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Research Article

EVALUATION OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS DIABETES SCREENING AMONG UNIVERSITY FACULTY MEMBERS AND HIGH SCHOOL TEACHERS IN SHIRAZ, IRAN

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ABSTRACT
Background: Teachers and university faculty members can play key role in raising the awareness and knowledge of the populations and potentially change their attitude and behavior regarding Diabetes screening. Thus considering the important role played by this group and regarding the increasing rate of Diabetes screening, the present study attempted to evaluate the basic knowledge of high-school teachers and university faculty members and their attitude and practice in connection with Diabetes screening test.
Objectives: The aim of this study was to compare the knowledge, attitude and practice about Diabetes Screening between University Faculty members and High School teachers in Shiraz, Iran. ***Materials and Methods:*** This cross-sectional study comprised 832 subjects with high education level. Use of a sample size formula indicated the need for at least 770 participants; a population goal was set at 831 individuals. The study involved 424 males (212 high school teachers and 212 faculty members) and 417 females (206 high school teachers and 211 faculty members). Stratified random sampling method was carried out proportionally to population size in each group. Questionnaires were completed via face to face interview. Data were analyzed using SPSS.V.13. ***Results:*** Difference of mean scores for knowledge (p value= 0.86) and attitude (p value= 0.60) about Diabetes screening in male teachers of different educating degree was not statistically significant but there was significant difference in mean scores for attitude (p value= 0.005) about Diabetes screening in male teachers of different school distinct. Among female teachers with different academic degree, although there was significant difference in knowledge mean scores (p value= 0.008) but mean scores of attitude (p value=0.791) was not statistically different. ***Conclusions:*** This study showed no acceptable level of knowledge, attitude and practice about screening of Diabetes among faculty members and teachers from different areas of Shiraz. This calls for further attention paid by health professionals and other authorities concerned with regard to providing the population under study with necessary information about Diabetes screening.

Keywords: *Knowledge; Attitude; Diabetes Screening, Shiraz, Iran*

INTRODUCTION
Type 2 Diabetes mellitus is one of the most important health problem worldwide (Liu *et al.,* 2010). Diabetes leads to neuropathy, nephropathy, retinopathy and macro vascular complications and it cause high mortality and morbidity (Nikibakht *et al.,* 2009).
World Health Organization estimates that number of people with Diabetes will increase from 171 million in 2000 to 366 million in 2030 (Atak *et al.,* 2008). 5% of European populations suffer from Diabetes (Davies *et al.,* 2008).
It's expected that the greatest increase will occur in prevalence of type 2 Diabetes worldwide especially in the Middle East by 2030. WHO suggests that, most number of deaths due to chronic diseases will occur in Africa and the Middle East between 2006 to 2015. High rates of consumption carbohydrates and low levels of physical activity have contributed to this increase in the Middle East (Habibzadeh, 2009).
People that suffer from Diabetes in developing countries are younger (46-64 years old) than diabetic people in the developed countries and its resulted in high burden of disease in these countries (Lotfi *et al.,* 2013). It is estimated that by 2025, more than 75% of diabetic patients will live in developing countries (Azizi, 2005).

In Iran, DM ranks first disease among non-contagious disease. It is estimated that 52% of the Iranian population have Diabetes. Also, it is estimated that it would increase to 6.8 % (5.1 million people) by 2025. According to evidence half a million is being added to the number of diabetics in the country annually (Kenealy *et al.*, 2002; Abdoli and Tavana, 2013).

In addition to definite cases of diabetes,individualswith undiagnosed type 2 Diabetes and impaired glucose tolerance test are reported to have substantial clinical importance and they are high risk for cardiovascular Morbidity and mortality (Das *et al.*, 2012).

Because of increasing in prevalence of diabetes, treatment of diabetes has a high cost and burden (Ghodsi *et al.*, 2014).

Screening for type 2 Diabetes (adults aged 25 years or older) would cost 236449 per life-year gained and 56649 per QALY gained (The CDC Diabetes Cost-Effectiveness Study Group, 1998).

Teachers and faculties could affect on knowledge and potentially could change attitude and behavior of population they are face.

So according to important role of this group and also increasing rate of Diabetes Screening, we evaluated the teachers and faculty members' knowledge base and their attitude and performance for Diabetes screening test.

MATERIALS AND METHODS

Method

This survey was conducted in the group of community with high education level, designed as a cross-sectional study in the academic staff of the Shiraz University and Shiraz University of medical sciences and teachers of high school of four region of education and training organization of Shiraz, Iran in 2012. People in the study were at least 40 years of age and consent to participate in the study. Person with chronic diseases or any form of malignancies excluded from study.

Use of sample size formula indicated the need at least 770 participant, a population goal was set at 831 individuals. The study involved 414 male (212 participants from high school teachers and 212 of faculties) and 417 females (206 participants from high school teachers and 211 of faculties). We used randomized stratified sampling method proportionally to size according to main population of each group. All academic staff divided to 2 chief group that included faculties of Shiraz university and Shiraz university of medical sciences, then each university has been divided into different schools and from each school depending on the number faculty members were sampled. Also based on the zone of education and Training organization divided into four region then in each region based on field were divided into four group(mathematics, experimental, human and technical).

Questionnaires were completed via face to face interview by. Internal consistency and reliability were assessed by applying a Cronbach's alpha test (at a minimal $\alpha = 0.72$). Participation in the study was completely voluntary.

We designed questionnaire which has 3parts.It includes 18question for women and 24questions for men. Totally, there was 18 score for women and 24 score for men. By using questionnaire we evaluate the attitude, knowledge and performance of people. For evaluating attitude we determined their opinion about screening. Also, we determined their age at the first screening test as a factor which has demonstrates their knowledge. For evaluating their performance, we asked them if they have done screening test during their life.

In order to analyzing data, we used SPSS, Kruskal-Wallis Test, chi square, fisher exact test, Mann-Whitney test.

We categorized people in 3 groups via their score. Those who got more than 65% of total score had sufficient knowledge and who got 35% to 64.9% had tolerable knowledge and who got less than 35% had poor knowledge about screening. Also we have the same for attitude. Those who got more than 65% of total score had sufficient attitude and who got 35%to 64.9% had tolerable attitude and who got less than 35% had poor attitude about screening.

RESULTS AND DISCUSSION

Results

Among, 831 studied participants, 414 males (49.8%) which include 212 faculty members (141 medical sciences, 71, Shiraz university (non medical)) and 202 high school teachers in shiraz.
417 (50.2%) females which include 211 universities (129 medical sciences, 82 Shiraz University (non medical) and 206 high school teachers.

Table 1: Characteristics of university occupied participants

Type of University				Academic rank				Field				
Shiraz university of medical sciences N (%)		Shiraz university N (%)		Mentor N (%)	Assistant N (%)	Associate N (%)	Professor N (%)	Human sciences	Engineering	Health science	Basic medicine	Clinical medicine
Female N (%)	Male N (%)	Female N (%)	Male N (%)									
82	141	129	71	98	98	98	98	130	50	32	87	151
(36.7)	(63.3)	(64.5)	(35.5)	(25)	(25)	(25)	(25)	(28.8)	(11.1)	(7.1)	(19.3)	(33.5)
Total 223		200		392				450				

Mean scores of knowledge for female faculty members (2.41±0.65) and female teachers (2.73±0.67) were more than male teachers (1.86± 1.22) and male faculties (2.27±0.73).Male faculties and male teachers had lower mean score for attitude (1.69±0.64, 1.26±0.93) too.
Difference of mean scores for knowledge (p value= 0.86) and attitude (p value= 0.60) about Diabetes screening in male teachers of different educating degree was not statistically significant but there was significant difference in mean scores for attitude (p value= 0.005) about Diabetes screening in male teachers of different school distinct. There was not statistically significant difference between mean score of knowledge (p value= 0.121) and attitude (p value= 0.687) among male teachers in different fields.
Mean scores of knowledge and attitude of different fields of teachers and faculties toward Diabetes screening has been showed in table 3, 4.
There was no significant difference between mean scores of knowledge (p value= 0.573) and attitude (p value= 0.657) in different age groups for male teachers toward Diabetes screening. Mean scores of knowledge and attitude of different age group of teachers and faculties toward Diabetes screening has been showed in table 5, 6.

Table 2: Characteristics of participated teachers

			Total N (%)
	Women N (%)	202 49.5%	408
Gender	Men N (%)	206 50.5%	
Education degree	Bachelor	375 91.69%	409
	Masters	34 8.31%	
Field	Human sciences	188 46.07%	
	science	129 31.61%	408
	Mathematic	58 14.21%	
	Technical sciences	33 8.08%	

Among female teachers with different academic degree, although there was significant difference in knowledge mean scores (p value= 0.008) but mean scores of attitude (p value=0.791) was not statistically different. Mean scores of knowledge and attitude regarding Diabetes screening in different educating degrees among faculties has been noted in table7.

Mean scores of knowledge (p value= 0.893) or attitude (p value=0.666) of female teachers in different field, was not significantly differed.

Knowledge of female teachers regarding Diabetes screening was statistically differed in different school distinct (p value=0.001) but attitude of female teachers did not differed between different school distinct (p value=0.66).

Mean scores of knowledge (p value= 0.360) or attitude (p value=0.887) of female teachers in different age groups, was not significantly differed.

Mean scores of knowledge (p value = 0.001) and attitude (p value = 0.001) of faculties of Shiraz University of medical sciences and Shiraz University regarding Diabetes screening were significantly differed.

Mean scores of attitude of male faculty members in Shiraz University of medical sciences (1.87±0.40) was higher than male faculty members in Shiraz University (1.33±0.84).

There was significant difference between teachers and faculty members regarding Diabetes performance (p value=0.001).

There was significant difference between male faculties in different fields (P=0.046). Male in Clinical Medicine had the highest performance (36.4%). Moreover, there was significant difference between female faculties with different academic degree (P=0.00). Female Professors had the lowest performance (P=15.6%).

Table 3: Mean scores of knowledge and attitude of different fields of both gender of teachers toward Diabetes screening

Field	**Knowledge**		**Attitude**	
	Male	Female	Male	Female
Human sciences	1.78±1.25	2.72±0.66	1.29±1.92	1.42±0.83
Natural sciences	2.58±1.12	2.80±0.51	1.37±0.91	1.31±0.84
Mathematic	2.08±1.19	2.73±0.72	1.14±1.00	1.36±0.81
Technical sciences	1.51±1.21	2.00±1.73	1.17±0.96	1.33±1.15
Other		4.00±1.41		0.7±0.5
Total	1.86±1.22	4.09±1.51	1.26±0.93	1.38±0.83
P- value	0.121	0.893	0.687	0.666

Table 4: Mean scores of knowledge and attitude of different fields of both gender of faculties toward Diabetes screening

Field	**Knowledge**		**Attitude**	
	male	**female**	**Male**	**female**
Human sciences	2.13±0.98	2.14±0.30	1.31±0.81	1.92±0.33
Engineering	3.3±1.8	2.93±0.25	1.4±0.94	1.9±0.40
Health science	3.27±1.36	2.21±0.42	1.88±0.32	1.71±0.61
Basic medicine	3.89±1.17	2.13±0.68	1.81±0.57	1.5±0.57
Clinical medicine	3.66±1.04	2.04±0.59	1.93±0.291	1.61±0.61
Total	3.47±1.39	2.36±0.65	1.69±0.64	1.72±0.54
P-value	0.001	0.001	0.001	0.001

Table 5: Mean scores of knowledge of different age group of teachers and faculties (both gender) toward Diabetes screening

	Knowledge			
	Faculty members		Teachers	
Age	Male	Female	Male	Female
40-44	2.10±0.76	2.40±0.56	1.77±1.24	2.76±0.64
45-49	2.30±0.68	2.26±0.79	1.91±1.23	2.66±0.73
50			2.04±1.06	2.83±0.56
50-54	2.21±0.75	2.52±0.57		
55	2.5±0.7	2.53±0.64		

Table 6: Mean scores of attitude of different age group of teachers and faculties (both gender) toward Diabetes screening

	Attitude			
	faculty members		Teachers	
Age	Male	Female	Male	Female
40-44	1.56±0.75	1.72±0.55	1.24±0.94	1.43±0.77
45_49	1.73±0.54	1.71±0.52	1.25±0.95	1.34±0.87
50			1.43±0.89	1.36±0.86
50-54	1.73±0.67	1.73±0.55		
55	1.78±0.58	1.69±0.54		

Table 7: Mean scores of knowledge and attitude regarding Diabetes screening in different academic degrees among faculties

Academic rank	Knowledge		Attitude	
	Male	Female	Male	Female
Mentor	2.58±0.09	2.23±0.76	1.58±0.96	2.23±0.76
Assistant	2.22±0.8	1.94±0.89	1.35±0.92	1.94±0.89
Associate	2.20±0.4	1.57±0.52	1.96±0.26	2.57±0.52
Professors	2.36±0.83	2.62±0.53	1.68±0.74	2.62±0.53
Total	2.27±0.73	2.41±0.65	1.69±0.64	2.41±0.65
P-value	0.017	0.001	0.001	0.001

Discussion

In our study we found that Knowledge of female teachers regarding Diabetes screening was statistically differed in different school distinct. Maybe its due to financial problems.

Female Professors had the lowest performance may be it's due to lack of free time. Teachers have more free time than professors. They can spend their time in screening. Knowledge of male faculties of Shiraz University of medical sciences was more than knowledge of male faculties of Shiraz University. Maybe its due to the high educational attainment professors in Shiraz University of medical sciences.

Teachers have much more free time and they can get information about Diabetes and screening program through electronic media. So they had more knowledge about screening. Electronic media is the most important source of information. Moreover, they can do more physical activity and reduce the risk of Diabetes. It was in line with another study.

In our study knowledge of participants above 55 year old was highest between different group. Older people had more information about Diabetes and screening. May be because older people fear of diabetes and they get more information about this disease. We found that although female teacher had more knowledge about Diabetes screening than male teachers, female faculties had lower knowledge than male faculties. May be because female teacher have more free time and know that Diabetes is more prevalent among women than males. It's in line with another study that done in India.

Male in Clinical Medicine had the highest performance. Maybe because they know that Diabetes is chronic disease and diabetic patient have no cure and they can just control the disease. They also know about the complication of Diabetes.

Among female teachers with different academic degree, there was significant difference in knowledge and performance mean scores. Higher educated teachers had more performance (57.1%) and knowledge. Maybe because they know more about Diabetes and importance of screening in prevention of Diabetes. More over female are more sensitive to disease. It was in line with another study.

In this study, we evaluated teachers and professors knowledge, attitude and performance about Diabetes screening. We can't generalize the results to other group of people in different location.

Gathering data by self-reporting, may impose response bias.

Prevalence of Diabetes in the area and socioeconomic status of participants may affect the results.

Physician recommends have important role in performance and attitude of patients, so everywhere that physicians emphasize on doing Diabetes screening, patients have better performance and attitude.

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