



Winter Conference 2023, 5-6 December 2023, Diet and lifestyle strategies for prevention and management of multimorbidity

## A qualitative study of patients' perceptions of DASH diet apps for dietary self- management of hypertension in Saudi Arabia

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Nutrition smartphone apps have become a popular and readily accessible approach to improving dietary behaviour. Hypertension is often associated with a poor diet, and its prevalence is increasing in Saudi Arabia<sup>(1)</sup>. The Dietary Approaches to Stop Hypertension (DASH) eating plan has been shown to reduce blood pressure in people with hypertension<sup>(2)</sup>. A previous study identified two high-quality, safe, and potentially effective smartphone apps for managing hypertension: NOOM and DASH To TEN<sup>(3)</sup>. This study aimed to explore the potential of these two DASH diet self- management apps for controlling blood pressure in the Saudi Arabian context.

Fifteen patients were recruited at King Abdullah bin Abdulaziz University Hospital in Riyadh, Saudi Arabia. Ten patients had hypertension, and five had prehypertension (mean age = 45). Patients were given the two apps and asked to try each for one week. Focus groups (n=4) were held at the end of the trial to understand the patient perceptions of the apps. Discussions were recorded, and the transcriptions were analysed using a thematic framework analysis<sup>(4)</sup>.

The following four themes emerged:

1. **Managing hypertension** through diet was perceived as important. Most patients reported that adhering to the DASH diet was challenging due to a lack of motivation and willpower, inadequate support from household members, and high prices for healthy food.
2. **The potential and current reach of dietary apps** emerged as a main theme, and many comments related to patients' belief that dietary apps could increase their motivation and awareness about the DASH diet. Barriers to the use of apps were also identified including their difficulty of use, a preference for dietetic monitoring, and cost.
3. **Interactive app functionality** was identified as a key theme, as evidenced by comments about a straightforward sign-up process, an extensive food database for dietary self-monitoring, feedback, goal setting, and reminders, considered essential for diet adherence.
4. **A preference for the NOOM app** emerged. Patients perceived the NOOM app more suitable in the Saudi context. Noom was deemed to support DASH self-management because it supports weight reduction, which helps lower blood pressure. NOOM was perceived as highly interactive, offering motivational reminders, feedback, realistic dietary plans, and a comprehensive food database. Patients made several recommendations for app improvement; these included Arabic language support, automatic calculation of sodium and potassium consumption, and lower cost. Patients also expressed a desire for training in the use of the app.

This qualitative analysis suggests that the NOOM app could be suitable for use with hypertensive patients in Saudi Arabia. Further research is needed to determine the feasibility and efficacy of long- term use of the NOOM app with a Saudi Arabia population.

### References

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