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Wearable technology in social efforts to improve health and happiness of consumer applications: A Systematic literature review

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Corresponding author:
Pritam Kumar

pkumar@msme.au.edu

Author Affiliation:
MSME Business School, Digital Business Management Department, Assumption University, Bangkok, Thailand.

Kumar, P; Mastana, AS; Fukushige, A; Wang, Y.

ADMINISTRATIVE INFORMATION

Support - Not Applicable.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 October 2025 and was last updated on 15 October 2025.

INTRODUCTION

Review question / Objective To ensure methodological rigor and transparency in developing the research questions, this systematic review adopts the PICOC framework, a widely recognized model in evidence-based research. The framework assists in structuring the scope and analytical focus of the review. Specifically, this review addresses the following research questions:
RQ1: How does the routine use of wearable health technology influence physical activity levels and self-reported happiness among general consumers in their everyday life?
RQ2: How effective are consumer wearables with various features in enhancing mental well-being among general consumers in daily life?
RQ3: What impact does integrating consumer wearables with digital health platforms have on consumer satisfaction compared to standard wearable usage or conventional care among consumers managing health conditions?

Rationale Wearable technology has become increasingly integrated into everyday life, offering individuals new ways to monitor health, promote physical activity, and enhance happiness. While numerous studies have explored the clinical and fitness-related functions of wearables, limited research has systematically examined their broader social role in improving well-being. Therefore, this review aims to consolidate existing evidence on how wearable technologies contribute to health and happiness among consumers, identifying current trends, benefits, and research gaps to guide future studies and practical applications.

Condition being studied Not Applicable.

METHODS

Search strategy A systematic search was conducted to identify peer-reviewed articles relevant to the study topic. The search was performed using the Scopus database, selected

for its extensive coverage of multidisciplinary research and inclusion of high-quality publications. To ensure uniform and efficient data extraction, the search was conducted via the Publish or Perish software version 8 linked to the Scopus API. The search focused on publications from last five years, capturing the most recent applications of wearable technology in enhancing health and well-being. A combination of keywords and Boolean operators was employed to maximize accuracy and comprehensiveness. Search restrictions were applied to include only empirical studies published in English in peer-reviewed journals. Key search terms included: "Wearable technology," "wearable device," "fitness tracker," "smartwatch," "consumer wearable," "physical activity," "fitness level," "step count," "active lifestyle," "digital health," "e-health," "mobile health," "well-being," "consumer." Titles, abstracts, and keywords were initially screened for relevance, followed by a full-text assessment to determine alignment with the study objectives. This approach ensured a focused and rigorous selection of studies pertinent to wearable technology's role in promoting health and happiness.

Participant or population The targeted population refers to individuals from the general consumers or public who regularly use wearable devices for health tracking.

Intervention Not Applicable – Exposure based review (consumer-grade wearables that are integrated with mobile health platforms).

Comparator Not Applicable.

Study designs to be included The review included empirical studies focusing on consumer-grade wearable devices published within the last five years (2020–2025). Initially, titles and abstracts were screened to assess relevance. Studies were included if they met the following criteria: focus on wearable devices, adherence to standard scientific methods, and publication in peer-reviewed English-language journals. Studies were excluded if they did not meet these criteria or were non-empirical publications, such as editorials, conference papers, technology prototypes, or studies outside the designated publication period.

Eligibility criteria The initial stage of the review involved screening titles and abstracts to determine relevance. Studies were included if they focused on consumer-grade wearable devices used for health or well-being applications. Were published within the last five years to capture recent technological developments and employed empirical research methods. Studies were excluded if they did not meet these criteria or were non-English publications, unavailable full texts, or non-empirical works, such as editorials, conference papers, technology prototypes, or publications outside the designated timeframe.

Information sources The literature search was conducted exclusively using the Scopus database, chosen for its comprehensive coverage of peer-reviewed journals across multiple disciplines. Scopus was also selected because it ensures both breadth and quality of sources for the review.

Main outcome(s) The main outcomes examined were the influence of routine use of wearable health technology on physical activity levels and self-reported happiness, the effectiveness of consumer wearables with various features in enhancing mental well-being, and the impact of integrating consumer wearables with digital health platforms on consumer satisfaction compared to standard wearable usage or conventional care among individuals managing health conditions.

Additional outcome(s) Not Applicable.

Data management All articles retrieved from the database searches were compiled in Microsoft Excel for screening and coding purposes, and bibliographic information was managed using Bibliography.com to ensure accurate citation tracking and duplication control.

Quality assessment / Risk of bias analysis Although a formal quality assessment tool was not applied, the methodological rigor of the included studies was carefully considered during data extraction. Each study was evaluated for the clarity of objectives, appropriateness of methods, and relevance to the review topic. Any limitations or potential biases reported by the original authors were noted and taken into account in the synthesis and interpretation of findings.

Strategy of data synthesis The data synthesis was conducted following the PRISMA 2020 guidelines to ensure a transparent and systematic approach. Following literature extraction, titles and abstracts were screened to identify potentially eligible studies. The full texts of these articles were then retrieved and assessed independently to confirm eligibility. Studies that did not meet the inclusion criteria, including non-empirical publications such as editorials, conference papers, technology prototypes, or studies outside the designated publication period, were excluded. This synthesis approach allowed for the integration of

findings across diverse study designs while maintaining clarity and transparency.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction Only manuscripts published in English and indexed in the Scopus database were included in this review.

Country(ies) involved Thailand.

Keywords Wearable; Fitness Trackers; Wearable devices; Smartwatches; Health and well-being.

Dissemination plans The Findings of this research will be disseminated through the relevant journal publication.

Contributions of each author

Author 1 - Pritam Kumar.
Email: pkumar@msme.au.edu
Author 2 - Amarjeet Singh Mastana.
Email: amarjeet.m@trsu.ac.th
Author 3 - Dr. Aya Fukushige.
Author 4 - Yunmei Wang.