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A cross-sectional study to assess the knowledge and lifestyle modifications regarding Prediabetic Syndrome among the patients aged 30 - 55 years attending OPD in NEIGRIHMS hospital, Shillong, Meghalaya

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Abstract

Prediabetes is a serious health condition where blood sugar levels are higher than normal but not high enough to be diagnosed as type 2 diabetes mellitus. Prediabetes is increasingly recognized as an important metabolic state as well as predisposing individuals to a high probability of future progression to diabetes and its associated complications. A better understanding of prediabetes could help with earlier identification, thereby allowing earlier intervention, potentially lowering the number of individuals who go on to develop diabetes[2]. Hence , this study aims to assess the knowledge of the participants regarding prediabetic syndrome and their lifestyle modifications and also to find the association between the knowledge of the participants and the selected demographic variables.

A cross sectional study was conducted in selected OPD of NEIGRIHMS Hospital, Shillong, Meghalaya from 10 April 2023 to 22 April 2023. A structured knowledge based questionnaire was used to collect data from 150 eligible participants who were selected using consecutive sampling technique. Analysis was done using descriptive and inferential statistics.

Out of 150 participants, 107 (71%) were from the age group of 30-42 years, 85 (56.67%) were males; 110 (73.33)% of participants resides in urban area and 89(59.33%) of the participants were graduates, 54(36%) had a family history of diabetes and more than half of the

participants i.e 89(59%) were not aware of the term prediabetes.

The result of the research study concludes that 84(56%) of the participants (aged 30-55 years) have inadequate knowledge and 77(51.33%) have a healthy lifestyle and 73(48.66%) have an unhealthy lifestyle.

No significant association was found between the level of knowledge regarding prediabetic syndrome and the selected demographic variables.

Inadequate knowledge regarding prediabetic syndrome and an unhealthy lifestyle modification was identified among 73 (48.66%) participants. The study suggests that a well planned awareness program can further enhance the knowledge of the community on prediabetic syndrome, emphasising on the importance of lifestyle modifications.

Keywords: Prediabetes, Knowledge, Diabetes Mellitus, lifestyle modification.

Introduction

Background of the Study

According to CDC (Centres for Disease Control and Prevention) an estimated 96 million adults aged 18 years or older had prediabetes in 2019 globally[3]. International Diabetes Federation (2014) estimated that the number of adults with IGT(Impaired Glucose Tolerance) is expected to increase globally, reaching 472 million by 2030. The greatest absolute rises are expected in South-East Asia and the Western Pacific Region[4].

The burden of diabetes is high and increasing globally, and in developing economies like India, mainly fueled by the increasing prevalence of overweight/obesity and unhealthy lifestyles. The estimates in 2019 showed that 77 million individuals had diabetes in India, which is expected to rise to over 134 million by 2045[5]. Almost one in two adults (20–79 years old) with diabetes were unaware of their diabetes status (44.7%; 239.7 million)[6]. As such, individuals with Pre-Diabetes and undiagnosed T2DM represent a public health challenge and missed opportunities to prevent complications.

The treatment of pre-diabetes has shown significant success in preventing the further progression of diabetes[7]. To prevent pre-diabetes from developing into T2DM, lifestyle intervention has been found to be very promising. Various aspects of pre-diabetes, have been reviewed in this paper**.**

Need of the study

Many individuals with prediabetes are unaware of their condition, as symptoms may not be apparent. This lack of awareness results in delayed diagnosis and intervention, allowing the condition to progress to full-blown diabetes. International Diabetes Federation (2019) shows that 374 million individuals have IGT(Impaired Glucose Tolerance), a prediabetes condition; and is estimated to increase to 548 million by 2045. Also, the comprehensive prevalence data on prediabetes in India is lacking[8]. As per the study conducted by W. Lyngdoh in January 2012 the Prevalence of Diabetes among the Khasi and Jaintia population of Meghalaya, was 9.89% and 12.5% respectively and found to be higher for the age group above 40 years[9]. But till date there is no research published on Prediabetes in Meghalaya so we are interested in exploring this new field of study.A better understanding of prediabetes can help with earlier identification and intervention, thereby potentially lowering the number of individuals progressing to diabetes. Our study focuses on assessment of knowledge and lifestyle modifications regarding prediabetes syndrome.

Objectives

Primary Objectives: To assess the knowledge regarding Prediabetic syndrome and lifestyle modifications among

the patients aged 30-55 years attending OPD in NEIGRIHMS hospital Shillong. Meghalaya.

Secondary Objectives; To find the association between level of knowledge regarding prediabetic syndrome and demographic variables among the patients attending OPD in NEIGRIHMS hospital Shillong, Meghalaya.

Operational Definition

Assessment refers to the evaluation and estimation of the knowledge and lifestyle modification among the patients aged 30-55 years on prediabetes.

Knowledge means what patients know about prediabetes, its risk factors, sign and symptoms and its management

Prediabetes is a condition in which individuals have blood glucose level higher than the normal but not high enough to be classified as prediabetes

Patient is an individual of age between 30-55 years seeking health care service in various OPDs in NEIGRIHMS.

Lifestyle is the living conditions, behaviour and habits that are chosen by an individual

Delimitations

The study is limited only to:

- Patients of age 30 to 55 years who are attending the NEIGRIHMS OPD
- Those who are willing to participate.
- Those who can read and write

Methodology

Study design	Non- experimental cross sectional study design
Study participants	Humans a) Inclusion criteria • All the patients aged 30-55 years attending OPD in NEIGRIHMS hospital, Shillong, Meghalaya. • Patients who are willing to take part in the study b) Exclusion criteria • Patients who cannot read and write • Patients who are already diagnosed with diabetes
Sampling technique	Consecutive sampling
Sample size	150
Setting	OPD(Medicine & Gynaecology), NEIGRIHMS, Shillong , Meghalaya
Data collection method	Self administered Structured questionnaires
Study period	10th April – 22nd April
Method for data analysis	Descriptive and inferential statistics

Data Collection Procedure

The data collection was carried out from 10th April – 22nd April in NEIGRIHMS Opd (medicine & gynaecology) , Shillong , Meghalaya. It was done by consecutive sampling techniques and informed consent was obtained from every participant. The data was collected by providing a set of self administered questionnaires to each participant for 10 - 15 minutes

Scoring Method

For section I: Distribution of Participants according to demographic characteristics. This section was not scored.

For section II : Knowledge regarding prediabetic syndrome. Each question was awarded 1 point for correct response and 0 for incorrect response.

For section III: To assess participant's lifestyle modification, they were asked to answer the most appropriate option according to their lifestyle. For both positive and negative questions, a maximum score of 3 was assigned to option 'a', score of 2 for option 'b' and score of 1 for option 'c'.

- Maximum possible score for knowledge on prediabetic syndrome is 13.
- Maximum possible score regarding lifestyle modification is 45.

Interpretation of Score

Knowledge question on prediabetic syndrome were categorised into two categories: good knowledge and poor knowledge:

- If the score is ≥7 then it is considered as good knowledge.
- If the score is <7 then it is considered as poor knowledge.

Lifestyle modifications were categorised into three categories: good lifestyle, average lifestyle and poor lifestyle.

- If the score is (15 -25), then it is a poor lifestyle.
- If the score is (26 - 35), then it is an average lifestyle.
- If the score is (36 - 45), then it is a good lifestyle.

Analysis, Interpretation and Discussion

The data collected from the participants were analysed by using descriptive statistics and inferential statistics (chi square test) the data are presented in the form of tables and bar diagrams.

Section 1: Socio-demographic Data of the participants

Table 1: Frequency and percentage distribution of participants according to demographic variables n= 150

Demographic Characteristics	Number of Participants (F)	Percentage (%)
Age		
30-42 years	107	71%*
43-55 years	43	29%
Gender		
Male	85	43.33%*
Female	65	56.66%
Education		
Class (1 - 8)	9	6.00%
Class (9 - 10)	30	20%
Higher Secondary	22	14.60%
Graduate and above	89	59.33%*
Residence		
Urban	110	73.33%*
Rural	40	26.66%
Family History		
Yes	54	36%
No	96	64%*
Awareness		
Yes	61	41%
No	89	59%*

Table 1: shows that out of 150 participants, 107 (71.33%) participants were from the age group of 30-42 years, 85(56.66%) participants were male, 89(59.33%) participants were graduates and above. 110(73.33%) participants reside in urban areas and 96(64%) participants do not have family history of diabetes and 89 (59%) participants were not aware of prediabetes.

Fig. 1: Frequency and percentage distribution of the participants as per the sources of information. n= 150

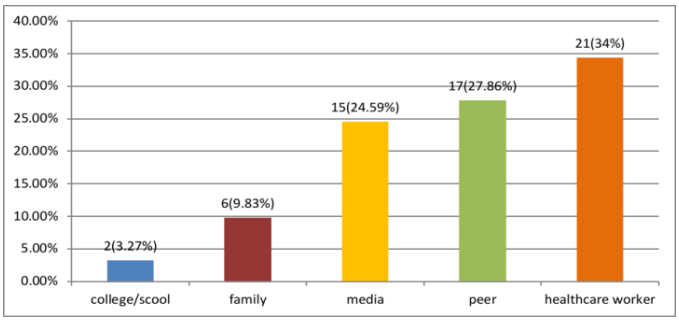


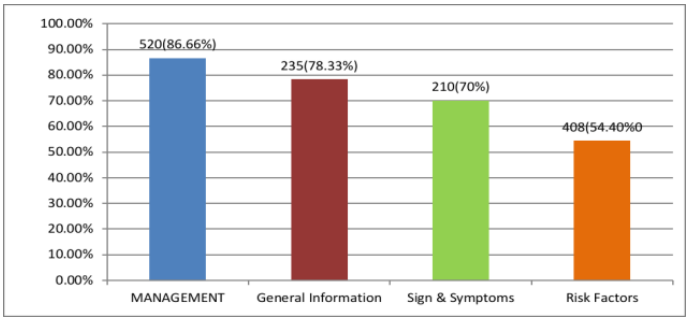
Fig. 1: Data in fig 1 depicts that 21(34%) out of 61 participants have heard from healthcare worker, 17(27.86%) participants have heard from peer group,15(24.59%) participants have heard from media, 6(9.83%) have heard from family and only 2(3.27%) have heard from school/college.

Table 2: frequency and percentage distribution of knowledge score regarding prediabetic (n=150)

Knowledge Score	Frequency	Percentage
Inadequate knowledge	84	56%
Adequate knowledge	66	44%

Table 2: Depicts that majority of the participants had inadequate knowledge i.e 84 (56%) and 66 (44%) of the participants have adequate knowledge regarding prediabetic.

Fig. 2: Frequency and Percentage distribution of participants score as per the domain level of knowledge regarding prediabetic syndrome n= 150



Interpretation: Fig. 2: Depicts the frequency and percentage distribution of the knowledge score of the participants. Majority of the participants 144(96%) have better knowledge on dietary modification to prevent prediabetes and only 57(38%) of the participants have knowledge on factors that can lead to prediabetes.

Fig. 3: Frequency and Percentage Distribution of Participants Lifestyle n = 150

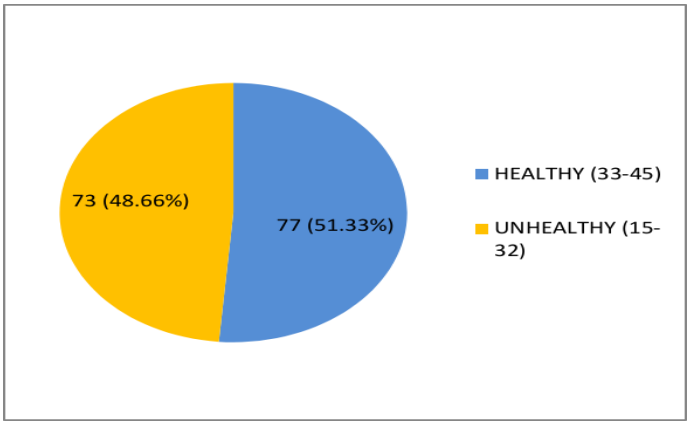


Fig. 3: Shows that the majority of the participants, 77(51.33%) have a healthy lifestyle and 73(48.66%) have an unhealthy lifestyle.

Table 3: Association between knowledge of participants regarding prediabetes with demographic variables n=150

Demographic Variables	Inadequate knowledge	Adequate knowledge	Degree of Freedom	Calculated value	Table value
Age (in years) 30-42 43-55	 56 28	 51 15	1	2.03	3.84

Gender Male Female	 49 35	 36 30	1	0.21	3.84
Education Primary High School Higher secondary Graduate and above	 7 19 12 46	 2 11 10 43	3	3.07	7.81
Residence Urban Rural	 27 57	 13 53	1	2.92	3.84
Family History Yes No	 28 56	 26 40	1	0.58	3.84

*Significance at 0.05 level of significance

Table 3: Depicts that no association was found between the level of knowledge regarding prediabetic syndrome and the selected demographic variables.

Discussion

A cross sectional study was conducted to assess the knowledge and lifestyle modification regarding prediabetic syndrome among the patients aged 30-55 years attending OPD in NEIGRIHMS hospital, Shillong,Meghalaya. The study reveals that the majority of the participants have inadequate knowledge i.e 84(56%) and 66 (44%) of the participants have adequate knowledge. Among the 150 participants, 77 (51.33%) have healthy lifestyle modifications and 73 (48.66%) have unhealthy lifestyle modifications.

A similar study conducted by **Mohsina Hyder K et.al 2020** carried out a questionnaire based study to assess the knowledge, attitude and practice among 308 newly diagnosed prediabetic patients screened over selected districts of South India. The study revealed 90% of respondents had poor knowledge and only 1.9% had a strong positive attitude.

Conclusion

The study revealed that only 44% of the participants aged (30-55) years have adequate knowledge on prediabetes compared to the previous study conducted by Essa Al Saleh et. al (2018) in which 87.1% were found to have high knowledge among 812 participants where 10% were health practitioners, 67% have a family history of diabetes which is 1.8 times more than our study where only 36% have a family history of prediabetes and diabetes.

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