# Determinants of Continuous Smartwatch Use and Data-Sharing Preferences with Physicians, Public Health Authorities, and Private Companies: A Survey of Smartwatch Users

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## Abstract

**Background:** Smartwatches are widely adopted globally for tracking health metrics, offering potential for enhancing individual healthcare and public health efforts. Continuous use of the devices and users' willingness to share the data collected are critical to realizing their full benefits. This survey examines the key factors influencing continuous use of smartwatches and users' comfort levels in sharing health data with healthcare providers, public health authorities, and private companies.

**Objective:** To identify key factors that determine continuous smartwatch use and users' comfort levels in sharing health data with healthcare providers and public health authorities.

**Methods:** A cross-sectional online survey of current and past smartwatch users (age >18) was conducted to assess determinants of continuous use based on the Expectation-Confirmation Model (ECM) and user comfort levels with different data-sharing methods. Structural Equation Modeling (SEM) evaluated relationships between habit formation, satisfaction, perceived enjoyment, and perceived usefulness with continuous use. Wilcoxon Signed-Rank tests were used to analyse user comfort in sharing data, comparing non-internet versus internet-based sharing methods and fully versus partially anonymized data.

**Results:** 273 responses were analyzed, with participants aged 18-65 years (mean = 35.6, SD = 11.7). Habit formation was the most significant factor influencing continuous smartwatch use, showing strong association with continuance intention (HAB1: 0.655, $p < 0.001$). Satisfaction (SAT1: 0.618, $p < 0.001$) and perceived enjoyment (e.g., ENJ3: 0.466, $p < 0.001$) also emerged as strong drivers. Smartwatch users preferred non-internet-based sharing options ($Z = -5.793$, $p < 0.001$) when sharing data with their physician. Similarly, users were more comfortable sharing fully anonymized data with public health authorities than partially anonymized data ($Z = -3.592$, $p < 0.001$).

**Conclusions:** Habit formation, satisfaction, and enjoyment emerged as pivotal drivers of continuous intention to use smartwatches, emphasizing the need for features that foster integration into daily routine and a rewarding user experience. When sharing with public health authorities, users expressed a preference for sharing fully anonymized data over partially anonymized data. Preferences for non-internet based data sharing with physicians highlights privacy concerns which must be addressed to build user trust. User trust is evidently lacking in private industry, which indicates that companies must take steps to build policy that promotes transparency in order to benefit from these data in the long term. By aligning device features and data-sharing protocols with user preferences, manufacturers, healthcare providers, and policymakers can enhance user engagement and maximize the potential of smartwatches to support individual health management and public health initiatives.

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# Original Manuscript

## Original Paper

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**Keywords:** Smartwatches; Wearable Electronic Devices, Data Sharing; Health Behavior; Privacy; Confidentiality; User Engagement; Digital Health; Perceived Enjoyment; User Satisfaction; Data Anonymization; Continuous Use; Telemedicine.

# Introduction

## Background

Based on recent estimates from 2023, there are 5.3 billion internet users and nearly 5 billion social media users worldwide (1), which equates to nearly two-thirds of the global population. This technology explosion is driving a paradigm shift in healthcare, facilitating patients ability to monitor their health from home, engage with fellow patients via social media, and have video consultations with care providers (2). Such transitions have only been accelerated in the wake of the SARS-CoV-2 pandemic as health care providers seek novel solutions to enhance clinical care. Data collection via smartwatches and other personal devices offer a timely and relevant option.

Smartwatches are a widely used tool for tracking health metrics, enabling users to monitor health metrics including: heart rate, blood oxygen saturation, and conduct 3-lead electrocardiograms (EKGs) (3). These smartwatches with their array of sensors, hold potential for enhancing individual healthcare (4), collecting clinical trial data and contributing to broader public health efforts. By 2020, one in five Americans had used a smartwatch (5), highlighting their growing acceptance and integration into daily routines.

The continuous use of smartwatches and users' willingness to share the health data collected are essential to maximizing their benefits. Ongoing use ensures a comprehensive and continuous dataset, crucial for monitoring chronic conditions, detecting acute health changes, and supporting long-term health management such as the development of large language model (LLM), Machine Learning (ML) and Artificial Intellegence (AI) for both public and individual care services. Various factors influence whether users maintain regular engagement with their smartwatches, with enjoyment and habit formation being particularly impactful (6,7). Further work has established that several factors including utilitarian, emotional, and health play significant roles in the continued use of smartwatches (8). Users tend to view their smartwatches as personal and enjoyable devices rather than strictly medical tools (9).

An equally critical aspect is a user's level of comfort with sharing their health data with healthcare providers. The sensors embedded in these devices generate valuable and sensitive data (3,10,11) that have the potential to improve healthcare outcomes by providing practitioners with detailed, longitudinal, and up-to-date health information. Comfort levels in sharing this data may vary based on the sharing method, but this has remained largely unexplored. Concerns regarding privacy, data breaches, and trust in data-handling entities play crucial roles for end users in shaping their comfort levels (12,13).

Data sharing in health care has been investigated through several studies (14–17). However, as technology continues to evolve and play a more dominant role in society, it is reasonable to expect attitudes to change. This highlights the importance of continued work in the field, not only have people become more accustomed to technology, but more data is being collected from personal devices than ever before (14,15). A study from the mid-2000s examining the attitudes towards sharing of health data indicates that the recipient of the data, the anonymity, and the information type are the foundational factors (16).

Today’s environment finds the patient being the holder of a vast amount of their own health data stored on their personal devices and online services. Historically, before the mainstream adoption of smart devices (*e.g.* smartwatches), nearly all health data was kept by health services in the form of medical records. Smart devices now typically hold an additional set of health data outside of health service records. The impact of this on data sharing preferences is largely unknown.

With the widespread success of smartphones and mobile health apps in the 2010s, the general public began to appreciate the large amount of data they hold and there has been heightened awareness of the notion of data privacy (17). A qualitative study on the topic from 2016 highlighted that users saw the data on calories and exercise collected in apps to be private matters (18). Among concerns was the potential exploitation of data by third parties (e.g. insurance companies) (18).

The concern of data misuse is well founded. Internet-users face a near continuous bombardment of tailored advertisements (19) and even automobiles that collect our driving data can now sell it to insurance companies (20). To appreciate the potential benefit of the health data collected from smartwatches in health care, it is crucial to understand both the users’ concerns and the reasons behind them.

## Aims and Objectives

This study seeks to examine the key factors that determine:

1. Continuous smartwatch use
2. Users' comfort levels in sharing their health data with healthcare practitioners and public health authorities.

By identifying these factors, strategies may be developed to enhance user engagement and data sharing, ultimately improving the integration of smartwatch sensor data into healthcare practices and public health authorities. This paper presents findings from an online survey of smartwatch users, offering insights into the key factors influencing their behaviors and preferences.

# Methods

## Study Design

This study is a cross-sectional online survey of smartwatch users conducted between July and November 2023. The survey was designed to assess the determinants influencing continuous use of smartwatch sensors and users' comfort levels in sharing health data with healthcare practitioners and public health authorities. The study protocol (21), underwent peer-review and received ethical approval by the Social Research Ethics Committee, University College Cork, Ireland. Reference number: SREC/ SOM/21062023/2.

## Recruitment

Participants were recruited via convenience sampling through various online platforms, including social media (e.g. LinkedIn), university networks (University College Cork), and community forums (e.g. Reddit). The inclusion criteria required participants to be over 18 years of age and current or past users of smartwatches. Participation was voluntary and incentives were not offered.

## Survey Instrument

The survey consisted of two main sections. The first section focused on factors influencing continuous use of smartwatches, based on the Expectation-Confirmation Model (ECM) (6,22), and included items measuring enjoyment, habit formation, perceived usefulness, satisfaction, and usability. These were measured on a 7-point Likert scale. The second section addressed comfort levels in sharing health data, concentrating on different data-sharing methods (*e.g.*, internet vs. non-internet) and included items assessing preferences for various methods and concerns about privacy and trust. See *Multimedia Appendix 1* to view the survey in its entirety.

## Data Collection

Data were collected using the *Qualtrics*™ online survey platform, ensuring anonymity and confidentiality of responses. The survey was open for responses for a period of three months, aiming to capture a diverse sample of smartwatch users. An open link was used to distribute the survey, to prevent false responses, tools offered by the survey platform such as "Bot-Dectection" and "*reCAPTCHA*" were enabled.

## Statistical Analysis

Data were analyzed using SPSS Version 28 and Python Version 3.10. Descriptive statistics, including means, standard deviations, and frequencies, were used to summarize participant demographics and overall response patterns. Inferential statistical tests were employed to examine relationships between variables relevant to continuous smartwatch use and comfort levels in sharing health data.

For the analysis of factors influencing continuous smartwatch use, Structural Equation Modeling (SEM) was conducted using SPSS. The SEM analysis tested the hypothesized relationships within the Expectation-Confirmation Model (ECM), including constructs such as habit formation, perceived enjoyment, satisfaction, perceived usefulness, and perceived usability. The model assessed the magnitude and consistency of cross-loadings between these constructs and continuance intention (INT), alongside reliability metrics including Cronbach's alpha, Composite Reliability, and Average Variance Extracted (AVE). The required sample size for SEM was calculated to be approximately 200, providing sufficient power for the model.

For the analysis of the sharing health data section, Python was used with key packages including "pandas" for data manipulation, "numpy" for numerical operations, "scipy" for statistical testing, and "matplotlib" for data visualization. Wilcoxon Signed-Rank tests were employed to compare paired data, reflecting respondents' comfort under different sharing scenarios. The first comparison assessed comfort with sharing data with a physician via non-internet methods (e.g., wired connection, Bluetooth, NFC) versus internet-based methods (e.g., web-based cloud services) without anonymization. The second comparison evaluated comfort levels in sharing fully anonymized data with public health authorities versus partially anonymized data intended for public safety purposes. These non-parametric tests were chosen due to the ordinal nature of the survey data and the non-normal distribution of differences between paired responses.

# Results

## Demographics

273 survey responses were collected, 198 responses were completed to the end of the continuous use section, and 169 responses were completed in their entirety. Participants identified as 52.7% male, 45.8% female, and 1.5% other. The age of participants ranged from 18 to 65 years, with a mean age of 35.6 (SD = 11.7).

## Factors Influencing Continuous Use

The SEM, as visualized in *Table 1* and *Table 2*, identified habit formation as the most significant factor influencing the continuous use of smartwatches. Satisfaction, perceived enjoyment, and perceived usefulness also emerged as strong drivers of continuance intention. These factors were analyzed based on the magnitude and consistency of their cross-loadings with Continuance Intention (INT), as well as their reliability metrics, including Cronbach's alpha, Composite Reliability, and Average Variance Extracted (AVE). These measures demonstrated the constructs' reliability and validity in promoting sustained engagement with smartwatch devices. See the question corresponding to each of these constructs in *Multmedia Appendix 1*.

Table 1. Factor loadings and cross-loadings of the measurement model

| CONSTRUCT | ITEM | CONF | ENJ | HAB | INT | PU | SAT | USAB |
|---|---|---|---|---|---|---|---|---|
| Confirmation (CONF) | CONF1 | **0.868** | 0.357 | 0.433 | 0.378 | 0.472 | 0.557 | 0.385 |
| | CONF2 | **0.740** | 0.260 | 0.288 | 0.218 | 0.313 | 0.397 | 0.347 |
| Perceived Enjoyment (ENJ) | ENJ1 | 0.316 | **0.907** | 0.379 | 0.382 | 0.475 | 0.580 | 0.475 |
| | ENJ2 | 0.313 | **0.929** | 0.433 | 0.394 | 0.482 | 0.596 | 0.406 |
| | ENJ3 | 0.422 | **0.902** | 0.497 | 0.466 | 0.501 | 0.639 | 0.533 |
| Habit (HAB) | HAB1 | 0.393 | 0.419 | **0.921** | 0.655 | 0.576 | 0.646 | 0.452 |
| | HAB2 | 0.441 | 0.413 | **0.921** | 0.604 | 0.553 | 0.638 | 0.448 |
| | HAB3 | 0.368 | 0.441 | **0.785** | 0.371 | 0.634 | 0.539 | 0.480 |
| Continuance Intention (INT) | INT1 | 0.395 | 0.434 | 0.628 | **0.964** | 0.483 | 0.625 | 0.366 |
| | INT2 | 0.363 | 0.456 | 0.594 | **0.974** | 0.451 | 0.641 | 0.347 |
| | INT3 | 0.320 | 0.483 | 0.580 | **0.974** | 0.436 | 0.625 | 0.352 |
| | INT4 | 0.392 | 0.388 | 0.607 | **0.942** | 0.382 | 0.587 | 0.326 |
| Perceived usefulness (PU) | PU1 | 0.494 | 0.373 | 0.632 | 0.555 | **0.771** | 0.658 | 0.428 |
| | PU2 | 0.369 | 0.445 | 0.512 | 0.260 | **0.874** | 0.535 | 0.405 |
| | PU3 | 0.401 | 0.488 | 0.540 | 0.348 | **0.885** | 0.569 | 0.443 |
| | PU4 | 0.406 | 0.510 | 0.564 | 0.350 | **0.869** | 0.647 | 0.457 |
| Satisfaction (SAT) | SAT1 | 0.512 | 0.589 | 0.650 | 0.618 | 0.660 | **0.911** | 0.494 |
| | SAT2 | 0.560 | 0.61 | 0.61 | 0.58 | 0.67 | **0.92** | 0.524 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0 | 8 | 5 | 3 | **2** | |
| | SAT3 | 0.479 | 0.581 | 0.560 | 0.480 | 0.528 | **0.818** | 0.464 |
| | SAT4 | 0.595 | 0.605 | 0.652 | 0.608 | 0.686 | **0.923** | 0.581 |
| Perceived usability (USAB) | USAB3 | 0.252 | 0.438 | 0.322 | 0.213 | 0.331 | 0.360 | **0.729** |
| | USAB4 | 0.371 | 0.410 | 0.389 | 0.313 | 0.439 | 0.479 | **0.803** |
| | USAB5 | 0.322 | 0.408 | 0.405 | 0.237 | 0.398 | 0.431 | **0.862** |
| | USAB6 | 0.420 | 0.463 | 0.445 | 0.308 | 0.431 | 0.513 | **0.906** |
| | USAB7 | 0.385 | 0.437 | 0.427 | 0.212 | 0.402 | 0.465 | **0.880** |
| | USAB8 | 0.458 | 0.436 | 0.560 | 0.455 | 0.512 | 0.579 | **0.798** |

NB: USAB1 and USAB2 were eliminated due to low loadings

Table 2. Reliability and validity metrics: composite reliability, Cronbach's alpha, and average variance extracted.

| | Cronbach's alpha | Composite reliability | Average variance extracted |
|---|---|---|---|
| **CONF** | 0.471 | 0.787 | 0.650 |
| **ENJ** | 0.900 | 0.937 | 0.832 |
| **HAB** | 0.849 | 0.910 | 0.771 |
| **INT** | 0.974 | 0.981 | 0.929 |
| **PU** | 0.872 | 0.913 | 0.725 |
| **SAT** | 0.916 | 0.941 | 0.801 |
| **USAB** | 0.910 | 0.931 | 0.692 |

## Habit Formation

Habit formation emerged as the most influential factor in the continuance intention of smartwatch use, with the highest and most consistent cross-loadings with Continuance Intention (INT). Specifically, items HAB1, HAB2, and HAB3 demonstrated cross-loadings of 0.655, 0.604, and 0.580 with INT, respectively. These values indicate that habitual use of the smartwatch significantly predicts ongoing engagement. The high reliability metrics for Habit (Cronbach's alpha = 0.849, Composite Reliability = 0.910, AVE = 0.771) further confirm that the construct is robustly measured and strongly associated with continuance behavior.

## Satisfaction

User satisfaction with the device was identified as the second strongest factor influencing continuance intention, with items SAT1, SAT2, and SAT4 showing cross-loadings with INT at 0.618, 0.585, and 0.608, respectively. These significant cross-loadings indicate that user satisfaction with the smartwatch experience is a critical determinant of continued use. The construct demonstrated high reliability and validity, with Cronbach's alpha of 0.916, Composite Reliability of 0.941, and AVE of 0.801, confirming that the satisfaction items consistently measure the underlying construct and contribute meaningfully to continuance intention.

## Perceived Enjoyment

Perceived Enjoyment also played a substantial role in driving continuance intention, highlighted by significant cross-loadings of ENJ2 (0.456) and ENJ3 (0.466) with INT. These values suggest that the enjoyment derived from using the smartwatch enhances the likelihood of continued use. The high reliability metrics (Cronbach's alpha = 0.900, Composite Reliability = 0.937, AVE = 0.832) demonstrate that the enjoyment construct is reliably measured and captures a key motivational aspect of smartwatch use, further reinforcing its impact on continuous intention.

### Perceived Usefulness

Perceived Usefulness was found to have a moderate but meaningful impact on continuance intention. Item PU1 had a notable cross-loading of 0.555 with INT, while other items, such as PU2, PU3, and PU4, exhibited lower cross-loadings, indicating a less consistent influence. This suggests that users are more likely to continue using the smartwatch if they perceive it as beneficial, but the overall impact of perceived usefulness varies across different aspects of the construct. The construct's reliability and validity were confirmed by Cronbach's alpha of 0.872, Composite Reliability of 0.913, and AVE of 0.725, supporting the notion that perceived usefulness contributes to continuous intention, though it is not the primary driver.

## Data Sharing Results

The analysis of data-sharing preferences indicated significant differences in comfort levels depending on the method of data transmission and the level of data anonymization. These are subcategorized in detail in the following subsections.

### Internet vs Non-Internet Based Methods of Data Sharing with a Physician

The Wilcoxon Signed-Rank test was used to compare respondents' comfort levels when sharing health data collected from their device with a physician using non-internet methods (e.g., in the doctor's office via wired connection, Bluetooth, NFC) versus internet-based methods (e.g., web-based cloud services) without anonymization, this is illustrated in *Figure 1*. The results indicated 8 negative ranks (mean rank = 26.25, sum of ranks = 210.00), 57 positive ranks (mean rank = 33.95, sum of ranks = 1935.00), and 104 ties. The test statistic was Z = -5.793, with a p-value of less than 0.001, indicating a statistically significant difference in comfort levels between the two sharing methods.

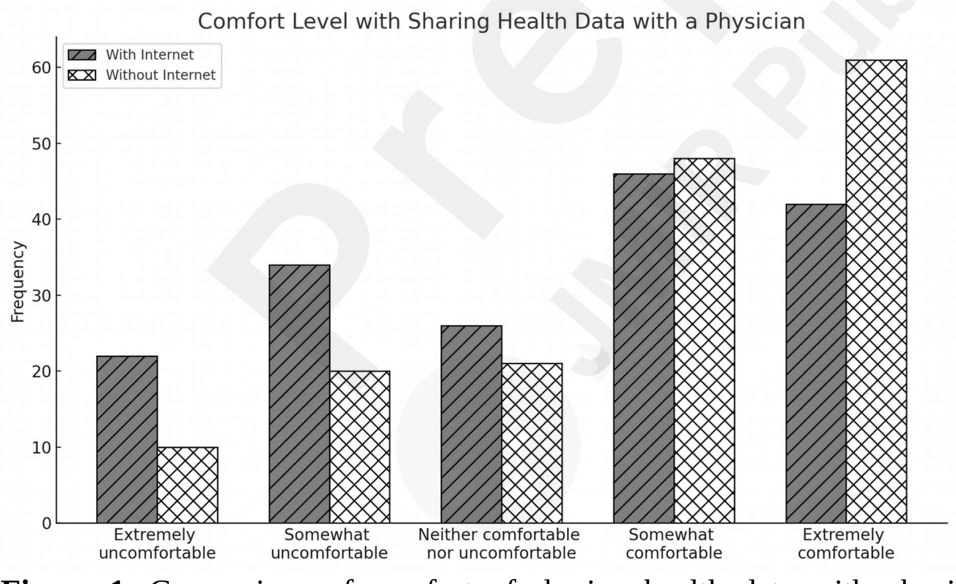


**Figure 1.** Comparison of comfort of sharing health data with physician using internet vs. non-internet methods.

### Partial vs Complete Anonymization of Data

The Wilcoxon Signed-Rank test was conducted to assess respondents' comfort levels when sharing health data with public health authorities (e.g., Health Service Executive, Ireland (HSE), National Health Services, UK (NHS) or the Center for Disease Control and Prevention, USA (CDC), Health Canada) after full anonymization versus partial anonymization (e.g., data used in public safety applications such as COVID-19 trackers that do not include names but may track precise locations).

The test results showed 24 negative ranks (mean rank = 34.92, sum of ranks = 838.00), 54 positive ranks (mean rank = 41.54, sum of ranks = 2243.00), and 91 ties. The test statistic was Z = -3.592, with a p-value of less than 0.001, indicating a statistically significant difference in comfort levels between the two methods of data sharing as illustrated in *Figure 2*.

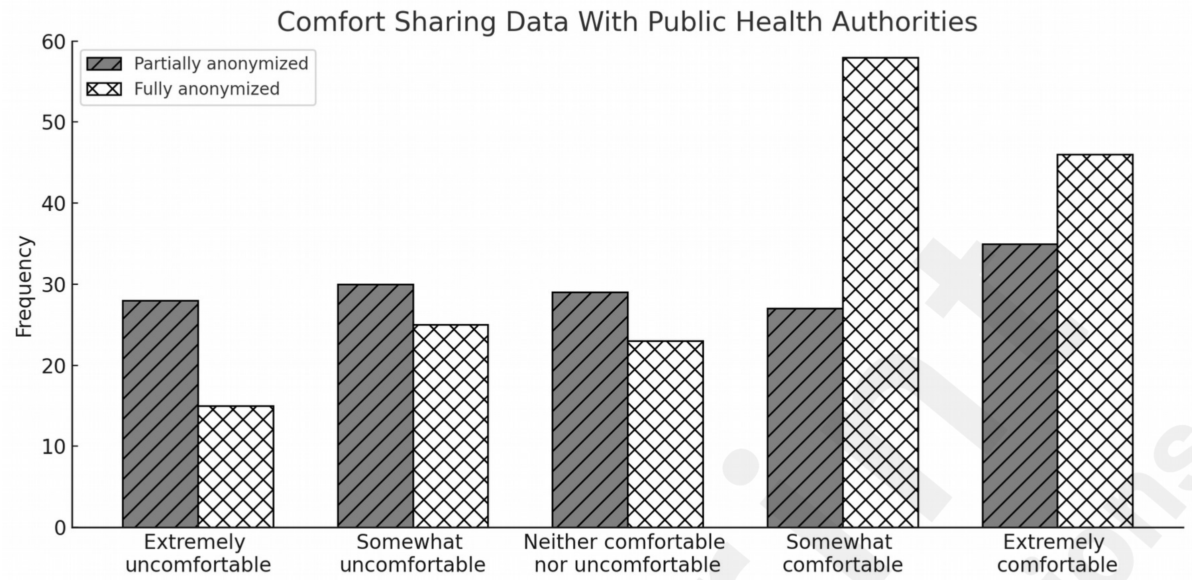


**Figure 2.** Comparison of comfort of sharing health data with a public health authority using fully vs. partially anonymized data

## *User Comfort Sharing Anonymized Data with Public Health Authorities and Private Companies*

In *Figure 3*, the clear patterns of users' preference in sharing anonymous data with different groups is that concerns are held with private companies much more so than either national or international health authorities. There was no significant difference between the international and national health authorities, but there was between both of those groups and private companies (p<0.001).

When asked regarding comfort level sharing at the national level (e.g. HSE, NHS, CDC), 62.1% of respondents were comfortable, while 24.3% were not. At an international level (e.g. WHO), 53.8% of respondents were comfortable, while 30.2% were uncomfortable sharing anonymized health data from their devices. For private companies, only 23.2% of respondents were comfortable, while 66.1% were not.

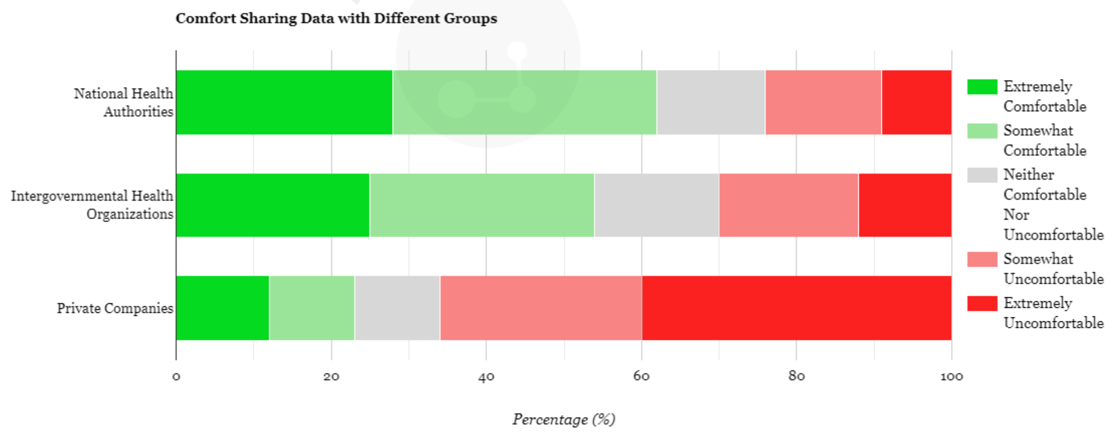


**Figure 3.** Comparison of comfort sharing data between intergovernmental, national, and private organizations.

### User Confidence in the Application of Shared Data

Overall, the majority of users expressed confidence in the potential benefits of sharing smartwatch data with healthcare providers. Specifically, 66.3% of respondents reported feeling confident about this application, while 19.5% remained neutral, and 14.2% expressed a lack of confidence.

When users were asked (n=169), "I have confidence in the notion that sharing a larger collection of data with a general practitioner could improve the quality of the healthcare I receive," 37.9% of participants reported feeling somewhat confident, and 28.4% were extremely confident. Conversely, 19.5% were neutral, while 10.1% were somewhat unconfident, and 4.1% were extremely unconfident. These results, illustrated in *Figure* 4, highlight a predominantly positive perception of data sharing, though a minority of users still harbor reservations.

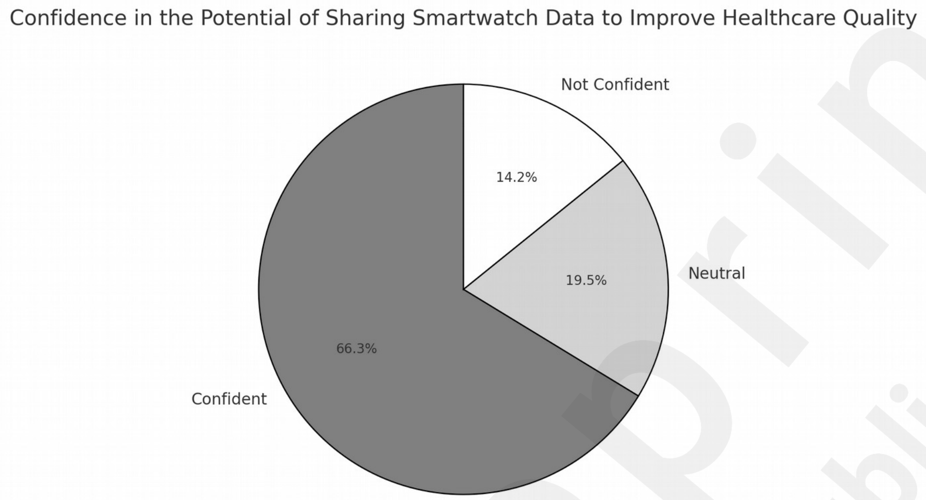


**Figure 4.** Pie chart showing proportion of individuals who believe smartwatch data could improve their personal health care.

# Discussion

## Factors Influencing Continuous Use of Smartwatches

### Habit formation

Habit formation emerged as the most influential factor driving the continuous use of smartwatches. Users who successfully incorporated smartwatches into their daily routines are more likely to intend to continuously use their smartwatch, highlighting the critical role of habit in sustained use. This finding underscores the importance of designing features that support routine development, such as daily reminders, goal-setting mechanisms, and integration with existing lifestyle habits (23–25). By facilitating habit formation, manufacturers and app developers can likely enhance user retention and promote long-term engagement with smartwatches, ultimately improving the effectiveness of these devices in supporting health, wellness, and longitudinal data collection.

### Satisfaction

User satisfaction with the device was identified as the second most significant factor influencing continuous use, reflecting the importance of a positive user experience in sustaining engagement. Users who were satisfied with their smartwatch's performance, design, and features were more likely to maintain regular intention to use. Enhancing satisfaction can be achieved through user-friendly interfaces, reliable functionality, and responsive customer support (26,27). These elements help create a seamless experience that meets user expectations, reinforcing the perception of value and driving continued use. Addressing user feedback and providing regular useful updates to resolve issues can further enhance satisfaction (28), ensuring that the device remains relevant and effective over time.

### Perceived enjoyment

Perceived enjoyment of using the device also played a substantial role in influencing continuous use, highlighting that users who find pleasure in using their smartwatches are more likely to engage consistently. To capitalize on this, developers should focus on creating engaging and interactive features, such as gamification, social sharing, and personalized feedback, which can enhance the overall user experience (29,30). By making the interaction with the device enjoyable, users are more likely to view the smartwatch as a rewarding and integral part of their daily routine, thus promoting sustained use.

### Perceived Usefulness

Perceived usefulness was found to have a moderate impact on continuous use, indicating that while users value the practical benefits of their smartwatches, it is not the primary driver of sustained engagement. Users who believed that their smartwatch provided valuable health insights and practical support in daily activities were more inclined to maintain regular use (31). To enhance perceived usefulness, developers should emphasize features that deliver clear, actionable health information and demonstrate the tangible benefits of smartwatch use (32), such as tracking health goals, monitoring chronic conditions, and providing timely health alerts.

## Health Data Sharing

### Internet vs. non-internet sharing

The study revealed that users are significantly more comfortable sharing health data with physicians through non-internet methods, such as Bluetooth or NFC, compared to internet-based methods like cloud services. This preference underscores the concerns users have regarding online data security and privacy. The findings suggest a need for healthcare providers and technology developers to offer secure offline data-sharing options to meet user comfort levels and build trust. Enhancing user education around the security of online data-sharing methods could also help address these privacy concerns and improve user confidence.

### Preference for data anonymization

The preference for fully anonymized data over partially anonymized data when sharing with public health authorities was also evident. Users expressed higher comfort levels with data that is completely anonymized, indicating a strong desire for privacy and control over personal information. This finding emphasizes the importance of implementing robust anonymization protocols in public health data-sharing practices. Transparent communication about how anonymized data is used and the measures taken to protect user privacy could further encourage participation in public health initiatives that rely on data sharing (33,34).

### User confidence in smartwatch data’s potential impact on healthcare

The analysis revealed a generally positive outlook on the potential benefits of sharing smartwatch data with healthcare providers. Overall, 66.3% of users reported confidence that sharing their data with their treating physician could improve healthcare quality, reflecting a strong belief in the utility of these devices in medical contexts. However, a notable minority of users remained neutral (19.5%) or expressed a lack of confidence (14.2%), suggesting that there are still reservations about the effectiveness and security of data integration into clinical practice.

These mixed confidence levels suggest that while many users are optimistic, there is still uncertainty about the practical impact of sharing smartwatch data on healthcare outcomes. The variability in responses underscores the importance of further studies to rigorously evaluate the benefits and address user concerns. Establishing evidence-based practices, alongside clear communication from healthcare providers about data handling, security, and potential advantages, may help to build greater trust and encourage more widespread data-sharing between users and interested treating physicians (35,36).

## Limitations

This study has limitations. The reliance on self-reported data introduces potential biases, including social desirability bias, where participants may overstate their engagement or comfort with data-sharing practices. The convenience sampling approach may not fully capture the broader diversity of smartwatch users, skewing results towards more tech-savvy or health-conscious individuals. The cross-sectional design captures attitudes at a single point in time, limiting insights into how preferences and behaviors might change over time, particularly as technology and privacy practices evolve.

Additionally, the study did not differentiate between various data-sharing scenarios, such as differences in security features or types of health data being shared, which could influence user comfort levels. Future research should further explore these nuances to better understand what drives trust in data-sharing. Lastly, while the study provides valuable insights into user perceptions, further research is needed to establish the actual clinical impact of smartwatch data integration on healthcare outcomes.

## Comparison with Prior Work

The findings of this study align with previous literature emphasizing the importance of habit formation, satisfaction, enjoyment, and perceived usefulness in driving technology adoption and sustained engagement (6–8). Prior studies have consistently highlighted that habit formation plays a crucial role in the long-term use of health technologies, reinforcing our results that daily integration and routine use significantly boost engagement. Novel findings in our study include understanding that the use of internet-based data sharing methods can lead to users feeling less comfortable sharing data. This, in addition to the other findings related to data sharing with different levels of organisations fill in gaps in the literature.

## Conclusions

This study highlights key factors influencing continuous smartwatch use, with habit formation, satisfaction, perceived enjoyment, and perceived usefulness playing pivotal roles. To successfully integrate smartwatch data into clinical care, designing features that support habit-building, enhance user satisfaction, and create enjoyable experiences are necessary for sustained engagement. Additionally, the preference for non-internet data-sharing methods and fully anonymized data reflects ongoing user concerns about privacy and security, indicating a need for robust and transparent data-sharing practices.

A consistent theme is that who the data is shared with is crucial for user support. Users were much more favorable sharing data with physicians and health organizations than with private companies.

While users generally express confidence in the potential of smartwatch data to improve healthcare, the variability in comfort and trust levels suggests further research is necessary to substantiate these perceived benefits. Future work should focus on addressing privacy concerns to foster greater trust in data-sharing practices. Additionally, validating the clinical impact of smartwatch data integration is crucial. By aligning device features and data-sharing protocols with user preferences, manufacturers, healthcare providers, and policymakers can enhance user engagement and maximize the potential of smartwatches to support individual health management and public health initiatives.

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## Conflicts of Interest

None declared.

## Abbreviations

SEM – Structural equation modeling
ECM – Expectation-confirmation model
NFC – Near-field communication
AVE – Average variance extracted
SPSS – Statistical Package for the Social Sciences
HSE – Health Service Executive
NHS – National Health Service
CDC – Center for Disease Control
LLM – Large language model
ML – Machine Learning
AI – Artificial Intellegence

## Multimedia Appendix 1

**Data Collection Instrument**: Online survey developed on the platform *Qualtrics™*

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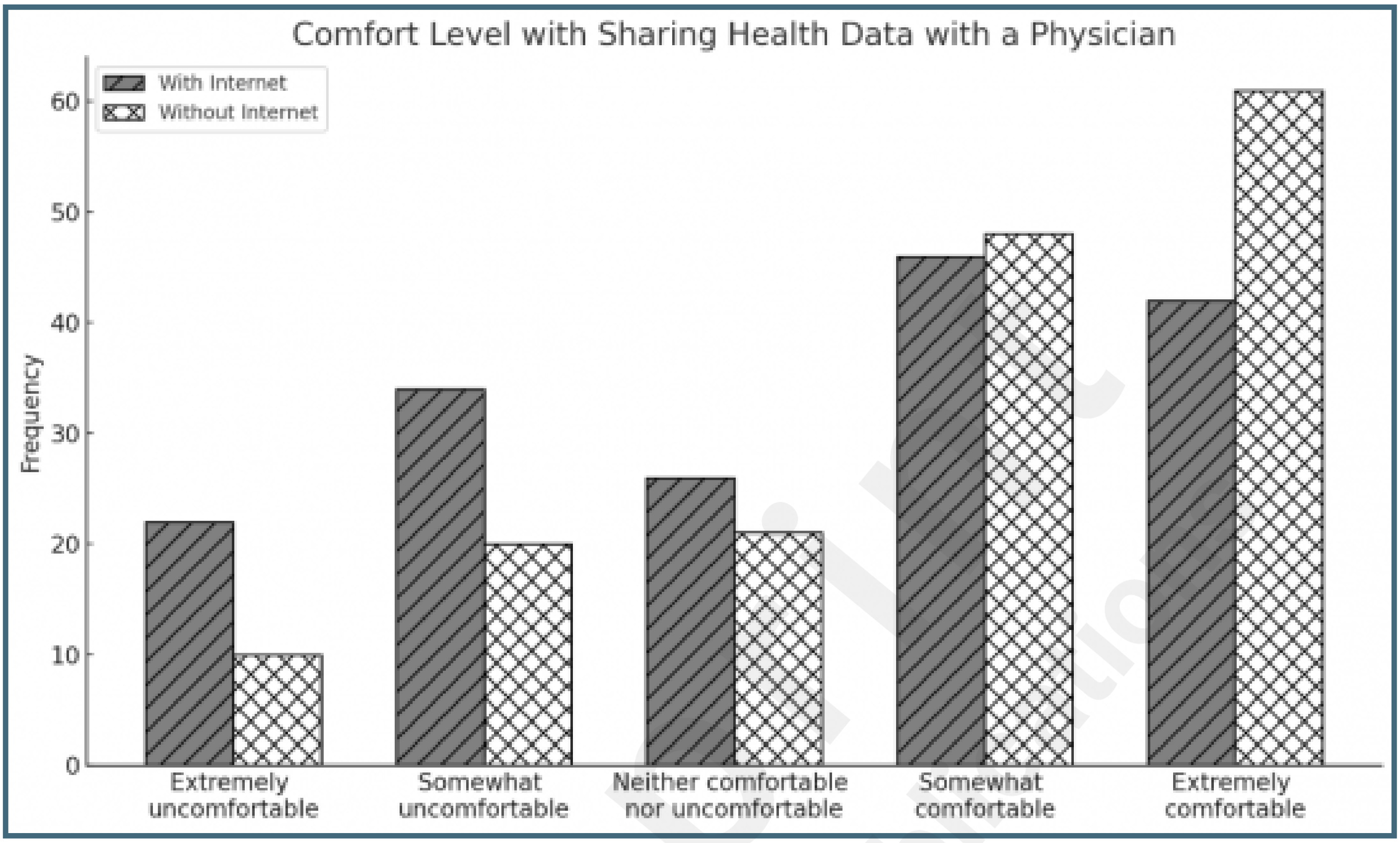
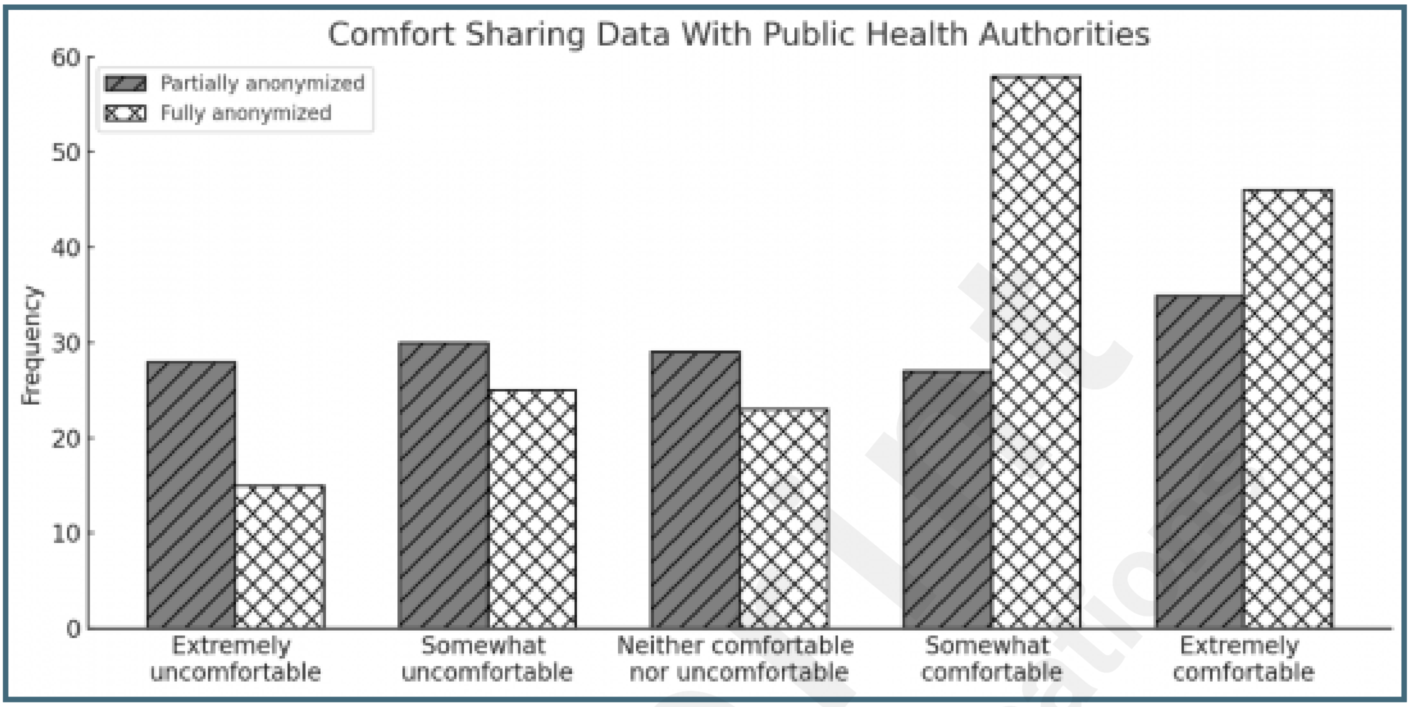
# Supplementary Files

# Figures

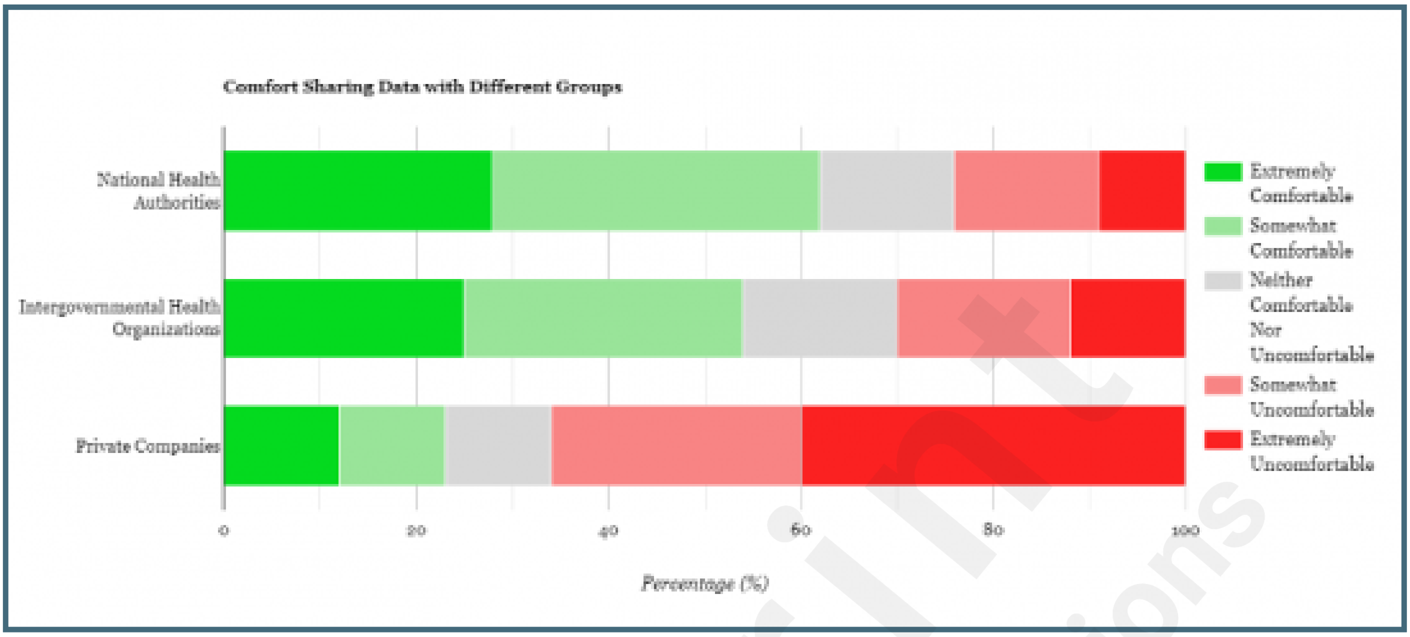
Comparison of comfort of sharing health data with physician using internet vs. non-internet methods.



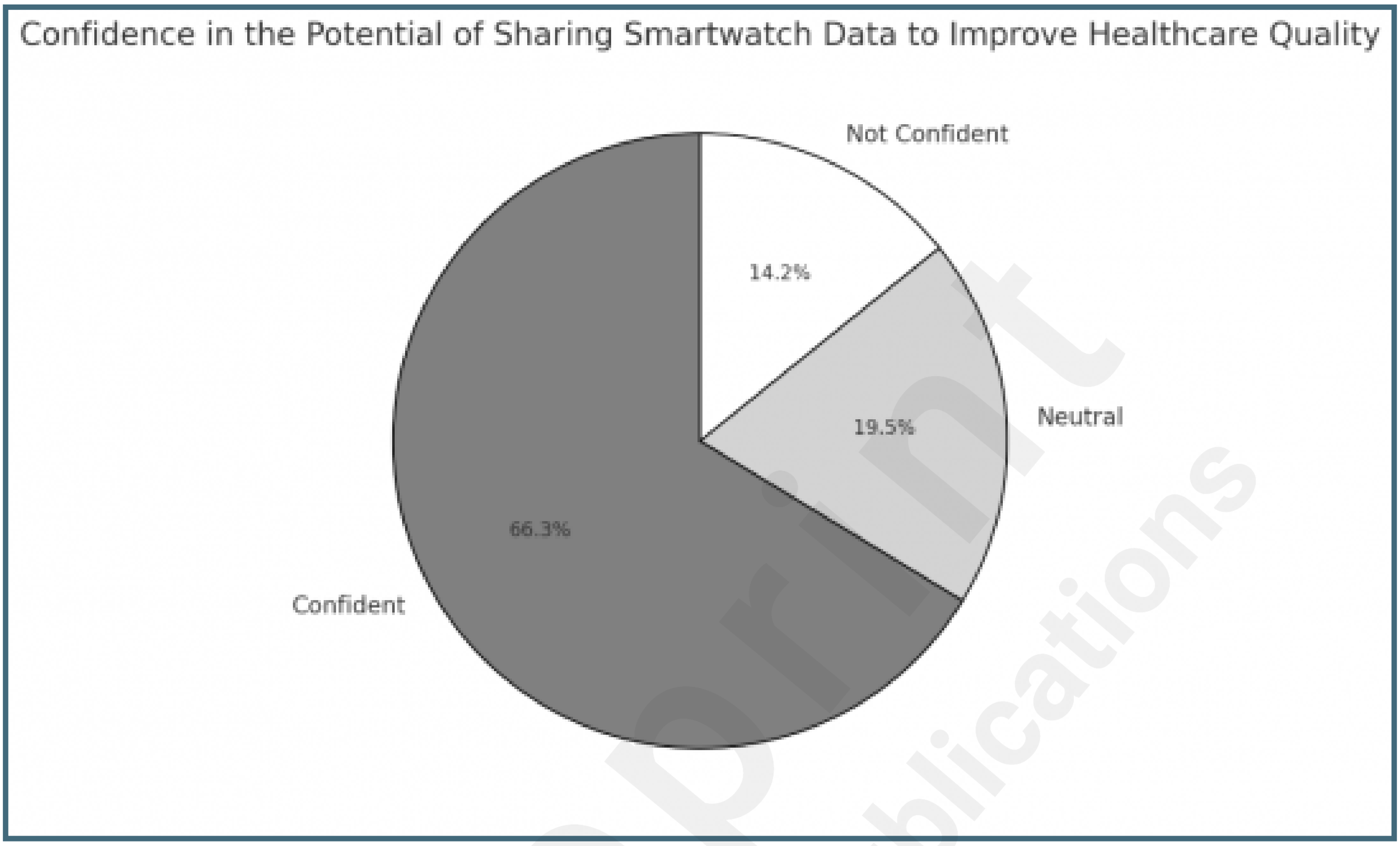
Comparison of comfort of sharing health data with a public health authority using fully vs. partially anonymized data.



Comparison of comfort sharing data between intergovernmental, national, and private organizations.



Pie chart showing proportion of individuals who believe smartwatch data could improve their personal health care.



# Multimedia Appendixes

Online survey.
URL: http://asset.jmir.pub/assets/88b46152f4dda6db1c6106af5708d455.docx