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Reshama H Nadaf
Research Scholar,
Department of Physical Education and Sports Sciences,
Karnataka State Women's University, Bijapur, Karnataka, India

Correspondence
Reshama H Nadaf
Research Scholar,
Department of Physical Education and Sports Sciences,
Karnataka State Women's University, Bijapur, Karnataka, India

A study on physical activity in diabetes patients of primary medical healthcare

Reshama H Nadaf

Abstract
Achieving the recommended level of Physical Activity (PA) is considered to be a priority in the area of public health and a key measure in the treatment of chronic diseases, especially type 2 diabetes. Many authors believe that the determinants of PA and the PA od adult patients with diabetes at the population level are not sufficiently described.

Keywords: physical activity, diabetes patients, primary medical healthcare

Introduction
Diabetes is one the main reasons of loss of life in preferred populace and one of the 4 precedence non-communicable diseases. WHO estimates suggest that during 2014 422 million adults over 18 international had diabetes, such as sixty four million withinside the area of Europe. In Poland, diabetes influences extra than 2,235,000 people. A foremost reason of untimely loss of life and disability, diabetes poses a extreme danger to human fitness and great of life. Numerous research show that the chance of diabetes will increase as bodily hobby (PA) decreases. As a staple of life, PA is important for retaining human fitness, stopping and delaying the onset of kind 2 diabetes, nicely treating diabetes and lowering mortality.
Achieving the endorsed degree of PA is taken into consideration to be a concern withinside the place of public fitness and a key degree withinside the remedy of persistent diseases, specially kind 2 diabetes. In kind 2 diabetes, normal moderate-depth bodily exercising (walking, cycling, going for walks and swimming) makes it feasible to enhance manage over the blood glucose degree, lessen the cardio-vascular chance, shed pounds and enhance well-being. The fitness blessings of normal bodily exercising in kind 1 diabetes include: weight loss, BMI reduction, development of cardio-vascular performance and muscle strength, and insulin sensitivity. Considering that necessities associated with the control of the blood glucose degree fluctuate relying at the form of diabetes, form of hobby and diabetes-associated complications, tips concerning bodily attempt and exercising ought to be adjusted to the man or woman wishes of all of us and the opportunity of participation, determined, inter alia, by: age, gender, financial situation, social support, ailment level and diabetes-associated complications. Patients tormented by diabetes are endorsed to take normal, ideally every day, moderate-depth bodily attempt, primarily based totally on enjoyable and secure exercises, 30 minutes an afternoon or extra at best, via maximum of the week (for adults with diabetes). Irrespective of the form of diabetes, with a purpose to lessen insulin resistance, it's miles endorsed to take exercising every day or at the least now no longer to have extra than 2 days of damage among exercising sessions. The ultra-modern studies demonstrates that every one people, specially the ones tormented by diabetes, ought to lessen the length of every day sedentary lifestyle. Many authors accept as true with that the determinants of PA and the PA od grownup sufferers with diabetes on the populace degree aren't sufficiently described [1–10].

Materials and Methods
Analysis of the medical documentation. This included information provided by the general practice (GP) as to: Age, sex, type of diabetes, duration of illness, treatment methods, self-control, results from tests carried out within the previous 12 months (total cholesterol, cholesterol HDL, fasting glycaemia, glycosuria, microalbuminuria or proteinuria, creatinine,

glycated haemoglobin, body mass, height, BP, waist circumference, trochanters), accompanying diseases which require treatment.

Results

Every fourth patient (26.5%) declared that he or she had at least 30 minutes of daily physical exercise and chooses active forms of leisure. It was established that 9.3% of the patients had regular daily PA but passive leisure. 32.6% of the respondents reported unregular PA (2-3 times a week) and passive leisure. Nearly every third patient claimed to usually sit, lie or take excessive physical effort (31.2%). Information on PA behavioural patterns was not obtained from 0.4% of the patients. Regular PA and active forms of leisure were reported most frequently by patients living in the Area 1 (50.4%) and least frequently by patients living in the Area 16 (13.8%). As shown in Table 1.

Table 1: Physical activity of patients with diabetes.

Province	Regular activity, active recreation		Regular activity, passive recreation		Irregular activity, passive recreation		Lack of activity or excessive effort		No answer		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Area 1	68	50.4%	9	6.7%	32	23.7%	26	19.3%	0	0.0%	135	6.8%
Area 2	58	36.0%	29	18.0%	37	23.0%	36	22.4%	1	0.6%	161	8.1%
Area 3	80	32.9%	16	6.6%	84	34.6%	63	25.9%	0	0.0%	243	12.2%
Area 4	34	32.4%	20	19.0%	23	21.9%	28	26.7%	0	0.0%	105	5.3%
Area 5	21	30.9%	7	10.3%	26	38.2%	13	19.1%	1	1.5%	68	3.4%
Area 6	14	29.2%	1	2.1%	24	50.0%	9	18.8%	0	0.0%	48	2.4%
Area 7	46	27.5%	18	10.8%	56	33.5%	47	28.1%	0	0.0%	167	8.4%
Area 8	18	25.7%	2	2.9%	25	35.7%	25	35.7%	0	0.0%	70	3.5%
Area 9	14	24.6%	5	8.8%	21	36.8%	17	29.8%	0	0.0%	57	2.9%
Area 10	37	23.7%	17	10.9%	37	23.7%	65	41.7%	0	0.0%	156	7.8%
Area 11	21	21.9%	18	18.8%	23	24.0%	34	35.4%	0	0.0%	96	4.9%
Area 12	26	20.8%	11	8.8%	43	34.4%	45	36.0%	0	0.0%	125	6.3%
Area 13	22	19.8%	11	9.9%	41	36.9%	33	29.7%	4	3.6%	111	5.6%
Area 14	14	16.9%	6	7.2%	28	33.7%	34	41.0%	1	1.2%	83	4.2%
Area 15	34	15.7%	5	2.3%	86	39.8%	91	42.1%	0	0.0%	216	10.9%
Area 16	20	13.8%	9	6.2%	62	42.8%	53	36.6%	1	0.7%	145	7.3%
Total in Areas	527	26.5%	184	9.3%	648	32.6%	619	31.2%	8	0.4%	1986	100%

Statistical analysis demonstrated that people claiming to have regular PA and active leisure were most frequently familiar with all the analyzed health indicators ($p<0.0001$), and had a better moderate awareness of the disease ($p<0.0001$). The data is shown in Table 2.

Table 2: Patients' physical activity and knowledge about the disease and health indicators.

Tested feature	Patients' physical activity			
Total N=1978	Regular activity, active recreation N=527, 26.6%	Regular activity, passive recreation N=184, 9.3%	Irregular activity, passive recreation N=648, 32.8%	Lack of activity or excessive effort N=619, 31.3%
Knowledge of health indicators (Total cholesterol, fasting glycaemia, glycosuria, body mass, blood pressure, hypoglycaemia)	Chi2 Pearsona: 79,5691, df=9, ($p<0.0001$)			
Knows all 6 indicators	38.23%	8.18%	30.88%	22.70%
Knows 3–5 indicators	22.91%	9.60%	33.95%	33.53%
Knows 1–2 indicators	13.46%	12.18%	30.13%	44.23%
Does not know indicators	13.89%	5.56%	36.11%	44.44%
Knowledge (level)	Chi2 Pearsona: 84,5843, df=6, ($p<0.0001$)			
Moderate (20.0–13.5 points)	46.8%	8.9%	29.1%	15.2%
Minimal (13.0–6.5 points)	30.9%	9.0%	34.1%	26.0%
None (6–0 points)	17.8%	9.9%	31.0%	41.3%
p: level of significance; df: Number of degrees of freedom; chi2 Pearsona: Pearson's chi-squared test				

Discussion

Apart from diet therapy and pharmacological therapy, another factor considered to have a major significance in diabetes treatment is movement therapy. All diabetic patients are recommended to try to change their lifestyle from sedentary to a more active one, bearing in mind that all forms of daily activity are helpful and better than inactivity. In own research, daily PA of at least 30 minutes and active leisure were identified in the statements of only 26.5% of the respondents. Regular daily PA, but passive leisure, characterized 9.3% of the patients. 32.6% of the respondents were found to have irregular PA (2-3 times a week) and passive leisure. Nearly every third patient surveyed claimed to usually sit, lie or have excessive physical effort (31.2%). The results of own research confirm that diabetic patients do not follow PA recommendations, as have been already indicated by numerous authors. Considering that different methods are applied to assess physical activity and select the population for research, it is difficult to fully compare the results of own research with the results obtained by other authors.

The research demonstrates that, compared to less active patients, more active patients, who take PA also in their free time, are more often in a better health condition and have a fewer accompanying diseases and complications. In own research, a better health condition of more active patients was indicated by: their better, lower, weight, full physical fitness

and independence, a lack of somatic and psycho-emotional complaints, a lack of necessary treatment for diabetes comorbidities, and, in a result, a lower need for professional care. The higher level of knowledge about the disease and familiarity with the health indicators that are significant in diabetes treatment among patients declaring regular PA and active leisure confirm the relation between knowledge and PA. Insufficient PA due to the habit of sitting or lying and taking excessive physical effort among patients requiring treatment for 5 or more diabetes comorbidities in own research confirms the authors' opinion about the negative influence of multiple morbidities on patients' behavior in the scope of physical activity. Multiple morbidities affecting diabetic patients in own research may be, however, also the result of a long-term deficiency of PA and/or excessive physical effort. Participation in all the analyzed forms of social life, as well as satisfaction with life, participation in treatment, participation in family life, marriage, community life, professional life and social life, as well as satisfaction with the effects of treatment among the most active patients may result from their higher level of PA in comparison to the other groups surveyed. They also confirm the significant influence of PA on social relations, functional independence and quality of life.

It is believed that providing community support may be an effective strategy of increasing PA among adults. In own research, both the high level of community support and lack thereof were conducive to regular daily PA and active leisure. A moderate level of community support and a family that is able to provide effective support and care among patients declaring daily PA and active leisure confirm opinions about the role of family and the significance of community support in achieving desired PA among patients. The results of own research confirm the relation between PA and the patient's economic and family situation. Functioning in a family able to provide effective care and in a good living and housing situation is correlated with the higher level of PA among diabetic patients. Behaviors in the field of physical activity among the patients surveyed, however, did not depend on: their marital state, age, gender, and type of diabetes.

In own research, patients who had regular PA and active leisure more often followed recommendations with respect to diet, body hygiene and oral hygiene, footcare, self-examination and participation in treatment. It may be supposed that regular PA predisposes patients to compliance also with other recommendations required in diabetes treatment. The largest number of adverse events among the most active patients indicating an unstable blood glucose level, control of blood glucose level without any treatment modification, increased blood pressure, and smoking confirm the justifiability of increasing the role of doctors in ensuring safety and blood glucose level stability.

The extended function of medical doctors in care of diabetic sufferers at the extent of number one healthcare is indicated in very own studies additionally with the aid of using the damaging fitness scenario of sufferers because of: required remedy for a couple of diabetes comorbidities, non-compliance with pointers essential in diabetes remedy, immoderate bodily effort, the addiction of sitting or lying, and excessive want for expert care amongst sufferers with inadequate PA. What is likewise of significance is the lively participation of a network nurse/standard nurse/number one care nurse, in particular thinking about that medical doctors do now no longer have sufficient time because of their workloads. Patients who obtain greater interest and care are greater engaged withinside the method of care and feature a higher existence and fitness scenario, a thing this is in particular essential withinside the route of continual diseases, wherein favored results can hardly ever be done with out the affected person's participation. This is showed with the aid of using better PA amongst sufferers who do now no longer have any problems with get entry to to scientific services. Social and monetary elements differentiating PA conduct amongst diabetic sufferers in very own studies reveal that it's far essential that care be supplied with the aid of using an interdisciplinary team, and that still a social employee and a community of unprofessional support be concerned withinside the method of care.

A excessive and really excessive want for expert care amongst sufferers who had at the least half-hour of hobby an afternoon however passive amusement and amongst folks who had abnormal PA or who used to take a seat down or lie shows the poor have an impact on of inadequate PA and its burden for the affected person and the healthcare system. A decrease call for expert care said maximum regularly amongst sufferers who had everyday PA and lively amusement means that this institution of sufferers is characterised with the aid of using decrease healthcare prices and decrease sickness burden. The effects of very own studies affirm the validity of selling everyday each day PA, additionally amusement time, amongst diabetic sufferers as a way of exerting a tremendous effect at the fitness of this institution of sufferers and a hazard for decreasing the call for expert care and, as a result, for decreasing care prices.

Conclusions

The relationship between chosen guilds such as: knowledge about the disease and health indicators, behavioral patterns in the field of nutrition, oral hygiene, body, feet, self-observation, behavioral patterns in self-control and modification of treatment, addiction, body weight (BMI), blood pressure (BP), glycemic stability, physical fitness, independence of patients' compliance difficulties, access to medical services, in social functioning, social support, social situation and living conditions, nursing and caring skills of the family, the need for professional care, satisfaction with: participation in treatment, participation in family life, marriage, professional, social and social life, treatment effects, life satisfaction, exists physical activity among patients with diabetes. Increasing physical activity among diabetic patients require a multifactorial intervention. At the level of primary healthcare, it is necessary to increase the role of doctors and nurses in ensuring safety and blood glucose level stability for patients who have regular activity and active leisure.

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