ORIGINAL RESEARCH ARTICLE

KAP – Knowledge, Attitude, and Practice & Prevalence Study of Diabetes Mellitus among Morning Walkers in the City of Ahmedabad

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ABSTRACT

Background: Growing evidence from knowledge, attitude, and practice (KAP) studies indicates an urgent need to improve diabetes awareness, early diagnosis, risk factor control, and management & disease burden.

Objective: Objective of this present study was to know awareness of the diabetes risk factors & management among morning walkers of the city of Ahmedabad and to know the prevalence of diabetes cases among the general population of Ahmedabad.

Methodology: The present study is a cross-sectional study based in the Ahmedabad district of Gujarat. After obtaining signed informed consent at first & Data will be collected according to a standard protocol using an interview-based questionnaire, and random blood sugar will be checked using an instant glucometer and strips.

Result: The mean ±SD scores of the study population regarding the knowledge, attitude, and practice outcomes were 4.04 ± 1.03 ,2.20 ± 0.90, 3.80 ± 0.85. prevalence of Diabetes Mellitus found in this study is 43.49% which is predicted by value of Random Blood sugar 100-125 and ≥ 125 mg/dl.

Conclusion: Variables other than knowledge and attitude have a role in illness management. Poor self-management, a lack of desire, insufficient social support, or a lack of resources needed for sustained lifestyle adjustment behaviour are all potential explanations.

Keywords: Diabetes, Knowledge, attitude, practice, selfcare, Random Blood sugar

INTRODUCTION

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to severe damage to the heart, blood vessels, eyes, kidneys, and nerves (WHO). The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. Type 1 diabetes is the principal sort of diabetes in youth however can arise at any age, and it cannot be avoided. [1]

People with Type 1 diabetes require insulin to survive Type 2 diabetes bills for the considerable majority (over 90%) of diabetes worldwide. The total number of diabetic subjects is expected to reach 643 million (11.3%) by 2030 & 783 million (12.2%) by 2045. Two hundred forty million people live with unsuspecting diabetes. Among them, one-in-two young adults do not know that they have diabetes and nearly 90% of people with undiagnosed diabetes live in low- and middle-income countries. [1]

In developing countries beginning of diabetes mellitus occurs at a younger age (45-65). Studies from India have shown a much longer age at the onset of diabetes compared to the western population. An early occurrence of diabetes in the population has a severe economic impact as severe morbidity & early mortality occurs in the most productive years of life. [2]

The data from the Indian Council of Medical Research-India Diabetes study showed that the prevalence of diabetes ranged from 3.5 to 8.7 percent in rural areas to 5.8 to 15.5 percent in urban areas. Diabetes was more prevalent in cities (11.2 percent) than in rural regions (5.2 percent). One Ahmedabad study shows that prevalence of diabetes was 9% males and 10% females. 28.07% of males and 24.61 % of females were 55 years and above who reported history of diabetes & Individuals with waist circumference >90 cm in males and >80 cm in females had a risk of diabetes in comparison with individuals with normal waist circumference.[3][4]

Evidence suggests that various socio-demographic determinants, including poor health literacy, explain the epidemiological course of diabetes mellitus in low- and middle-income countries.[5][6] Growing evidence from knowledge, attitude, and practice (KAP) studies indicates a need to improve diabetes awareness, early diagnosis, risk factor control, and management & disease burden.[7][8] Most KAP studies have been conducted on patients diagnosed or newly diagnosed with diabetes attending hospitals or health centers.[8] Obtaining information on the level of diabetes awareness in a population is the first step in formulating a diabetes prevention program. [9] There is little evidence in the general public of current knowledge, attitudes, and practices regarding diabetes. According to WHO, the

expected values for normal fasting blood glucose concentration are between 70 mg/dl (3.9 mmol/L) and 100 mg/dl (5.6 mmol/L). When fasting blood glucose is between 100 to 125 mg/dl (5.6 to 6.9 mmol/L) changes in lifestyle and monitoring glycemia are recommended. KAP regarding DM and associated complications are rarely studied in the general population so this is study initiated.

METHODOLOGY

This was a cross-sectional descriptive study conducted among 246 individuals who were ≥ 18 ages doing morning walk and willing to participate. Mentally disable people or declined to participate in this study were excluded.

A stratified random sampling method was used. In this study, we randomly selected the garden for selecting the subjects for study. The study was conducted for 6 months (February to July 2022). The actual data collection was done in 41 working days. The interview questionnaire was predesigned and pre-tested and contains information on numerous research factors. The questionnaire for the assessment of knowledge included factors (risk factors) contributing to diabetes, self-care, treatment, complications, and prevention. Random blood sugar was checked immediately after by glucometer for identifying the prevalence of Diabetes Mellitus. The study is based in the Ahmedabad district of Gujarat. There are 116 Municipal parks or other gardens and six zones in Ahmedabad city according to AMC. In this study, will randomly select the garden for selecting the subjects for study. We chose people ≥18 Age and the morning walkers for our study because they are more conscious about their health or they are having some problem and due to that reason, they walk regularly. So, we can find awareness and prevalence among both health-conscious and generally healthy individuals about their blood sugar levels. After obtaining signed informed consent at the very first & Data will be collected according to a standard protocol using an interview-based questionnaire as a survey and random blood sugar was checked by using an instant glucometer and strips.

The questionnaire had 20 questions (Knowledge-9, Attitude-5, Practice-6), and each correct answer was given a score of 'one' and each wrong answer was given a score of 'zero'. The structured patient profile form included parameters like age and gender, family history of diabetes, drugs, and therapeutic category of the drugs prescribed, in response to the knowledge, attitude, and practice questionnaire and their mean ± SD scores. The possible total scores for knowledge, attitude, and practice subjects ranges from 14-20 for good, 7-14 for fair and 1-7 for poor.

Research Tool: After obtaining signed informed consent at the very first & Data will be collected according to a standard protocol using an interview-based questionnaire as a survey and random blood sugar was checked by using Accu-Chek instant glucometer and strips.

The questionnaire had 20 questions and each correct answer was given a score of 'one' and each wrong answer was given a score of 'zero' and 'don't know' counted as zero. The structured patient profile form included parameters like age and gender, family history of diabetes, drugs, and therapeutic category of the drugs prescribed, in response to the knowledge, attitude, and practice questionnaire. (Annexure I)

Ethical Consideration: We have the written consent of all the study participants. The study was approved by the Institutional Ethics Committee at the Indian Institute of Public Health Gandhinagar.

Data Processing: Data analysis was done by PI and the collected data were analyzed by using Microsoft excel formulas. The data analysis was performed using Microsoft Excel formulas. Respondent socio-demographic characteristics were stated using descriptive statistics. Means, standard deviations, and proportions will be generated to describe the overall sample characteristics (age, gender, occupation,). All associations were considered significant at the alpha level of 0.05.

Limitation of the study: The sample size may not be representative of the entire province, but the respondents were randomly selected and from a wide geographic area so it can be considered a sample representative. Due to a cross-sectional design, it will not be possible to ascertain if the exposure occurred prior to the outcome or vice versa.

RESULTS/FINDINGS:

A total 246 subjects were enrolled in this study. Among these 176(71.56%) were males and 70 (28.46%) were females. The greatest number of subjects were in the age group of 35-64 years which is [164 (66.67%)], followed by 65-85 years [44 (17.89%] and 18-34 years [38 (15.45%)]. The mean± SD age of the subjects was 51.1951±14.4844 years. Sociodemographic Data is presented in Table No:1.

Table 1 : Socio-Demographic Data of Study Participants

Sociodemographic Profile	Participants (%)
Age Groups	
18-34	38 (15.4 %)
35-64	164 (66.7 %)
65-85	44 (17.9 %)
Sex	
Male	176 (71.5 %)
Female	70 (28.5 %)
Occupation	
None	65 (26.4 %)
Student	9 (3.7 %)
Housewife	46 (18.7 %)
Job	102 (41.5 %)
Business	24 (9.8 %)
Medical History	
None	112 (45.5 %)
Obesity	20 (8.1 %)
High Blood Pressure	84 (34.1 %)
Chest Pain/Heart Disease	3 (1.2 %)
Surgery in the Last 5 Years	13 (5.3 %)
Respiratory Problem	13 (5.3 %)
Stroke	1 (0.4 %)
Smoking/Alcohol history	
Yes	27 (11 %)
No	219 (89 %)
Family history of Diabetes	
Yes	61 (24.8 %)
No	185 (75.2 %)
Diabetic status	
Diabetic Population	69 (28 %)
Non-Diabetic Population	177 (72 %)

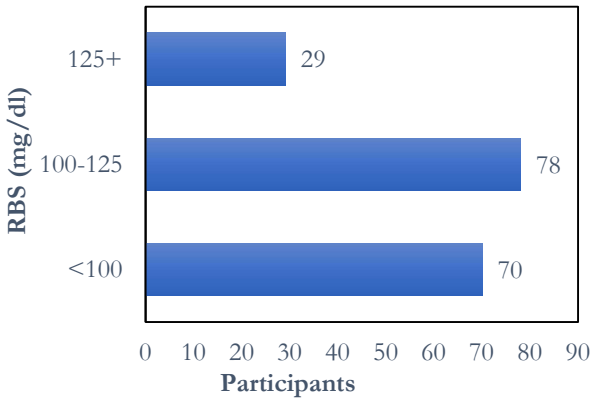

Figure 1: RBS value(mg/dl) among non-Diabetic participants of study Population

Table 2: Mean Knowledge, Attitude, and Practice Score of the Participants

Parameter	Mean± SD
Knowledge	4.04 ± 1.03
Attitude	2.20 ± 0.90
Practice	3.80 ± 0.85
Total	10.01 ± 2.256

25% of participants had family history of diabetes and 75% had no family history of Diabetes. (Table :1). There were 28% people are diabetic and 72 % population are non-diabetic among study Population. (Figure 1) This study found that 39.55% (70) have random blood sugar value <100 mg/dl. 44.07% (78) and 16.38% (29) participants of total population have 100-125 mg/dl and >125 mg/dl RBS value. People who have 100-125 &>125 mg/dl RBS value considered as at risk of developing diabetes mellitus or Pre-diabetic though also fasting blood sugar measuring necessary for confirmation.

The mean ±SD scores of the study population regarding the knowledge, attitude and practice outcomes were 4.04 ± 1.03 ,2.20 ± 0.90, 3.80 ± 0.85. The total KAP score of Mean ± SD is 10.01 ± 2.256 (Table 2).

The timing of taking medicines and insulin technique is important for the affecting the control of your diabetes and only 14.23% among total study Population have knowledge about this. Only 29.67% have knowledge that long time diabetes medicines can affect organ damage. (Table 3)

40.9% of the study population had checked their blood sugar 1 year ago and 38.9% had check their blood sugar 2 years ago.20.2% among total Population had never check their blood sugar in their life.

Table 3: Response to Knowledge Questions

Knowledge Questions	Correct Response (%)
Are you aware about Diabetes disease?	245 (100 %)
What are the symptoms which you know about the diabetes among following?	13 (5.3 %)
Which doctor do you should Prefer your Diabetes?	0 (0 %)
Do you believe that by eating more sugar in your daily food intake then you may catch the diabetes /catch the diabetes earlier?	96 (39.2 %)
Do you know that diet and nutrition can play important role in controlling the diabetes?	213 (86.9 %)
Do you think walking or other exercises can improve/ affect your diabetes status?	233 (95.1 %)
Do you know your that cholesterol level is having contribution in affecting the diabetes?	88 (35.9 %)
Do you know that timing of taking medicines and insulin technique is important for the affecting the control of your diabetes?	35 (14.3 %)
Do you think long time Diabetes medicines can affect your organ damage?	73 (29.8 %)

The Linear relationship between Age group, knowledge, and attitude of the respondents. Similar relation exists between the Knowledge, Practice, and occupation of respondents. (r=0.131489) A chi-square test was performed to examine the relationship between family history, smoking/alcohol history and RBS values (mg/dl) of morning walkers of the city of Ahmedabad. There is a significant relationship between Family history and random blood sugar value of morning walkers of Ahmedabad ($p<0.05$). As a surprise in this study, there is no significant association of smoking/alcohol history and Random blood Sugar among morning walkers of Ahmedabad. ($p>0.05$).

There is a significant association between Age and Knowledge regarding Diabetes among morning walkers of the city of Ahmedabad($p<0.05$) this concludes that age factor can contribute to managing and preventing Diabetes Mellitus and affect the knowledge of people and also There is a significant association between Occupation and knowledge of Diabetes regarding Diabetes Mellitus among morning walkers of Ahmedabad ($p<0.05$). Different occupations and workplaces can also affect the Knowledge, Attitude, and Practice of Diabetes Mellitus.

Table 5: Grading according to their KAP Total Score

Grade	Participants (%)
Poor	28 (11.4 %)
Fair	204 (82.9 %)
Good	14 (5.7 %)
Total	246 (100 %)

Among the study population, 11.38% (28) participants have a poor score for Knowledge, Attitude, and Practice of Diabetes Mellitus,82.93% (204) participants have fair and only 5.569% (14) have a Good Score for Knowledge, Attitude and Practice of Diabetes Mellitus.

DISCUSSION

This present study was conducted for Knowledge, Attitude and Practice and Prevalence study of Diabetes Mellitus among morning walkers in the city of Ahmedabad. Aim and Objective of this study to know the awareness of the diabetes risk factors & management in morning walkers of city of Ahmedabad and to know the prevalence of diabetes cases among general population of Ahmedabad.

Table 4: Response to Practice Questions

Practice Questions &Reply	Response (%)
Do you take your Pills for your Diabetes?	
Regular	58 (23.7 %)
Irregular	0 (0 %)
Missed sometimes	2 (0.8 %)
NA	185 (75.5 %)
Are you taking Insulin for your Diabetes treatment?	
Regular	2 (0.8 %)
Irregular	0 (0 %)
Missed sometimes	10 (4.1 %)
NA	233 (95.1 %)
In your daily routine which is Applied?	
≥ 2tbp sugar intake/ Per day	43 (17.6 %)
≥ 2tbp oil intake /Per day	195 (79.6 %)
≥ 2 times outside lunch-dinner/wk	66 (26.9 %)
Are you walking Regularly?	
Yes	230 (93.9 %)
No	15 (6.1 %)
Daily	90 (36.7 %)
Regular	136 (55.5 %)
Regularly irregular	126 (51.4 %)
Do you exercise regularly other than walking?	
Yes	30 (12.2 %)
No	215 (87.8 %)
Type of Exercise	
Moderate exercise	17 (6.9 %)
Yoga	9 (3.7 %)
Medication	2 (0.8 %)
Aerobic Exercise	2 (0.8 %)
Duration of Exercise	
30 min	25 (10.2 %)
45 min	5 (2 %)
1 hour	0 (0 %)
Last when you visit doctor for Diabetes or Blood sugar?	
1 year	101 (41.2 %)
2 years	94 (38.4 %)
Never	50 (20.4 %)

The mean ±SD scores of the study population regarding the knowledge, attitude, and practice outcomes were 4.04 ± 1.03 ,2.20 ± 0.90, 3.80 ± 0.85. The total KAP score of Mean ± SD is 10.01 ± 2. 256.The prevalence of Diabetes Mellitus found in this study is 43.49% which is predicted by value of Random Blood sugar 100-125 and ≥ 125 mg/dl.

This study's notable findings are that most participants had an either moderate or fair knowledge of diabetes, there was no significant relationship between knowledge of diabetes and gender, and even though the majority of participants' knowledge was satisfactory, their attitude toward diabetes was very poor. Most study respondents were not involved in any diabetes Mellitus prevention efforts. There is a significant association between Family history and random blood sugar value of morning walkers of Ahmedabad ($p < 0.05$). There is a significant association between Age and Knowledge regarding Diabetes among morning walkers of the city of Ahmedabad($p<0.05$). There is a significant association between Occupation and knowledge of Diabetes regarding Diabetes Mellitus among morning walkers of Ahmedabad ($p<0.05$).20.2% of people in the total population had never checked their blood sugar in their life.

A study from Pakistan highlighted the fact that an adequate education and awareness program can change public attitudes towards diabetes, as a significant gap was found between the knowledge and attitude of diabetic patient's knowledge & of various aspects of conventional knowledge of the health education program can improve patient knowledge and change their attitude.[10] Another study has shown patient outcomes, glycemic control and quality of life in patients with diabetes mellitus can improves by intensive diabetes education and care management.[11][12] A hospital based pilot study in south India recognized that patient education improved their information and practice of medicine adherence which reflected on brought down fasting and postprandial blood glucose levels. In gestational diabetes Glycemic control was found same with metformin and insulin action. [13]

In Asian countries, the general Diabetic Population shows a steady increase in Diabetes prevalence due to increase poor lifestyles, rapid Westernization, lack of knowledge, and unsatisfactory attitudes and practices towards DM. In addition, there is also an apparent gap between knowledge and attitudes toward diabetes among diabetic patients. [14]

Intensive polygenic disease education and the correct implementation of awareness programs will improve Glycemic management and quality of life in a diabetic population. [15] Diabetes mellitus knowledge, attitude, and appropriate practices will enormously reduce the incidence and morbidity associated with DM. [16][17]

Health literacy is an integral part of the patient of diabetes who has a good knowledge of diabetes and its complications which is appropriate for treatment and their Diabetic health. There is strong evidence that people who are educated and conscientious about their diabetes self-management achieve better and longer-lasting diabetes control. [18][19] Diabetes and its consequences can be avoided in great part if suitable and timely actions are adopted. Diabetes and its consequences can be prevented and controlled with proper health education. [20]

CONCLUSION

This study's findings imply that variables other than knowledge and attitude have a role in illness management. Poor self-management, a lack of desire, insufficient social support, or a lack of resources needed for sustained lifestyle adjustment Behaviour are all potential explanations. In nations where diabetes is a major public health concern, a patient/self-empowerment approach to diabetic treatment may affect the effectiveness of Diabetes Mellitus prevention and control initiatives.

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