

Iranian Patients with Type 2 Diabetes who Use Insulin Pens during the COVID-19 Pandemic Change their Self-Care Practices

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Abstract

The World Health Organization (WHO) declared the COVID-19 infection a pandemic on January 30, 2020. This extraordinary calamity has had a devastating influence on all facets of human life, leading to an enormous rise in mortality and morbidity rates, the disruption of the healthcare system, and the addition of new costs on communities. Co-morbid conditions such as hypertension, cardiovascular disease, diabetes, and cerebrovascular disease have been linked to higher rates and more severe COVID-19 infections, a larger need for hospitalisation, and other negative outcomes: intense care, and worse disease-related outcomes [1-15]. Results of a comprehensive review and meta-analysis revealed that co-morbidities were present in 40.80% of the affected individuals. While diabetes is more common in fatal cases compared to total cases (24.89%), hypertension is associated with more severe and fatal cases (47.65% and 47.90%, respectively). One of the most significant comorbidities is diabetes, which is documented in 5–36% of COVID-19 patients. After adjusting for confounders, patients with diabetes have a 100–250 percent higher chance of developing serious sequelae and dying from COVID-19 than those without diabetes.

Lockdown and social isolation may have an influence on daily life, routine medical care, and the treatment of chronic illnesses like diabetes. The COVID-19 epidemic can have indirect negative effects on the diagnosis, prevalence, and self-management of the disease due to changes in how the healthcare system functions, social support, and patients' regular lifestyles and health behaviours, in addition to direct negative effects on mortality and morbidity in patients with diabetes. These negative effects include dietary modifications and the intake of high-calorie meals, encouragement of a sedentary lifestyle, inadequate sleep, an increase in social and economic issues, and challenging access to medical facilities and pharmacies.

Introduction

The most crucial elements of diabetes self-management that should be taken into consideration include routine blood glucose monitoring, adhering to a healthy diet, regular physical activity, compliance with medication, and foot care. Hyperglycemia and prevent or at least delay the complications in patients with diabetes. Numerous studies have revealed poor adherence to diabetic self-care practices, particularly in developing nations. Different personal, family, and social issues have an impact on how people practise self-care. The biggest problems with diabetes care during the COVID-19 pandemic are lack of proper preventative measures, the disruption of traditional patient relationships, a lack of drugs, the interruption of regular diabetic care, and a lack of the essential infrastructure for telehealth services are all examples of management in developing nations. Iran, like many other nations, has reported an increase in the prevalence of diabetes. Iran has faced some difficulties as a result of tightening sanctions over the previous two years, in addition to the difficulties associated with managing diabetes in underdeveloped countries. In actuality, during the COVID-19 crisis in Iran, the burden of sanctions was doubled. The scarcity or high cost of medications like insulin pens increased patients' anxiety. The COVID-19 crisis complicated the care of their illness. Therefore, the purpose of this study was to investigate how the COVID-19 pandemic affected individuals with type 2 diabetes who used insulin for self-care. This study's primary hypothesis (H1) was that the COVID-19 epidemic significantly affects patients with type 2 diabetes who use insulin pens in terms of their diabetes self-care.

300 type 2 diabetes patients who had been sent to a reference tertiary care diabetes clinic for instruction on how to inject pen insulin during one year (2018–2019) were included in this ongoing prospective cohort study. The only specialist referral facility for patients with diabetes in Khuzestan Province, southwest Iran, is the Golestan Hospital's Diabetes Clinic. The internal medicine ward of this

hospital hosts more than 5000 outpatients and inpatients at this clinic each year since its establishment in the year 2000. It offers almost 500 new insulin users basic training on insulin injection procedures and the associated information. This facility is situated in Khuzestan's capital city of Ahvaz, where the prevalence of diabetes is especially high.

Subjective Heading

In a semi-experimental investigation, trained professionals conducted face-to-face interviews to complete a standard questionnaire that included demographic data, illness features, and the Summary of Diabetes Self-Care Activities Assessment (SDSCA). In our prospective study, a questionnaire, a checklist of diabetes tests, and a section on consequences of diabetes following the COVID-19 crisis were completed through phone and social media. Contact information for these patients was also accessible. Patients used smartphone social media messaging apps to send pictures of their tests and other information about self-management during the COVID-19 outbreak.

The self-care practices of type 2 diabetes patients who used insulin

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pens were compared in this study before and after the COVID-19 outbreak. Nine individuals who satisfied the eligibility requirements passed away within a year of the COVID-19 outbreak, and 300 patients were subjected to the analysis.

Patients' ages ranged from 53.85 to 10.88 years on average. The majority of the patients were women. The sickness lasted an average of 11.69 (6.01) years. Additionally, 22.3% of the patients changed the insulin type or dosage, and 12.3% discontinued using insulin pens. 6.7% of those infected with COVID-19 in the first six months of the epidemic checked their blood sugar in a lab within the subsequent six months, and 31.7% of these individuals were diagnosed.

The prevention of diabetes complications and enhancement of the quality of life for diabetic patients depend significantly on adherence to advised self-care activities. Overall, the study's findings indicated that type 2 diabetes patients using insulin should not engage in self-care activities before or during the COVID-19 outbreak. Their level of self-care was moderate prior to the COVID-19 pandemic but fell to a low one year afterwards (27% poor self-care prior to the COVID-19 pandemic, which increased to 66.3% after it). Self-management of diabetes was fraught with difficulties in many poor nations, where more than 75% of diabetes patients reside.

Discussion

The findings of this study showed that within a year of the pandemic, there was a significant decline in the mean scores of all five self-care activities (following a diet plan, exercising, taking medicine, self-monitoring blood glucose, and foot examination). Results from studies on diabetes self-care practises after the emergence of COVID-19 infections are both similar to and distinct from ours. According to our findings, lockdown and social isolation had been linked to detrimental impacts on diabetic self-management, particularly maintaining a nutritious diet and engaging in physical activity on a regular basis. The findings of a qualitative research by on 20 diabetic patients from Denmark revealed two distinct patterns of diabetes self-management under COVID-19 lockdown: stoppage of diabetes self-care and the capacity to continue routine treatment. They identified two significant changes in persons with diabetes' lifestyles: decreased physical activity and increased food intake.

Reduced physical activity and an increase in sedentary behaviours were observed in the most researched population during the COVID-19 pandemic, according to a 2021 systematic review study by In a cross-sectional study, Khader et al. (2020) found that 69.07% and 46.88% of Indian diabetes patients saw a drop in physical activity and an increase in food intake, respectively, during lockdown. Within 45 days of lockdown, higher carbohydrate consumption, decreased physical activity, and decreased self-monitoring of blood glucose were observed in a study of 150 type 2 diabetic patients in north India.

On the other side, some research indicated that pandemic lockdown had no effect or even benefited diabetic self-management. In an online pilot study conducted in India, found that routine care was being maintained or changed. According to their findings, even though 28% of the participants routinely checked their blood glucose levels, 80 percent of diabetes patients exercised regularly and maintained a healthy diet during the lockdown.

Italian patients receiving insulin did not see any alterations in their glycemic control during the first 14 days of the COVID-19 shutdown, according to Studies have shown improvements in the treatment of hyperglycemia, which can be attributed to having more time to devote to self-care activities, the potential for leading a more regular lifestyle,

and the use of digital diabetes management.

By reducing their regular daily activities, 20 individuals with type 1 diabetes who stayed at home showed improvement in their glycaemic control, according to, 307 Spanish patients experienced better glucose control during the initial weeks of lockdown, according. This improvement was attributed to having more time to focus on self-management. It is noteworthy to notice that industrialised nations account for the majority of publications discussing the advantages of lockdown during the COVID-19 pandemic for managing diabetes. The majority of studies have also looked at the brief quarantine period. As the pandemic spreads, various outcomes might be attained.

Patients' ages ranged from 53.85 to 10.88 years on average. The majority of the patients were women. The sickness lasted an average of 11.69 (6.01) years. Additionally, 22.3% of the patients changed the insulin type or dosage, and 12.3% discontinued using insulin pens. 6.7% of those infected with COVID-19 in the first six months of the epidemic checked their blood glucose in a lab within the subsequent six months, and 31.7% did so within the subsequent year. Before the COVID-19 outbreak, 174 (58%) of patients with diabetes reported having laboratory plasma glucose testing, and 226 (75.3%) had glucometers. Within a year of the pandemic crisis, routine doctor visits decreased from 63.7% to 45.3%.

Prior to the COVID-19 crisis and one year afterwards, the mean total self-care score was 37.63 (SD, 10.89) and 26.14 (SD, 10.99), respectively. Before the COVID-19 crisis, patients' levels of poor, moderate, and good self-care were, respectively, 27%, 54.3%, and 18.7%. However, these rates were 66.3%, 29%, and 4.7%, respectively, a year after the epidemic started. Shows the average and standard deviation of self-care practises depending on key demographic and illness factors. The Wilcoxon test revealed a significant difference between the mean scores of the five self-care behaviour indicators before and after the COVID-19 crisis.

The prevention of diabetes complications and enhancement of the quality of life for diabetic patients depend significantly on adherence to advised self-care activities. Overall, the study's findings indicated that type 2 diabetes patients using insulin should not engage in self-care activities before or during the COVID-19 outbreak. Their level of self-care was moderate prior to the COVID-19 pandemic but fell to a low one year afterwards (27% poor self-care prior to the COVID-19 pandemic, which increased to 66.3% after it). Self-management of diabetes is common in many developing nations, where more than 75% of patients with diabetes reside was accompanied by a number of difficulties prior to the COVID-19 epidemic. Although self-care behaviour adherence rates in low- and middle-income nations vary greatly, non-adherence to advised behaviours is these countries' predominate trend. Additionally, observed Ghana's comparatively poor rate of adherence to dietary guidelines, self-monitoring of blood glucose, and foot care. Furthermore, the level of self-care among type 2 diabetes patients was small in our earlier investigations conducted prior to the COVID-19 crisis was accompanied by a number of difficulties prior to the COVID-19 epidemic. Although self-care behaviour adherence rates in low- and middle-income nations vary greatly, non-adherence to advised behaviours is these countries' predominate trend. Additionally (2017) observed Ghana's comparatively poor rate of adherence to dietary guidelines, self-monitoring of blood glucose, and foot care. Furthermore, the level of self-care among type 2 diabetes patients was small in our earlier investigations conducted prior to the COVID-19 crisis.

Changes and limitations in daily life have been brought on by

the COVID-19 pandemic, a severe public health issue. Particularly in underdeveloped nations with limited resources, this may have an impact on disease management and health behaviours directly or indirectly. In this study, self-care practises of type 2 diabetes patients using insulin pens were compared before and after the COVID-19 pandemic.

Prior to the COVID-19 crisis and one year afterwards, the mean total self-care score was 37.63 (SD, 10.89) and 26.14 (SD, 10.99), respectively. Before the COVID-19 crisis, patients' levels of poor, moderate, and good self-care were, respectively, 27%, 54.3%, and 18.7%. However, these rates were 66.3%, 29%, and 4.7%, respectively, a year after the epidemic started. The mean score of five self-care behaviour indices before and after the COVID-19 crisis varied significantly.

Conclusion

Our findings point to a decline in self-care practises among Iranians during the COVID-19 pandemic. Especially in light of the COVID-19 problem, ongoing monitoring of diabetic patients and the development of efficient educational programmes for these individuals can avoid or delay the long-term effects of diabetes.

Our research indicates that the Iranian population's degree of self-care has declined as a result of the COVID-19 pandemic. The true pattern of the advantages and disadvantages of lockdown during the COVID-19 period in patients with diabetes in underdeveloped and industrialised nations, however, requires more research with a bigger sample size. The results of this study demonstrate the significance of ongoing monitoring of diabetic patients, particularly during the COVID-19 crisis, and can be used to develop efficient patient education initiatives. In order to prevent both short-term and long-term effects of the disease in the current situation, additional research is required to evaluate patients' self-care practises and resilience.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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