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From Awareness to Action: A Qualitative Exploratory Study of Self-Selected Digital Health Device Use and Health Goal Achievement in Korean Adults with Chronic Conditions

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ABSTRACT

Background: Digital health devices offer new opportunities for self-monitoring, but sustained use depends on more than technical availability.

Objective: To explore how self-selected digital health devices and applications supported health-goal achievement among Korean adults with chronic conditions.

Methods: This qualitative exploratory study analyzed seven adults aged 36-59 years with chronic conditions. Participants selected continuous glucose monitors (CGMs), wearable devices, or health applications aligned with personal goals such as weight management, glucose control, sleep improvement, or gait monitoring, and used them over an approximately 8-week observation period. Semi-structured interview and focus-group data were analyzed thematically, and descriptive outcomes included exercise frequency, satisfaction, weight change, and HbA1c change when available.

Results: The dataset indicated an average weight loss of 4.6 kg and a mean HbA1c reduction of 0.7% among participants with glycemic data. Five major themes were identified: real-time feedback increased awareness of glucose, sleep, and activity patterns; awareness translated into diet and exercise modification; devices supported broader self-management; family recommendation and shared use reinforced motivation; and sustained use was constrained by alert burden, device complexity, and cost.

Conclusion: Self-selected digital health devices may support behavior change and perceived self-management in adults with chronic conditions, but sustained engagement appears to depend on usable design, interpretive support, and affordability. Larger prospective studies are needed to confirm long-term clinical benefit.

Keywords: Digital Health; Wearable Devices; Continuous Glucose Monitoring; Self-Management; Qualitative Research; Chronic Disease

Introduction

Digital health technologies such as wearables, smartphone applications, and remote monitoring tools are increasingly embedded in chronic disease self-management. Reviews suggest that these tools can increase physical activity and may support modest weight loss, although long-term benefit is less consistent and often depends on how the technology is integrated into broader behavior-change programs [1,2]. Among older adults, however, uptake remains uneven. In Korea, a face-to-face survey of 505 adults aged 65 years or older found that while smartphone and application use were common, wearable device use was low, many respondents could not install or delete applications independently, and more than half reported that applications were recommended by children or partners [3]. Recent qualitative research helps explain this gap between technical availability and meaningful use. Older adults often value digital health tools when they offer clear daily benefit and are simple to operate, but adoption is undermined by computer anxiety, low self-efficacy, lack of trust, technical difficulty, and cost [4-9].

Reviews likewise suggest that social factors, including family and caregiver support, are central to both initial uptake and sustained use [6,9]. Parallel literature suggests that continuous glucose monitoring (CGM) has growing relevance not only as a clinical monitoring modality but also as a behavioral feedback intervention. Recent reviews describe CGM-based feedback as a potential catalyst for dietary and physical activity change [10,11]. Qualitative and pilot intervention studies further suggest that seeing glucose responses in real time can prompt immediate diet modification, increased physical activity, stronger self-efficacy, and more engaged self-management [12-17]. Despite this growing evidence base, relatively few studies describe how adults use self-selected digital devices in everyday settings to pursue individualized health goals across multiple domains such as glucose control, sleep, mobility, and weight management. The present study therefore explored how Korean adults with chronic conditions selected and used digital health devices and applications in daily life, what changes they attributed to those tools, and what barriers limited continued use.

Materials and Methods

Study Design

This study used a qualitative exploratory design. Participants selected a device or application that matched a personally meaningful health goal and used it during a short observational period. The follow-up is approximately 7-8 weeks.

Participants and Devices

The analytic sample was restricted to seven cases that could be consistently matched and accompanying interview materials. Participants ranged from 36 to 59 years of age and presented with conditions including hypertension, diabetes or prediabetes, hyperlipidemia, autonomic dysfunction, cardiovascular issues, osteoporosis, and hallux valgus. Devices and applications included CGMs (Dexcom G7, FreeStyle Libre, CareSens), wearable devices (Apple Watch, Galaxy Watch, Galaxy Fit, MGtech BioRing), and health applications (Samsung Health, RunDay, PASTA, SmartHealth), as well as a smart insole system for gait-related monitoring.

Procedure and Data Collection

Participants identified goals such as weight reduction, glycemic control, sleep improvement, or rehabilitation-related self-monitoring. They then used the selected devices in daily life and described their experiences through semi-structured interviews and focus-group discussion materials. The source documents also recorded exercise frequency, satisfaction, weight change, HbA1c change when available, and whether participants recommended the device or application to others.

Data Analysis

A thematic analysis approach was used to identify recurring patterns in the qualitative material. The analysis focused on how device-generated feedback influenced health behavior change, self-management, family or social reinforcement, and barriers to sustained use. Quantitative values such as weight change and HbA1c change were treated as descriptive contextual data rather than as evidence of intervention efficacy.

Results

Participant Overview

The seven participants used a range of consumer-grade digital health tools linked to individualized health goals. Most reported satisfaction or high satisfaction with device use. The dataset indicated an average weight loss of 4.6 kg across the sample and a mean HbA1c reduction of 0.7% among participants with glycemic data. Four of the seven cases involved direct glucose tracking through CGMs, while other cases focused on sleep monitoring, running-based weight management, or gait and rehabilitation awareness (Table 1).

Table 1: Participant Characteristics and Primary Devices Used.

ID	Age	Main Condition(s)	Primary Device/app(s)	Primary goal focus	Typical Exercise Pattern	Overall Satisfaction
P1	58	Hepatitis B; osteoporosis	MGtech BioRing + SmartHealth	Sleep and overall health monitoring	3x/week walking	Satisfied
P2	43	Hypertension; prediabetes	CareSens CGM + Apple Watch	Weight loss and glucose management	4x/week walking	Very satisfied
P3	36	Cardiovascular issues; varicose veins	Galaxy Watch + RunDay	Weight reduction and fitness	5x/week running	Satisfied
P4	44	Autonomic dysfunction	Dexcom G7 + PASTA	Glucose pattern monitoring and diet management	3x/week gym	Very satisfied
P5	59	Diabetes; hypertension; hyperlipidemia	CareSens CGM + Galaxy Fit + Samsung Health	Glucose control and walking-based self-management	4x/week walking	Satisfied

P6	49	Diabetes; hypertension; hyperlipidemia	FreeStyle Libre + Galaxy Watch + Samsung Health	Post-meal glucose control and activity	3-4x/week walking	Very satisfied
P7	52	Hallux valgus; family history of diabetes	Smart insole + dedicated app	Gait awareness and rehabilitation support	2x/week walking/ rehab	Satisfied

Abbreviation: CGM, continuous glucose monitor.

Note: The results section reports aggregate descriptive outcomes from the dataset (mean weight loss 4.6 kg; mean HbA1c reduction 0.7% among participants with glycemic data). These values are interpreted descriptively and not as causal estimates of intervention efficacy.

Theme 1: Real-Time Feedback Made Invisible Physiology Visible

Participants consistently described device feedback as making previously abstract health information concrete. CGM users were especially responsive to immediate post-meal changes. One participant explained:

"*Seeing my blood sugar spike to 350 mg/dL made me stop eating ramen. After exercising, seeing it drop to 140 mg/dL was rewarding.*"

"This visible relationship between eating, exercise, and physiologic response helped participants interpret their own bodies in a more specific and actionable way.

Theme 2: Awareness Translated into Concrete Habit Change

Awareness was most meaningful when it resulted in an immediate behavioral adjustment. Participants modified food choices, portion sizes, meal timing, and post-prandial activity. One participant described changing fruit intake after identifying a morning glucose spike:

"*I realized that eating fruit in the morning caused a blood sugar spike, so now I eat it with almonds.*"

Others reported adding walking, stair climbing, or gym sessions after meals when CGM values rose. A participant using a sleep ring also altered caffeine timing and sleep hygiene after reviewing nightly feedback and reported longer sleep duration and less morning fatigue.

Theme 3: Devices Supported Broader Self-Management and Confidence

Beyond isolated behavior changes, participants described improved self-management and a stronger sense of control. Some reported cleaner eating patterns, reduced evening overeating, improved sleep quality, or greater confidence in daily health routines. For glucose-monitoring users, the value of the device lay not only in the numeric value itself but in helping them understand which foods or activities were personally effective. Participants using mobility-related tools similarly reported that gait or pressure-distribution information increased awareness of structural problems and supported rehabilitation motivation.

Theme 4: Family Recommendation and Social Reinforcement Extended Device Use

Device use was not purely individual. Participants recommended devices to spouses, parents, or in-laws and sometimes used the data to facilitate shared health conversations. As summarized in the study materials, one participant stated:

"*I recommended a CGM to my father-in-law, and we started managing our blood sugar together.*"

The dataset indicated that more than half of participants recommended their device or application to relatives, suggesting that perceived usefulness often diffused through family networks.

Theme 5: Sustained Use was Limited by Burden, Stress, And Cost

The same features that promoted insight could also become burdensome. Participants described application complexity, calibration or data-entry inconveniences, alarm fatigue, measurement uncertainty, and high recurring cost as practical obstacles. Several CGM users appreciated the insight but also described psychological pressure when values rose repeatedly or alarms disrupted everyday life.

"*I felt that if I kept reacting to every spike, eventually I would not be able to eat anything.*"

Discussion

This exploratory study suggests an awareness-to-action pathway in the everyday use of self-selected digital health technologies. Participants did not merely collect data; they described using feedback to revise eating patterns, time exercise more deliberately, adjust sleep habits, and monitor progress toward personally meaningful goals. This pattern is consistent with CGM literature in which real-time biological feedback makes otherwise invisible physiologic responses immediately interpretable and actionable [10-17]. Recent reviews describe CGM as a behavioral feedback tool that is increasingly used

to target diet and physical activity change [10,11], while qualitative work in adults with type 2 diabetes reports that CGM can increase awareness, self-efficacy, and effective decision-making around food, exercise, and medication [12]. Earlier pilot studies likewise found that CGM data could motivate exercise adherence, reinforce dietary and physical activity behaviors, and strengthen adherence to lifestyle intervention programs [13-17].

The present findings also extend the broader wearable-device literature. Participants in this study paired digital tracking with walking, running, gym exercise, stair climbing, or sleep management rather than using devices as stand-alone therapies. This is in line with reviews indicating that wearables are most useful when embedded within broader behavior-change efforts and may produce moderate weight-related benefit, especially in the short-to-medium term [1,2]. The limited durability of some benefits in prior reviews also resembles participants' accounts of early enthusiasm followed by burden, adaptation, or reduced attention to data over time [1,2,17]. Our findings about cost, complexity, anxiety, and the need for explanation are also consistent with older-adult digital health adoption research. Korean survey data show that older adults frequently rely on children or partners for application recommendation and installation, and that wearable use remains much lower than smartphone or general application use [3]. Qualitative studies further report that computer anxiety, fear of making mistakes, low confidence, and usability problems undermine sustained engagement, while practical benefit and human support improve the interaction experience [4,8]. Other work from Japan and broader international reviews similarly identifies simplicity, trust, technical support, affordability, and caregiver involvement as central to adoption among older adults with chronic disease [5-9].

Family and social reinforcement also emerged clearly in our data. Participants recommended devices to spouses, parents, or in-laws, and in some cases the device became a shared monitoring tool rather than a purely individual one. This social diffusion echoes Korean findings that recommendations frequently come from children or partners and broader reviews that position informal caregivers and family networks as important facilitators of adoption [3,6,9]. The psychological burden described by some CGM users in this study is important. Although participants valued the visibility of glucose responses, repeated alerts, rising values, and the sense of constant surveillance could also create stress. This is compatible with prior qualitative work showing that CGM can be both empowering and demanding, and that psychoeducational or technical support may be needed to reduce burden and use alert features more effectively [12,18].

Several practical implications emerge. First, devices should prioritize interpretability, not only data collection. Users responded most strongly when feedback helped them decide what to eat, when to walk, or how to adjust sleep habits. Second, simplified setup, guided onboarding, less intrusive alert logic, and affordable access appear essential for continued use [5-9]. Third, family-centered or community-supported models may improve sustainability because participants often recommended devices to relatives and appeared to benefit from shared discussion and encouragement [3,6,9]. This study has several limitations. The sample was small and heterogeneous, the observation window was short, and the devices were self-selected rather than standardized. Descriptive outcomes such as weight change and HbA1c were not collected under a controlled research protocol and should not be interpreted as causal intervention effects. In addition, the sample included adults younger than the conventional threshold for older adulthood, so the findings are best interpreted as applying to Korean adults with chronic conditions rather than to older adults alone. Future research should use larger prospective samples, clarify which types of support are most useful for different device classes, and examine whether early behavior changes are sustained over longer periods.

Conclusion

In this qualitative exploratory study, self-selected digital health devices appeared to help Korean adults with chronic conditions transform physiologic feedback into everyday behavior change. Participants described improved awareness of glucose, sleep, and mobility patterns; more deliberate choices about food and exercise; and meaningful though short-term gains in perceived self-management. However, sustained engagement was limited by device complexity, alert burden, and cost. Digital health devices may therefore be most valuable when they combine real-time feedback with usable design, interpretive support, and affordable access. Future studies should examine longer-term adherence and clinical outcomes in larger, prospectively followed samples.

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Conflict of Interest

This paper disclosed no financial relationships to report. Please update this statement if any additional conflicts of interest apply before submission.

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References

1. Dobbie LJ, Tahrani A, Alam U, James J, Wilding J, et al. (2022) Exercise in Obesity-the Role of Technology in Health Services: Can This Approach Work?. Curr Obes Rep 11(2): 93-106.
2. Fawcett E, Van Velthoven MH, Meinert E (2020) Long-Term Weight Management Using Wearable Technology in Overweight and Obese Adults: Systematic Review. JMIR Mhealth Uhealth 8(3): e13461.

3. Lee H, Choi JY, Kim S, Ko KP, Park YS, et al. (2024) Digital Health Technology Use Among Older Adults: Exploring the Impact of Frailty on Utilization, Purpose, and Satisfaction in Korea. J Korean Med Sci 39(1): e7.

4. Ferreira Brito F, Alves S, Guerreiro T, Santos O, Caneiras C, et al. (2024) Digital health and patient adherence: A qualitative study in older adults. Digital Health 10: 20552076231223805.

5. Tanaka M, Ishii S, Matsuoka A, Tanabe S, Matsunaga S, et al. (2024) Perspectives of Japanese elders and their healthcare providers on use of wearable technology to monitor their health at home: A qualitative exploration. Int J Nurs Stud 152: 104691.

6. Bertolazzi A, Quaglia V, Bongelli R (2024) Barriers and facilitators to health technology adoption by older adults with chronic diseases: an integrative systematic review. BMC Public Health 24(1): 506.

7. Frishammar J, Essen A, Bergstrom F, Ekman T (2023) Digital health platforms for the elderly? Key adoption and usage barriers and ways to address them. Technol Forecast Soc Change 189: 122319.

8. Portz JD, Bayliss EA, Bull S, Boxer RS, Bekelman DB, et al. (2019) Using the Technology Acceptance Model to Explore User Experience, Intent to Use, and Use Behavior of a Patient Portal Among Older Adults with Multiple Chronic Conditions: Descriptive Qualitative Study. J Med Internet Res 21(4): e11604.

9. Almulhem JA (2023) Factors, Barriers, and Recommendations Related to Mobile Health Acceptance among the Elderly in Saudi Arabia: A Qualitative Study. Healthcare (Basel) 11(23): 3024.

10. Jospe MR, Richardson KM, Saleh AA, Bohlen LC, Crawshaw J, et al. (2024) Leveraging continuous glucose monitoring as a catalyst for behaviour change: a scoping review. Int J Behav Nutr Phys Act 21: 74.

11. Richardson KM, Jospe MR, Bohlen LC, Crawshaw J, Saleh AA, et al. (2024) The efficacy of using continuous glucose monitoring as a behaviour change tool in populations with and without diabetes: a systematic review and meta-analysis of randomized controlled trials. Int J Behav Nutr Phys Act 21: 145.

12. Clark TL, Polonsky WH, Soriano EC (2024) The Potential Impact of Continuous Glucose Monitoring Use on Diabetes-Related Attitudes and Behaviors in Adults with Type 2 Diabetes: A Qualitative Investigation of the Patient Experience. Diabetes Technol Ther 26(10): 700-708.

13. Liao Y, Basen Engquist KM, Urbauer DL, Bevers TB, Hawk E, et al. (2020) Using Continuous Glucose Monitoring to Motivate Physical Activity in Overweight and Obese Adults: A Pilot Study. Cancer Epidemiol Biomarkers Prev 29(4): 761-768.

14. Allen NA, Jacelon CS, Chipkin SR (2009) Feasibility and Acceptability of Continuous Glucose Monitoring and Accelerometer Technology in Exercising Individuals with Type 2 Diabetes. J Clin Nurs 18(3): 373-383.

15. Yoo HJ, An HG, Park SY, Ryu OH, Kim HY, et al. (2008) Use of a real time continuous glucose monitoring system as a motivational device for poorly controlled type 2 diabetes. Diabetes Res Clin Pract 82(1): 73-79.

16. Taylor PJ, Thompson CH, Luscombe Marsh ND, Wycherley TP, Wittert G, et al. (2019) Efficacy of Real-Time Continuous Glucose Monitoring to Improve Effects of a Prescriptive Lifestyle Intervention in Type 2 Diabetes: A Pilot Study. Diabetes Ther 10(2): 509-522.

17. Taylor PJ, Thompson CH, Brinkworth GD (2018) Effectiveness and acceptability of continuous glucose monitoring for type 2 diabetes management: a narrative review. J Diabetes Investig 9(4): 713-725.

18. Lawton J, Blackburn M, Allen J, Campbell F, Elleri D, et al. (2018) Patients' and caregivers' experiences of using continuous glucose monitoring to support diabetes self-management: qualitative study. BMC Endocr Disord 18(1): 12.

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