

ETON TIMMY LARRY

1818179

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ASSESSMENT 1

**INTRODUCTION TO RESEARCH-ITR A1
(BMHP5005)**

JANUARY, 2021.

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INTRODUCTION

According to NHS (2019) diabetes is a medical condition characterized by elevated levels of blood sugar in the affected individual. It is disorder in which the concentration of glucose in an individual's blood is said or considered to be too high (that is 160 mg/dl or above) and it has been recorded to have terrible adverse effect on anyone living with it. Chentli, F et al (2015) also defines diabetes specifically for older individuals establishing that the disease in older persons is same as in other aged group with fasting blood sugar: ≥ 1.26 g/l (7.0 mmol/L), blood sugar after glucose

loading: ≥ 2 g/l (11.11 mmol/L), and older persons with postprandial glucose results within 1.35 and 1.99 g/l (7.78–11.06 mmol/L) suffering from a reduced glucose tolerance. Diabetes is majorly classified into two categories which are Diabetes Type 1 And Diabetes Type 2. Diabetes type 1 being a condition where an individual's immune system targets and damages insulin producing cells while diabetes type 2 is seen as a disorder in which the production of insulin by the body is minimal compared to its usage or where body cells are non-reactive to insulin.

According to WHO (2015) The term “Elderly” consist of an heterogeneous group with diverse physiological outlines and unpredictable life expectancy and functional capabilities. Universally defining the term has ever been a matter of debate and disagreement. However, WHO generally refers to an individual as old if his/her civic age is above 65 years old, but judging from a scientific view point an individual is supposed to be certified old if and only if he or she is 75 years and above. Nonetheless, it is generally agreed that it is more essential to take into consideration a person's vascular and physiological age and this differs with respect to environmental factors, genetic makeup and background, and presence or absence of morbidities which includes arthritis or other rheumatologic diseases, diabetes, cognitive dysfunction, high blood pressure, heart failure, renal insufficiency, and obesity and for this reason older persons/patients are classified into three different functional categories by the international diabetes federation (IDF). Diabetes is a leading cause of kidney failure, blindness, lower limb amputation, stroke and heart attacks.

WHO (2021) on diabetes matters established that from 1980 to 2014, there was a drastic rise in the number of persons with diabetes with numbers as 108 million and 422 million respectively, and the occurrences of diabetes is on a rapid increase in low and middle income countries as compared to high-income countries. In 2014, about 8.6% of the entire adults aged 18 years and above were diagnosed with diabetes, also, according to the Diabetes Facts and Stats (2015) The registered worldwide prevalence of diabetes in adults between ages 19 to 80 in 2014 was 386 million, Between year 2000 and 2016, a significant (5%) increase in premature death (death of persons below age 70) due to diabetes was recorded, and in 2019, diabetes was tagged the eighth leading cause of death with approximately 1.6 million death incidences absolutely caused by diabetes and all death cases reported occurred mostly in individuals between ages 65 – 75 years. There has been constant increase in the population of persons dying due to this said disease from year to year and there is no expectation for a decrease of any sort especially in low-income countries.

According to the British Geriatrics Society (2018) the occurrence of overweight and obesity is expected to be on an increase and would cut across all ages, this will in turn lead to an increase in the prevalence of diabetes in middle ages which will in turn lead to diabetes and its complications in older individuals (those between ages 65 to 75 inclusive), thereby leading to a steady rise in persons living with the disorder. According to American Diabetes Association (2012), In the United Kingdom, amongst the entire group of individuals said to have diabetes, half of the considered population is made up of people over age 65 and a quarter of the population includes people over the 75 years age mark.

Aim

To study the impact of diabetes in older adults between age 65-75 in the UK.

Objectives

To study and discover the impact of the disease using already existing literature studies and researches.

To ascertain treatment methods with reference to various published and reliable research works.

BACKGROUND

According to the most recent estimates and updates of the International Diabetes Federation (IDF), diabetes shows a high occurrence in individuals ≥ 65 years old. In 2017, people within ages 65 – 98 leaving with diabetes were summed up to 122.8 million (which was about 19% of its entire occurrence rate), and of this estimated number, 98 million consisted of persons between ages 65 – 75 and the number is expected to grow beyond 200 million in 2045. The prevalence of diabetes in this age group (65 – 75 years) is mostly registered in the United States of America and in China, and in the Europe continent, similar prevalence rates are noticeable with 14.9% – 25.0% of the entire diabetic individuals being those between ages 65 – 75 Miriam L. et al (2019).

According to NHS (2019) Type 2 diabetes is the most commonly occurring type of diabetes compared to type 1 and every other type of diabetes. In the United Kingdom, about 90% of the entire adult population diagnosed and registered with diabetes have type 2 diabetes. Majority of persons between ages 65 – 75 with diabetes type 2 are exposed due to insulin resistance. Tyrovolas S et al (2015), claimed that the type 2 diabetes found in advanced age adults can be attributed to

mechanisms such as extended life expectancy, and genetics background that eventually leads to the alteration of environmental factors responsible for obesity and decline in insulin secretion. Obesity is found to be responsible for insulin resistance which is the ultimate cause of metabolic syndrome and type 2 diabetes in adults and people of advanced age. The modern life characterized by absence of adequate physical exercise and the eating disorders that plague the people of the modern age, is found to be the most responsible factors affecting obesity and diabetes. However, some studies carried out in 2011 by Enhorning .S et al, have also pointed out other major factors such as arginine vasopressin (AVP) or its c-terminal fragment, known as copeptin, in the mechanism of diabetes in people of advanced ages via lower insulin sensitivity. AVP is found to also affect liver glycogenolysis and glucagon secretion.

According to Chaudhary D et al (2010), it is postulated that magnesium which is a factor present in enzymes in carbohydrate oxidation process, has a large role in glucose transportation. Magnesium is also involved in the secretion and activity of insulin, which directly translates to insulin resistance in the event of its deficiency. In the case of people of advanced ages, hypomagnesaemia could result from multiple causes, including deficient intake, gastrointestinal ailments, and renal loss. Generally, hypomagnesaemia is associated with inadequate glycemic control and poses high risks for complications such as retinopathy, foot ulcers and nephropathy. Higher mortality, reduced functional status, and increased risk of institutionalization are the impacts of Diabetes mellitus on advanced age adults. Adults with diabetes are exposed to high risk for either acute or chronic microvascular and cardiovascular complications associated with the disease. Kirkman .M (2012) suggests that they are also faced with risks of amputations, myocardial infarctions, visual impairments, and end-stage renal disease, in comparison to less advanced age groups.

According to Kirkman .M (2012) Caring adults between ages 65-75 dealing with Diabetes is highly challenging due to a few reasons: firstly, frail patients especially those from 65 years old due to their weak bodies are not able to undergo the standard therapies in the treatment of diabetes. Most times, they lack the ability to carry out self-care and self-medication and often require the services and supports of Care-givers who sometimes are not adequately equipped with the relevant knowledge required to support Diabetes mellitus patients of advanced ages. Handling multiple co-morbidities (mood and cognitive dysfunction inclusive) in persons within ages 65-75 with diabetes is particularly challenging and is always accompanied with high rates of this impairments. Even

though the dangers of diabetes on adults is universally known, it is of extreme importance to emphasize on the challenges of diabetes mellitus on advanced age adults. The fact remains that diabetes in older persons/advanced age adults is more severe and connected to higher death rate, decreased functional status, and increased event of institutionalization.

It is worthy of note that inspite the realization of the extreme severity of diabetes mellitus on advanced age individuals as well as the proof that the prevalence of this disease is higher in advanced age adults (including those with multiple co-morbidities), clinical trials targeted at management and care of patients with diabetes have always excluded these set of people (patients between 65 – 75 years old) from their roosters, this is the rationale of this research and it chooses to be focused on advanced age adults (between ages 65-75). The aim of this study is to breach the gap between the general awareness of the impact of diabetes on individuals and the more specific impacts on individuals of advanced age, it also seeks to explore different management and treatment methods for these age set.

METHOD

The method used in the process of writing this literature is data search, this search was done using the Google and Firefox Browser search engine and in order to ensure that wide area is covered, the following search keywords were used: “Diabetes”, “Diabetes in older people”, “UK and diabetes statistics”, “Impact of diabetes”, “Managing diabetes in older persons”. The searched was executed by looking into publications from 2010 till date and this search was carried out on the 1st of December with Pubmed, and Researchgate and during this search the following articles were randomly selected in respect to The impact of diabetes in older adults between age 65-75 in the UK: Diabetes in Older Adults, Consensus Report by KirkmanM. et al (2012), Diabetes and Aging: From Treatment Goals to Pharmacologic Therapy by Miriam L. et al (2019), Management of diabetes in older adults by Sesti G et al (2017), and Diabetes mellitus in elderly by Farida C et al (2015). The inclusion criteria was peer-reviewed original research publications and mainly publications on diabetes, UK diabetes and treatment of diabetes. The exclusion criteria were: non-English publications, opinion articles, articles from non-trusted cites, and non-related articles/publications.

All the main findings from the four articles were extracted and critically analysed in order to understand and further conclude on the diabetes impact and treatment in people between Ages 65-75 in the UK.

RESULTS

From facts gathered from the already existing/ four articles mentioned above and in relation to my research, several themes have been arrived at.

Articles 1, 2 and 4, postulate that advanced age adults with Diabetes mellitus are exposed to the same risk for macro and microvascular complications as their younger counterparts, but they possess a much higher risk for cardiovascular diseases and a higher rate of morbidity and mortality than advanced age adults living without Diabetes Mellitus. They are also at a critically high risk for physical and functional disabilities, co-morbidities, rheumatic pain, cognitive impairment and depression.

Functional limitations, frailty, loss of independence, and disability, especially Alzheimer disease are all more frequent impacts of diabetes type 2 on advanced age adults. Cardiovascular diseases are among the most common complications due to heightened atherosclerosis. Inconsistencies in Urinary and fecal mechanism are higher in advanced age diabetics compared to non-diabetic population. Visual impairments are also much higher in advanced age adults with diabetes due to the degenerative nature of maculopathy, hypertensive retinopathy, cataracts, and glaucoma.

Article 2 highlights the difficulties in the management of diabetes in advanced age subjects which is particularly complex and challenging for clinicians due to difficulties in individualizing glycemic targets, treatment strategies, coexisting comorbidities, polypharmacy, and hypoglycemic risk

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The treatment of diabetes in advanced age adult individuals in UK is difficult due to the complications associated with the disease. Challenges sprout from the fact that treatment must be individualized (treating it in regards to specific health needs of the individual), making it impossible to follow a general routine. Also, pharmacological treatment of diabetes in these advanced age adult individuals should be carried out with extreme carefulness and the monitoring

process should be done due diligently. Finally, the coexisting comorbidities must never be neglected especially when finding the best treatment routine.

Article 3, 4, Prescribed that the treatment and management of diabetes mellitus in advanced age adults without any visible functional or cognitive disorders should be assigned to younger adults. The pharmacological treatments must be carefully prescribed and monitored, taking into consideration the patient's cognitive capacities, the drug-drug interactions and its potential threat to life, the risks posed by cardiovascular related ailments, and an ultimate goal that is aimed at avoiding hypoglycemia. Moreover, a careful nutritional analysis with the relevant tools, as well as a balanced and adequately monitored physical activities, have roles to play in order to achieve an effective care and management plan required by advanced age adults living with diabetes.

DISCUSSION

The Impact/ adverse effect of diabetes on aged individuals most importantly those above age 65 is more severe and complicated when compared to diabetes impact on persons below the 65 years mark, this is backed up with studies from Miriam L et al (2019): "Diabetes and Aging: From Treatment Goals to Pharmacologic Therapy" as in this studies it is confirmed that the disease (diabetes) most specifically in persons between ages 65 - 75 presents itself in company of other health complications. Patients between this age range and with diabetes have a greater risk of developing geriatric syndromes with urinary incontinence, disability, cognitive impairment and dementia, traumatic falls and frailty, fractures, side effects of polypharmacy inclusive and these have the tendency of negatively affecting the quality of life of the said aged individual and all these makes the effect of the health condition more severe as well as making it hard to handle/manage the situation.

According to research from Sue K et al (2012), **Miriam L et al (2019)**, Sesti G et al (2017), and Farida C et al (2015) handling/management/treatment of diabetes in older individuals (with reference to ages 65-75) is of vital and yet the most challenging of tasks to both the patients and clinicians. This is mostly due to the fact that these individuals present themselves with different co-morbidities and the treatment pattern for one is never the treatment pattern for all. Generally, elderly diabetes are treated or managed with patient-focused and individualized glycemic target

whether or not the patient has other health challenges. Critical and systemic elderly assessment should be carried out at all times during the diagnosis for diabetes in order better understand visual, motor abilities, and cognitive comorbidities.

According to Miriam L et al (2019) While managing diabetic patients between 65 – 75 years, the main aim should be to maintain an excellent and sustainable quality of life. This should be done with the interest of patient at heart and the glycemic control should not be generalized but patient centered, this is to avoid exceeding the patient's tolerance range. If medications are to be focused on, it should cover mainly drugs and regimens with lesser risks of hypoglycemia.

According to Sesti G et al (2017) the most suitable choices for management of diabetes in individuals within ages 65 – 75 includes sulfonylureas which is one of the oldest class of oral anti-hyperglycemic regimen, it aids in inducing insulin secretion, metformin which is a wellknown and generally used anti-hyperglycemic drug that reduces liver glucose production and increases insulin sensitivity. Lastly DPP-4 inhibitors can be employed.

Farida C et al (2015) suggests that to manage diabetes in this age set, lifestyle modification is of outermost importance. Engaging in physical activities in order to give strength to the muscle and help reduce weight and also reduction in consumption of sugary and fatty foods. Pramlintide which is an amylin synthetic product is also a recommendation for the management/treatment of diabetes in older individuals.

I do recommend that in future health and social health practices should place great importance in the management of diabetes in individuals within this age set (65 – 75 years) and even beyond as the disease in people within this ages is most severe and life threatening. In adult nursing homes, I do recommend that taking care of this patients should be personalized and done with accuracy and great consideration and all co-morbidities assessments should be assessed and treated as important no matter how minimal.

This research is of outermost importance as it has help to close the existing gap in the awareness of the severity and complexity of diabetes in this age group in the UK, it has also brought to light the necessary medications and habits that could aid in the management of this disease in the said age group (65 – 75 years) in the UK.

This research was limited due to the lack of practical evidences and life samples. Also, the are limited studies as to the general impact of diabetes in Individuals within ages 65 – 75 years in UK in comparison to its impact in younger adults, this contrast would have painted a greater picture illustrating the need for more attention when diabetes is concerned with older individuals.

CONCLUSION

Older and frail individuals have always been left out when researches are done or controlled trails are taken in the consideration of the impact of diabetes and this left a vacant space which this research and review has been carried out to fill and it covers diabetes impact and how well it can be addressed, managed/treated in the age group (65-75years) in UK specifically. This current review has established that diabetes in this set of individuals (persons between 65 – 75 years old) will most certainly lead to several severe complications and the treatment/management methods differ from person to person depending on the accompanying co-mobobidity or health challenge experienced by each individual.

Future studies/research should take into account the complexities, diversities and heterogeneity of this fragile group as well as carry out proper investigations with practical methodology as to patients with dependent living situations, multiple co-morbidities, and geriatric syndromes so as to improve already existing knowledge on the impact of diabetes on these populations and the way out.

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