

Research Letter

User Engagement, Demographics, and Health Status of the My ME-BYO Record, A Personal Health Management Mobile App: Retrospective Study

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Abstract

We outlined the characteristics and health status of individuals using a mobile health app, based on a real-world user database.

(*J Med Internet Res* 2025;27:e79109) doi: [10.2196/79109](https://doi.org/10.2196/79109)

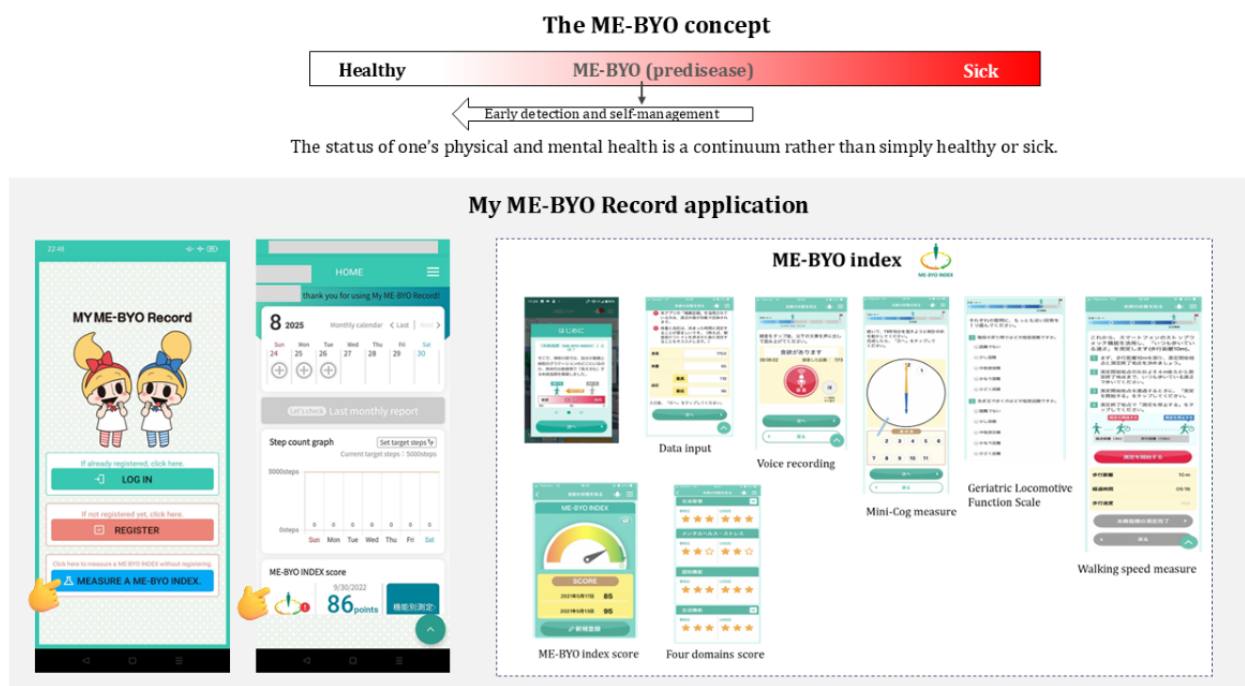
KEYWORDS

mobile health application; ME-BYO; user engagement; Japan; real-world data

Introduction

The ME-BYO concept, proposed by the Kanagawa Prefecture in Japan, emphasizes the intermediate “predisease” state (ME-BYO) in health management ([Figure 1](#)) [1,2]. The My ME-BYO Record app, launched in 2017, records health and medication data and tracks physical activity. In 2020, the ME-BYO index was integrated to promote behavioral change

by visualizing ME-BYO status ([Figure 1](#)) [2]. Unlike many Japanese mobile health (mHealth) apps from private companies, this app is developed and managed by the local government. Most research on mHealth app use relies on surveys [3], as developers rarely share app-collected data. We aimed to analyze user characteristics and health status using real-world data from the My ME-BYO Record app, with findings that may inform strategies to improve user engagement.

Figure 1. The ME-BYO concept, the My ME-BYO Record application, and the ME-BYO index.

Methods

Overview

This study reports selected findings from a project commissioned by the Kanagawa Prefectural Government. Between April 1, 2020, and July 31, 2023, a cumulative total of 186,972 individuals registered as users; 10,239 aged ≥ 18 years who accessed the ME-BYO index at least once were included in the analysis.

The ME-BYO index is a self-reported 15-item assessment of metabolic, locomotor, cognitive, and mental resilience domains. Scores range from 0 to 100, with higher scores indicating better health [2] ([Multimedia Appendix 1](#)).

Differences between 1-time and repeat users were tested using *t* tests (continuous variables) and chi-square tests (categorical variables). Logistic regression examined the association between engagement (1-time users as reference) and independent variables (sex, age, and domain scores). Analyses were

performed using Stata 17 SE (StataCorp). Further details are provided in [Multimedia Appendix 1](#).

Ethical Considerations

This study was approved by the Institutional Review Board of the Kanagawa Cancer Center (2024Eki-108). Informed consent was waived as only anonymous data were analyzed. No compensation was offered. The My ME-BYO Record app is freely available, and users consent to the Kanagawa Prefectural Government's Terms of Use upon registration [4].

Results

Of 10,239 users, 21.5% ($n=2202$) were repeat and 78.5% ($n=8037$) were 1-time users. Repeat users had significantly lower ME-BYO scores ([Table 1](#)). Logistic regression showed they were older, had lower cognitive function, and higher locomotor function than 1-time users ([Table S1](#) in [Multimedia Appendix 1](#)).

Table 1. Characteristics of My ME-BYO Record users (N=10,239) from April 2020 to July 2023, stratified by 1-time and repeat users.

Characteristic	ME-BYO index users		<i>P</i> value ^a
	1-time users (n=8037)	Repeat users (n=2202)	
Sex, n (%)			<.001
Women	3966 (49.3)	992 (45)	
Men	4071 (50.7)	1210 (55)	
Age (years), mean (SD)	52.4 (12.8)	56.2 (11.7)	<.001
Age group (years), n (%)			<.001
18-29	441 (5.5)	56 (2.5)	
30-39	921 (11.5)	138 (6.3)	
40-49	1625 (20.2)	361 (16.4)	
50-59	2596 (32.3)	744 (33.8)	
60-69	1805 (22.5)	636 (28.9)	
70-79	575 (7.2)	245 (11.1)	
≥80	74 (0.9)	22 (1)	
ME-BYO score, mean (SD)	84.1 (10)	83.6 (10.1)	.02
Metabolic function, mean (SD)	89.5 (11.4)	89.1 (11.4)	.13
Locomotor function, mean (SD)	83.6 (21.1)	85.5 (19.8)	<.001
Cognitive function, mean (SD)	84.3 (23.3)	80.8 (25)	<.001
Mental resilience, mean (SD)	63.4 (21.4)	63.5 (21.5)	.97

^a*P* values were calculated using the *t* test for continuous variables and the chi-square test for categorical variables.

Discussion

Principal Findings

Approximately 20% (n=2202) of users were repeat users, indicating repeat engagement with the ME-BYO index for health monitoring was low. Although engagement may increase over time, the Prefectural Government may struggle to incorporate the app into regional health strategies until such growth occurs.

Repeat users were older than 1-time users. Users of mHealth apps supporting self-care and chronic disease monitoring also tend to be older than nonusers [5]. Older individuals may view the free ME-BYO index feature as a useful tool for monitoring well-being, leading to repeat engagement [6,7].

Repeat users also had lower ME-BYO index scores, particularly in cognitive function. As the app displays the latest ME-BYO index score on the home screen, repeat users may be motivated by disappointment with low scores and continue using the app to improve them [6]. Conversely, 1-time users might worry that subsequent scores would be worse. Lower cognitive ability has been associated with reduced mHealth access [8], yet individuals with chronic conditions are more likely to use mHealth apps than those without [9]. Our findings suggest that this app may

help manage cognitive function in those with poorer cognitive abilities.

Repeat users also had higher locomotor function scores. Physically active individuals are more likely to use mHealth apps to manage health behaviors [9]. Similarly, those with better mobility may perceive the app as more useful for health monitoring, encouraging active engagement [7].

Limitations

First, most app users were aged older than 40 years, limiting the generalizability of our findings to younger age groups. Second, there is potential for reporting bias through self-report. Although the Mini-Cog and walking speed measures in the ME-BYO index have been validated [10,11], other components still require validation. Third, the dataset lacked details such as disease comorbidities and socioeconomic status, which may affect user engagement. Including these confounders in future studies will improve the interpretation of the findings.

Conclusions

This study highlights a gap between 1-time and repeat engagement with the ME-BYO index for health monitoring. Using a real-world database, our findings may help inform strategies to improve engagement.

Acknowledgments

Data analysis was conducted by the authors as part of a project commissioned by the Kanagawa Prefectural Office. We thank Editage for English language editing.

Data Availability

In accordance with the Act on the Protection of Personal Information, public disclosure of the data is restricted. For details regarding personal data protection and the use of anonymized data, please refer to the Kanagawa Prefectural website.

Authors' Contributions

Writing—original draft: CLC

Writing—review and editing: CLC, SN, KW, and HN

Conflicts of Interest

None declared.

Multimedia Appendix 1

Additional materials on the ME-BYO index, data analysis, and Table S1.

[[DOCX File , 27 KB-Multimedia Appendix 1](#)]

References

1. Decade of healthy ageing: baseline report. Geneva. World Health Organization; 2020. URL: <https://www.who.int/publications/item/9789240017900> [accessed 2025-04-16]
2. Nakamura S, Watanabe R, Saito Y, Watanabe K, Chung UI, Narimatsu H. The ME-BYO index: a development and validation project of a novel comprehensive health index. *Front Public Health*. May 05, 2023;11:1142281. [[FREE Full text](#)] [doi: [10.3389/fpubh.2023.1142281](https://doi.org/10.3389/fpubh.2023.1142281)] [Medline: [37213649](https://pubmed.ncbi.nlm.nih.gov/37213649/)]
3. Galavi Z, Montazeri M, Khajouei R. Which criteria are important in usability evaluation of mHealth applications: an umbrella review. *BMC Med Inform Decis Mak*. Nov 29, 2024;24(1):365. [[FREE Full text](#)] [doi: [10.1186/s12911-024-02738-2](https://doi.org/10.1186/s12911-024-02738-2)] [Medline: [39614283](https://pubmed.ncbi.nlm.nih.gov/39614283/)]
4. Kanagawa MY ME-BYO Record terms of use. Kanagawa Prefectural Government; 2016. URL: https://www.pref.kanagawa.jp/docs/fz7/mymebyo/riyoukiyaku_en.html [accessed 2025-09-01]
5. Bol N, Helberger N, Weert J. Differences in mobile health app use: a source of new digital inequalities? *The Information Society*. Apr 26, 2018;34(3):183-193. [doi: [10.1080/01972243.2018.1438550](https://doi.org/10.1080/01972243.2018.1438550)]
6. Vaghefi I, Tulu B. The continued use of mobile health apps: insights from a longitudinal study. *JMIR Mhealth Uhealth*. Aug 29, 2019;7(8):e12983. [[FREE Full text](#)] [doi: [10.2196/12983](https://doi.org/10.2196/12983)] [Medline: [31469081](https://pubmed.ncbi.nlm.nih.gov/31469081/)]
7. Binyamin SS, Zafar BA. Proposing a mobile apps acceptance model for users in the health area: a systematic literature review and meta-analysis. *Health Informatics J*. Jan 13, 2021;27(1):1460458220976737. [[FREE Full text](#)] [doi: [10.1177/1460458220976737](https://doi.org/10.1177/1460458220976737)] [Medline: [33438494](https://pubmed.ncbi.nlm.nih.gov/33438494/)]
8. Patel RJS, Ding J, Marvel FA, Shan R, Plante TB, Blaha MJ, et al. Associations of demographic, socioeconomic, and cognitive characteristics with mobile health access: MESA (Multi-Ethnic Study of Atherosclerosis). *J Am Heart Assoc*. Sep 06, 2022;11(17):e024885. [[FREE Full text](#)] [doi: [10.1161/JAHA.121.024885](https://doi.org/10.1161/JAHA.121.024885)] [Medline: [36056720](https://pubmed.ncbi.nlm.nih.gov/36056720/)]
9. Ernsting C, Dombrowski SU, Oedekoven M, O Sullivan JL, Kanzler M, Kuhlmei A, et al. Using smartphones and health apps to change and manage health behaviors: a population-based survey. *J Med Internet Res*. Apr 05, 2017;19(4):e101. [doi: [10.2196/jmir.6838](https://doi.org/10.2196/jmir.6838)] [Medline: [28381394](https://pubmed.ncbi.nlm.nih.gov/28381394/)]
10. Saito Y, Nakamura S, Tanaka A, Watanabe R, Narimatsu H, Chung UI. Evaluation of the validity and reliability of the 10-meter walk test using a smartphone application among Japanese older adults. *Front Sports Act Living*. Oct 04, 2022;4:904924. [[FREE Full text](#)] [doi: [10.3389/fspor.2022.904924](https://doi.org/10.3389/fspor.2022.904924)] [Medline: [36267485](https://pubmed.ncbi.nlm.nih.gov/36267485/)]
11. Saito Y, Nakamura S, Tanaka A, Watanabe R, Narimatsu H, Chung UI. Checking the validity and reliability of the Japanese version of the Mini-Cog using a smartphone application. *BMC Res Notes*. Jun 25, 2022;15(1):222. [[FREE Full text](#)] [doi: [10.1186/s13104-022-06101-4](https://doi.org/10.1186/s13104-022-06101-4)] [Medline: [35752807](https://pubmed.ncbi.nlm.nih.gov/35752807/)]

Abbreviations

mHealth: mobile health

Edited by A Mavragani, A Stone; submitted 15.Jun.2025; peer-reviewed by S Kc, E Baker; comments to author 14.Aug.2025; revised version received 25.Sep.2025; accepted 30.Sep.2025; published 10.Oct.2025

Please cite as:

Chei C-L, Nakamura S, Watanabe K, Narimatsu H

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J Med Internet Res 2025;27:e79109

URL: <https://www.jmir.org/2025/1/e79109>

doi: [10.2196/79109](https://doi.org/10.2196/79109)

PMID:

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