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Original Research Article

Assessment of knowledge, attitude and practice about diabetes among diabetic patients of tertiary care centre in central India

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ABSTRACT

Background: Diabetes mellitus (DM) is one of the major fast growing non-communicable disease (NCD) and causes threats to global public health. Prior to initiating an educational program or interventions for diabetic patients, their current level of knowledge (K), attitude (A), and practice (P) should be evaluated. The purpose of this study was thus to determined current diabetes-related knowledge, attitude, and practices (KAP) of adults with Diabetes mellitus..
Methods: Current study was cross sectional study from August to December 2014 in medicine outpatient department of Tertiary care hospital of Bhopal. A semi‑structured interviewer administered questionnaire was used for data collection, and it consisted of four sections.
Results: A total of 150 study participants were enrolled for the study. Among them, 58% were male and 425 were female diabetic patients. Around 16% of the participants having good level of knowledge, 34.6% of participants have poor knowledge and 49.3% having moderate knowledge. Out of the total participant 43.3% have positive attitude and only 34% patients had positive practice.
Conclusions: In our study most of the patients belong to moderate and poor knowledge score as well as negative practice and negative attitude that emphasizes the need for increasing diabetes awareness activities. The efforts should be more focussed on female patients, younger patients and those who have no family history of diabetes.

Keywords: Knowledge, Attitude, Practice, Diabetes

INTRODUCTION

Diabetes mellitus (DM) is one of the major fast growing non-communicable disease (NCD) and causes threats to global public health. Progression of diabetes in most cases results in chronic complications, which lowers patients' quality of life and increases their morbidity and mortality; it also leads to a great economic burden on our health systems.[1] It has been proved that self-care is the cornerstone of diabetes management, since this has been proven in various studies and populations.[2] Prior to initiating an educational program or interventions for diabetic patients, their current level of knowledge (K), attitude (A), and practice (P) should be evaluated.[3]

As per International federation (IDF) atlas seventh edition 2015, there are 415 million people worldwide and 69.2 million in India people with type 2 diabetes and, and these numbers are projected to increase to 642 million and 123.5 101 million by the year 2040.[4]

The increase in morbidity rate of diabetes in developing countries is most likely due to trend of urbanization and lifestyle changes. The patients who have better knowledge about diabetes mellitus are more likely to involved in their treatment.[3,5,6]

Adequate knowledge of diabetes can prevent the chronic comorbidities and other complications of diabetes, which

has a significant impact on the quality of life of the diabetic patients. The necessity of awareness regarding prevention, diagnosis, risk factor and disease management has been supported from previous other studies.[7-11] There is a need to assess current knowledge, attitude, and practice, levels among participants living with diabetes to aid in future development of control programs and techniques for effective health education and patients counselling.

A large gap between knowledge, attitude, and practices among the diabetes patients exist that can be minimized by assessing their current knowledge, attitude, and practices and their determinants that can be helpful in future planning for preparation of better educational interventional program for diabetic patients.[12,13]

The purpose of this study was thus to determined current diabetes-related knowledge, attitude, and practices (KAP) of adults with Diabetes mellitus.

METHODS

Current study was conducted as a Hospital based cross sectional study from August to December 2014 in medicine outpatient department of tertiary care hospital of Bhopal. First of all we took permission from concerned authority of respective departments, after that we randomly selected 150 diabetes patients who gave their consent for study. First three months of study period were assigned for the data collection. Seriously ill, pregnant and type 1 diabetic patients were excluded from the study. All Respondents gave their verbal informed consent before administration of the questionnaires. A semi‑structured Pretested questionnaire was used for data collection, and it consisted of four sections; one section was dedicated to socio‑demographic characteristics while the other sections consisted questions related to knowledge (14 question), attitude (7questions), and practices (7 questions), each were allocated to the specific scoring based on the responses of participants.

To ensure the validity of the questionnaire, questions were based on the literature related to the topic used in other settings.[14-16] A pilot study was performed to ensure that all questions were easily understood by participants.

Patients' knowledge of diabetes was assessed using 14 questions relating to definitions, symptoms, aetiology and complications of diabets in which some question have multiple choice options which carry one point for each correct response. Attitudes were assessed using a series of questions on positive and/or negative attitudes towards having the different aspect of the disease. Patients' practices were assessed using questions related self-care, dietary habits, compliance to treatment, weight control, Exercise, blood sugar monitoring, and regular follow up etc.

DM knowledge was then scored by assigning one point for each correct response (total score=26). We considered a score of 15–26 ‘Good Knowledge’; a score of 10–14 ‘Moderate Knowledge’ and 0–9 ‘Poor Knowledge`. Attitudes were elicited using Likert scales with 0=disagree, 1=neutral, 2=agree. Patients' responses were summarized and a score of 0–6 was considered ‘Negative Attitude’ and a score of 7-14 as ‘Positive Attitude’. Each question in the practice part belongs 2 point for correct practice and 1 point in case of incorrect practice. Where a score of 7–9 was considered as ‘Negative Practice’ and a score of 10–14 was considered as ‘Positive Practice.

Statistical analysis

Data were entered into Microsoft Excel 2007 and analyzed using Epi Info™ language en-US version 7.2.1.0. Descriptive statistics were applied to find frequency and chi square test was applied to determine the association and $p<0.05$ was taken as statically significant.

RESULTS

A total of 150 study participants were enrolled for the study. Among them, 58% were male and 425 were female diabetic patients. Most of the patient’s (72%) were of age group more than 50 years. A higher proportion of the subject (65%) resided in urban area. Most of them (28.6%) had high school level of education while 21.3% of them had graduate and post graduate level of education. Next were those with middle school education (20.6%), primary education (19.3%) and those who never attended school (10%). Occupation wise most of the study subject were unemployed (32.6%). Only 26% of the participants had family history and 18.6% of patients were smoker. Details of other socio-demographic variable shown in Table 1.

We assessed the knowledge, attitude and practice of study participant with the help of pretested questionnaire and after that grading was done as per response score of the participants.

Knowledge assessment

Knowledge was measured using 8 main questions related to basic information, diagnosis, risk factors, prevention, and complications of DM. Around 16% of the participants scored 15 or more out of total score of 26, and were categorised as having good level of knowledge, 34.6% of participants scored less than or 9 (poor knowledge) and 49.3% scored between10 to 14 points (moderate knowledge) (Table 2). 67% patients were aware that diabetes is characterised by raised blood sugar.

Only 26% patients knew that diabetes is characterized by higher blood glucose level than normal whereas most of them (32%) think that increased urination is the only symptom of diabetes. Out of 250 patients only 29%

(n=88) knew the normal range of blood glucose level. About two-third (62%) of the participants knew that diabetes can cause complication or organ damage in which most of the patient's stated eye and kidney as the commonest site for complication. 14% of the population didn't know any kind of complications regarding the diabetes. 41% people were aware that diabetes can prevented by healthy diet and regular exercise and about 24% of them think that blood pressure control is necessary in diabetes whereas only 29% patients were aware about the symptom of hypoglycaemia.

Table 1: Socio-demographic variables of study population.

S.No	Variables	N (%)
1	**Age**	
	≤50	42 (28)
	>50	108 (72)
2	**Gender**	
	Male	87 (58)
	Female	63 (42)
3	**Religion**	
	Hindu	99 (66)
	Muslims	42 (28)
	Others	9 (6)
4	**Occupation**	
	Professional / semi-professional	21 (14)
	Clerical, shop owner, farmer	27 (18)
	Skilled/semiskilled worker	37 (24.6)
	Unskilled worker	16 (10.6)
	Unemployed	49 (32.6)
5	**Education**	
	Profession / Graduate/ postgraduate/ post high school diploma	32 (21.3)
	High school certificate	43 (28.6)
	Middle school certificate	31 (20.6)
	Primary school certificate	29 (19.3)
	Illiterate	15 (10)
6	**Annual Income**	
	<20000	21 (14)
	20000-50000	64 (42.6)
	>50000	65 (43.3)
7	**Living area**	
	Urban	98 (65.3)
	Rural	52 (34.6)
8	**DM history in family**	
	Yes	34 (22.6)
	No	116 (77.3)
9	**Smoking status**	
	Yes	28 (18.6)
	No	122 (81.3)
10	**Duration of diabetes (years)**	
	≤5 years	67 (44.6)
	>5 years	83 (55.3)

Table 2: Composite score of knowledge, attitude and practices.

Knowledge, attitude and practices grading	Study subjects, n (%)
Knowledge (score)	
Good knowledge (15-26)	24 (16)
Moderate knowledge(10-14)	74 (49.3)
Poor knowledge (0-9)	52 (34.6)
Altitude	
Positive altitude (7-14)	65 (43.3)
Negative altitude (0-6)	85 (56.6)
Practice	
Positive (10-14)	51 (34)
Negative (7-9)	99 (66)

Knowledge score were further analysed to see the association with other variables (Table 3). Less than half of the patients (45.2%) with age less than 50 years had a good/moderate knowledge score as compared to patients in the age group of 50 and above, in which about three fourth (73.1%) of them had a moderate/good knowledge score. The association between age of the patient and knowledge score was found to be statistically significant. Majority of the male patients and those with middle school or higher level education had a moderate/good knowledge score and the association was found to be statistically significant. About 82% of the patients who had a family history of diabetes had statistically significant good/moderate knowledge score as compared to those without family history of diabetes.

Attitudes assessment and practices assessment

Attitude was assessed with seven questions and participants who got 7 or more marks were considered as having positive attitudes. Out of the total participant 43.3% have positive attitude and 56.6% had negative attitude (0-6 score). The overall attitude towards diabetes was below satisfaction. About half of the patients perceived diabetes to be treatable whereas only one third of them thought that it could be managed by diet and only 8.6% of them thought that it can be controlled by regular exercise. 20.6% of the patients thought that it reduces life expectancy and about one third stated if diabetes not treated it can lead to organ damage.

Practices were assessed using questions on participant's intention to seek treatment, and preventive measures such as screening for DM, diet and, exercise. Out of the total participants 34% patients had positive practice (10-14 score) and 66% participant have negative practices (7-9 score). About three fourth of the patients have regular visit to health facility but less than half of the patients get their sugar check regularly. Also half of the patients follow a plan diet and exercise regularly. However, out of the total more than two third forget to take anti-diabetic drug. It was also found that more than half of the patients check their foot regularly.

Table 3: Association of different variable with knowledge score.

Variables	Knowledge		P value
	Knowledge score 10-26 (moderate/good)	Knowledge score 0-9 (poor)	
Age			
≤50 (42)	19 (45.2)	23 (54.7)	0.0020
>50 (108)	79 (73.1)	29 (26.8)	
Sex			
Male (87)	67 (77.0)	20 (22.9)	0.0005
Female (63)	31 (49.2)	32 (50.7)	
Education			
Middle school or higher education (106)	82 (77.3)	24 (22.6)	0.0001
Lower than middle school (44)	16 (36.3)	28 (63.6)	
Living area			
Rural (98)	60 (61.2)	28 (28.5)	0.3903
Urban (52)	38 (73.0)	24 (46.1)	
Family history of DM			
Yes (34)	28 (82.3)	6 (17.6)	0.0234
No (116)	70 (60.3)	46 (39.6)	

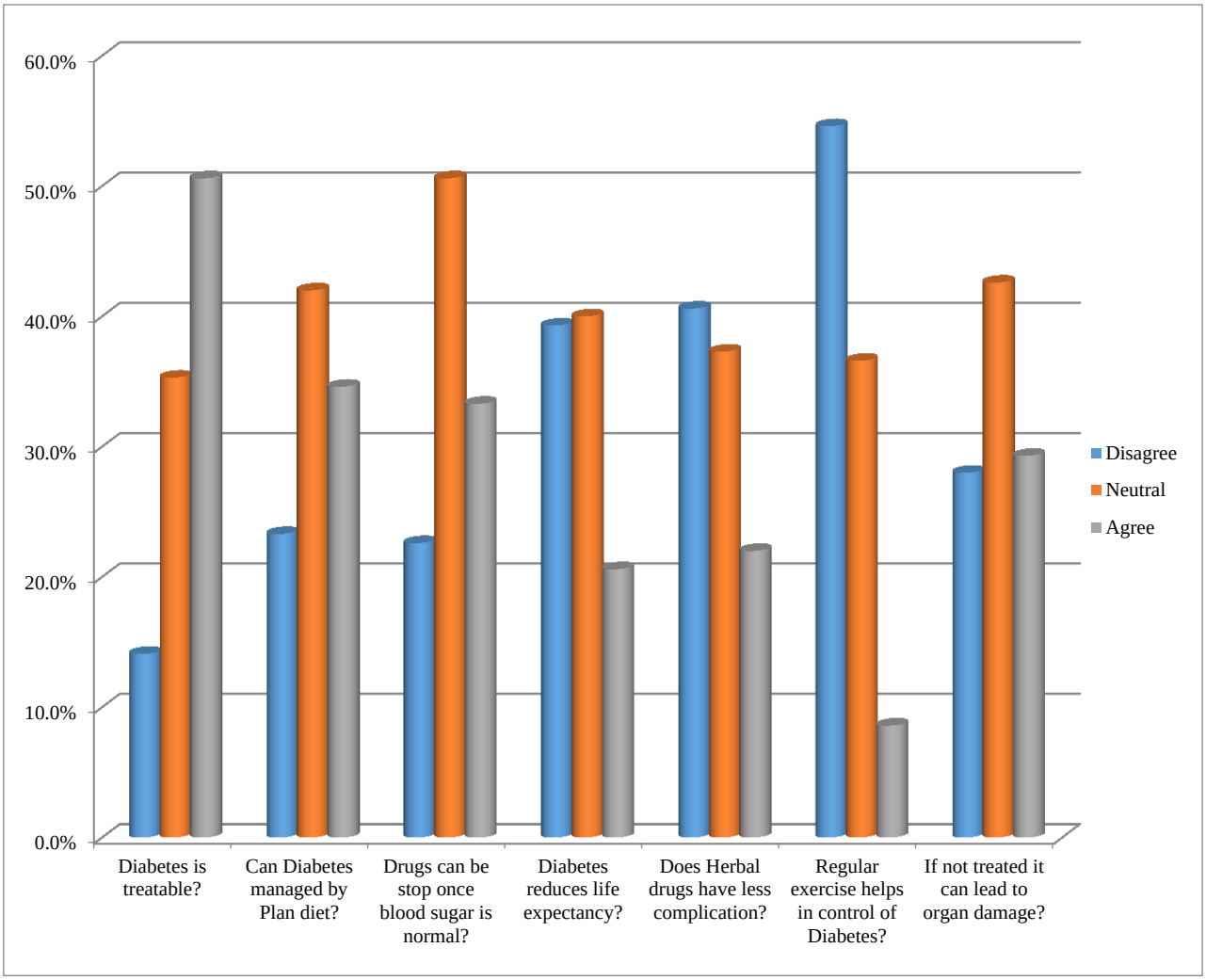

Figure 1: Study participant's response on attitude questions.

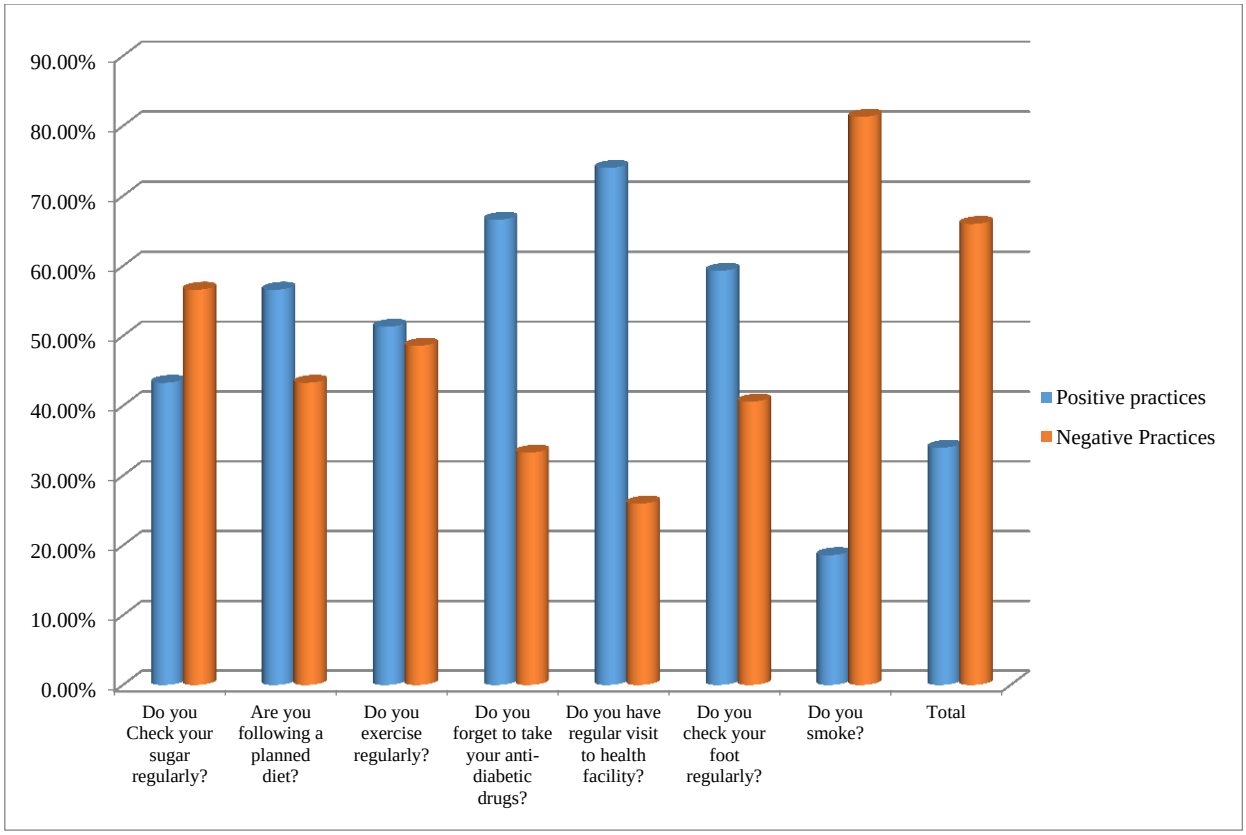

Figure 2: Study participants' response on practice related questions.

Detail question wise response regarding attitude and practice assessment is shown in Figure 1 and 2.

The overall assessment on the basis of scoring of knowledge attitude and practices, most of the patients were found to have moderate knowledge, unsatisfactory attitude and negative practices toward diabetes.

DISCUSSION

In current study we assessed the knowledge, attitude and practices with the help of set of questionnaires. Out of the total participants only 16% have good knowledge score, whereas 49.3% have moderate knowledge score and 34.6% have poor knowledge score. And almost two third of patients (66%) have positive practice and only 43.3% have satisfactory attitude. In our study most of the patients belong to moderate and poor knowledge score as well as negative practice and negative attitude. Similarly low score and negative attitude and practices also seen in other studies.[16-20] Inadequate knowledge regarding disease aetiology, symptoms and complication etc. indicate gaps in adequate patient counselling practice by health care providers.

Total score of knowledge were higher among male diabetic patients as compared to female patients. Similar findings have also been seen in other studies.[8,15,18,19] Other reason of low score of knowledge is due to low literacy rate among female as compared to male patients in India.

Significantly higher knowledge score, satisfactory attitude and good practices was seen among older age group (>50 year) as compared to younger age group people which is supported by other study also.[21]

Knowledge score, positive attitude and practice score were also higher among higher education group (Higher than middle education level) as compared to lower education group(lower than middle age group) because education status of patients significantly affects their knowledge, attitude and practice regarding disease management. Highly educated individuals had good knowledge about diabetes condition, positive attitude toward disease management, good compliance to diabetes treatment and better practice regarding planned diet and regular exercise habit. It highlighted the importance of education for effective disease management. Similarly, educational status improved knowledge regarding the disease shown in earlier study by Paulose.[16,22]

In current study the knowledge score as well as positive attitude and practices were significantly higher among patients with family history of diabetes as compared to those who have no family history. Similar finding was reported in a other study which showed that patients with positive family history were more aware of the role of

heredity, of diet as a mode of therapy, and of the long-term complications of diabetes mellitus.[22]

It is well understood that diabetes management requires patient involvement for a better disease control as management of diabetes requires not only the prescription of the pharmacological regimen by the physician but also intensive education and counselling of the patient; Patients counselling or group education regarding the various aspect of diabetes like life style modification, compliance of medication, screening for complication etc.[15,23-25]

A large sample size and better study design can be planned for future study for better generalizability.

CONCLUSION

The findings of the study revealed that most of the patients had moderate knowledge, unsatisfactory attitude and negative practices toward diabetes that emphasizes the need for increasing diabetes awareness activities. As level of education was significantly associated with the poor knowledge, negative attitude and practice, so need for better Information educational and communication activities centred on diabetes is the need of the hour. The efforts should be more focussed on female patients, younger patients and those who have no family history of diabetes. Moreover health care providers should be trained to provide effective counselling to diabetic patients.

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REFERENCES

1. Liu Z, Fu C, Wang W, Xu B. Prevalence of chronic complications of type 2 diabetes mellitus in outpatients - a cross-sectional hospital based survey in urban China. Heal Qual Life Outcomes. 2010;8:62.
2. Knight K, Badamgarav E, Henning J, Hasselblad V, Gano A, Ofman J, et al. A systematic review of diabetes disease management programs. Am J Manag Care. 2005;11:242–50.
3. Abdo NM, Mohamed ME. Effectiveness of health education program for type 2 diabetes mellitus patients attending Zagazig University Diabetes Clinic, Egypt. J Egypt Public Heal Assoc. 2010;85(3&4):113–30.
4. IDF. IDF Diabetes Atlas. International Diabetes Federation. 2015. 1-163 p.
5. Damasceno MMC, Zanetti ML, Carvalho EC de, Teixeira CR de S, Araújo MFM de, Alencar AMPG. Therapeutic communication between health workers and patients concerning diabetes mellitus care. Rev Lat Am Enfermagem. 2012;20(4):685–92.
6. Kadirvelu A. Reality vs Illusion : Knowledge, Attitude and Practice among Diabetic Patients. Int J Collab Res Intern Med Public Heal. 2012;4(5):723–32.
7. Demaio AR, Dugee O, De Courten M, Bygbjerg IC, Enkhtuya P, Meyrowitsch DW. Exploring knowledge, attitudes, and practices related to alcohol in Mongolia: A national population-based survey. BMC Public Health. 2013;13(1):1.
8. Rani PK, Raman R, Subramani S, Perumal G, Kumaramanickavel G, Sharma T. Knowledge of diabetes and diabetic retinopathy among rural populations in India, and the influence of knowledge of diabetic retinopathy on attitude and practice. Rural Remote Health. 2008;8(3):838.
9. Justin Zaman M, Patel A, Jan S, Hillis GS, Raju PK, Neal B, et al. Socio-economic distribution of cardiovascular risk factors and knowledge in rural India. Int J Epidemiol. 2012;41(5):1302–14.
10. Al-Maskari F, El-Sadig M, Al-Kaabi JM, Afandi B, Nagelkerke N, Yeatts KB. Knowledge, Attitude and Practices of Diabetic Patients in the United Arab Emirates. PLoS One. 2013;8(1):1–8.
11. Norris SL, Engelgau MM, Venkat Narayan KM. Effectiveness of Self-Management Training in Type 2 Diabetes: A systematic review of randomized controlled trials. Diabetes Care. 2001;24(3):561–87.
12. Mehta RS, Karki P, Sharma SK. Risk factors, associated health problems, reasons for admission and knowledge profile of diabetes patients admitted in BPKIHS. Kathmandu Univ Med J. 2006;1(13):11–3.
13. Beattie V, Jones MJ. PDFlib PLOP : PDF Linearization, Optimization, Protection Page inserted by evaluation version A Comparative Study of the Use of Financial Graphs in the Corporate Annual Reports.
14. Chen L, Magliano DJ, Balkau B, Colagiuri S, Zimmet PZ, Tonkin AM, et al. AUSDRISK: An Australian Type 2 Diabetes Risk Assessment Tool based on demographic, lifestyle and simple anthropometric measures. Med J Aust. 2010;192(4):197–202.
15. Shah V, Kamdar P, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. Int J Diabetes Dev Ctries. 2009;29(3):118.
16. Mohan D, Raj D, Shanthirani CS, Datta M, Unwin NC, Kapur A. Awareness and knowledge of diabetes in Chennai--the Chennai Urban Rural Epidemiology Study [CURES-9]. J Assoc Physicians India. 2005;53:283–7.
17. Islam FMA, Chakrabarti R, Dirani M, Islam MT, Ormsby G, Wahab M, et al. Knowledge, attitudes and practice of diabetes in rural Bangladesh: The Bangladesh Population based Diabetes and Eye Study (BPDES). PLoS One. 2014;9(10):e110368.
18. Saleh F, Mumu SJ, Ara F, Begum HA, Ali L. Knowledge and self-care practices regarding diabetes among newly diagnosed type 2 diabetics in

Bangladesh: A cross-sectional study. BMC Public Health. 2012;12(1):1.
19. Mohan V, Kaur T, Deepa M, Bhansali A, Anjana R, Pradeepa R, et al. Knowledge and awareness of diabetes in urban and rural India: The Indian Council of Medical Research India Diabetes Study (Phase I): Indian Council of Medical Research India Diabetes 4. Indian J Endocrinol Metab. 2014;18(3):379.
20. He X, Wharrad HJ. Diabetes knowledge and glycemic control among Chinese people with type 2 diabetes. Int Nurs Rev. 2007;54:280–7.
21. Niroomand M, Ghasemi SN, Karimi-Sari H, Kazempour-Ardebili S, Amiri P, Khosravi MH. Diabetes knowledge, attitude and practice (KAP) study among Iranian in-patients with type-2 diabetes: A cross-sectional study. Diabetes Metab Syndr Clin Res Rev. 2016;10(1):114–9.
22. Herath HMM, Weerasinghe NP, Dias H, Weerarathna TP. Knowledge, attitude and practice related to diabetes mellitus among the general public in Galle district in Southern Sri Lanka: a pilot study. BMC Public Health. 2017;17(1):535.
23. Murata GH, Shah JH, Adam KD, Wendel CS, Bokhari SU, Solvas PA, et al. Factors affecting diabetes knowledge in Type 2 diabetic veterans. Diabetologia. 2003;46(8):1170–8.
24. Tarrier N, Bobes J. The importance of psychosocial interventions and patient involvement in the treatment of schizophrenia. Int J Psychiatry Clin Pract. 2000;4(1):35–51.
25. Malathy R, Narmadha MP, Alvin Jose M, Ramesh S, Dinesh Babu N. Effect of a Diabetes Counseling Programme on Knowledge, Attitude and Practice among Diabetic Patients in Erode District of South India. J Young Pharm. 2011;3(1):65–72.

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