



Original Research Article

Adherence to hypertension medicine, patient follow-up and blood pressure monitoring in Jordanian hypertensive patients during the COVID-19 pandemic

*Bashar Samara¹ and Asem Albawwab²

Abstract

¹Internal Medicine Specialist -
Jordanian Board - Jordan Medical
Council.

²Emergency Medicine Specialist -
Jordanian Board - Jordan Medical
Council.

*Corresponding Author E-mail:
bsamarahaad@gmail.com

This research aims to evaluate the adherence to hypertension medicine, patient follow-up and blood pressure monitoring in hypertensive patients in Jordan during the period of the COVID-19 pandemic. A validated questionnaire was designed and emailed to 272 hypertensive patients native to Jordan. Participants in this research were selected from various Facebook groups by considering the following criteria. The designed questionnaire was emailed in the period between July and September 2020. Most of the respondents (about 60%) reported that they miss their routine antihypertension medicine one to four times a month. The highest number of patients (38%) stated that they had consulted their doctor within the past 7–12 months. Collectively about 74% of the patients had consulted their doctor in previous years. Among them, 58% had a face-to-face consultancy and 42% consulted their doctor by telephone. The COVID-19 pandemic may have the negative effect of raising nonadherence to antihypertensive medication as many patients were reluctant to visit their doctors due to fear of viral infection. Hypertension can be better managed by addressing such barriers to adherence.

Keywords: Anti-hypertensives, medication adherence, nonadherence, pandemic.

INTRODUCTION

Hypertension is one of the most significant health challenges among global health issues. Its prevalence is increasing in both underdeveloped and developed countries (Alhaddad et al., 2016). Consistent and long-term medications are required to control it (Bailey et al., 1996). To overcome and manage this chronic condition, long-term consistent medication adherence is needed (Berben et al., 2012). The discovery of novel antihypertensive drugs with lesser side effects has made it more convenient to manage this chronic condition (Burnier, 2000). The lack of adherence to novel antihypertension medicines is a significant factor in its control and management. Poor adherence to medication in hypertension patients instead of advanced diagnostic techniques and the discovery of novel drugs has been recognized as an essential factor in poor prognosis and

reduced quality of life (Berben et al., 2012). Very little information regarding adherence to anti-hypertension medication is available in Jordan and other Middle East countries. Previously a cohort study conducted in Jordan showed that the rate of adherence to anti-hypertension medication was approximately 56%. Older people were more consistent in taking medication in their routines than younger people (Burnier and Egan, 2019).

Hypertension is one of the most important predisposing factors of renal and cardiovascular diseases (Chang et al., 2019). More than 900 million people are suffering from hypertension throughout the world. The highest mortality rates due to hypertension are observed in underdeveloped and developing countries with low-income wages (Chobanian et al., 2003). The rate of hypertension is higher in older adults than in young ones

(Cuspidi et al., 2005). Hypertension-associated mortality and poor prognosis are associated with certain factors, including delayed diagnosis, delayed therapy initiation, and lack of adherence to treatment regime (Chobanian et al., 2003; Forouzanfar et al., 2017). Many factors can contribute to poor diagnosis and disease management, such as environmental factors, lifestyle, genetic predisposition, and nonadherence to proper medication (Chang et al., 2019; Hall et al., 2016).

Medication adherence is defined as the consistency with which a patient follows the recommended treatment regime. There are three phases of adherence: initiation (starting the treatment), implementation (beginning with the treatment recommended by the health care provider), and persistency (consistently taking medication according to the prescription) (Kaye et al., 2020).

Medication nonadherence can vary from 9% to 76% in hypertension patients, depending on the diagnosis method (Kearney et al., 2005; Machado et al., 2018). There are multiple reasons for medication nonadherence for hypertension treatment (Hall et al., 2016). According to Bronfenbrenner's ecological model, the factors responsible for conditions in an environment (such as medication nonadherence) are interconnected on various levels. This model can be applied to other settings— for example, behaviour in response to medical treatment strategies — although initially it was proposed as ecological theory. The factors associated with medication nonadherence can be patient-oriented and are influenced at the micro, meso and macro levels. Patient-oriented factors related to medication nonadherence include knowledge, wisdom, attitude, behaviour, and self efficacy. The micro factors associated with medication nonadherence include social support and the relationship between patient and healthcare provider. The environment and facilities of health organizations and hospitals are included in meso factors. The final macro-level factors are state and regional rules and regulations associated with health insurance and drug reimbursement policies (MacMahon et al., 1990). The implementation of Bronfenbrenner's ecological model can aid in identifying potential factors associated with medication nonadherence. Many studies have been conducted previously to identify patient-, disease- and treatment-associated nonadherence factors (Mekonnen et al., 2017; Nabi et al., 2008).

This research aims to evaluate the adherence to hypertension medicine, patient follow-up and blood pressure monitoring in hypertensive patients in Jordan during the period of the COVID-19 pandemic.

Methodology: For this research, a cross-sectional study was conducted. A validated questionnaire was designed and emailed to 272 hypertensive patients native to Jordan. Participants of this research were selected from various Facebook groups by considering the following criteria.

The age limit for the participants was set at 35 to

55 years. All the selected participants were diagnosed with primary hypertension for more than one year, and they have been already on antihypertensive treatments. The designed questionnaire was emailed in the period between July and September 2020.

A total of eight multiple-choice questions were part of this survey, and these questions, along with response options, were as following:

Q1. What is your age?

- a) 35–45 years
- b) 46–55 years

Q2. What is your gender?

- a) Male
- b) Female

Q3. How often do you take antihypertension medication?

- a) On a daily basis
- b) Missed 1–4 times per month
- c) Missed 5–10 times per month
- d) Missed >10 times per month but still taking on random days
- e) Not taking at all

Q4. What is your opinion about antihypertension medication refill?

- a) Easy and not costly
- b) Easy and costly
- c) Not easy due to any reason
- d) Did not refill for more than one month

Q5. When did you have prior doctor consultation?

- a) < 3 months
- b) 3- 6 months
- c) 7-12 months
- d) 12 months

Q6. What was the form of the last consultation?

- a) Face-to-face consultation
- b) Personal telephone consultation

Q7. How do you monitor your blood pressure?

- a) Home BP monitoring
- b) Other methods of BP monitoring
- c) Not monitoring

Q8. What is your average blood pressure reading?

- a) < 130/85
- b) 131-140/86-90
- c) 141-150/91-95
- d) 151-160/96-100
- e) 160/100
- f) Unknown

Ethical Considerations

Prior approval by the research ethics committee of the institute was obtained to conduct this study. Participants participated in this study as volunteers, and all participants signed written informed consent forms. This study's questionnaire was filled by the participants anonymously, and all the collected information was kept secure and confidential.

RESULTS

Out of 272 selected participants, 181 patients responded to the email and answered the questionnaire. Among the respondents, about 60% (108) were males, and 40% (73) were females. Most of the respondents (about 62%) fell in the age bracket of 46 to 55 years, and the remaining 38% were 35 to 45 years old.

Regarding the intake of antihypertension medicine, most of the respondents (about 60%) reported that they miss their routine antihypertension medicine one to four times a month. The smallest group of respondents (about 3%) reported missing the medicine more than ten times a month but still taking antihypertension medicine. About 19% reported that they are taking their medicine regularly on a daily basis without missing a dose. Around 15% stated that they are missing their medicine 5 to 10 times a month. Respondents who are not taking their antihypertensive medication at all were about 6% of the total respondents.

In response to the inquiry about antihypertension medication refill, it was observed by most of the patients that refill is not easy due to any reason. Following that, about 36% of the respondents stated that refill is easy and not costly, and about 10% indicated it as easy and costly. Approximately 4% of respondents reported that they had not refilled their antihypertension medication for more than one month.

Regarding consultation with the doctor, the highest number of patients (38%) stated that they consulted their doctor 7 to 12 months before, followed by 26% stating that their last consultation was more than 12 months previously, and about 20% who said that they have consulted their doctor during the past three months. The lowest number of patients (about 16%) indicated that their last consultation was in the previous three to six months. Collectively about 74% of the patients had consulted their doctor during the previous year, and among them, 58% had a face-to-face consultancy, and 42% consulted their doctor by telephone.

Monitoring of blood pressure was found to be a frequent practice among most of the patients; in fact, 85% reported that they were monitoring their blood pressure. Among them, about 79% monitored their blood pressure at home, and 21% used other ways to observe their blood pressure.

Average blood pressure noted by most of the patients (about 42%) was below 130/85. Among those who were monitoring their blood pressure, about 26%, 15%, and 14% stated that their blood pressures were in the ranges 131–140/86–90, 141–150/91–95, and 151–160/96–100, respectively. Over 160/100 was reported by the smallest number of respondents (about 3%).

DISCUSSION

Hypertension is one of the most significant health challenges among global health issues. To overcome and manage this chronic condition, long-term consistent adherence to medication is required. The lack of adherence to novel anti-hypertension medicines is one of the significant factors affecting its control and management. Poor adherence to medication in hypertension patients has been recognized as a key factor in poor prognosis and reduced quality of life. According to our research, approximately 60% of the patients reported that they miss their routine antihypertension medicine one to four times a month. Only 19% of the patients have shown adherence to their medication, and they were taking medicine on a daily basis. Our results are comparable with previous studies, which have suggested the same kind of nonadherence to antihypertension medication in hypertensive patients (Organization, 2009; Schneider et al., 2018).

The COVID-19 pandemic can be a strong agent for the increase of nonadherence to medication. Previous research shows that the COVID-19 crisis has introduced fear in patients with chronic diseases, who were hesitant or reluctant to visit health care facilities during this period owing to their desire to prevent the transfer of viral infection (Van der Laan et al., 2017; Verma et al., 2018). The trend of missing medication doses among our research participants may also be due to this fear.

Previous studies show that there are various risk factors associated with the refill of antihypertensive medication (Vrijens et al., 2017). Our results are in accord with this research, as most of the respondents in our study indicated that antihypertension medication refill is not easy due to any reason. More than 4% of the patients had not refilled for more than one month. As described earlier (Vrijens et al., 2012), there can be psychological factors governing the adherence to antihypertensive medication.

In our study, monitoring of blood pressure was found as a widespread practice by most of the patients; that is, 85% reported that they were monitoring their blood pressure. Among them, about 79% monitored their blood pressure at home. Our results are supported by a previous study (Zakaria et al., 2020), which has also shown a high prevalence of blood pressure measurement at home in hypertensive patients.

CONCLUSION

Non-adherence to antihypertensive medication and poor blood pressure control is common in hypertensive

patients. The COVID-19 pandemic may have a negative effect on adherence to antihypertensive medication, as many patients were reluctant to visit due to fear of contracting a viral infection. Similarly, medication refills are viewed as not easy by many respondents; there can be many reasons behind this, which still need to be evaluated and addressed. Blood pressure monitoring is a common practice nowadays. This must be encouraged as it can be helpful for the management of hypertension.

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