



## **GUIDANCE ON MEDICATION USE FOR DIABETIC AND HYPERTENSIVE PATIENTS IN RAMADAN: TOWARDS BETTER HEALTH OUTCOMES**

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### **ABSTRACT**

Jubel Kidul Village in Lamongan Regency has a high prevalence of hypertension and diabetes mellitus. This is evidenced by the significant number of individuals purchasing antihypertensive and antidiabetic medications at local pharmacies and seeking treatment at healthcare centers for related complaints. This study aims to enhance public awareness of the importance of consistent medication adherence to reduce mortality associated with hypertension and diabetes mellitus. The community service employed educational interventions during the fasting month, focusing on proper medication use for hypertension and diabetes mellitus. These activities included guided counseling sessions and a final evaluation to assess the community's level of understanding. Following the educational sessions and coaching, the final evaluation showed a marked improvement in participants' knowledge compared to the pre-intervention assessment. Participants demonstrated comprehension and acceptance of the material delivered. The educational intervention effectively increased community knowledge regarding the correct use of medications during Ramadan, as evidenced by a significant rise in posttest scores. This suggests that targeted education can contribute to better health outcomes during the fasting period.

**Keywords:** Hypertension, Diabetes Mellitus, Consistent

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## **A. BACKGROUND**

The prevalence of hypertension in Indonesia remains high, reaching 36%, with data from the 2023 Indonesian Basic Health Research reporting a rate of 34.1% (Ministry of Health of the Republic of Indonesia, 2023). In terms of gender distribution, the International Diabetes Federation (IDF) reported in 2019 that the prevalence of diabetes was 9% among women and 9.65% among men. Globally, the burden of diabetes mellitus is projected to rise significantly with population aging. The proportion of affected individuals aged 65–79 is expected to increase from 19.9% to 111.2 million, with projections reaching 578 million cases by 2030 and potentially escalating to 700 million by 2045 (Indonesian Ministry of Health Diabetes Mellitus, 2020).

Jubel Kidul Village, located in Sugio District, Lamongan Regency, has a notably high prevalence of hypertension and diabetes mellitus. This is evidenced by the substantial number of residents purchasing antihypertensive and antidiabetic medications at nearby pharmacies, as well as frequent visits to local health centers for related complaints. These findings highlight a pressing need to raise public awareness and understanding regarding the proper use of such medications. Improving knowledge in this area is essential to prevent misuse, encourage regular consumption, and reduce the risk of complications associated with uncontrolled hypertension and diabetes mellitus.

During the month of Ramadan, changes in eating and drinking patterns also affect medication schedules (Siregar & Batubara, 2023). Medications typically taken every 6 or 8 hours must be adjusted to align with fasting periods, ensuring continuity of treatment while allowing patients to fulfill their religious obligations (Fatiha & Firdaus, 2023). These adjustments are necessary to maintain therapeutic effectiveness and safety, ultimately helping patients achieve their treatment goals during Ramadan (Siregar & Batubara, 2023).

Fasting during Ramadan, one of the five pillars of Islam, is observed for an entire month. Although religious allowances are made for individuals with chronic conditions, many still choose to fast (Grindrod & Alsabbagh, 2017; Istianah et al., 2021; Nofita et al., 2019). This presents a unique challenge for people with chronic illnesses such as hypertension and diabetes, as improper medication use during fasting may jeopardize treatment efficacy or lead to adverse effects (Safyanty et al., 2020; Adawiyah et al., 2019).

Management of hypertension with type 2 DM can be done by using antihypertensive drugs with diabetes mellitus. Based on the JNC VII algorithm, where the first line of therapy used in special cases, namely hypertension diabetes mellitus, is the Calcium Channel Blocker (CCB) class of drugs. Therapy for hypertension and diabetes is the Calcium Channel Blocker (CCB) and Angiotensin Receptor Antihypertensive Blocker (ARB) classes (Chobanian et al., 2003; Firmansyah et al., 2021), however, this study did not provide instructions on the use of diabetes mellitus and hypertension medication during the fasting month, therefore we were inspired to provide education and understanding regarding the use of diabetes mellitus and hypertension medication during the fasting month. It can be identified that the community lacks knowledge and understanding regarding the consumption of hypertension and diabetes mellitus medication during the fasting month,

In addition, the local community has yet to adopt a healthy lifestyle to prevent and manage hypertension and diabetes mellitus effectively. This highlights the need for targeted educational interventions aimed at improving public understanding of the appropriate use of medications for these conditions during the fasting month. Furthermore, raising awareness about the health risks associated with uncontrolled hypertension and diabetes mellitus is crucial. By fostering knowledge and awareness, these efforts can empower the community to embrace healthier lifestyles and minimize the risk of complications in patients.

## **B. METHOD**

The method applied in community service in Jubel Kidul Village, Sugio District, Lamongan Regency is an educational method with the following steps:

### **1. Coordination Stage**

Prior to conducting outreach activities, the team coordinated with local village authorities. This coordination involved the village head and representatives from the regional health center, with the primary aim of obtaining official permission, discussing community health concerns, and gathering relevant contextual information to support the intervention.

### **2. Preparatory Stage**

Preparatory activities commenced with the formation of a community service implementation team in Jubel Kidul Village, Sugio District, Lamongan Regency. The

team subsequently held coordination meetings to prepare the proposal and conduct preliminary exploration using the interview method. This step aimed to ensure that the activities would proceed smoothly and align with the intended objectives. Based on this preparation, the implementing team identified the target participants as members of the Family Welfare Movement (PKK) in Jubel Kidul Village.

### **3. Implementation Stage**

The implementation of activities for PKK women in Jubel Kidul Village, Sugio District, Lamongan Regency, began with a pretest to assess participants' knowledge about the risks of hypertension and diabetes mellitus. This pretest included questions related to the proper use of medications for these conditions during the fasting month. Following this, an educational session was conducted by the implementing team, focusing on the appropriate use of antihypertensive and antidiabetic medications during Ramadan. After the session, a post-education evaluation was carried out to measure the improvement in participants' understanding.

### **4. Final Stage of Evaluation and Posttest**

At the conclusion of each session, the service team conducted a joint evaluation and discussion. This process involved a question-and-answer segment followed by a posttest to assess participants' understanding of hypertension and diabetes medication use during the fasting month. The counseling employed educational strategies tailored to the community's needs, utilizing PowerPoint presentations and poster media as instructional tools. These materials aimed to reinforce comprehension of the counseling objectives related to safe and effective medication use during Ramadan.

Posters—simple yet impactful—convey a focused message through vivid colors, engaging slogans, and clear, varied text, enabling swift and effective communication (Harsismato, Oktavianti, & Astuti, 2019). PowerPoint, widely embraced by professionals across sectors, functions as a visual aid that enhances clarity and supports content delivery (Musyahid A in Nurhidayat et al., 2012). When used in tandem, posters and PowerPoint presentations stimulate both cognitive and emotional engagement, spark creativity and innovation, and offer learners direct, memorable experiences. Educational methods that activate multiple senses are proven to enhance comprehension and long-term retention (Bili et al., 2019).

### **C. RESULTS AND DISCUSSION**

The activity was conducted at the Jubel Kidul Village Hall, Sugio District, Lamongan Regency, on Thursday, January 30, 2025, from 09:00 to 11:30, and was attended by 25 PKK women participants. The program began with a pretest to assess participants' initial knowledge, followed by the delivery of educational material using outreach methods that employed PowerPoint and poster media. The focus of the session was the appropriate use of antihypertensive and antidiabetic medications during the fasting month.

During Ramadan, most Muslims observe two daily mealtimes: ifthar (breaking the fast at sunset, marked by the evening prayer) and sahur (pre-dawn meal), resulting in fasting periods that can range from 11 to 18 hours per day (Azizi, 2010). These time constraints necessitate adjustments in medication schedules to ensure effectiveness and safety, as illustrated in Figure 1



**Figure 1.** Material Presentation

Overall, the service activities were successfully implemented. The enthusiasm of the PKK women in Jubel Kidul Village was evident through their active participation during the question-and-answer sessions, where they engaged attentively, posed questions, and responded thoughtfully to discussions (Figure 2).



**Figure 2.** Interactive discussion

This enthusiasm was further reflected in the notable improvement in participants' knowledge levels, as demonstrated by the increase in pretest and posttest scores (Table 1).

**Table 1.** Results of Pre-test and Post-test

No	Question	Pre-Test	Post-Test
1	When should diabetics who are fasting take antidiabetic drugs?	60%	92%
2	What should people with hypertension and diabetes do if they want to fast?	84%	100%
3	What is the main purpose of arranging a schedule for taking hypertension and diabetes medication while fasting?	68%	80%
4	Which of the following questions is CORRECT regarding the use of medication while fasting?	64%	80%
5	What should be done if symptoms of hypoglycemia occur while fasting?	36%	64%
6	Why is it important for people with hypertension and diabetes to consult a doctor before fasting?	72%	88%
7	What is meant by hypoglycemia?	28%	72%
<b>TOTAL</b>		58,8%	82,2%

The observational results indicate that most PKK participants demonstrated a solid understanding of the material presented. Only two knowledge indicators numbers 5 and 7 showed lower scores compared to the others, while the remaining indicators exhibited substantial improvement. A community's limited knowledge about medications can significantly affect their understanding of proper medication use (Utari & Pratama, 2019).

For patients with hypertension and diabetes mellitus who are observing the Ramadan fast, it is essential to adhere to medical recommendations when taking medication. For once-daily regimens, medication should be taken either at iftar (breaking the fast) or *sahur* (pre-dawn meal). For twice-daily regimens, doses should be scheduled at both iftar and *sahur*. In cases requiring three doses daily, appropriate timing could be adjusted to 18:00, 23:00, and 04:00. By following these adapted schedules, patients can maintain consistent medication use throughout Ramadan and minimize the risk of complications arising from improper administration.

Prior to the start of fasting, individuals diagnosed with hypertension and diabetes mellitus are strongly encouraged to consult with their healthcare provider. This consultation is essential to ensure proper guidance regarding medication adjustments during the fasting period. Fasting alters both dietary patterns and medication schedules, which can be particularly challenging for patients who require consistent medication to manage their conditions.

Adjustments to the timing of medication intake during Ramadan aim to maintain stability in the patient's health status. Irregular medication use among patients with hypertension and diabetes mellitus can lead to serious complications and the progression of comorbidities. Therefore, it is equally important to adopt a healthy lifestyle during the fasting month, including meeting nutritional needs based on individual health conditions. Such practices can help mitigate the risks of complications and support better overall disease management.

Conditions when blood sugar levels are abnormal are known as Hypoglycemia and Hyperglycemia. Hypoglycemia is low blood sugar levels, while hyperglycemia is high blood sugar levels. If a diabetic patient experiences hypoglycemia while fasting, it is recommended to immediately break the fast and consume sweet foods or drinks. Meanwhile, if the patient experiences hyperglycemia while fasting, it is also recommended to stop fasting and see a local doctor.

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#### **D. CONCLUSION AND SUGGESTION**

The community service activity, which focused on the proper use of medications for hypertension and diabetes mellitus during the fasting month, utilized educational outreach methods through PowerPoint presentations and posters. This approach effectively enhanced the knowledge of PKK women regarding appropriate medication use during Ramadan, as reflected by a significant increase in posttest scores from an average pretest score of 58.8% to a posttest score of 82.2%. This indicates a notable improvement in understanding following the intervention.

For future activities, it is recommended to implement periodic mentoring and monitoring efforts to observe behavioral changes among participants. This would help ensure that medication use becomes more informed, consistent, and aligned with safe health practices.

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