

APPENDICES

Appendix A

RECRUITMENT FLYER

Research Participants Needed

A CAUSAL RELATIONSHIP BETWEEN MOBILE HEALTH WEARABLE DEVICES' USE AND IMPROVED HYPERTENSION MANAGEMENT IN AFRICAN-BORN IMMIGRANTS AGED 45-75 IN MARICOPA COUNTY, ARIZONA

- Are you between 45 and 75 years of age?
- Were you diagnosed with hypertension at least within the last 3 years?
 - Do you live in Maricopa County, AZ?
- Do you have a smartphone or other device that you can download the Dafit app to so the watch can transmit data to the device?
- Do you reside in one of the following medically underserved primary care areas (MUA), such as:
Alhambra Village, Avondale, Buckeye, Central City Village, Estrella Village and Tolleson, Glendale Central, Laveen Village, Maryvale Village, or South Mountain & Guadalupe?

If you answered **yes** to each of the questions listed above, you may be eligible to participate as one of the 100 research participants in a research study.

The purpose of this research study is to determine if differences exist between the use of mHealth wearable devices, especially smartwatches, and the improvement in high blood pressure (hypertension) control in African-born immigrant groups, aged 45-75 who live in Maricopa County, Arizona.

- Participants will be randomly divided into two groups. Group 1 participants will wear Dafit M2 smartwatches for 6 weeks daily from 8 am to 8 pm. Group 2 participants will not wear the smartwatches.
- Participants in both groups will check their blood pressure twice a day, once in the morning and once in the evening. All participants will record their blood pressure levels on the form provided by the researcher on the first day of wearing the Dafit smartwatch (group 1), or the first day of participating in the study (group 2), and at the end of 2 weeks, 4 weeks and 6 weeks (for both groups).
- All participants will also complete an electronic questionnaire via an encrypted Google Form link and transfer the blood pressure information from their form to the questionnaire.
- The questionnaire will consist of 21 questions for group 1 and 17 questions for group 2 and take approximately 20 minutes for all participants.



Group 1 participants will receive a free Dafit M2 smartwatch.
Group 2 participants will be entered in a prize drawing for one of 25 Dafit M2 smartwatches.

If you would like to participate, please scan this QR code to read more information about the study and sign the consent form.



Nelson M. Bryant, a doctoral candidate in the Department of Allied Health Professions, School of Health Sciences at Liberty University is conducting this study.
Please contact Nelson Bryant at (806) 414-8040 or bmnelson8@liberty.edu for more information.

Appendix B

CONSENT FORM TO PARTICIPATE IN THE STUDY

Title of the Project: “A Causal Relationship Between Mobile Health Wearable Devices’ Use and Improved Hypertension Management in African-born Immigrants Aged 45-75 in Maricopa County, Arizona”

Principal Investigator: Nelson Bryant, MBA, FNP-C, Doctoral Candidate, School of Health Sciences, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be between 45 and 75 years of age, you were diagnosed with hypertension at least within the last 3 years. You must have a smartphone or other device that you can download the Dafit app to so the watch can transmit data to the device, and be currently residing in Maricopa County, Arizona in one of the following medically underserved primary care areas (MUA), including Alhambra Village, Avondale, Buckeye, Central City Village, Estrella Village, and Tolleson, Glendale Central, Laveen Village, Maryvale Village, or South Mountain & Guadalupe. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to determine if differences exist between the use of mHealth wearable devices, especially smartwatches, and the improvement in high blood pressure (hypertension) control in African-born immigrant groups, aged 45-75 who live in Maricopa county, Arizona.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

- Sign the consent form.
- Participants will be randomly divided into two groups. Group 1 participants will wear Dafit M2 smartwatches for 6 weeks daily from 8 am to 8 pm. Group 2 participants will not wear the smartwatches.
- Participants in both groups will check their blood pressure twice a day, once in the morning and once in the evening.
- All participants will record their blood pressure levels on the form provided by the researcher on the first day of wearing the Dafit smartwatch (group 1), or the first

day of participating in the study (group 2), and at the end of 2 weeks, 4 weeks and 6 weeks (for both groups).

- All participants will also complete an electronic questionnaire via an encrypted Google Form link. Research participants will transfer the blood pressure information from their form to the questionnaire. The questionnaire will consist of 21 questions for group 1 and 17 questions for group 2 and take approximately 20 minutes for all participants.

Group 1 participants will receive a free Dafit M2 smartwatch.

Group 2 participants will be entered in a prize drawing for one of 25 Dafit M2 smartwatches.

How could you or others benefit from this study?

The direct benefits participants should expect to receive from taking part in this study include the potential for improved hypertension and a free Dafit M2 smartwatch for each participant who will be randomly selected to join group 1 of 50 participants who will be using smartwatches to monitor their blood pressure.

Benefits to society include a better understanding of whether African-born immigrants can improve the management of high blood pressure using mHealth wearable devices, especially smartwatches, such as the Dafit M2. The target participants and society at large will learn about the benefits of using smartwatches and the consequences of not controlling blood pressure. The study may enhance the consistent use of mHealth wearable devices to better manage hypertension in African-born immigrants.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life. The risks involved in this study include the minor discomfort or inconvenience of respondents while sharing information about their age, weight, , and employment status.

How will personal information be protected?

The records of this study will be kept private. The researcher will not be able to link the survey responses to specific participants. Also, any published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher and the research committee members will have access to the records.

- Participant responses to the online survey and the blood pressure form will be anonymous.
- Data will be stored on a password-locked computer. After three years, all electronic records will be deleted.

- Dafit M2 transmits blood pressure data wirelessly to a free Dafit mobile application (also known as KW17 Pro) available from both iOS (for Apple products) and Google Play (for Android devices).
- Dafit does not gather user data or information. They only collect performance information related to the stability of the app.

How will you be compensated for being part of the study?

A free Dafit M2 smartwatch will be given to the 50 research participants who are randomly assigned to group 1. Such participants will keep the Dafit M2 smartwatch whether they choose to complete the study or eventually withdraw from the study.

Also, free smartwatches will be given randomly as a prize drawing to 25 out of 50 participants in group 2. No financial incentives or payment will be given to participate in the study.

Home addresses will be requested by email for prize winners; however, the home addresses will be collected by email at the conclusion of the survey to maintain your anonymity.

Is study participation voluntary?

Participation in this study is voluntary. If you decide to participate, you are free to not answer any questions or withdraw at any time.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Nelson Bryant, MBA, FNP-C. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at (806) 414-8040 and/or bmnelson8@liberty.edu. You may also contact the researcher's faculty sponsor, Dr. Keith Pelletier, at [REDACTED]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered

and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact Nelson Bryant using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Printed Name

Email Address

If you have chosen to participate in the study, please provide the information requested below:

Check the box below next to the medically underserved primary care area (MUA) in which you reside:

- | | |
|---|--|
| <input type="radio"/> Alhambra Village | <input type="radio"/> Glendale Central |
| <input type="radio"/> Avondale | <input type="radio"/> Laveen Village |
| <input type="radio"/> Buckeye | <input type="radio"/> Maryvale Village |
| <input type="radio"/> Central City Village | <input type="radio"/> South Mountain & Guadalupe |
| <input type="radio"/> Estrella Village and Tolleson | <input type="radio"/> A different MUA |

Appendix C

BLOOD PRESSURE FORM FOR GROUP 1

Research topic: “A CAUSAL RELATIONSHIP BETWEEN MOBILE HEALTH WEARABLE DEVICES’ USE AND IMPROVED HYPERTENSION MANAGEMENT IN AFRICAN-BORN IMMIGRANTS AGED 45-75 IN MARICOPA COUNTY, ARIZONA”.

Thank you for choosing to participate in the study. The next step of the study consists of recording your blood pressure levels on this form. **Please make a copy or download the form so you can access and use it offline.**

You will transfer the blood pressure levels from this form to the questionnaire that you will receive from the researcher. **See instructors below about how to measure your blood pressure***

BLOOD PRESSURE FORM - Group 1

| Date | Task (Measure and record your blood pressure) | Time | Upper / SBP* | Lower/ DBP* |
|------|--|------|--------------|-------------|
| | On day 1 (the first time you are wearing the Dafit M2 smartwatch). | AM | | |
| | | PM | | |
| | At the end of 2 weeks after you began wearing the Dafit M2 smartwatch. | AM | | |
| | | PM | | |
| | At the end of 4 weeks after you began wearing the Dafit M2 smartwatch. | AM | | |
| | | PM | | |
| | At the end of 6 weeks after you began wearing the Dafit M2 smartwatch. | AM | | |
| | | PM | | |

***Instructions:**

- Measure your blood pressure twice a day—in the morning (AM) and the evening (PM)—at about the same times every day.
- For best results, sit comfortably with both feet on the floor for at least two minutes before taking a measurement.
- When you measure your blood pressure, rest your arm on a table so the smartwatch is at about the same height as your heart.

*SBP: Systolic blood pressure or the top number.

*DBP: Diastolic blood pressure or the lower number

Appendix D

BLOOD PRESSURE FORM FOR GROUP 2

Research topic: **"A CAUSAL RELATIONSHIP BETWEEN MOBILE HEALTH WEARABLE DEVICES' USE AND IMPROVED HYPERTENSION MANAGEMENT IN AFRICAN-BORN IMMIGRANTS AGED 45-75 IN MARICOPA COUNTY, ARIZONA".**

Thank you for choosing to participate in the study. The next step of the study consists of recording your blood pressure levels on this form. **Please make a copy or download the form so you can access and use it offline.**

You will transfer the blood pressure levels from this form to the questionnaire that you will receive from the researcher. **See instructors below about how to measure your blood pressure***

BLOOD PRESSURE FORM - Group 2

| Date | Task (Measure and record your blood pressure) | Time | Upper / SBP* | Lower/ DBP* |
|------|--|------|--------------|-------------|
| | On day 1 (the first time you begin participating in the study). | AM | | |
| | | PM | | |
| | At the end of 2 weeks after you began participating in the study. | AM | | |
| | | PM | | |
| | At the end of 4 weeks after you began participating in the study. | AM | | |
| | | PM | | |
| | At the end of 6 weeks after you began participating in the study. | AM | | |
| | | PM | | |

***Instructions:**

- Measure your blood pressure twice a day—in the morning and the evening—at about the same times every day.
- For best results, sit comfortably with both feet on the floor for at least two minutes before taking a measurement.
- When you measure your blood pressure, rest your arm on a table so the blood pressure cuff is at about the same height as your heart.

***SBP**: Systolic blood pressure or the top number.

***DBP**: Diastolic blood pressure or the lower number

Appendix E

QUESTIONNAIRE FOR GROUP 1

Appendix D: Questionnaire (Group 1)

Research topic: **"A CAUSAL RELATIONSHIP BETWEEN MOBILE HEALTH WEARABLE DEVICES' USE AND IMPROVED HYPERTENSION MANAGEMENT IN AFRICAN-BORN IMMIGRANTS AGED 18-75 IN MARICOPA COUNTY, ARIZONA".**

I appreciate your valuable time completing this questionnaire. You may discontinue your participation in this study at any time without prejudice.

Section A) Questions related to respondents' demographic characteristics.

1) Please check the box next to the sex that applies to you

- ☐ Male
- ☐ Female
- ☐ Other

2) Please check one box next to the age group that applies to you.

- ☐ 45 – 55
- ☐ 56 – 65
- ☐ 66 – 75

3) Please check one box next to the African region in which you were born.

- ☐ Central Africa
- ☐ Eastern Africa
- ☐ Northern Africa
- ☐ Southern Africa
- ☐ Western Africa

4) Please check one box next to the medically underserved primary care area (MUA) in Maricopa County in which you reside.

- ☐ Alhambra
- ☐ Avondale
- ☐ Buckeye
- ☐ Central City Village
- ☐ Estrella Village and Tolleson
- ☐ Glendale Central
- ☐ Laveen Village
- ☐ Maryvale Village
- ☐ South Mountain & Guadalupe
- ☐ A different MUA _____

5) Please check one box next to your current occupation or work status within the last 3 months.

- ☐ Unemployed
- ☐ Works for the government
- ☐ Works for a private organization
- ☐ Self-employed
- ☐ Student
- ☐ Retired

Section B) Questions related to the respondent's hypertension diagnosis.

6) Do you have a primary care provider/ doctor? Check one box that applies to you.

- ☐ Yes, I have a primary care provider/doctor.

☐ No, I do not have a primary care provider/doctor.

7) How long ago were you told by your primary care provider/doctor that you have hypertension? Check one box next to the time you were diagnosed.

- ☐ 1 – years ago
- ☐ 3 – 4 years ago
- ☐ 4- 5 years ago
- ☐ More than 5 years ago

8) Please check one box next to the risk factors you had before you were diagnosed with hypertension.

- ☐ Unhealthy diet
- ☐ Too much salt intake
- ☐ Physical inactivity
- ☐ Obesity/being overweight
- ☐ Too much alcohol
- ☐ Diabetes mellitus
- ☐ Elevated (high) blood pressure
- ☐ Sleep apnea
- ☐ Elevated heart rate

9) Please check one box next to your smoking status (whether you smoke, vape, or not)

- ☐ I currently smoke
- ☐ I currently vape
- ☐ I do not smoke or vape.

10 a) Please check one box next to your blood pressure today or the most recent blood pressure measurement (within the last 6 weeks) from your pharmacy or doctor's visit?

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

10 b) Please check one box next to your weight today or the most recent weight measurement (within the last 6 weeks) from your pharmacy or doctor's visit?

- ☐ 100 -125 lbs
- ☐ 126 - 150 lbs
- ☐ 151 - 175 lbs
- ☐ 176- 200 lbs
- ☐ 201 – 225 lbs
- ☐ More than 226 lbs

10 c) Please check one box next to your current height or the most recent height measurement (within the last 6 weeks) from your pharmacy or doctor's visit?

- ☐ Below 60 in
- ☐ 61- 65 in
- ☐ 66 – 70 in
- ☐ 71 – 75 in
- ☐ Higher than 76 in

Section C) Questions related to hypertension self-management using mHealth wearable devices.

11) Please check one box next to how often you check your blood pressure.

- ☐ Never
- ☐ Once to twice a day
- ☐ More than twice a day
- ☐ Twice a week
- ☐ More than twice a week
- ☐ Once to twice a month
- ☐ More than twice a month

12 a) Please check one box next to your blood pressure on the first day of using the Dafit M2 smartwatch in the morning or at 8 am.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

12 b) Please check one box next to your blood pressure on the first day of using the Dafit M2 smartwatch in the evening or at 8 pm.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

13 a) Please check one box next to your typical blood pressure at the end of 2 weeks after using the Dafit M2 smartwatch in the morning or at 8 am.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

13 b) Please check one box next to your typical blood pressure at the end of 2 weeks after using the Dafit M2 smartwatch in the evening or at 8pm.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

14 a) Please check one box next to your typical blood pressure at the end of 4 weeks after using the Dafit M2 smartwatch in the morning or at 8 am.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

14 b) Please check one box next to your typical blood pressure at the end of 4 weeks after using the Dafit M2 smartwatch in the evening or at 8 pm.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)

- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

15 a) Please check one box next to your typical blood pressure at the end of 6 weeks after using the Dafit M2 smartwatch in the morning or at 8 am.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

15 b) Please check one box next to your typical blood pressure at the end of 6 weeks after using the Dafit M2 smartwatch in the evening or at 8 pm.

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

16) Please check one box next to whether you were orientated by your primary care provider/doctor another clinician on how to use mHealth wearable devices, such as smartwatches?

- ☐ Yes
- ☐ No

17) Please check one box next to how often you use mHealth wearable device, specifically the Dafit M2 smartwatch to check your blood pressure.

- ☐ Never
- ☐ Once to twice a day
- ☐ More than twice a day
- ☐ Twice a week
- ☐ More than twice a week
- ☐ Once to twice a month
- ☐ More than twice a month

18) Please check one box next to the benefit(s) of using mHealth wearable devices, specifically smartwatches to monitor your blood pressure.

- ☐ Reminder to measure blood pressure promptly
- ☐ Reminder to perform a physical activity/exercise
- ☐ Reminder to take blood pressure medications
- ☐ Remote consultation or sharing data with a medical provider/doctor
- ☐ Search for information about high blood pressure management
- ☐ Recording and synchronizing blood pressure measurements

Section D) Questions related to the consequences of uncontrolled blood pressure.

19) Please check one box next to the highest consequence/risk to you personally for uncontrolled blood pressure (not keeping your blood pressure under 130/80 mmHg).

- ☐ Coronary heart disease
- ☐ Kidney disease
- ☐ High blood cholesterol
- ☐ Visual impairment

- ☐ Diabetes mellitus
- ☐ Sleep apnea
- ☐ Irregular heartbeats (palpitations)
- ☐ Other: _____

Section E) Questions related to improved management and accessibility of mHealth wearable devices.

20) Please check the box next to the approach(es) that you think could result in improved management of mHealth wearable devices, such as smartwatches for African-born immigrants.

- ☐ Integrated education for hypertension management focusing on using smartwatches
- ☐ Getting frequent advice from primary care providers on how to better use smartwatches
- ☐ Automated reminders to check blood pressure, exercise, or take medications.
- ☐ Peer support with other patients with hypertension who use smartwatches and other mHealth wearable devices
- ☐ Smartwatches' interactive patterns (telephone support, short text messages).
- ☐ Other: _____

21) Please check one box next to your advice to improve hypertension management using mHealth wearable devices, such as smartwatches?

- ☐ Government-subsidized smartwatches to all low-income group members who need them.
- ☐ Ability to have free unlimited access to mHealth-based smartwatch data via web or mobile application (blood pressure, heart rate, and weight).
- ☐ Ensuring my stored data in mHealth applications and devices is safe.
- ☐ Involvement of my primary care provider/doctor in remote monitoring
- ☐ Smartwatches' interactive patterns (telephone support, short text messages).
- ☐ Other: _____

Feedback (Optional):

Thank you for your participation in this study.

Appendix F

QUESTIONNAIRE FOR GROUP 2

Appendix E: Questionnaire (Group 2)

Research topic: **"A CAUSAL RELATIONSHIP BETWEEN MOBILE HEALTH WEARABLE DEVICES' USE AND IMPROVED HYPERTENSION MANAGEMENT IN AFRICAN-BORN IMMIGRANTS AGED 18-75 IN MARICOPA COUNTY, ARIZONA".**

I appreciate your valuable time completing this questionnaire. You may discontinue your participation in this study at any time without prejudice.

Section A) Questions related to respondents' demographic characteristics.

1) Please check the box next to the sex that applies to you

- ☐ Male
- ☐ Female
- ☐ Other

2) Please check one box next to the age group that applies to you.

- ☐ 45 – 55
- ☐ 56 – 65
- ☐ 66 – 75

3) Please check one box next to the African region in which you were born.

- ☐ Central Africa
- ☐ Eastern Africa
- ☐ Northern Africa
- ☐ Southern Africa
- ☐ Western Africa

4) Please check one box next to the medically underserved primary care area (MUA) in Maricopa County in which you reside.

- ☐ Alhambra
- ☐ Village Avondale
- ☐ Buckeye
- ☐ Central City Village
- ☐ Estrella Village and Tolleson
- ☐ Glendale Central
- ☐ Laveen Village
- ☐ Maryvale Village
- ☐ South Mountain & Guadalupe
- ☐ A different MUA _____

5) Please check one box next to your current occupation or work status within the last 3 months.

- ☐ Unemployed
- ☐ Works for the government
- ☐ Works for a private organization
- ☐ Self-employed
- ☐ Student
- ☐ Retired

Section B) Questions related to the respondent's hypertension diagnosis.

6) Do you have a primary care provider/ doctor? Check the box that applies to you.

- ☐ Yes, I have a primary care provider/doctor.
☐ No, I do not have a primary care provider/doctor.

7) How long ago were you told by your primary care provider/doctor that you have hypertension? Check one box next to the time you were diagnosed.

- ☐ 1 – years ago
☐ 3 – 4 years ago
☐ 4- 5 years ago
☐ More than 5 years ago

8) Please check the box next to the risk factors you had before you were diagnosed with hypertension.

- ☐ Unhealthy diet
☐ Too much salt intake
☐ Physical inactivity
☐ Obesity/being overweight
☐ Too much alcohol
☐ Diabetes mellitus
☐ Elevated (high) blood pressure
☐ Sleep apnea
☐ Elevated heart rate

9) Please check one box next to your smoking status (whether you smoke, vape, or not)

- ☐ I currently smoke
☐ I currently vape
☐ I do not smoke or vape.

10 a) Please check one box next to your blood pressure today or the most recent blood pressure measurement (within the last 6 weeks) from your pharmacy or doctor's visit?

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

10 b) Please check one box next to your weight today or the most recent weight measurement (within the last 6 weeks) from your pharmacy or doctor's visit?

- ☐ 100 -125 lbs
☐ 126 - 150 lbs
☐ 151 - 175 lbs
☐ 176- 200 lbs
☐ 201 – 225 lbs
☐ More than 226 lbs

10 c) Please check one box next to your current height or the most recent height measurement (within the last 6 weeks) from your pharmacy or doctor's visit?

- ☐ Below 60 in
☐ 61- 65 in
☐ 66 – 70 in
☐ 71 – 75 in
☐ Higher than 76 in

Section C) Questions related to hypertension self-management

11) Please check one box next to how often you check your blood pressure.

- ☐ Never
- ☐ Once to twice a day
- ☐ More than twice a day
- ☐ Twice a week
- ☐ More than twice a week
- ☐ Once to twice a month
- ☐ More than twice a month

12 a) Please check one box next to your blood pressure on the first day you begin participating in the study (in the morning or at 8 AM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

12 b) Please check one box next to your blood pressure on the first day you begin participating in the study (in the evening or at 8 PM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

13 a) Please check one box next to your blood pressure at the end of 2 weeks after you began participating in the study (in the morning or at 8 AM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

13 b) Please check one box next to your blood pressure at the end of 2 weeks after you began participating in the study (in the evening or at 8 PM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

14 a) Please check one box next to your blood pressure at the end of 4 weeks after you began participating in the study (in the morning or at 8 AM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

14 b) Please check one box next to your blood pressure at the end of 4 weeks after you began participating in the study (in the evening or at 8 PM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)

- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

15 a) Please check one box next to your blood pressure at the end of 6 weeks after you began participating in the study (in the morning or at 8 AM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

15 b) Please check one box next to your blood pressure at the end of 6 weeks after you began participating in the study (in the evening or at 8 PM).

- ☐ Lower than 120 mmHg (systolic blood pressure) / 80 mmHg (diastolic blood pressure)
- ☐ 120-129 mmHg (systolic blood pressure) / 80 -89 mmHg (diastolic blood pressure)
- ☐ 130-139 mmHg (systolic blood pressure) / 90 -99 mmHg (diastolic blood pressure)
- ☐ 140-149 mmHg (systolic blood pressure) / 100 -109 mmHg (diastolic blood pressure)
- ☐ Higher than 150 mmHg (systolic blood pressure) / 110 mmHg or above (diastolic blood pressure)

16) Please check one box next to whether you were orientated by your primary care provider/doctor or another clinician on how to use mHealth wearable devices, such as smartwatches?

- ☐ Yes
- ☐ No

Section D) Questions related to the consequences of uncontrolled blood pressure.

17) Please check one box next to the highest consequence/risk to you personally for uncontrolled blood pressure (not keeping your blood pressure under 130/80 mmHg).

- ☐ Coronary heart disease
- ☐ Kidney disease
- ☐ High blood cholesterol
- ☐ Visual impairment
- ☐ Diabetes mellitus
- ☐ Sleep apnea
- ☐ Irregular heartbeats (palpitations)
- ☐ Other: _____

Feedback (Optional)

Thank you for your participation in this study.

Appendix G

IRB APPLICATION APPROVAL



October 16, 2023

Nelson Bryant
Keith Pelletier

Re: IRB Approval - IRB-FY23-24-253 A Causal Relationship Between Mobile Health Wearable Devices' Use and Improved Hypertension Management in African-born Immigrants Aged 45-75 in Maricopa County, Arizona.

Dear Nelson Bryant, Keith Pelletier,

We are pleased to inform you that your study has been approved by the Liberty University Institutional Review Board (IRB). This approval is extended to you for one year from the following date: October 16, 2023. If you need to make changes to the methodology as it pertains to human subjects, you must submit a modification to the IRB. Modifications can be completed through your Cayuse IRB account.

Your study falls under the expedited review category (45 CFR 46.110), which is applicable to specific, minimal risk studies and minor changes to approved studies for the following reason(s):

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. [45 CFR 46.101\(b\)\(2\)](#) and (b)(3). This listing refers only to research that is not exempt.)

For a PDF of your approval letter, click on your study number in the My Studies card on your Cayuse dashboard. Next, click the Submissions bar beside the Study Details bar on the Study Details page. Finally, click Initial under Submission Type and choose the Letters tab toward the bottom of the Submission Details page. Your stamped consent form(s) and final versions of your study documents can be found on the same page under the Attachments tab. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office