My on Essay draft on Same Topic

***Introduction***

The screening for early identification of diabetic risk factors is crucial to eliminate the possibility of further long-term illnesses (Diabetes, UK 2015). However, the UK National Screening Committee (UKNSC) indicated that the screening of population for DM type II might not be sufficiently effective to improve the health of individuals at risk. This literature review aims to explore the effectiveness of blood glucose screening in the early detection of pre-diabetes and undiagnosed type 2 diabetes to reduce complications in the adult population.

The assignment is comprised of five major sections, including introduction, background, methodology, discussion, and conclusion. The introduction section provides the main outline of the paper, while background reveals significant data regarding the research topic. The methodology part is based on the research methods involved in this review, the strategies for literature search, search terms used, the inclusion and exclusion criteria, type of critical appraisal tool used in this research, and the technique for data extraction. Moreover, the discussion section is comprised of different themes regarding complications of diabetes, including neuropathy and cardiovascular diseases, diabetic retinopathy, opportunistic foot screening survey, diabetes and hepatitis infection, and summary of studies. The conclusion presents a summary and few recommendations related to the research topic.

***Background***

Diabetes mellitus type II is considered as one of the leading cause of morbidity and early illness across the world (Diabetes UK, 2014). Diabetes mellitus type II (DM type II) is referred to be a metabolic disorder which is characterised by relative insulin deficiency and insulin resistance that leads to the development of hyperglycemia in the bloodstream (Forbes and Cooper 2013). As soon as the progression of DM type II occurs, the body undergoes a number of physiological reconstructions. T2DM accounts for around 90% of all cases of diabetes in western Europe and the USA and approximately 3 million people diagnosed with type 2 diabetes in the UK, with further 800,000 estimated as having undiagnosed T2DM develops gradually and produces non-specific symptom, so it is often diagnosed late. There is a reasonably large population with undiagnosed diabetes, and an even larger population with the “metabolic syndrome,” at risk of both diabetes and cardiovascular disease.

The symptoms of T2DM are increased thirst, unexplained weight loss, regular episodes of thrush, slow wounds healing, extreme tiredness, passing urine more often and blurred vision. The long-term complications include retinopathy, nephropathy, neuropathy and cardiovascular disease (Diabetes UK, 2015).As identified by the National Institute of Excellence (NICE 2012) in the guidance on T2DM, targeting high-risk groups is cost-effective, and efficient. However as newer presentations of type 2 diabetes in lean people (BMI 17-22 kg/m2) are beginning to emerge, in particular within populations of South Asian origin, the high-risk group perhaps need to be extended. Following the identification of individuals at risk of T2DM, NICE, guidance (NICE 2012), recommended a variety of interventions to be carried out in the general practice, by the healthcare team. NICE, (2012) stated that increased physical exercise is one of the important areas on which to focus, the Nice guidance recommended “raising awareness of the importance of physical activity”, as well as “tailored advice on physical activity.”

The NHS health check(NHSHC) is a general practice-based screening program aiming to improve the statistics by identifying those at-risk of DM type II and those with undiagnosed DM type II, in England (Department of Health(DH), 2016). The NHSHC is an opportunity in general practice for health professionals to risk- assess individuals according to their age, family history of cardiovascular disease, physical activity level (DH, 2013).

In the United Kingdom, National Health Services (NHS) is providing “National Diabetes Treatment and Care Programme” to improve the capability and increase knowledge of the diabetic patients under “NHS Outcomes Framework 2017 - 18” (NHS, 2017). This programme aims to improve the capability and knowledge of the diabetic patients to manage their blood glucose levels and to avoid further diabetes-related complications. For instance, this programme introduced “Diabetes education: the big missed opportunity in diabetes care (2015) Diabetes UK” and “Structured Education for Type 2 diabetes: A toolkit for optimal delivery (2015) London SCN”, which presented positive health outcomes among diabetic patients. Further initiatives include “Type 2 Diabetes Structured Education Provision in Yorkshire 2014/15” and “The Humber Clinical Networks”.

The uptake of the NHSHC has been lower than predicted. Since the program was initiated, 28% of the eligible population has been offered an NHSHC but only 13.5% have received one (NHS Health Check 2015).

In the United Kingdom, National Health Services (NHS) is providing “National Diabetes Treatment and Care Programme” to improve the capability and increase knowledge of the diabetic patients under “NHS Outcomes Framework 2017 - 18” (NHS, 2017). This literature review topic relates to the second Domain which is “enhancing the quality of life for people with the long-term condition,” and the programme aims to improve the capability and knowledge of the diabetic patients to manage their condition, and to avoid diabetes-related complications. The screening for early identification of diabetic risk factors is crucial to eliminate the possibility of additional long-term illnesses (McCulloch and Hayward 2016). The high prevalence of undiagnosed diabetes and the proportion of patients with evidence of complications of diagnosis create a strong imperative for screening.

The ADDITION trial showed that people diagnosed with DM type II screening were at high-risk of CVD, with a high prevalence of modifiable risk factors, such as overweight, high BP, and high cholesterol levels. However, after 5years follow-up, there was little difference in the frequency of Cardiovascular events. The risk of cardiovascular disease was reduced to 17% in the intensive group, hazard ratio (HR) 0.83, but the 95% confidence interval was 0.65 to 1.05, so the difference was not statistically significant

***Formulation of Research Question***

It is a well-established fact that the early screening for abnormal blood glucose levels, both centralized and decentralized, is essential to detect the associated risk of complications prior to their progression. The PICO approach is presented in Table 3 which presents the parameters of this research.

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| PICO Table | | |
| P | Population | Adults with pre-diabetes and undiagnosed diabetes |
| I | Intervention | Screening for blood glucose |
| C | Comparison | No Screening |
| O | Outcomes | Reduced or delayed complications |

Table 3: PICO approach

The issues examined in this research are the complications associated with prediabetes as well as undiagnosed diabetes. The World Health Organisation (WHO) recommends the determination of both the glucose level and haemoglobin A1C along with other screening such as ophthalmological, physical, neurological, renal, and hepatic examinations (Forbes and Cooper 2013). The increasing incidence of diabetes-related complications needs to be emphasised to improve the quality of life of diabetic patients. Therefore, the research question formulated should be answered. This research will provide the evidence for the effectiveness of blood glucose screening to reduce diabetes-related complications in adult patients with pre-diabetes or undiagnosed type 2 diabetes. Below is the research question which is the foundation of this research:

*“How effective is screening for blood glucose, in the early detection of pre-diabetes and undiagnosed type 2 diabetes in reducing complications in adult population?”*

***Methodology***

This research is based on the naturalistic paradigm. This paradigm emphasises the endeavors of research by considering the behavioural perceptions of the people within the natural setting during their engagement in life experiences. Different types of research include qualitative and quantitative methodologies. The quantitative research methodology is defined as the method that involves numerical data in which the data that is being analysed is present in terms of numbers. On the other hand, the qualitative is defined as a rather subjective and inductive approach to assessing the internal perspectives of a research question (Fowler 2013). This research is based on qualitative approach, particularly, the systematic literature review of existing researches. The qualitative research methodology allows a researcher to gain an insight of the nature of research and its surrounding evidence. It is not limited to the numerical ideas of the research questions. This literature review allows the researchers to implement different aspects along with the inclusion of their perspectives.

*Literature Search Strategy*

To search the relevant literature for this review, the researcher conducted a comprehensive research that included a combination of keywords and MeSH terms. Different online libraries and databases were used to retrieve the most relevant articles. A widespread electronic search was conducted by the researchers including the databases PubMed, and CINAHL. A total of 50 articles were retrieved that matched the topic, whereas 12 articles were found to be most appropriate in accordance with the research topic. However, due to the limited access to the full-text files, only 5 articles were retrieved for the systematic review.

*Search Terms*

The keywords included diabetes mellitus, DM type II, undiagnosed type 2 diabetes, pre-diabetes, hyperglycaemia, screening, blood glucose levels, adult population, and diabetes-related complications. Furthermore, a different combination of MeSH terms and keywords were used such as “diabetes type II complications”, “blood glucose screening”, “screening and hyperglycemia”. In addition to these strategies, the researcher also used Boolean operators, i.e. AND, OR, and NOT. It is a specific tool to create a combination of search term with the operators and modifiers (McGowan et al. 2016). For instance, the “diabetes mellitus type II NOT type I”, “Diabetes mellitus and complications”, and blood glucose levels or hyperglycemia”.

*Inclusion and Exclusion Criteria*

The inclusion and exclusion criteria were specified prior to the conduction of this research (Table 4). The rationale for setting these criteria is to include the most updated as well as accurate articles according to the research topic.

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| Inclusion Criteria | Exclusion Criteria |
| Articles which were based on the primary research | Articles which were based on the secondary research |
| Articles which emphasised pre-diabetes and DM type II | Articles which emphasised DM type I and gestational diabetes |
| Articles published between the years 2012 to 2017 | Articles published before 2012 |
| All Adults |  |
| Studies which available in the form of full-text files | Studies which were not available in the form of full-text files |
| Human clinical studies | Case studies |
| Articles which were published in peer-reviewed clinical and medical journals | Articles published in unauthentic websites or as blogs |

Table 4: Inclusion and Exclusion Criteria

*Critical Appraisal*

After retrieval of relevant articles forms the databases, the researchers extract required information and data from the studies and establish critical appraisal of the research articles. The “Critical Appraisal Skills Programme” (CASP) tool was used to assess articles (Singh 2013). The CASP tool is defined as an evidence-based approach to be implemented in social and health care to work with international, national, and local groups. This tool assists an individual in the development of skills for finding and making sense of research evidence to cater the research problem.

*Data Extraction*

The CASP tool was used to extract data from the selected articles. Articles were screened to extract the aims and objectives and hypothesis, research design, sampling, participants, data collection methods, reliability and validity considerations. Furthermore, the retrieved data was analyzed according to the results and findings of the research, integrated ethical consideration and limitations of the studies were considered.***Discussion***

A literature review is a process that involves systematically gathering, appraising and summarising studies relevant to a specific topic(Ross, 2012). This literature review used two paradigms – Quantitative and qualitative paradigm. Quantitative paradigm is concerned with proof, with cause and effect and with demonstration (Ross, 2012). This approach starts with a hypothesis or idea that it seeks to confirm or refute. Data collection is deductive in quantitative paradigm. Qualitative paradigm refers to the fact that it seeks to understand things that cannot be readily measured or count.

All the 5 articles in this review were critically appraised using the CASP Tool. The research used qualitative methods, which deem appropriate for the type of research, as the researcher is trying to highlight the attitudes and experience and emotions of the participants involved. According to (will 2008) qualitative research looks at the essence of social phenomena, giving the people the opportunity to understand what people do and why.

The studies included in this research are based on primary quantitative researches. The quantitative researches are usually presented on the basis of positive paradigm in which the activity is directed at considering the phenomenological grounds. Belwo are the themes formulated to present data extracted from the review of literature.