International Journal of Medical and Health Research
ISSN: 2454-9142
Received: 18-11-2020; Accepted: 02-12-2020; Published: 18-12-2020
www.medicalsciencejournal.com
Volume 6; Issue 12; 2020; Page No. 83-87

Characteristics and it's associated factors among type ii diabetes mellitus patients

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Abstract
Background: Diabetes is an important public health problem and one of the four priority non-communicable diseases (NCDs) targeted for action by world leaders.
Objectives: The study was conducted to identify the characteristics of various complains and associated factors among type II diabetic mellitus patients. To know the association between various complains with associated factors, identify the perception of patient and physician about the role of physiotherapist for the management of type II diabetes mellitus.
Materials and Methods: The study was conducted by using Quantitative cross-sectional method.100 participant were selected and the study was conducted in Ibrahim General Hospital, Mirpur-10, Dhaka-1343.Participants were selected by using purposive sampling methods. Data was collected by face to face interview technique using structural questionnaire.
Results: The main characteristics of this study were controlled and uncontrolled diabetes mellitus showing as 52% and 48%.From the result of the study it was found 40% were housewife, 32% service holder and minimum level were other professionals but the large amount 67% live in urban area from those 39% didn't follow the diet chart due to economic problem, family barrier and dislike of taking routine meal. The maximum 52% (n=52) muscular, 13% kidney, 12% heart and another 9%had the liver problem and they thought that these problem due to diabetes mellitus.
Conclusion: The lack of patient's awareness and improper referral system are the leading factor for patients suffering. Most of The participants are suffering with various diabetic associated complications as they don't get proper physiotherapy treatment.

Keywords: diabetes mellitus, diabetes associated complication, associated factors

Introduction
Now day's chronic diseases are mostly active problem for death and disability in world wide. The common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems [1]. At present globally non-communicable diseases like diabetes mellitus (DM), cardiovascular diseases, chronic pulmonary Diseases, cancer are the major cause of human mortality and morbidity. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades [2].The prevalence of diabetes is increasing globally significantly in developing country like India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and Maldives. In the last few years, considerable emphasis has been placed on the effect of the intrauterine environment in the epidemic of type 2 diabetes mellitus, particularly in the early onset of type II diabetes mellitus and obesity [3]. Diabetes has been quickly turning to a global public health problem [4]. Type II diabetes mellitus and pre-diabetes are increasingly observed among children, adolescents and younger adults. The causes of type II diabetes mellitus are studded in a very complex group of genetic and epigenetic systems interacting within an equally complex frame that determines behavior and environmental factors. World Health Organization listed ten countries to possess the highest numbers of individuals with diabetes in 2000 and 2030. Consistent with this report, Bangladesh has 3.2 million of diabetic subjects in 2000 and the range is predicted to extend to a staggering 11.1 million by 2030 putting her among the highest10 countries with diabetes [1].

The main findings of the paper were to judge the characteristics of type II diabetes mellitus and determine associated factors in Bangladesh.

Materials and Methods
The study was conducted by using Quantitative cross sectional method.
The study site was Ibrahim General Hospital, Mirpur-10, Dhaka-1343 where meet all the inclusion and exclusion criteria. Participants were selected by using the purposive sampling methods.100 participant were selected to conduct this study.
Data was collected by face to face interview using structural questionnaire technique and converted in Bangla. All the data were collected by the selective data collector to avoid the errors. Data was analyzed with the software named Statistical Package for the Social Science (SPSS) version 20 and Microsoft office Excel 2013 .To find out the association among the different variables Chi-Square test was performed.

Results
From the result it was indicated that patient having type II diabetes mellitus exhibited 40% (n=40) those were housewife, 32% (n=32) were service holder, 14% (n=14) were businessman, 7% (n=7) were labor and 7% (n=7) others professionals (Fig-1).It was also found that 67% (n=67) live in urban area and 33% (n=33) in rural area (Fig-2).

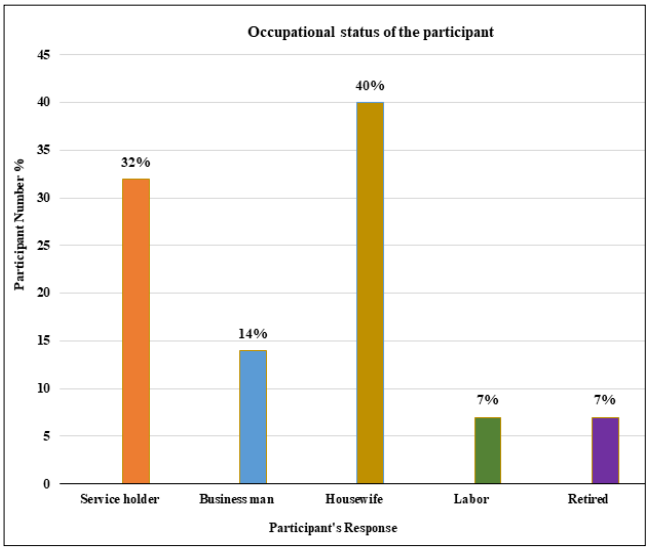

Fig 1: Occupational status of the Participants

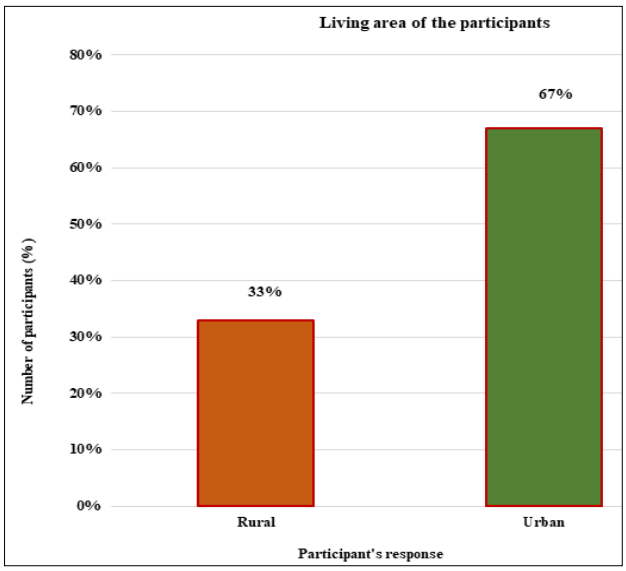

Fig 2: Living area of the participants

From the 100 participants 61% (n=61) follow and only 39% (n=39) don't follow the diet chart (Fig-3).From the 61% respondents, 83.7% (n=51) feel change and only 16.4% (n=10) don't feel any change (Fig-4).

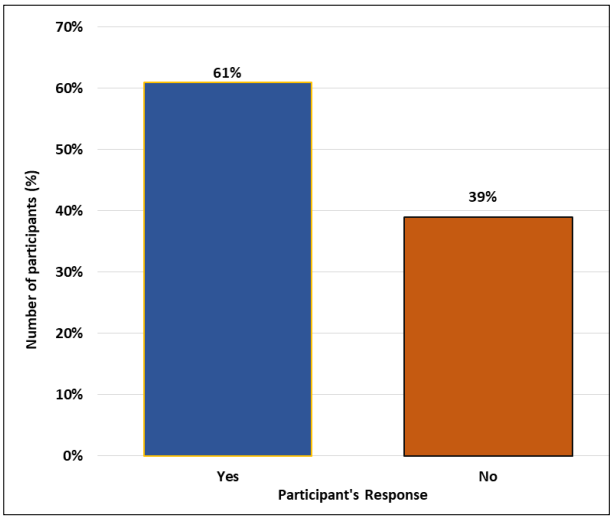

Fig 3: Diet chart followed

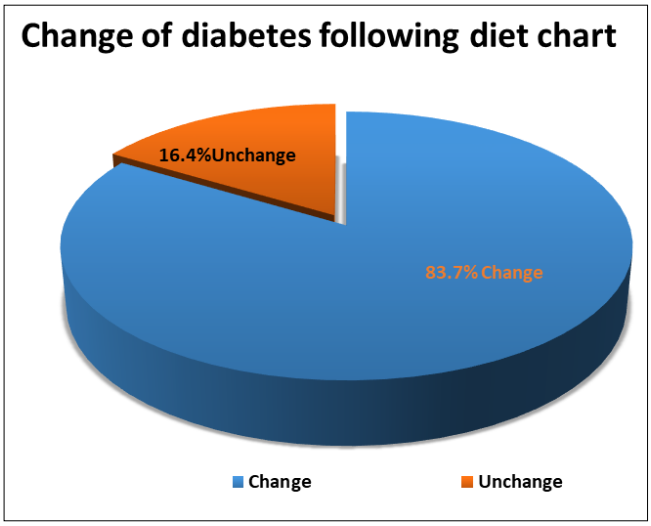

Fig 4: Change of DM by following diet chart

From the 39% participants, 21% (n=8) didn't following the diet chart due to economic problem, 13% (n=4) family barrier and 69% (n=27) participants totally dislike (Fig-5).About56% (n=56) prescribed exercise and 44% (n=44) participants didn't prescribed exercise by the physician (Fig-6).

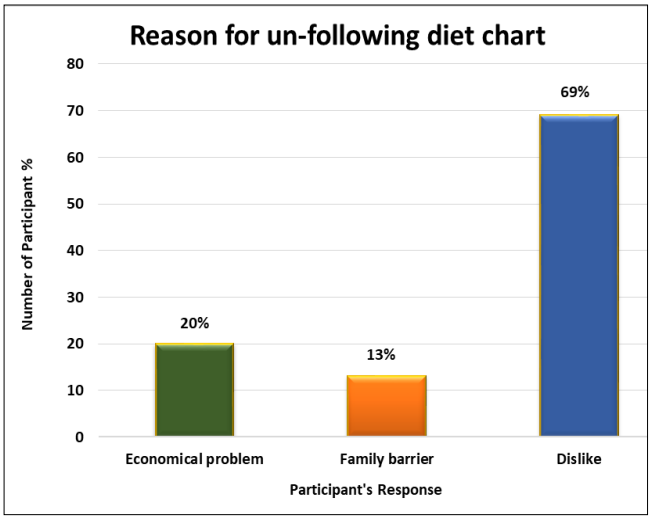

Fig 5: Reason for un-following diet chart

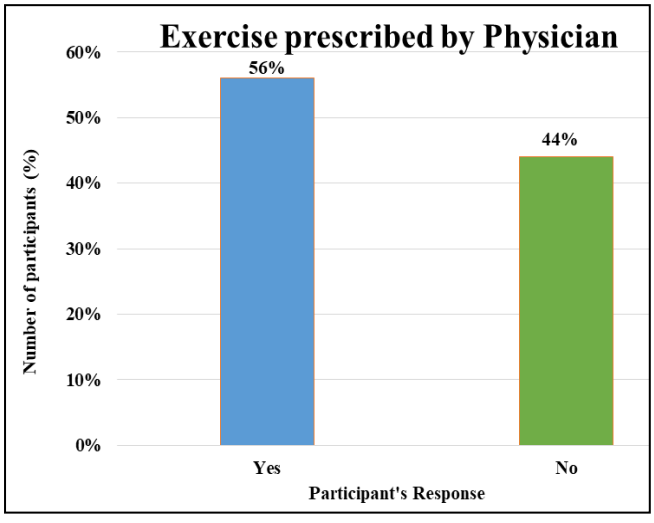

Fig 6: prescribed exercise by the physician

Out of total participants 52% (n=52) were under control and 48% (n=48) were un-controlled diabetes mellitus (Fig-7).Only 9% (n=5) participants thought that only medication, 7% (n=4) only exercises and 85% (n=39) think that the combination of medication and exercise were controlling their diabetes (Fig-8).

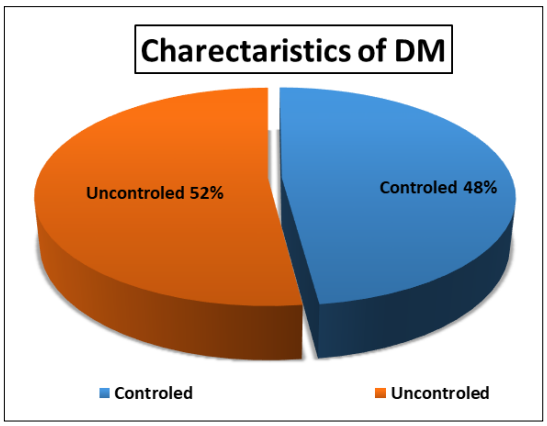

Fig 7: Characteristics of DM

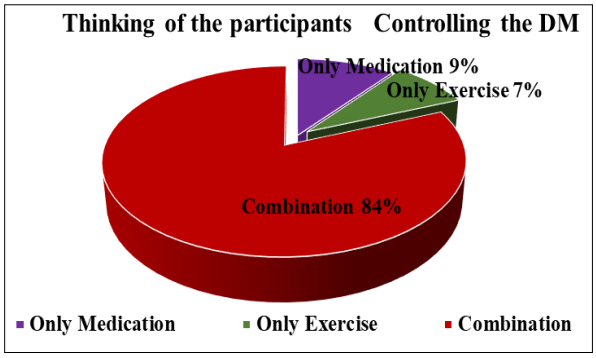

Fig 8: Thinking of the participant

Among the 100 participant 66% (n=66) had the idea and another 34% (n=34) didn't have the idea about the role of physiotherapist to control diabetes mellitus (Fig-9).The maximum 52% (n=52) muscular, 13% kidney,12% heart and another 9%had the liver problem and they thought that these problem due to diabetes mellitus (Fig-10).

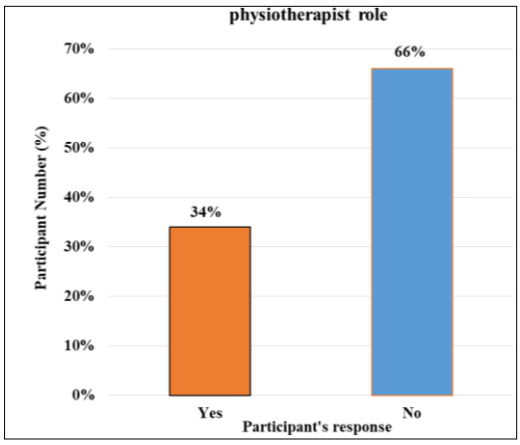

Fig 9: Idea of the participants about

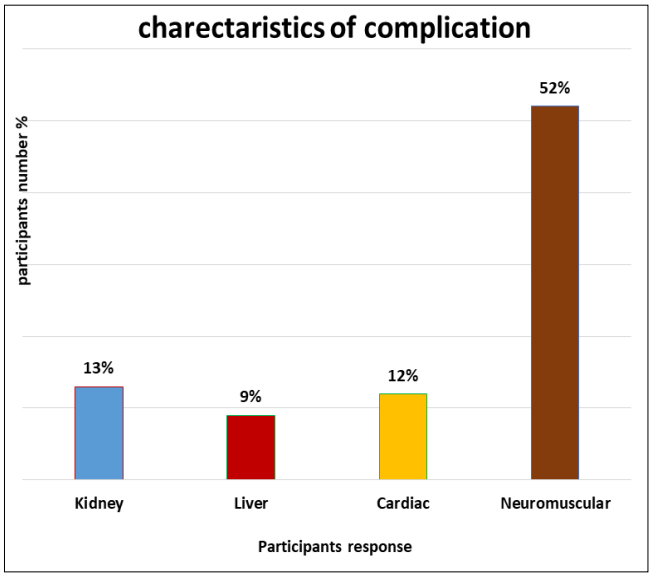

Fig 10: Range of organ damage according the role of physiotherapist to participants thinking

From (table-1) the observed Chi-square value was 11.01 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. That means Null-hypothesis was rejected and alternative hypothesis was accepted. So the result was significant that indicate there was association Diabetes mellitus between and BMI of the participants. Chi-square value was 2.33 and 5% level of significant state chi-square was 1.96 which is more than the Observed chi-square value.

That means Null-hypothesis was accepted and alternative hypothesis was rejected. So the result was not significant that indicate there didn't have strong association between Diabetes mellitus (control or not) and Diet chart following. The observed Chi-square value was 2.33 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value.

That means Null-hypothesis was accepted and alternative hypothesis was rejected.

The result was not significant. so there was no significant association of diabetes mellitus with the reasons of unflowing diet chart. From the cross tabulation observed Chi-square value was 0.08 and 5% level of significant state chi-square value was 1.96 which is more than the observed chi-square value.

That means Null-hypothesis was accepted and alternative hypothesis was rejected.

So the result was not significant that indicate there didn't have strong association between Diabetes mellitus (control or not) and Diet chart following.

The observed Chi-square value was 11.01 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. That means Null-hypothesis was rejected and alternative hypothesis was accepted. So the result was significant and there was strongly association between diabetes control and combination of exercise and medication

Table 1: Cross tabulation

Cross tabulation of Diabetes mellitus and BMI		
BMI and Diabetes mellitus	Chi-Square	P-Value
	0.012	11.001
Cross tabulation of Diabetes mellitus and Diet chart following		
Diabetes mellitus (Control or not) and Diet chart following	Chi-Square	P-Value
	2.330	0.12
Cross tabulation of Diabetes mellitus and Diet chart unfollowing		
Diabetes mellitus (Control or not) and Diet chart unfollowing	Chi-Square	P-Value
	2.30	0.127
Cross tabulation of Diabetes mellitus and role of Physiotherapist		
Diabetes mellitus (Control or not) and Idea of the participant about Physiotherapist	Chi Square	P-Value
	0.083	0.774
Cross tabulation of controlled Diabetes mellitus and combination of exercise & medication		
Controlled Diabetes mellitus and combination of exercise & medication	Chi-Square	P-Value
	5.04	0.02

Discussion

The age range of the participants was 26-75 years and their mean age was 50.6 .But the highest number (35%) of the participants age were 47-56 years. A prospective study was conducted during the month of August to September in 2012 in the outpatient department of a tertiary care diabetic hospital in Bangladesh. The study was involved in a total number of 100 patients with diabetes mellitus visited in the hospital. From the study, the age was 53.2 ± 10.5 which was similar to my study. It was found in a study that was very similar to this study that the 836 Participants 56% (n=468) were male and 44% (n=368) were female participants [5]. Male subjects were older compared to the female participants. The height number of participant 40 % (n=40) female were housewife among the all-female participant and 32% (n=32) participants were service holder among the all-male participant. Among the 100 participants 48% (n=48) participant's diabetes was under control meanwhile 6% (n=3) with underweight, 54% (n=26) with normal weight 27% (n=13) were overweight, 13% (n=6) were obese. 52% (n=52) participants were uncontrolled diabetes where 10% (n=5) were underweight, 25% (n=13) were normal weight, 31 % (n=16) were overweight and 34 %(n=18) were obese .The Chi-Square vale between BMI and diabetes mellitus (DM) was 11.001 and p value was 0.012 (<0.05). So the result was significant that indicate there was association between Diabetes mellitus and BMI of the participants. This study are linked with an international study that is Body mass index (BMI) are associated with increased risk of type II diabetes, though the relationship may vary in different populations . From the 100 participant 61% (n=61) follows the diet chart prescribed by the physician and 84% (n=51) state the change of diabetes mellitus where the chi-Square value 2.330 and the p value 0.12 (>0.05), that indicate there don't have strong association of Diabetes control only with the diet chart following as the p-value was not significant. Another 39% (n=39) don't follow the diet chart and the greater number of them 69% (n=27) dislike to follow the diet chart and 21% (n=8) don't follow due to economic problem. Among the 100 participants the 52% (n=52) were under control and 48% (n=48) were un-controlled. From the statistical result of my study found that most of the participants didn't know the physician had prescribed exercise to their medical notes that's why 57% (n=57) participants were doing the exercise on their own thinking. Among these 57 participant 50% (n=28) do the exercise about 30 minutes, 38% (n=22) do the exercise about 20 minutes, 7% (n=4) do the exercise about 10 minutes, 5% (n=3) do the exercise about 40 minutes. From the association between diabetes mellitus and exercise on own thinking of the participant .It was found that the chi square is 2.166 and p- value is 0.41 (>0.05) that indicate the result is not significant. Literature proved that exercise in the context of health and fitness seemed to have little cultural meaning for the Bangladeshi informants, even though they often recalled specific advice on this topic from their doctor. Exercise was viewed as potentially exacerbating illness or physical weakness [6].Among the 48 participants only 9% (n=5) participants think that only medication is controlling their diabetes, 7% (n=4) participant think that only exercises controlling their diabetes and the highest part of the participants about 85% (n=39) think that the combination of medication and exercise is controlling their diabetes. The chi square is 26.57 and p- value 0.00 (<0.05).The result is strongly significant. So there is strong association between diabetes control and combination of exercise and medication. Literature given that exercise and medications are the mainstays of diabetic care. There were also another strong evidence about the complications of diabetes mellitus that proved the frequencies of complications were diabetic eye disease (retinopathy) 20 (14.3%), cataract 26 (18.6%), neuropathy symptoms 49 (35%), nephropathy 9 (6.4%), angina pectoris 10 (7.1%), cerebral stroke 5 (3.5%), myocardial infarction 8 (5.7%). Micro-vascular and Macro-vascular complications were reported in 59 (49.2%) and 15 (10.7%) patients respectively [7].Among the 100 participants 31 participant with controlled Diabetes Mellitus (DM) don't have any idea about the role of physiotherapist for the management of diabetes mellitus and 35 participant with un-controlled Diabetes Mellitus (DM) don't have any idea about the role of physiotherapist for the management of diabetes mellitus. From the association between Diabetes Mellitus (under control or not) and idea of the participant about role of Physiotherapist. The chi square is .083 and p-value 0.774(>0.05).that means the result of not significant. Diabetes can damage the heart, blood vessels, eyes, kidneys and nerves, leading to disability and premature death [8].

From this study it notices that most if the physician prescribe exercise instated of referral system. As a result patients are suffering with various musculoskeletal, neurological, and cardiac and other various complication rather than disease modification as well as lack of contact with physiotherapist. Research also showed that most of the patients were not aware of their physical exercise that they had prescribed. That's why they are depending on only medication or doing exercise on their own thinking that leading them to various complications like as neuromuscular, cardiac, hepatic or other systemic disease. In the present study, time spent for physical activities is lower. Some people did not do any exercise (12.9%) to maintain ideal body weight and controlling blood glucose level. From this study only 34% participants had the idea about the role of physiotherapist that is too less according to the needs and the referral system among the physician was not significant. So the researcher hope that by developing the referral system and patient awareness about the physical exercise and physiotherapist may be helpful for the patents to control diabetes mellitus (DM) as well to prevent complications.

Conclusion

Nowadays diabetes mellitus (DM) becomes a worldwide problem. Male are more affected than female. Complications of diabetes like neuromuscular, cerebrovascular, cardiovascular and renal problem also affect people. These complications are increasing due to the above mentioned factors. If diabetic patients regularly monitor their blood glucose level, maintain proper diet and nutrition, do regular physical exercise in contact with a physiotherapist can minimize complication and lead a better life by controlling diabetes mellitus.

ACKNOWLEDGEMENT: we would like to express our gratitude to Dr. MdAtaur Rahman, Director of IGH, Mirpur, Dhaka and Md. Tazul Islam, In-charge, Department of Physiotherapy, IGH, Mirpur, Dhaka. Wewould also like to give special thanks to the staff members of physiotherapy department of CRP, Bangladesh.

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