

KNOWLEDGE OF CHRONIC COMPLICATIONS OF DIABETES AMONG PERSONS LIVING WITH TYPE 2 DIABETES MELLITUS IN DISTRICT DIR LOWER

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Abstract—The incidence of diabetes globally has surged in the last two decades, and it is become a rising threat in poor and developing countries. Subsequently, a large proportion of population live with diabetes complication without knowing about it. To prevent the prevalence of diabetes complication, knowledge of such complication plays a vital role. The present study aims to estimate the prevalence of inadequate knowledge of diabetes complication in District Dir Lower Khyber Pakhtunkhwa. This is conducted among 1360 patients with type 2 diabetes in District Dir Lower Khyber Pakhtunkhwa. For selection of patient, he consecutive sampling technique is employed. Data analysis was performed using Minitab version 19. For presentation of data, frequencies and percentages were used. In order to assess the significant risk factor of inadequate knowledge of diabetes complication, binary logistic regression model is used. Out of 1360 diabetic patients, 337 (24.8%) were found to have inadequate knowledge of diabetes complication. Low education, family history of diabetes, low income and duration of clinic visits were found to be independent predictors of inadequate knowledge of diabetes complication.

Key words: prevalence, diabetes complication, risk factor, low education, family history of diabetes, low income, duration of clinic visits.

INTRODUCTION

Diabetes Mellitus (DM) is included in those diseases which considered most severe in term of public health hazard worldwide. According to recent report of World Health Organization (WHO), the prevalence of diabetes increases with high ratio in the last three decades worldwide (WHO, 2021). It is predicted that diabetes prevalence would be increases further (International Diabetes Federation (IDF), 2021). In addition, the IDF estimated 537 million adults (20 to 79 year) are diabetic, or express it more succinctly, one in every ten adults is live with diabetes. This figure is not stop or decreasing in near future. One of the major health problems is the complications of diabetes among diabetic persons. One of the serious negative effects of diabetes on individual is increase chances of developing cardiovascular disease (Tracey et al., 2016).

In Pakistan the prevalence of diabetes is very higher. International Diabetes Federation in 2022 reported 26.7% of adult are affected by diabetes in Pakistan. According to an article by “The News”, Pakistan ranks 3rd in the world in diabetes prevalence after China and India.

In order to treat the complication of any diseases in best way, knowledge regarding disease and its complications play a vital role. This attitude leads to decreases the complication of diseases (Murugesan et al., 2007). Some researchers have been done into the management and knowledge including health education of the disease (Kengne et al., 2005; Boulton et al., 2004; Hall et al., 2011; Desalu et al., 2011; Aikins et al., 2005; Chekol et al. (2022).

Lack of knowledge of diabetes causes complication of diabetes to an individual. The major causes of complication of diabetes are not taking serious the diabetes and its complication, poor control of diabetes, unhealthy diet, lack of experience/knowledge of the health care professionals (Abejew et al., 2015). Afaya (2020) used logistic regression analysis for finding independent predictor associated with inadequate level of knowledge which were; unknown family history diabetes, rural dwellers, no formal education, primary education, older age and female gender. Gizaw et al. (2019) revealed that most of diabetic patient unaware of diabetic complications. Obirikorang et al. (2016) investigated that most of the type 2 diabetes patients (60%) had not aware of diabetes complications, 26.9% had inadequate knowledge of such complications while 13.1% had adequate knowledge of diabetes complications. Their study further revealed that widowed, female gender, married subjects, junior high school, basic level of education, duration of type 2 diabetes, and urban dwellers were significantly associated risk factor of knowledge of complication of diabetes. Hassounah et al. (2023) found that 51% of diabetic patients unaware from diabetes complication. Moreover, they showed that 17% aware from complication of diabetes, while 32% fully unaware of such complication. Their study also found risk factor associated with of knowledge about complication of diabetes which were patients' educational status, occupation, and duration of diabetes. Anwar et al. (2022) found most of the diabetic patients were aware of complications of diabetes, including muscle weakness, lower limb, sensory defect, eye problems, infections, foot complications like amputation and hypertension. Their study also investigated that female gender and patients aged 41 to 65 years had a significantly greater understanding of diabetic complications. Gillani et al. (2018) found that 85.9% of respondents had heard of diabetes, and 30.1% knew about the glucose tolerance test. They found 47.45 of respondents have adequate awareness of diabetes. Moreover, they found that female gender, socioeconomic status, diabetic patient, and higher education were significantly associated with knowledge of complication of diabetes.

In the District Dir Lower, Khyber Pakhtunkhwa, some studies on prevalence of various diseases are conducted (Haq et al., 2022; Khan et al., 2022a). The present study explores the knowledge about diabetes among people in this area. Moreover, the risk factors of the knowledge are also assessed. The current study is unique in term that previous studies have assessed only prevalence and complication of diabetes in the study area (Akhtar et al., 2016; Khan et al. 2022b).

MATERIAL AND METHOD

This study is conducted to determine the knowledge on the complications of type 2 diabetes among patients of diabetes visiting the Tehsil Head Quarter hospital Chakdara and Gulabad Hospital Gulabad. Both hospitals situated in District Dir Lower with approximately ten kilometers distance. The data were collected by questionnaires from the study area. Those subjects are selected who are type 2 diabetes patients, are not dumb or deaf, and have visited the hospital during the study period.

The collected data is analyzed by Minitab version 19. The frequencies and other descriptive statistics were performed. In order to identify the significant risk factors associated with knowledge of complication of type 2 diabetes the binary logistic regression model was used. The reasons behind using this model is the response variable is binary in nature, that is, either the respondent have the adequate knowledge of complication of diabetes or they have not such knowledge. The respondent reply yes is denoted by 1 and those who reply no is denoted by 0.

RESULT

Total of 1360 consisting of 982 (72.22%) male and 378 (27.78%) female subjects were selected from two hospitals in Chakdara and Gulabad Lower Dir, Khyber Pakhtunkhwa. The analysis shows that 337(24.8%) of participants had inadequate knowledge of diabetes complication, that is, one fourth of diabetic patients did not know about diabetes complications.

Various characteristics of selected students are presented in Table 1. The Table shows that out of 1360 subjects, 604(44.41%) are selected from age 23 to 32, 264(19.41%) from age 33 to 42, 264

(19.41%) from age 43 to 52, 76(5.59%) from age 53 to 62, and 152(11.18%) from age 63 and above. Table 1 further shows that 113 (8.33%) subjects had income from 12000-23999 Rupees, 416(30.59%) had 24000-35999 rupees, 453(33.31%) had 36000-47999 rupees, and 378 (27.79%) had earned 48000 rupees and above. The Table further shows that 567 (41.69%) have tertiary education level, 529 (38.90%) have senior high school education level, 151(11.10%) obtained joiner high school education, 76(5.59%) have primary school education, and 37(2.72%) have no formal education.

Table 1 Socio Demographic Characteristics of Diabetes Patients.

Variable	Category	Frequency	%
Gender	Male	982	72.21
	Female	378	27.79
Age	23--32	604	44.41
	33--42	264	19.41
	43--52	264	19.41
	53--62	76	5.59
	62 and above	152	11.18
Income	12000-23999	113	8.31
	24000-35999	416	30.59
	36000-47999	453	33.31
	48000 and above	378	27.79
Edu	tertiary	567	41.69
	senior high school	529	38.90
	. joiner high school	151	11.10
	primary school	76	5.59
	no formal education	37	2.72
History	Yes	264	19.41
	No	642	47.21
	Don't Know	454	33.38
clinic visit	1-2 years	302	22.21
	3-4 years	869	63.90
	5-6 years	113	8.31
	> 6 years	76	5.59

Table 1 reveals that 264 (19.41%) of patients have positive diabetes family history, while 642(47.21%) have not such history. Moreover, 454(33.38%) did not know about status of their diabetes family history. The Table further shows that 302 (22.21%) patients visit clinic/hospital for 1 to 2 years, 869(63.90%) from 3 to 4 years, 113(8.31%) from 5 to 6 years, and 76(5.59%) for more than 6 years.

Table #2 Result of Fitted Binary Logistic Regression Model

Term	Coefficients	SE of Coefficients	P value
Constant	3.35	5.38	
Education	0.37	1.22	0.004
Income	.0013	0.0056	0.010
family history	0.10	1.63	0.030
clinic visit	0.03	1.45	1.010

The binary logistic regression model is used because the dependent variable adequate knowledge of type 2 diabetes complications has two categories, yes and no, that is, either the respondent has

adequate knowledge of type 2 diabetes complications or not. The Table 2 shows the result of fitted binary logistic regression model. The Table reveals that education level, income level, family history of diabetes and clinic visits are significantly associated ($p < 0.05$) with log odd of adequate knowledge of type 2 diabetes complications vs no adequate knowledge of type 2 diabetes complications. All the predictor variables have positive sign which show that as these variables increasing the response variable increasing.

DISCUSSION

Type 2 diabetes is very common now a days which leads to serious complications. Those who aware from the complication can handle best while who not aware reached to sever level of complications. The present study shows that 24.7% of participants had inadequate knowledge of diabetes complication. Hussain et al (2023) revealed 31.6% subjects had inadequate knowledge of diabetes complication. Thus, our result match to Hussain et al (2023) with small difference. Education of human being play vital role in every aspect of life. Educated person know more about diabetes complication and can handle it better comparatively to illiterate person. Our study shows significant association of education level and inadequate knowledge of diabetes complication. This result is similar to Gillani et al. (2018), Kifle et al. (2022), Nisar et al. (2008), Gizaw et al. (2019). Income is also associated with inadequate knowledge of diabetes complication. This result is match to Gizaw et al. (2019). Family history of diabetes also associated risk factor for inadequate knowledge of diabetes complication. This result matched to Afaya et al. (2020) and Alemayehu et al. (2020).

CONCLUSION

This present study investigated the incidence of inadequate knowledge of diabetes complication and its associated risk factors among type 2 diabetic patients in District Dir Lower, Khyber Pakhtunkhwa. The patients have inadequate knowledge of diabetes complication are 24.7%, which is about one fourth of population. Thus, a large proportion of diabetic patients do not know about diabetes complication in the study area. Moreover, the risk factor associated with inadequate knowledge of diabetes complication are low education, low income, positive family history, and duration of diabetes. These factors responsible for prevalence of inadequate knowledge of diabetes complication in the study area. The government should play role in order to provide education to the people of this area. Moreover, the policies should be formed that income of the population may be higher. The current study can be extended to other districts of the country with large sample size.

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