

Research Letter

Smart Device Ownership and Use of Social Media, Wearable Trackers, and Health Apps Among Black Women With Hypertension in the United States: National Survey Study

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Abstract

The majority of Black women with hypertension in the United States have smartphones or tablets and use social media, and many use wearable activity trackers and health or wellness apps, digital tools that can be used to support lifestyle changes and medication adherence.

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KEYWORDS

Black women; Black; women; tracker; trackers; wearable; wearables; hypertension; hypertensive; cardiology; cardiovascular; blood pressure; social media; technology; usage; digital health; eHealth; tablet; mHealth; mobile health; app; apps; applications; survey; surveys; questionnaire; questionnaires; Health Information National Trends Survey; HINTS

Introduction

In the United States, Black women are disproportionately affected by hypertension, with a prevalence of 56% versus 37% among White and Hispanic women [1]. Digital health tools, including apps and wearables, can support hypertension control via lifestyle modifications and medication adherence [2]. With high social media and smartphone use in studies with local samples [3], Black women with hypertension may be poised to leverage digital tools to manage their health. However, previous studies examining digital health use among US adults with hypertension [4] have not reported use by race and sex. We examined smart device ownership and use of social media, wearable activity trackers, and health apps among Black women with hypertension in the United States.

Methods

Overview

We analyzed cross-sectional data from the 2022 Health Information National Trends Survey (HINTS6). Details on HINTS methodology are available on the web [5]. Briefly, civilian, noninstitutionalized adults living in the United States were sampled using a 2-stage design and completed a web-based or mail survey.

Participants reported their sex assigned at birth. Participants were asked to describe their race, and those who selected “Black or African American” (with or without other races) were included. Participants were asked if a doctor or other health professional ever told them they had high blood pressure or hypertension (yes or no). Black women reporting a diagnosis

of hypertension or high blood pressure were included in the analysis.

Participants reported if they had a tablet computer or a smartphone (either vs neither), how often they visited social media sites in the past 12 months (ever vs never), and whether they used a wearable device to monitor or track health or activity in the past 12 months. Tablet/smartphone owners were asked whether they had used a health or wellness app in the past 12 months.

Participants reported their age, presence of children in their household, education, feelings about their income, and whether they had worked ≥ 35 hours/week in the past 30 days. Participants were asked about their confidence in finding helpful health resources on the internet (low digital health literacy: “somewhat/a little bit/not at all confident” vs adequate: “completely/very confident”). Participants reported the degree to which they have a strong sense of belonging to their ethnic, racial, or cultural group.

Statistical Analyses

We used the survey procedures in SAS (version 9.4; SAS Institute) and replicate weights provided by HINTS6 to calculate SEs of estimates using the “delete one” jackknife replication method. Results are representative of Black women with hypertension in the US. We used logistic regression models to

examine associations between participant characteristics and device ownership and mobile health use. We adjusted associations for age to account for confounding [6-8]. We assessed the assumption of linearity for age using Box-Tidwell tests.

Ethical Considerations

HINTS6 data collection was approved by the Westat Institutional Review Board (IRB), and participants provided informed consent. The HINTS6 public-use data set is deidentified, and analyses of these data do not require additional IRB approval.

Results

We excluded Black women with hypertension who were missing information on any variables in the analysis ($n=51$), resulting in an analytic sample of 409. [Table 1](#) shows characteristics of US Black women with hypertension.

Nearly 9 in 10 (89.7%; SE 1.9%) US Black women with hypertension own a smartphone or tablet; 81.9% (SE 2.1%) used social media and 33% (SE 2.9%) used a wearable activity tracker in the past year. Of those who own smartphones or tablets, 58.7% (SE 4%) used a health or wellness app in the past year. [Table 2](#) shows characteristics associated with smart device ownership and digital health use.

Table 1. Characteristics of US Black women with hypertension or high blood pressure ($n=409$); 2022 Health Information National Trends Survey (HINTS6).

Characteristics	Weighted % (SE)
Age (years)	
18-49	32.3 (3.7)
50-64	40.2 (3.4)
≥ 65	27.5 (2.0)
Works ≥ 35 hours per week	44.9 (3.2)
Education status	
High school or less	31.8 (3.2)
Some college	49.8 (3.6)
College graduate	18.4 (2.7)
Feelings about present income	
Living comfortably on present income	26.0 (3.2)
Getting by on present income	40.7 (3.5)
Finding it very difficult/difficult on present income	33.4 (3.2)
Has children in household	28.3 (3.9)
Ethnic group belonging	
Strongly agree	55.6 (3.7)
Agree	20.8 (2.8)
Neither agree nor disagree; disagree; or strongly disagree	23.6 (3.4)
Low digital health literacy	52.7 (3.8)

Table 2. Digital health activities by demographic characteristics among US Black women with hypertension or high blood pressure (n=409); 2022 Health Information National Trends Survey (HINTS6).

Characteristics	Has tablet or smartphone		Uses social media		Uses wearable activity tracker		Uses health or wellness apps ^a	
	Weighted % (SE)	Age-adjusted OR ^b (95% CI) ^c	Weighted % (SE)	Age-adjusted OR (95% CI) ^c	Weighted % (SE)	Age-adjusted OR (95% CI) ^c	Weighted % (SE)	Age-adjusted OR (95% CI) ^c
Age^d (years)								
18-49	96.9 (2.4)	8.5 (0.7-107.3)	98.8 (0.9)	60.1 (5.7-634.3)	38.3 (7.8)	2.0 (0.9-4.7)	66.9 (6.7)	2.6 (1.2-5.5)
50-64	91.4 (2.9)	2.9 (1.1-7.7)	85.3 (3.1)	4.4 (2.4-7.9)	35.2 (5.7)	1.8 (0.8-4.1)	59.8 (6.2)	1.9 (0.9-4.0)
≥65	78.9 (4.3)	(Reference)	57.1 (4.5)	(Reference)	23.4 (4.5)	(Reference)	44.2 (6.7)	(Reference)
Works full-time								
Yes	96.0 (1.8)	(Reference)	90.3 (2.4)	(Reference)	46.3 (5.9)	(Reference)	66.2 (5.7)	(Reference)
No	84.7 (2.9)	0.4 (0.1-1.0)	75.0 (3.0)	0.8 (0.4-1.7)	22.2 (3.7)	0.4 (0.2-0.8)	51.8 (5.5)	0.7 (0.3-1.6)
Education status								
High school or less	77.9 (5.1)	(Reference)	66.3 (4.8)	(Reference)	20.1 (6.2)	(Reference)	34.7 (7.0)	(Reference)
Some college	94.3 (1.7)	3.8 (1.5-9.4)	88.6 (2.3)	3.2 (1.6-6.3)	35.7 (5.1)	2.0 (0.7-5.3)	66.2 (5.2)	3.4 (1.8-6.6)
College graduate	98.0 (0.9)	12.6 (3.9-40.7)	90.7 (2.7)	4.6 (2.2-9.5)	47.7 (6.5)	3.4 (1.2-9.7)	70.9 (6.9)	4.6 (1.6-13.3)
Feelings about present income								
Living comfortably	92.4 (3.2)	(Reference)	77.3 (4.8)	(Reference)	42.1 (6.1)	(Reference)	65.8 (8.7)	(Reference)
Getting by	87.7 (2.9)	0.5 (0.1-1.6)	80.2 (3.5)	0.9 (0.4-2.2)	28.0 (4.9)	0.5 (0.2-1.1)	55.9 (7.1)	0.6 (0.2-1.7)
Finding it very difficult/difficult	90.1 (3.1)	0.5 (0.2-1.6)	87.5 (3.6)	1.2 (0.4-3.8)	32.1 (5.5)	0.6 (0.2-1.3)	56.4 (5.6)	0.5 (0.2-1.4)
Children in household								
No	87.7 (2.2)	(Reference)	77.6 (2.6)	(Reference)	32.7 (3.2)	(Reference)	54.0 (4.8)	(Reference)
Yes	95.0 (3.2)	1.4 (0.2-8.5)	92.7 (2.9)	1.2 (0.4-3.8)	33.8 (7.7)	0.7 (0.3-1.8)	69.2 (7.8)	1.3 (0.5-3.6)
Ethnic group belonging								
Strongly agree	92.7 (2.2)	(Reference)	81.1 (3.1)	(Reference)	38.9 (4.1)	(Reference)	65.4 (5.2)	(Reference)
Agree	80.7 (5.8)	0.3 (0.1-1.0)	79.7 (4.6)	0.8 (0.3-2.0)	33.2 (7.6)	0.7 (0.3-1.7)	52.7 (8.5)	0.5 (0.2-1.2)
Neutral/disagree	90.7 (4.2)	0.6 (0.1-2.6)	85.5 (4.5)	1.0 (0.4-2.5)	18.8 (6.1)	0.3 (0.1-0.9)	47.0 (9.0)	0.4 (0.1-0.9)
Digital health literacy								
Adequate	98.2 (1.0)	(Reference)	90.6 (2.4)	(Reference)	36.2 (4.4)	(Reference)	72.2 (5.1)	(Reference)
Low	82.2 (3.3)	0.1 (0.02-0.5)	74.1 (3.2)	0.4 (0.2-1.0)	30.1 (4.2)	0.9 (0.5-1.6)	44.2 (4.8)	0.3 (0.2-0.7)

^aAnalysis limited to 341 participants in the analytic sample who had a tablet or smartphone and provided information on health app use.

^bOR: odds ratio.

^cAdjusted for age (years, continuous). Results from crude logistic regression models were largely similar. Exceptions: full-time employment and smart device ownership (crude OR 0.2, 95% CI 0.1-0.7); full-time employment and social media use (crude OR 0.3, 95% CI 0.2-0.6); children in household and social media use (crude OR 3.7, 95% CI 1.4-9.7); and ethnic group belonging (neutral/disagree) and uses health or wellness apps (crude OR 0.5, 95% CI 0.2-1.1).

^dModels for categorical age were not adjusted for continuous age. Only 2 women aged 18-49 years did not own a tablet or smartphone and only 2 women aged 18-49 years did not use social media, limiting precision for estimates of associations between age and device ownership and social media use.

Discussion

The majority of Black women with hypertension in the United States own smartphones or tablets and use social media, a third use wearable devices, and most mobile device owners use health apps. Younger and more highly educated women reported higher ownership and use, similar to US adults generally [6-8] and

those with hypertension [4]. Ethnic belonging and low digital health literacy may also play a role.

Strengths of this study include the use of a nationally representative sample. Limitations include a lack of data on frequency of wearable tracker or health app use, degree of willingness to use digital tools for hypertension management [3], hypertension severity, and other factors that may influence

device ownership and digital tool use [6-8]. Leveraging digital tools for hypertension control may be a promising strategy for the prevention of cardiovascular disease in Black women with hypertension.

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Data Availability

2022 Health Information National Trends Survey data is available for download from the National Cancer Institute [9].

Authors' Contributions

JK contributed to conceptualization and writing (original draft, revisions, and editing); SB contributed to formal analysis, data curation, and writing (original draft, revisions, and editing); SLP and RN Jr contributed to writing, review, and editing; MEW contributed to conceptualization, writing (original draft, revisions, and editing), formal analysis, data curation, and supervision.

Conflicts of Interest

SLP received grant funding from Meta. The other authors declare no conflicts of interest.

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Abbreviations

HINTS: Health Information National Trends Survey

IRB: institutional review board

OR: odds ratio

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