

Has COVID-19 Made the Vulnerable Groups Even More Vulnerable? Exploring the Conditions of Diabetic Patients of Dhaka City Amidst COVID-19 Pandemic

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ABSTRACT

SARS-CoV-2, commonly referred as COVID-19, has emerged as the most severe public health concern of the twenty - first century. Coronavirus usually is not very lethal to the persons who do not have any medical conditions, but it is fatal to people who have had past medical conditions that have often resulted in death. The objectives of this paper is to look at the effects of coronavirus on older diabetes patients, who are thought to be the ones who were affected the most by COVID-19. This research used a qualitative approach and was descriptive in nature. The researcher has purposefully chosen three areas in Dhaka city as the studies fixate: Shahbag, Khilgaon, and Rampura. Data was gathered using qualitative methods such as focus group discussion and key informant interviews. According to the study's findings, COVID-19 had a serious effect on older adults with diabetes. The number of patients at the hospital had significantly decreased. Despite the fact that hospitals were equipped to provide treatment and care, patients' mobility was limited. Many people preferred virtual consultation or telemedicine to face-to-face consultation and care. Doctors encouraged individuals to connect digitally, which is both safe and feasible in the face of the global pandemic. The expense of a diabetic patient rose, according to the majority of respondents. According to the findings, the pandemic is spurring new diabetes-care delivery methods. Many structural flaws were exposed as a result of Covid-19, paving the door for additional improvements in healthcare delivery in the study area.

Keywords: Diabetes, Covid-19, Health Care Services, Dhaka City.

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INTRODUCTION

The COVID-19 condition appears to be more severe among the elderly and those with pre-existing health issues (including diabetes, cardiovascular disease, and asthma). When diabetic patients contract a virus, their blood sugar levels rise, and they become more resistant to treatment. There are two possible explanations. First, the immune system is weakened, making it difficult to fight infection and perhaps prolonging healing time. Second, the virus thrives in high blood glucose environments.¹ The physical health of a COVID-19 patient with diabetes deteriorates due to various complications.² Males and older adults are more likely to be impacted by COVID-19 and develop major medical problems. At the outset of the outbreak, the elderly were the most severely affected, accounting for the majority of cases all around the world. According to a study conducted in the United Kingdom, there were 23,804 Covid-19 individuals in serious condition, with 32 percent of patients suspected of having type 2 diabetes and 1.5 percent having type 2 diabetes. Additionally, people

with diabetes had a 3.5-fold increased mortality risk compared to non-diabetic patients.³

There are more than 8 million diabetic patients in Bangladesh. Diabetic Association of Bangladesh (BADAS) has developed a sustainable model to address the health of diabetic patients and normal population.⁴ But the model was overwhelmed by the circumstances that arose in the wake of the pandemic. The whole health-care system of the country was on the brink of massive collapse due to lack of adequate emergency preparedness measures and the grave and sudden consequences Covid-19 posed. Diabetic patients are already vulnerable due to their fragile immune system and they require regular treatment and consultation from the doctors. But coronavirus presented significant barriers for the patients in receiving the bare minimum service they require to survive. As the whole country struggled to contain the spread of virus and reduce the mortality rate, diabetic patients were left unnoticed although they were thought to be one of the most vulnerable groups

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amidst the pandemic. This paper attempts to present the difficulties they experienced, their coping mechanism against the changes brought about by the health sector and alternation in their lifestyle

MATERIALS AND METHODS

The methodology is a key component of the study, which enables researchers to follow scientific ideas and standpoints with proper techniques and processes to carry out the research smoothly. The purpose of the part is to clarify the methodologies and strategies utilized for analysing the research objectives of the study. Research design with systematic parameters, research area, data collecting methodologies, data analysis processes, specific ethical concerns for older persons with diabetes in Bangladesh is described precisely in the following part.

Study Design

This qualitative research followed thematic analysis using an inductive approach. Data collected data from both primary and secondary sources. The primary data was collected following qualitative approaches and they were selected using purposive sampling. Written informed consent from all participants and health institute obtained prior to the interview. By using a topic guide of open-ended questions, semi-structured interviews (Key Informant Interview) were conducted with each participant individually (approximately 60 min in length) by a trained qualitative interviewer (research assistant). Expert qualitative researchers were involved in data collection and supervise throughout the process (topic guide preparation, interviews, Atlas.ti version 9 training, analysis and reporting). Sampling continued until saturation. A pilot study was also conducted to assess the reliability of the measuring tools and the acceptability of the study population.

Study Setting

The research was carried out in Dhaka, Bangladesh. Three renowned diabetes clinics in three different areas of Dhaka City i.e., Rampura, Khilgaon, and Shahbag were examined for conducting focus group discussions. The name of hospitals were:

1. Ibrahim Cardiac Hospital
2. Khilgaon Diabetic Centre
3. Rampura Sastha Seba Kendra

Study Length

This study was conducted between February to April 2021 inclusive of topic guide development, data collection, transcription, translation, analysis and primary dissemination.

Study Participants

Study participants include diabetic patients attending 3 hospitals and medical service providers for key informant interviews (KII). Ten key informant interviews (KIIs) were performed with the following stakeholders: 1. Doctor 2. Nurse 3. Intern Doctor. 4. Hospital Owner. 40 in-depth interviews were conducted from three hospitals mentioned above.

Inclusion Criteria

- DM patients who are over 50 years of age
- DM patients who are willing to participate in the study

Exclusion criteria

- DM patient below 50 years of age
- Unwilling to participate in the study

Data Analysis

The qualitative data was analysed through Atlas.ti Version 9 using the thematic analysis technique. Thematic analysis entailed a continual back-and-forth between the whole data collection, coded data extracts, and the analysis of the data that was being created. To ensure quality, each interview was transcribed, translated, and double-checked by a member of the research team who was a medical student. The categorization was done according to themes and sub-themes followed by a compilation of information. The principal investigator (primary researcher) used an iterative approach to conduct the analysis. Atlas.ti version 9 software was used to manage data.

Data Storage

Strict confidentiality was ensured while data was stored following the authorized study procedure. In addition to the data collecting activity, all of the researchers engaged were given extensive training on data confidentiality during the collection and preservation of data. Digital data was encrypted, and all paper files were maintained in a safe and secured place at the Institute of Disaster Management and Vulnerability Studies (IDMVS), University of Dhaka.

Ethical Considerations

The study ensured the ethical issues that were involved, including the risks and benefits of the respondents. The Institute of Disaster Management and Vulnerability Studies, University of Dhaka (IDMVS), University of Dhaka provided the ethical approval. The study tools development and analysis process followed the Ethical Guidelines 2003 by Social Research Association. Before conducting data collection, each respondent was informed about the purposes, type of information coverage, and confidentiality. The respondents participated in the study voluntarily and they had the opportunity to terminate participation at any stage of the study.

Findings

Qualitative analysis of this study has led us to formulate five major themes: (1) States of healthcare facilities during the pandemic; (2) Health-related concerns and expenditures of diabetic patients amidst COVID-19; (3) Availability of treatment facilities of diabetic patients during the pandemic; (4) Impacts of Covid-19 on healthcare services for DM patients; and (5) Changes in lifestyle among the diabetic patients induced by the pandemic. Results of this study have been categorized and described under each of these sections with the experiences, perceptions, insights from the in-depth interviews (IDIs) of diabetic patients of Bangladesh and key informant interviews (KIIs) of healthcare practitioners. Examples from interview transcripts have also been delineated to illustrate the key trends observed during the analysis.

States of Healthcare Facilities during the Pandemic

The majority of the participants (diabetic patients and health practitioners were interviewed) expressed their frustrations and anxieties regarding the loopholes that existed within the healthcare system. They reported that the healthcare system in Bangladesh had hardly the capacity to endure a pandemic, which too like covid-19 pandemic. Participants agreed that the influx of patients dwindled initially because people were frightened of contracting highly contagious Covid-19, but the healthcare system failed big time to support the affected populace. One doctor said,

“Only the suspected Covid-19 patients or the contracted ones were to be seen in the hospitals as people stopped visiting hospitals due to the fear of contracting coronavirus. Even then, our hospital systems struggled to provide facilities direly needed by the Covid-19

patients. Many died in need of oxygen supply, and insufficiency of ICU support also helped this cause.”(KII no. 1)

Participants retorted that the healthcare system in Bangladesh has never been efficient and adequate to support the vast populace of our country. And the meagerness of the system became more evident during the pandemic. Almost all of the respondents blamed poor governance, inadequate medical facilities, fragile public health communication, and extensive corruption as the primary reasons behind the system's collapse when service was needed the most. One diabetic patient expressed;

“Before pandemic, I had to wait hours just to consult with a doctor, and the situation deteriorated even more during the pandemic. I wasn't even allowed in the hospital once. I have never felt so helpless.”(IDI, no 3).

It is estimated that about 10 million people currently have diabetes in Bangladesh, making it one of the fastest-growing non-communicable diseases in Bangladesh.⁵⁻⁶ Diabetic patients who were interviewed said they need to visit doctors regularly. But the fear of Covid-19 kept them home during the pandemic. The majority of the diabetic patients subscribed for telemedicine facilities or other online-based consultancies instead of visiting doctors physically in the hospitals. Going out to the hospitals wasn't feasible either as lockdowns were imposed and transportation facilities were cut-down. One of the respondents stated,

“As the death toll started rising due to Covid-19, I stopped visiting doctors at the hospital where I usually go for checkups every month or two. Instead, I looked for online-based doctors and sought consultancy from them. Some of my relatives also needed to consult with a professional preferred telemedicine facility than visiting hospitals.”(IDI, no-17)

Respondents from healthcare practitioners reported that they were receiving fewer patients in hospitals and had to accommodate telemedicine facilities for large numbers. That was indeed a practical aspect in containing the spread of the coronavirus, but the healthcare systems were even struggling to cope with the daily influx of Covid-19 patients. However, the incidents of contracted cases were comparatively low considering the neighboring countries.

Health-related concerns and expenditures of diabetic patients amidst Covid-19

Participants stated that people with diabetes were more likely to develop severe symptoms and complications if contracted with the coronavirus. The trend of death in Bangladesh also illustrates that most of the deceased due to Covid-19 had previous complications such as diabetes, hypertension, heart diseases, etc. Diabetic patients of the study agreed that they were living in a constant state of panic and fear. Diabetes affects a person's immune system and makes him vulnerable to other diseases, and corona can thrive in the body of such a vulnerable person. Diabetes also makes it difficult for a person to recover from the illness inflicted by Covid-19. One doctor explained,

“Diabetic, hypertensive, and cardiac patients need to maintain some highly precaution measures to avoid getting infected with Covid-19. Their immune system is perceived to be already weaker than normal people, and we have seen many people with diabetes unfortunately succumbed to Covid-19.”(KII, no-8)

In contrast, the cost of treatment for diabetic patients increased a bit initially during the lockdowns. Diabetic patients need regular check-ups and consultancy with professionals. Still, not only did the fear of Covid-19 didn't allow them to venture out and visit a doctor in a hospital, but also they were stuck in their houses as transportation facility was either not available or was drastically limited amidst lockdowns. Diabetic patients were already at a higher risk with their passable immune system. They were also suggested to explore available online modes of medical

assistance. Participants stated that the pandemic created a massive challenge for diabetic patients. While medicines were available, visiting pharmacy to buy necessary medicine was a big challenge. One patient stated,

“We are the group of people worst hit by the pandemic. We need daily medications and regular consultancy with doctors. Both were at stake at the beginning. I was suggested to contact a doctor over WhatsApp and had to pay the bill through Bkash (Mobile Financial Service). It was more expensive than regular, but I had no other alternatives.”(IDI, no-11)

Respondents concurred that Covid-19 impacted them heavily when it started to spread in Bangladesh. But telemedicine and other online means of treatment as well as online shopping of medications somehow altered that tragic situation, although the expenditure to avail those services were high.

Availability of treatment facilities of diabetic patients during the pandemic

Participants reported that treatment for diabetic patients became a serious concern. As the lockdowns were imposed, patients had difficulties getting to the hospitals. Diabetic patients were also skeptical about the measures taken by hospitals to reduce the spread of the coronavirus. But the doctors denied the fact and retorted that hospitals had arranged special facilities for treatments of all patients. All the doctors had to wear PPE while treating patients, and screening of incoming patients and isolation corner for probable Covid-19 patients were also in place. One doctor said,

“We receive diabetic patients regularly, although the number of patients has reduced dramatically. But hospitals are well prepared for providing treatments. Authorities have been doing their best to contain the spread of the coronavirus. We are remaining extra careful while treating diabetic patients as well. We understand that their immune system is hardly suitable enough to fight Covid-19, and hence, they are showing negligence coming to the hospitals out of fear, but we are always ready to welcome patients.” (KII, no-4).

The pattern of treatment changed radically during the pandemic. The prospect of online treatment got momentum as the government introduced lockdowns. Diabetic patients stated that virtual consultation with the doctors provided them with some relief as the overall situations worsened. Doctors were using social platforms to provide the patients with the medical assistance they needed. Some hospitals were even encouraging patients to acquire treatment through online media. Some hospitals later introduced telemedicine facilities to contain the spread of the virus. One patient stated,

“All of the members of my family have diabetes. I have been visiting a doctor for the last couple of decades, but I never feared going out to hospitals. My son then informed me about online consultancy, and I could finally reach a doctor. He also sent me the prescription over Facebook.”(IDI, no-13).

Impacts of COVID-19 on healthcare services for DM patients

As the number of COVID-19 cases started rising, the limitations within our healthcare system became more and more explicit. Condemnation and criticism against healthcare system became more prevalent. But according to health practitioners, immense encouragement and appreciation were also being sent out to them, which kept them moving forward. One doctor stated,

“Indeed, we didn't have PPEs and other necessities; we had to work for longer periods; indeed, we were exhausted, but the amount of appreciation we used to receive was something extraordinary.” (KII, no-7).

Participants agreed that our healthcare system had never been adequate to support a pandemic-like situation. Regular healthcare services were disrupted big time. Hospitals were receiving fewer number of patients than usual. Still, they seemed to struggle with the situation. Only a few hospitals around the country had the capacity of Covid-19 testing. Shortages of testing kits, trained personnel, oxygen supply created chaos throughout the country. Providing healthcare services with limited professionals and staff became a massive challenge while the number of affected and dead from Covid-19 reached its peak. A healthcare professional expressed,

"Covid-19 shook our faith in the system we work, People were dying in need of an ICU bed, but we could do nothing. An immediate improvement of the system is desperately needed."(KII, no-02).

To contain the spread of Covid-19, some hospitals then introduced a telemedicine facility, a means of treatment over the telephone. Participants stated that it indeed helped reduce the spread of the coronavirus. Diabetic patients were at a high risk of developing grievous consequences upon contracting Covid-19; hence, telemedicine worked as the most viable option for the patients during the pandemic. One patient said,

"I couldn't afford to go to hospitals, but my condition was worsening. I had to consider telemedicine, and it worked well for me."(IDI, no-22).

Participants' statements revealed the fragile condition of the healthcare system of the study area. They suggested that the authority should focus more on the crisis and find feasible solutions to the problems. The healthcare system failed to address the needs of Covid-19 patients, let alone regular patients the participant suggested an immediate and long-scale intervention to strengthen the healthcare system if not fixing it completely.

Changes in Lifestyle among the Diabetic Patients Induced by the Pandemic

As the government imposed lockdowns, people were instructed to stay at their homes to prevent infections. Maintaining spatial distances or isolation is reported to be an effective measure to contain the spread of the virus. Still, it also has detrimental impacts on the physical health of the population. Participants reported that the degree of physical activity decreased momentarily as idea of distant working and work from home were introduced. Parks and other amusement facilities, schools and colleges, religious centers, markets, etc., were all shut down. One of the respondents was saying,

"I have diabetes and need to walk daily to contain it, but lockdown is greatly impacting my lifestyle. Nowadays, I go to the rooftop and try to have some physical activities, but this is not helping much. Walking in the parks in the morning has been my routine for the last 25 years."(IDI, no-33)

The mental wellbeing of the people had been affected by the Covid-19 as well. While talking about the mental health issue, most of the participants stated that Covid-19 had some impacts on their livelihoods in one way or another. Some lost their jobs, while some had to close down their businesses. Many resorted to the idea of shifting to a village, having no alternatives to survive in Dhaka city. They were struggling to cope with the circumstances. The overall situation had an impact on the mental well-being of the sufferers. People were getting stressed, anxious and desperate. One of the respondents stated,

"I am a retired government employee; I live with my son who has recently lost his job due to Covid-19. Now not only am I helping him financially with my pension, but also I am supporting him to be mentally stable in this situation."(IDI, no-19)

Another respondent said,

"I am a cable worker in Banasree region. As the lockdowns were imposed, I started to have fewer clients, which pushed me to difficulties. My family depends on my income, and I can't sleep at night or relax. I am having some difficulties regarding mental illness."(IDI, no-15)

The pandemic has affected the entire food system and has laid bare its fragility. Border restrictions, trade barriers, and containment policies have hindered producers from entering markets, including the procurement and sale of inputs and the processing of crops by farmworkers, thus undermining domestic and foreign food supply chains and limiting access to nutritious, secure, and diverse diets. Unhealthy lifestyle habits such as poor diet, lack of physical activity, smoking, and alcohol use are not only significant contributors to the global burden of disease. Still, they are also positively associated with the worse mental health outcomes. Maintaining a healthy diet became a challenge for some of the respondents. One of them stated,

"My business is not running as good as before. I can't provide my family with healthy foods. We just go by somehow nowadays."(IDI, no-29).

The global pandemic has its toll on the lives and livelihoods of people around the globe. Normal lifestyle patterns have been hampered to a great extent. And this has invariably impacted the mental health condition of some.

DISCUSSION

The study aimed at finding the state of function ability of the healthcare centres in providing treatment for diabetic patients across Bangladesh amidst the deadly COVID-19 pandemic periods. The primary focus was on the barriers that existed or emerged as a result of the pandemic in terms of accessing much-needed treatment facilities for the elderly diabetic patients. The study also reflected on the adjustments made by the healthcare systems and patients themselves.

Healthcare institutions around the globe have observed a downward trend of hospital admissions and patients visiting hospitals for health issues during the peak periods of the ongoing COVID-19 outbreak. Fear of contracting the deadly virus refrained people from getting admitted to hospitals and other healthcare centres and receiving medical assistance. In the US alone, outpatients' hospital visits decreased suddenly and fell down to 32% during the period between week 11 and week 36.⁷⁻⁸ Our study also reveals the same scenario that was similar for Bangladesh with the diabetic patients being reluctant to visit the healthcare centres. The doctors also mentioned the decreased number of patients during the baseline pandemic periods. Furthermore, reports suggest that patients with diabetes mellitus, especially those who have type 2 diabetes (T2DM), are significantly more susceptible to the severe impacts of the coronavirus, and Diabetes appears to be associated with an increased risk of death and a more significant requirement for intensive care during COVID-19 infection.⁹ But, Bangladesh struggled significantly in providing essential medical assistance, let alone intensive care for patients with severe cases, making diabetic patients think twice before visiting the hospital amidst the pandemic.

However, a transformation within the healthcare system was also happening as the pandemic continued devastating countries around the world. As social distancing and quarantine measures were imposed, telemedicine emerged as the most obvious solution to overcome these healthcare difficulties. Healthcare facilities were being transformed to provide medical assistance through phone/internet-based interventions.¹⁰ A study in Ohio reveals that during the initial periods

of COVID transmission, virtual visits with medical specialists accounted for 76.6% of total visits, shooting straight up from 19.7%.¹¹ According to the findings of this study, diabetic patients in Bangladesh were diverted to telemedicine or online mode of doctor consultation to avoid virus infection. And to communicate with patients during this pandemic, doctors were found to increase their use of WhatsApp and other means of virtual communication as a viable tool to provide healthcare assistance. Additionally, cell phone calls to the doctor were also favoured for consultation. But there was a concern which suggests that not all diabetic patients were able to use this facility as many of them did have access to technology and didn't grasp the process of telemedicine. Even some were reluctant to avail telemedicine services as well.

The study investigated how the pandemic affected the diabetic patients in Bangladesh. Although, whether persons with diabetes are more susceptible to Covid-19 is not yet known; nevertheless, numerous investigations into the case have found that diabetic patients are at higher risk of developing severe Covid-19 complexities.¹² A study conducted in Wuhan discovered that individuals with diabetes have a 1.49-fold increased chance of fatal consequences if infected with the coronavirus.¹³ Diabetic patients interviewed in the study also revealed that they had been living with constant panic and fear since the inception of the virus in Bangladesh. They feared that their already weakened immune system can hardly cope with the adverse impacts of the coronavirus, making a recovery extremely difficult.

The study found that, initially, during the lockdowns, the cost of treatment for diabetes patients grew a little. Diabetic patients need frequent check-ups and consultation with specialists. Still, the dread of Covid-19 kept them from going to a doctor or hospital, and transportation was unavailable due to lockdowns as well. In several instances, they were advised to consult doctors through online mediums, but that was not comprehensible to all, rather a bit costly for some. According to a study conducted in Bangladesh, the yearly average cost of diabetes control is \$864.7, with direct costs accounting for 90.5 percent and indirect costs accounting for 9.5 percent. Only pharmaceutical costs account for a sizable portion (60.7 percent) of total costs, while hospitalization costs account for 27.7 percent of direct costs.¹⁴ Insulin prices surged 1.5 times during the pandemic's initial stages, forcing some people to increase their job and physical activity in order to maintain a healthy blood sugar level. Chatterji and Li demonstrated that doctors were unavailable for outdoor service and offered virtual consultations; however, due to the additional internet charge and fee, patients were compelled to retain a high cost for medical consultation with a doctor.⁷

The study found that hospitals had a limited number of doctors and medical staff due to infection and quarantine. As of 9 August 2020, the number of infected medical workers and doctors in Bangladesh had climbed to 73 percent, according to a report.¹⁵

The present pandemic-related coping techniques as observed during the study were likely to negatively impact mental health, resulting in lower well-being, increased PTSD, depression and anxiety symptoms, insomnia, and anger. Fear of sickness and social isolation can also cause stress reactions that can lead to other mental problems. Kumari *et al.* discovered an increase in indoor exercise, with the majority (75%) of responders increasing their activity time. Again, half of the respondents said they had trouble sleeping while the other half said nothing had changed. Simultaneously, 40% of respondents reported increased levels of stress and anxiety.¹⁶ There were moderate-to-severe depressive symptoms in 16.9 percent of respondents, moderate-to-severe anxiety in 28.8% of respondents, and moderate-to-severe stress in 13.4% of respondents.¹⁷

CONCLUSION

COVID-19 pandemic is still claiming lives of people throughout the world, and it is one of the highest risks of exposure, human civilization have ever faced. Unfortunately, the end of the pandemic is still not in sight. Patients with diabetes are at increased risk during this pandemic, and diabetes care can be difficult to maintain during the Covid-19 pandemic. Our research found that treatments were initially insufficient or ineffective. That's why unsafe and dangerous practices including bypassing doctor's appointments, reducing physical activity, and avoiding collecting drugs and supplies resulted in a high proportion of blood glucose levels. Furthermore, those with diabetes who had contracted Covid-19 had a poorer prognosis and high death risk. Diabetic patients are one of the most susceptible groups, as their low immunity and other health issues result in a high death rate.

Hospitals had a shortage of patients during the corona pandemic. It was a difficult period for people suffering from diabetes, who required frequent health checks and consultations. Not only must a physician take into account the health conditions of a diabetic patient, but he or she must also properly match glucose-lowering medicines with specific viral infection treatments. The majority diabetic patients in Dhaka chose virtual consulting or telemedicine. Besides, individuals suffered massively due to a vast array of problems. Telemedicine was unable to compensate for the losses incurred as a result of Covid-19. Diabetes treatment in Covid-19 patients is a substantial clinical issue that necessitated a well-coordinated approach, since this is a critical strategy for minimizing the risk of medical complications and death to the greatest degree attainable.

According to the respondents in this study, the cost of treatment and medicines had increased significantly. Many people were afraid of being infected, so they couldn't go out to get the medicines and insulin they required. It was also difficult to maintain a balanced life during the pandemic. Many studies have shown that older persons with diabetes suffer from high anxiety. As a result, their condition deteriorates. Some stated they engaged in physical activities at home, while others indicated they gained weight as a result of remaining at home for extended periods of time. Finally, future studies might look into the link between age group, current medical issues, and Covid-19.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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