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Diabetes Treatment-Related Myths and the Impact of COVID-19 on Diabetes Knowledge—An Indian Survey-Based Study

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Abstract

Objective: The main aim of the survey was to assess diabetes treatment-related myths prevalent in the Indian population and if COVID-19 pandemic improved their knowledge about diabetes. **Results:** The survey was completed by 309 participants; 66% did not have diabetes. The responses of people with diabetes and those without diabetes were similar. Survey results of the total population showed that the majority believed that diabetes treatment should start early (92.6%); 87.4% believed that the treatment should start within three months of diagnosis with modern medicines; 67.3% of the participants felt that allopathic medicines for diabetes were safe, 69.6% believed that if started these medications continue lifelong, and 40.5% thought they damaged all major organs. Insulin was thought to be safe by 65% of the surveyed population; 60.8% believed that if they started insulin, they would need it life-long; 51.5% thought that insulin was started at the last stage of diabetes; and 58.6% believed that insulin caused kidney damage. A total of 58.6% believed that herbal medicines for diabetes were safer than allopathic; 76.4% did not believe that the "diabetic cure" shown through television/newspapers was safe and effective; 67.3% did not believe that ayurvedic medicines cured diabetes. Of the surveyed population, 67% felt that their knowledge about diabetes improved during the pandemic and 89.3% knew that PWDs have more serious problems with covid infection. **Conclusions:** Our survey shows that many diabetes treatment-related myths are prevalent in the Indian population even though the COVID-19 pandemic improved their knowledge about diabetes.

Keywords

Diabetes, Myths, Misconceptions, Survey, Insulin, Treatment, COVID-19, Barriers

1. Introduction

Diabetes is a global pandemic [1] [2]. One in seven of all adult people with diabetes (PWD) in the world is an Indian [1]. The global PWD number is predicted to increase by 69% to 152 million by 2045 [1].

The diabetes pandemic is preventable if diabetes is diagnosed and treated properly in time [1] [2]. However, diabetes treatment is complicated by various treatment opinions/myths prevalent in the general public and also in PWD [3] [4]. Myths or misconceptions are stories or beliefs shared by a group of people and passed from generation to generation as a part of their deeply ingrained cultural identity [4] [5]. Since the Indian culture is very diverse, these myths and misconceptions may vary with the region.

With diabetes reaching pandemic proportions in India, many Indians without diabetes have a high lifetime risk of developing diabetes in the coming years [1] [6]. Further, when people develop diabetes, they often consult their friends or relatives with diabetes or elders in the family about diabetes-related precautions and treatments. Hence, both PWDs and people without diabetes contribute to the spread of myths. Importantly, with many PWD relying on herbs, foods, and various other traditional medicines as their principal diabetes treatment, these myths influence health-care-seeking behavior and develop resistance to insulin use [3] [4] [5] [7]. This behavior often complicates the diabetes disease scenario and leads to hyperglycemia and its complications [3] [5].

Survey-based studies on the myths about diabetes are few and none are focused only on diabetes treatment-related myths. No study, to the best of our knowledge, compared diabetes treatment-related myths between PWD and those without diabetes. Hence, we designed this survey-based study to understand the diabetes treatment-related myths prevalent across India and to compare them between PWD and those without diabetes. The correct understanding of diabetes treatment-related misconceptions and myths prevalent across India is important for designing and providing the correct health education for healthy individuals by busting these myths in a culturally sensitive and acceptable way.

Additionally, no survey-based study covered the impact of COVID-19 on diabetes-related information, nor compared the impact of COVID-19 on diabetes-related information in PWD and those without diabetes. There was a lot of media coverage about the worsening of COVID-19 symptoms in people with diabetes (PWD). Though PWD was anxious about getting COVID-19, only 28% of were regularly checking their blood glucose levels during the pandemic [8]. However, the majority were following diet control and doing some exercise during the pandemic [8]. Hence, we also aimed to understand whether a pandemic like COVID-19, which had serious implications for PWD, improved diabetes-related information amongst the public and compared the impact of COVID-19 on diabetes-related information between PWD and those without diabetes.

2. Material and Methods

This was a cross-sectional digital survey-based study conducted across 5 cities in India March 2022 to May 2022.

The main aim of the survey was to assess the myths about diabetes treatment that are prevalent in the Indian population. The questions of the survey were included after a detailed discussion with the team and after a detailed literature search to assess the myths associated with diabetes treatment in the world.

The survey questions were originally designed in English language and then translated into the local language with the help of medical experts. The survey was designed such that it could be filled in both online (on a tablet/computer) and offline paper mode.

The surveys were filled during routine clinic visits, either by the patients themselves or the patients were assisted by the designated clinic staff. The staff only read out the questions and filled in the response given, and ensured that the patient's response was not influenced in any way. Each study subject was allowed to fill out the survey only after the subject was explained the aims and protocol of the study and, willingly gave consent to participate. All filled surveys were immediately cross-checked for completion.

Within a week of completing the survey, the data was uploaded on a Microsoft excel sheet and descriptively analyzed as percentages.

3. Results

3.1. Baseline Characteristics

A total of 312 people were approached to fill out the survey, of which, 309 consented to fill out the survey. The surveyed population was largely educated; 104 of them were students, 22 were housewives, and others (n = 223) were working across 67 different job sectors. The majority (80%) of the surveys were filled online and all the surveys were largely filled by the patients themselves.

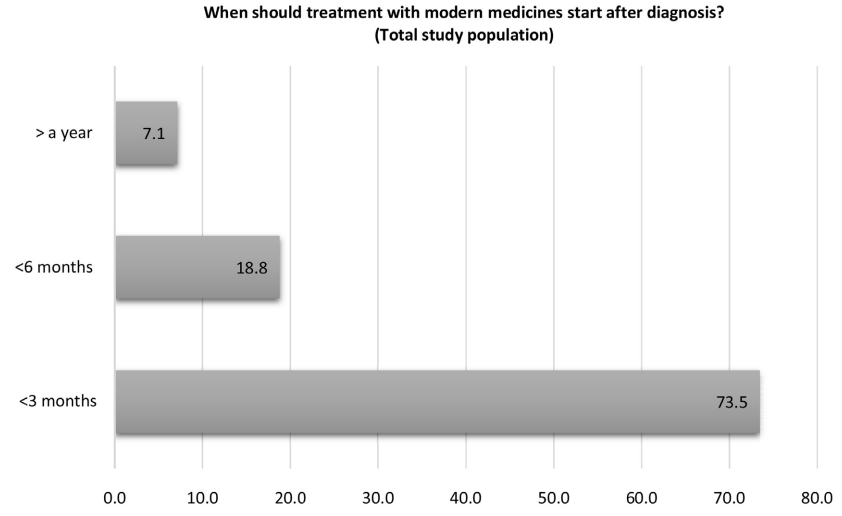
3.2. Survey Outcomes Total Population

The average age of the survey participants was 36.63 ± 18.32 years.

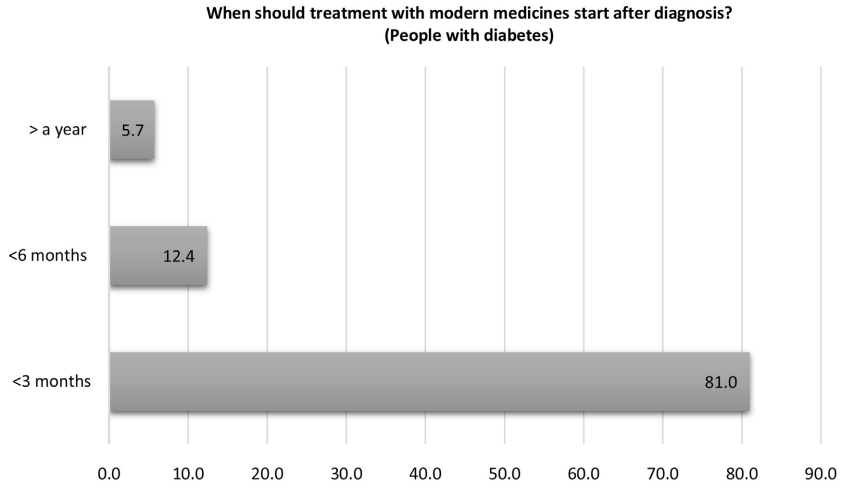
The majority believed that diabetes treatment should start early (92.6%), and if modern medicines (allopathic) were to be used, then 87.4% (**Figure 1(a)**) believed that the treatment should start within three months of diagnosis.

A total of 67.3% of the participants felt that allopathic or English medicines for diabetes were safe and 69.6% believed that if started these medications have to continue lifelong. A total of 40.5% thought that allopathic or English medicines damaged all major organs (eyes, heart, kidney, and liver) while 29.1% believed that these medicines caused no organ damage (**Figure 2(a)**).

Insulin was thought to be safe for the treatment of diabetes by 65% of the surveyed population; 60.8% believed that if they started insulin, they would need it life-long to control their blood sugar; 51.5% thought that insulin was started at the last stage of diabetes; and 58.6% believed that insulin caused kidney damage.



(a)



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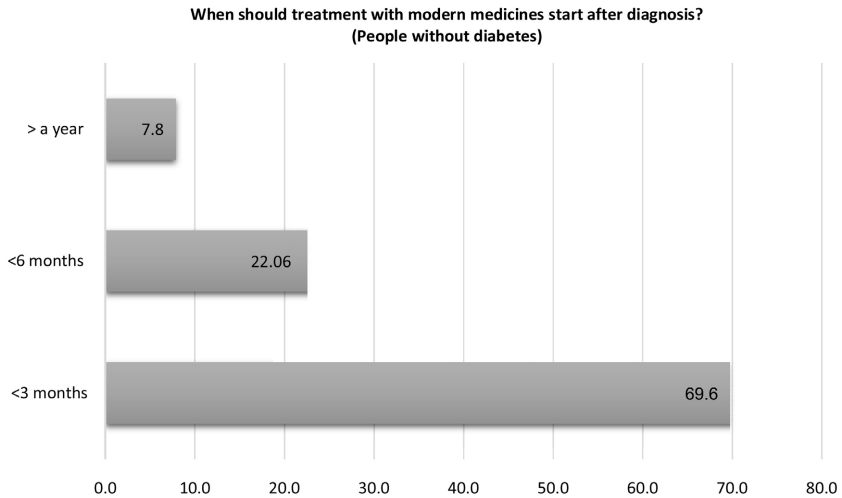

(c)

Figure 1. Duration of start of diabetes treatment with modern medicine post diagnosis in the total study population (a), people with diabetes (b) and people without diabetes (c).

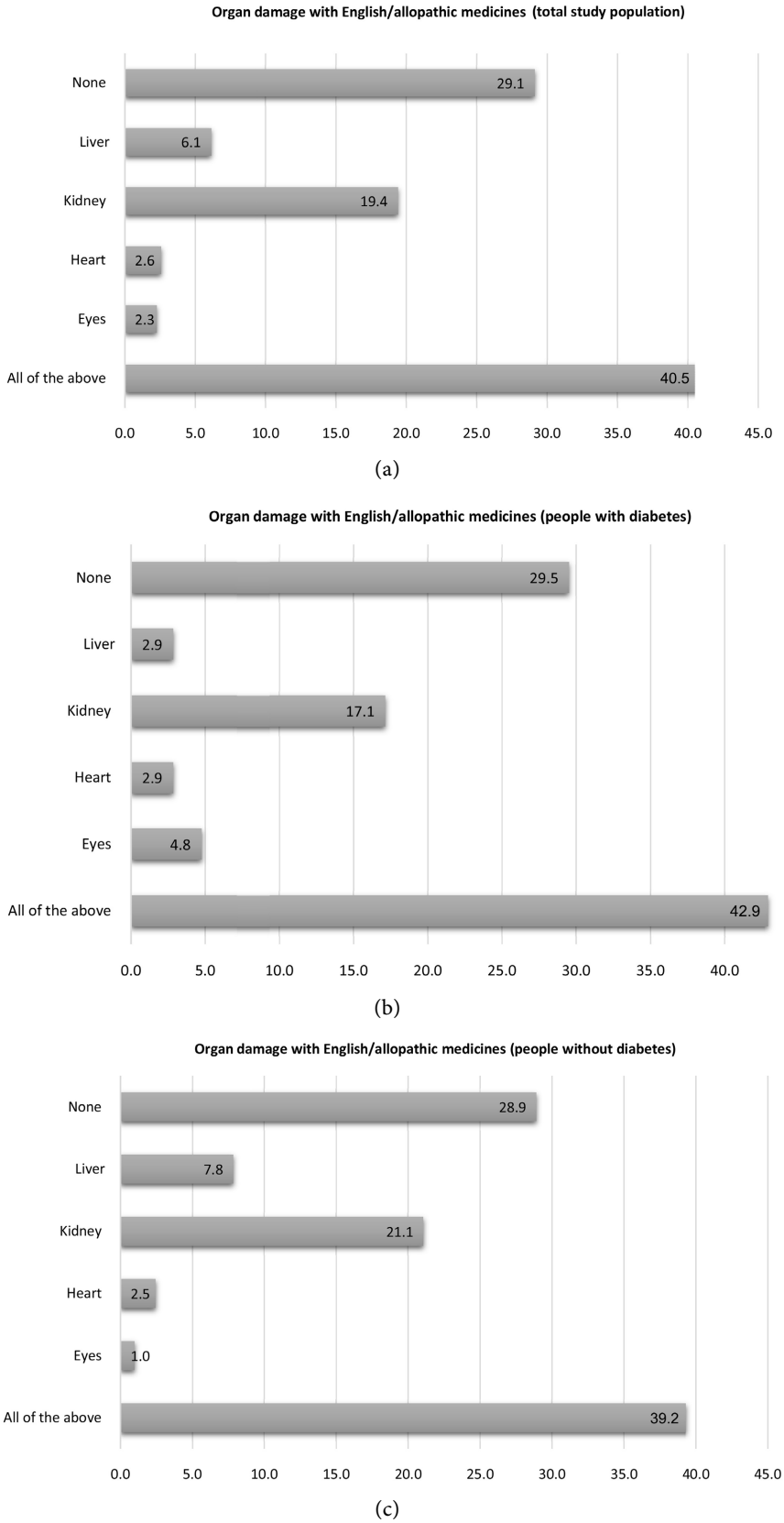

Figure 2. English/allopathic medicines caused organ damage in the total study population (a), people with diabetes (b) and people without diabetes (c).

A total of 58.6% believed that herbal medicines for diabetes were safer than allopathic. The "diabetic cure" shown on television or advertised in newspapers was not thought to be safe and effective by 76.4% of the surveyed population; 67.3% did not believe that ayurvedic medicines (as advertised by the media) cured diabetes.

Of the surveyed population, 67% felt that their knowledge about diabetes improved during the pandemic and 89.3% knew that PWDs have more serious problems with covid infection.

The survey questionnaire and the responses of the participants are detailed in Table 1.

Table 1. Survey questeionnaire and responses in total study population, people with diabetes and people without diabetes.

	Total study population (n = 309)		PWD (n = 105)		People without diabetes (n = 204)	
Average age ± SD (years)	36.81 ± 18.15		51.48 ± 14.1		29.09 ± 15.3	
Survey Questions	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Do you think PWD should start treatment early and not wait for a long duration?	286 (92.6)	23 (7.4)	97 (92.4)	8 (7.6%)	189 (92.6)	15 (7.4)
Do you think Allopathic or English medicine for diabetes once started will have to continue for life long?	215 (69.6)	94 (30.4)	77 (73.3)	28 (26.7)	138 (67.6)	66 (32.4)
Do you think allopathic or English medicine for diabetes is safe?	208 (67.3)	101 (32.7)	76 (72.4)	28 (26.7)	132 (64.7)	72 (35.3)
Do you think insulin is safe for the treatment of diabetes?	201 (65.0)	108 (35)	60 (57.1)	45 (42.9)	141 (69.1)	63 (30.9)
Do you think if you take insulin once, you will always need it in the future to control sugar level?	188 (60.8)	120 (38.8)	63 (60.0)	40 (38.1)	124 (60.8)	80 (39.2)
Do you think insulin is given only in the last stage of diabetes?	159 (51.5)	150 (48.5)	67 (63.8)	38 (36.2)	92 (45.1)	112 (54.9)
Have you heard that insulin or allopathic medicine treatment will cause kidney damage?	181 (58.6)	128 (41.4)	64 (61.0)	41 (39.0)	117 (57.4)	87 (42.6)
Do you think Herbal medicine for diabetes is safer than Allopathic?	181 (58.6)	125 (40.5)	49 (46.7)	55 (52.4)	132	70
Do you believe that the Diabetic cure shown on television or in newspaper is safe or effective?	73 (23.6)	236 (76.4)	20 (19.0)	85 (81.0)	53	151
Do you think Ayurvedic medicine {as advertised in media} can permanently cure diabetes?	101 (32.7)	208 (67.3)	31 (29.5)	74 (70.5)	70	134
Do you think your knowledge about diabetes has improved in the pandemic?	207 (67.0)	98 (31.7)	71 (67.6)	33 (31.4)	136	68
Do you know that PWD have more serious problems in covid infection?	276 (89.3)	33 (10.7)	95 (90.5)	9 (8.6)	180	24

3.3. Survey Outcomes People with Diabetes versus Those without

About 66% (204/309) of the surveyed population did not have diabetes. The average age of the survey participants without diabetes was 29.09 ± 15.3 years and that of PWD was 51.48 ± 14.1 years. The responses of PWD and people without diabetes were similar and in line with the responses seen in the total population. The details are captured in **Table 1** and **Figure 1(b)** and **Figure 1(c)** and **Figure 2(b)** and **Figure 2(c)**.

4. Discussion

India is a country where apart from allopathy, ayurveda, homeopathy, and spirituality is practiced in the primary health care system of many regions [3] [4] [5] [9] [10]. PWD often use a combination of allopathic and herbal/ayurvedic medicines to manage their diabetes [3] [11]. Hence, multiple diabetes treatment-related myths prevail and include all these forms of medicines.

In India, herbal medicines and other alternative forms of medicine are considered safer than allopathic medicines for diabetes [3] [4] [5] [11]. This myth is prevalent across other Asian regions as well [12]. This myth is also reflected in our survey where 58.6% of surveyed participants considered herbal antidiabetic therapy safer than allopathic antidiabetic medications. These herbal medicines and other alternative forms of medicine are known to cause adverse effects and emergencies related to uncontrolled diabetes [4] [5] [11].

However, PWDs often blame their allopathic diabetes medications, including insulin for organ (predominantly kidney and eye) damage, instead of being aware that uncontrolled diabetes is the cause of organ damage [13] [14]. Interestingly, an Indian survey-based study concluded that only 33.43% of their participants could identify that diabetes is a risk factor for chronic kidney disease (CKD) [15]. In our study, 40.5% believed allopathic or English medicines caused all major organ damage, and 19.4% felt these medicines caused kidney damage.

A study on insulin users in India found that only 14% of their participants thought that insulin can cause harm [16]. However, in our study, a significantly higher proportion (35%) did not believe that insulin was safe for PWD and 58.6% believed insulin caused kidney damage. This could be because insulin users have first-hand experience and therefore more faith in insulin [7] than our study population where a significant proportion of the participants did not have diabetes.

Indian studies show that 38.5% - 56% of surveyed participants believed that insulin is the last resort in diabetes treatment and 46% - 57.4% thought that insulin was habit forming [16] [17]. In our study too, 51.5% believed that insulin is given at the last stage of diabetes and 60.8% felt that if they started insulin they will always need it in the future to control their blood sugar.

Many diabetes reversal/permanent cure short-term programs are advertised across social media in India and focus on dieting, following a particular diet and exercise program, alternative forms of medicine, etc. [6] [18] [19]. Our survey

showed that the majority (76.4%) of surveyed participants did not believe that these diabetes cure programs shown on television or advertised in newspapers permanently cured diabetes. Also, 67.3% of our study participants did not believe that Ayurvedic medicines advertised by the media as "diabetes cure" can cure diabetes. Diabetes experts too believe that diabetes "reversal" is a myth because the path to diabetes is not reversed, even though blood sugar levels improve [19].

Our study showed that the survey participants without diabetes were young (<29.09 ± 15.3 years) while PWD who participated in the survey were older (51.48 ± 14.1 years). There were no major differences in the responses between PWD and people without diabetes, and the responses were in line with those of the total study population. This is an important finding of the study as the people without diabetes were young and believed in the same myths as those prevalent in PWD and the total study population. Also, the rampant and continued media coverage of risks associated with diabetes during COVID-19 did not improve diabetes-related knowledge in 33.3% of young people with diabetes.

Since these young people without diabetes are at increased lifetime risk of developing diabetes [6], it is important that their myths are busted as early as possible and they are provided with continued correct information to replace these culturally ingrained myths. This will help control the diabetes pandemic in India and reduce diabetes-related premature morbidity and mortality burden along with reducing the economic cost of managing diabetes with its premature morbidities in a young population [20].

5. Strengths and Limitations of the Study

This survey-based study was limited by the fact that it was a cross-sectional study that assessed the myths only in patients and thus the responses of physicians and caregivers may vary [21]. Also, the majority of the survey population consisted of patients with enough education and awareness of filling out online/offline surveys. It is known that individuals' education, income, and socioeconomic status can strongly influence their knowledge or lack of it and myths are more likely to prevail in individuals within the lower quartile of education, income, and socioeconomic status [5] [12] [15] [17]. However, though our study showed that myths can prevail in the educated strata of society as well, myths are likely to be more prevalent in the uneducated and poor population than reported in this study and may differ too.

Despite these limitations, the study captures diabetes treatment-related myths prevalent in educated Indian society and shows that some of these myths have been identified by other publications as well. This is one of the very few survey-based studies that is entirely focussed on diabetes treatment-related myths and therefore important as it will help create a proper education program to bust these myths.

The study also analyzed the responses given by PWD versus those without but did not analyze the statistical significance as the responses were in line with

those seen in the total study population. However, the study also brings forward an important scenario where diabetes treatment-related myths were prevalent even in young people without diabetes. Even though the youth is exposed to multiple communication channels, 33.3% did not feel that their knowledge about diabetes improved during the pandemic.

Further, the study captured people's perceptions of popular media miscommunications on "diabetes cure". Though a majority of participants did not believe in these cures, a significant proportion of the total study population and people without diabetes still had faith in them and thus they are more likely to follow them if they develop diabetes. Slightly more than one-fourth of PWD believed in the popular media covered "ayurveda cures for diabetes", which can be quite dangerous for them.

Further, the study also shows that the COVID-19 pandemic improved diabetes-related information in the public and made them aware of the serious negative outcomes of the disease during COVID-19.

6. Way Forward

Since the myths are deeply ingrained into the Indian culture, diabetes education to bust these myths should be given to the general population and those at high risk of developing diabetes [22]. With the projection that people without diabetes are at increased lifetime risk of developing diabetes [6], it is very important to bust these myths in this population, which is still very young, through structured education programs reinforced time and again. Family and caregivers of PWD should be involved in these education programs for better acceptance of the right information at the community level [21].

The diabetes education programs should be systematic, targeted and scientifically accurate, and yet culturally sensitive, and should be periodically reinforced in regional languages [13] [23] [24]. Further, since diabetes is a preventable pandemic, lessons learned from managing a pandemic like COVID-19 can be extrapolated to bust the myths surrounding diabetes, improve patient education and awareness about the disease through multiple communication channels, and reduce the burden of uncontrolled diabetes [2] [7]. Just as was done during the COVID-19 pandemic, major stakeholders such as the government, diabetes associations, Indian Council of Medical Research, media, popular figures, and community leaders and healthcare professionals should join hands to bust myths and promote correct education and lifestyle practices to control diabetes [7]. Young people have tremendous access to social media and are very technology savvy, hence social media platforms and mobile applications can be tapped to increase their awareness about diabetes and its treatment.

7. Conclusion

Our survey-based study shows that many diabetes treatment-related myths are prevalent in PWD and young people without diabetes. The COVID-19 pandem-

ic improved the general public's knowledge about diabetes. The prevalence of diabetes treatment-related myths in young people without diabetes and the fact that the COVID-19 pandemic did not improve the knowledge about diabetes in many of them is a serious cause of concern that needs to be addressed through appropriate measures urgently.

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Conflicts of Interest

The authors report no conflicts of interest in this work.

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References

[1] International Diabetes Federation P (2022) Factsheets|IDF Diabetes Atlas. 10th Edition, International Diabetes Federation, Brussels.

[2] Singer, M.E., Dorrance, K.A., Oxenreiter, M.M., Yan, K.R. and Close, K.L. (2022) The Type 2 Diabetes "Modern Preventable Pandemic" and Replicable Lessons from the Covid-19 Crisis. *Preventive Medicine Reports*, **25**, Article ID: 101636. https://doi.org/10.1016/j.pmedr.2021.101636

[3] Kasole, R., Martin, H.D. and Kimiywe, J. (2019) Traditional Medicine and Its Role in the Management of Diabetes Mellitus: "Patients' and Herbalists' Perspectives". *Evidence-Based Complementary and Alternative Medicine*, **2019**, e2835691. https://doi.org/10.1155/2019/2835691

[4] Vijaya, A., Rankhambe, D.H.B. and Kumar, S. (2022) Myths about Treatment of Diabetes in Common Public. *Archives of Internal Medicine Research*, **5**, 458-463.

[5] Rai, M. and Kishore, J. (2009) Myths about Diabetes and Its Treatment in North Indian Population. *International Journal of Diabetes in Developing Countries*, **29**, 129-132. https://doi.org/10.4103/0973-3930.54290

[6] Luhar, S., Kondal, D., Jones, R., *et al.* (2021) Lifetime Risk of Diabetes in Metropolitan Cities in India. *Diabetologia*, **64**, 521-529. https://doi.org/10.1007/s00125-020-05330-1

[7] Wangnoo, S.K., Maji, D., Das, A.K., *et al.* (2013) Barriers and Solutions to Diabetes Management: An Indian Perspective. *Indian Journal of Endocrinology and Metabolism*, **17**, 594-601. https://doi.org/10.4103/2230-8210.113749

[8] Nachimuthu, S., Vijayalakshmi, R., Sudha, M. and Viswanathan, V. (2020) Coping

with Diabetes during the COVID-19 Lockdown in India: Results of an Online Pilot Survey. *Diabetology & Metabolic Syndrome*, **14**, 579-582. https://doi.org/10.1016/j.dsx.2020.04.053

[9] Rastogi, S. (2019) Understanding Diabetes: Uncovering the Leads from Ayurveda. In: Rastogi, S., Ed., *Translational Ayurveda*, Springer, Singapore, 123-139. https://doi.org/10.1007/978-981-13-2062-0_8

[10] Tag, H., Kalita, P., Dwivedi, P., Das, A.K. and Namsa, N.D. (2012) Herbal Medicines Used in the Treatment of Diabetes Mellitus in Arunachal Himalaya, Northeast, India. *Journal of Ethnopharmacology*, **141**, 786-795. https://doi.org/10.1016/j.jep.2012.03.007

[11] Bhat, B.B., Udupa, N., Ligade, V.S., Khan, S. and Sreedhar, D. (2019) Assessment of Knowledge and Attitude of Patients on Herbal Medicine Use in UDUPI Region, Karnataka, India. *Tropical Journal of Pharmaceutical Research*, **18**, 117-121. https://doi.org/10.4314/tjpr.v18i1.17

[12] Sabra, A., Taha, A., Al-Zubier, A. and Al-Kurashi, N. (2010) Misconceptions about Diabetes Mellitus among Adult Male Attendees of Primary Health Care Centres in Eastern Saudi Arabia. *South African Family Practice*, **52**, 344-349. https://doi.org/10.1080/20786204.2010.10874004

[13] Singh, S.K. and Jain, R. (2020) Chapter 38. Myths about Insulin Therapy. In: Agarwal, S. and Sahay, R., Eds., *RSSDI's Insulin Monograph*: *A Complete Guide to Insulin Therapy*, Jaypee Brothers Medical Publishers, New Delhi, 245-247.

[14] Polonsky, W.H., Fisher, L., Guzman, S., Villa-Caballero, L. and Edelman, S.V. (2005) Psychological Insulin Resistance in Patients with Type 2 Diabetes: The Scope of the Problem. *Diabetes Care*, **28**, 2543-2545. https://doi.org/10.2337/diacare.28.10.2543

[15] Hussain, S., Habib, A. and Najmi, A.K. (2019) Limited Knowledge of Chronic Kidney Disease among Type 2 Diabetes Mellitus Patients in India. *International Journal of Environmental Research and Public Health*, **16**, 1443. https://doi.org/10.3390/ijerph16081443

[16] Choudhury, S.D., Das, S.K. and Hazra, A. (2014) Survey of Knowledge-Attitude-Practice Concerning Insulin Use in Adult Diabetic Patients in Eastern India. *Indian Journal of Pharmacology*, **46**, 425. https://doi.org/10.4103/0253-7613.135957

[17] Raghavendran, S., Inbaraj, L.R. and Norman, G. (2020) Reason for Refusal of Insulin Therapy among Type 2 Diabetes Mellitus Patients in Primary Care Clinic in Bangalore. *Journal of Family Medicine and Primary Care*, **9**, 854-858. https://doi.org/10.4103/jfmpc.jfmpc_973_19

[18] Cousens, G. (2007) There Is a Cure for Diabetes: The Tree of Life 21-Day+ Program. North Atlantic Books, Berkeley.

[19] Lifestyle Desk (2022) Expert Busts Myths about "Diabetes Reversal". The Indian Express.

[20] Pradeepa, R. and Mohan, V. (2021) Epidemiology of Type 2 Diabetes in India. *Indian Journal of Ophthalmology*, **69**, 2932-2938. https://doi.org/10.4103/ijo.IJO_1627_21

[21] Patel, N., Stone, M.A., Chauhan, A., Davies, M.J. and Khunti, K. (2012) Insulin Initiation and Management in People with Type 2 Diabetes in an Ethnically Diverse Population: The Healthcare Provider Perspective. *Diabetic Medicine*, **29**, 1311-1316. https://doi.org/10.1111/j.1464-5491.2012.03669.x

[22] Alberti, K.G.M.M., Zimmet, P. and Shaw, J. (2007) International Diabetes Federation: A Consensus on Type 2 Diabetes Prevention. *Diabetic Medicine*, **24**, 451-463. https://doi.org/10.1111/j.1464-5491.2007.02157.x

[23] Mohamed, H., Al-Lenjawi, B., Amuna, P., Zotor, F. and Elmahdi, H. (2013) Culturally Sensitive Patient-Centred Educational Programme for Self-Management of Type 2 Diabetes: A Randomized Controlled Trial. *Primary Care Diabetes*, **7**, 199-206. https://doi.org/10.1016/j.pcd.2013.05.002

[24] Mauldon, M., Melkus, G.D. and Cagganello, M. (2006) Tomando Control: A Culturally Appropriate Diabetes Education Program for Spanish-Speaking Individuals with Type 2 Diabetes Mellitus—Evaluation of a Pilot Project. *The Diabetes Educator*, **32**, 751-760. https://doi.org/10.1177/0145721706291999