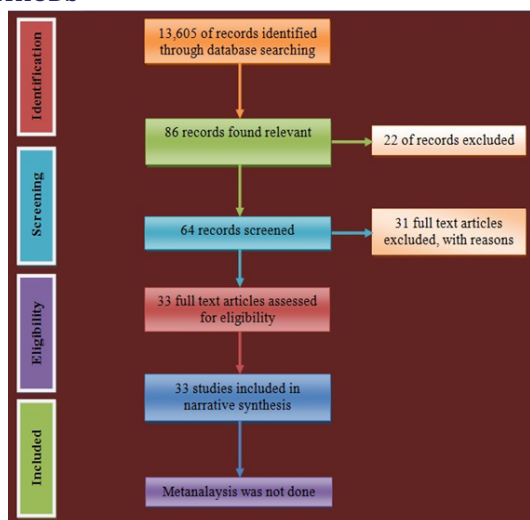
Search strategy methods.

Comprehensive literature review was done using EBSCO discovery service to get all relevant articles which is published in English language from 01/01/2000 to 31/12/2019.Academic OneFile, Access Medicine, MEDLINE, CINAHL Plus with Full Text, Science Direct and Scopus® were the electronic databases searched through EBSCO discovery services. Final review was based on 33 studies which were retained after screening 13,605 studies found in the initial search.

Study Variables Independent Variable: Multidimensional intervention Dependent Variable: HbA1c, BMI, self-management, diabetes knowledge, QoL Research Setting This present study was conducted in medical wards of Medical college hospital, Kottayam .Medical college Hospital is a 2032 bedded multi-specialty hospital with patient occupancy rate of 80%. Patient recruitment was carried out in medical wards of unit 1 and unit 4 of medicine department at Medical college hospital, kottayam. Diabetes education session and follow-up assessments were carried out at diabetes clinic which is located at the ground floor of same building. Population Population of this study comprises of type 2 diabetes patients who got admitted under unit1 & unit 4 of medicine department at Medical College hospital, Kottayam. Sample Sample size was calculated considering HbA1c as the primary outcome variable. The formula used calculates sample size for the present study is as follows. $n = 2 \sigma 2 [Z 1 - \alpha / 2 + Z 1 - \beta] 2 d 2$ Where, n = is the sample size required in each group. $Z 1 - \alpha / 2 = 1.96$ at 5% level of significance $Z 1 - \beta = 0.84$ at 80% power $\sigma = 1$ i.e standard deviation referred from literature (Hornsten et al., 2008) d = 0.5, clinical significance difference (The Diabetes Mellitus Control and Complications Trial Research Group, 1993). $n = 2 \times 12 [1.96 + 0.84] 2 0.5 2 n = 2 [2.8] 2 0.25 n = 2 \times 7.84 0.25 n = 63$ Sample size required to achieve 80% power at 5% level of significance was estimated for clinical significance difference (0.5). The required sample size was 63 per group. Anticipating attrition rate of a maximum of 20 % participants per group, the required sample size was 77 per group. But, it was decided to include the maximum number of patients recruited during the data collection period. Thus a total of 180 patients were included as study participants. Sampling Criteria Sample selection was carried out based on the following criteria Inclusion criteria Type 2 diabetes patients who are able to communicate in . willing to return for scheduled follow-up visits.willing to participate in the study patients who are suffering from diabetes for more than 3 months patients whose glycosylated haemoglobin (HbA1c) ranges from 6gm% and above age between 30 to 79 years

Exclusion Criteria

Type 2 diabetes patients who are unable or unwilling to give informed consent critically ill, unconscious admitted under any units other than unit1 and unit 4 of medicine department

Types of studies:
Descriptive cross sectional study.

Participants:
People with type 2 diabetes

Setting:
Nursing home, Hospital and Community

RESULTS
A PRISMA guideline was followed to do the systematic review. 37,566 studies were retrieved from initial electronic database search out of which 72 full text studies were downloaded. 56 studies found to be relevant and remaining 16 studies were excluded from the review. Further 42 studies were left out of the due to following reasons, i.e., duration of intervention (9 studies), sampling method (8 studies), lack of clarity

regarding setting (7 studies), inclusion and exclusion criteria (6 studies), research design (5 studies), study duration (4 studies) and study results (3 studies). This systematic review was based on 14 studies which cleared all stages of scrutiny.

DISCUSSION
Generally, among people with diabetes there is a poor foot care practice, medication adherence, irregular food pattern, poor dose modifying ability when necessary and difficulty in setting a therapeutic goal (Kheir et al., 2011). Knowledge, attitude and practice scores have a practical effect upon patient's self-care behavior (Ghannadi et al., 2016). Patient's active participation and adequate knowledge about their disease is the key to success in management of type 2 diabetes. Among geriatric patients, medication adherence and level of knowledge need to be assessed periodically (Omar et al., 2014). Use of television, books and pamphlets for providing information to patients yielded a good number of positive outcomes. Benefits for patients can be maximized with the better understanding of use of these methods along with various novel approaches (Javalkar et.al, 2016).

Limitations
Few relevant studies might have missed in this systematic review due to the limited database search. Few relevant studies might have missed since review included research studies published in English language only. Other concern is that of varied sample size of the included studies which ranged between 52 participants to 5957 participants and there was heterogeneity in their approach.

Implication for practice
Education, creating awareness and practice of good self-care behaviours can be improved with specific interventions (Kassahun et al., 2016). Better glycemic control was evident in people with diabetes who were aware of HbA1c level (Kumpatla et al.,

2010). As the attitude and knowledge has direct relationship with practice, improvement in knowledge may result in good practice thereby reduction in complications related to diabetes (Karbalaeifar et al., 2016). Positive attitude towards reducing complications related to diabetes (Ahmed, 2016) and good quality of self- management education program may be beneficial for type 2 diabetes patients (AlAboudi et al., 2016).

Implication for research
Nurses play a very important role in care of diabetes patients, involving them in educational interventions for managing diabetes may yield good results (Waller et al., 2010). Future research can focus on this aspect and can assess the effectiveness of novel educational interventions implemented through nursing professionals which may facilitate access to quality diabetes care.

CONCLUSION
On a whole, this systematic review stresses the importance of provision of quality diabetes education as an integral part of regular diabetes care to enhance knowledge of people with diabetes and translation of that knowledge into practice becomes crucial. Educational interventions work well in effective management of diabetes if it was provided in good quality and active participation of patients in diabetes management.

Self- management
Self-management programs will improve self-efficacy if trained healthcare care professional implement it in a planned way. Health care personnel need to create awareness regarding self-management and assist them in overcoming challenges of diabetes management. The aim is

to allow the patient to understand their disease condition and preparing to manage day today challenge (Chuang et al., 2001).

To meet the patients' requirements self-management education need to be customized (Funnell et al., 2012, Hiss et al., 2001, Wagner, 2000). Developing culturally tailored health education (Hawthorne et al., 2008, Wu et al., 2013, Glazier et al., 2006) and based on their experience of disease and health professional's assessment is vital in improving the efficacy of intervention which acts as a basis for self- management (Glasgow et al., 1992, Funnell et al., 2012). Self-efficacy is a crucial aspect of self-management. Post-test scores of self-efficacy and self-care were lower in control group than experimental group. Improvements were also found in HbA1c level, BMI and waistline circumference. This showed that self-care behavior and self-efficacy were enhanced with the self-management programme (Wu et al., 2013).

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