EFFECT OF WEARABLE HEALTH MONITORS ON PATIENT OUTCOMES

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Objective

Determine if there is a correlation between constant health status awareness via mHealth and patient outcomes such as BMI, HR, and BP

Background

- Cell phones, home computers, fitness watches, and fashionable heart rate monitors are a relatively new concept with little research surrounding their impact on health
- The mobile health movement has seen a major innovative push in recent health care endeavors. (ref?)
- Health care workers should understand any potential opportunities that mHealth can provide for patient care and in research.
- Understanding the link, or lack thereof, between patient outcomes and the use of mobile health devices such as fitness trackers, provides a new platform for health care providers.
- A short survey paired with baseline measurements was developed to determine if mobile health devices resulted in better baseline health parameters in adults.

References

1. Rouse, M. (2011, March). What is mHealth? - Definition from WhatIs.com. Retrieved June 9, 2019, from http://searchhealthit.techtarget.com/definition/mHealth

Results

Blood Pressure

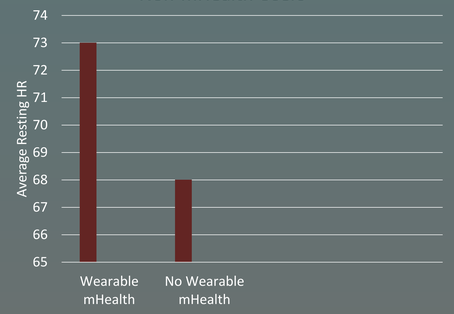
	SBP ≤ 120	SBP > 120	Totals
Wearable mHealth	18*	9	27
No Wearable MHealth	3*	7	10
p value	0.046*		

*The chi-square α was set at 0.05. The difference in SBP between the two groups is statistically significant.

	DBP ≤ 80	DBP > 80	Totals
Wearable mHealth	23	4	27
No Wearable MHealth	9	1	10
p value	0.703		

The chi-square α was set at 0.05. The difference in DBP between the two groups is not statistically significant.

Average resting HR in mHealth and Non-mHealth Users



Body Mass Index

	Normal weight (BMI 18.5-24.9)	Overweight or Obese (BMI >24.9)	Total
Wearable mHealth	13	14	27
No Wearable MHealth	8	2	10
p value	0.082		

The chi-square α was set at 0.05. The difference in BMI between the two groups is not statistically significant.

Demographics

Gender	Participants
Male	14 (38%)
Female	23 (62%)

Ethnicity	Participants
Caucasian	35 (95%)
Caucasian/ Hispanic	2 (5%)

Age

Range	Participants
18-20	9 (24%)
21-23	26 (70%)
24-26	1 (3%)
27-29	1 (3%)

mHealth Use	Participants
User	27 (73%)
Non-User	10 (27%)

Methodology

- Surveys were distributed at a The University of Findlay Cosiano Health Center. These were distributed to any willing participant prior to the physical exam. Cosiano staff the provided a physical exam that provided the height, weight, heart rate, and blood pressure of the participants.
- Inclusion Criteria
  - 18 years or older
- Exclusion Criteria
  - Less than 18 years old
  - Pregnant
- The survey was an anonymous paper handout
- All responses were included in the analysis
- Data collected was analyzed through the chi-square test, p-values and percentage.

Conclusions/Discussion

The overall finding suggest that there is no significant difference in patient outcomes between those individuals that utilize mHealth devices and those that do not.

For systolic blood pressure (SBP) the study showed a statistically significant reduction in systolic blood pressure for patients that utilized mHealth with a p-value of 0.046. However, this difference in SBP was not clinically significant as the average SBP in the mHealth group and the non-mHealth group were 118 and 114 respectively.

There was no clinical or statistic difference between the mHealth group and the non-mHealth group when diastolic blood pressure (DBP) or body mass index (BMI) were compared.

The inability to detect a difference between the mHealth group and the non-mHealth group may be related to a lack of survey respondents, which was a major limitation of this study. Data collection for this study overlapped with the COVID-19 pandemic, which greatly reduced the number of expected participants. Another limitation of this study was that it was single centered, with data only collected at one site.

Future studies on a larger scale should be conducted to determine if there is a correlation between constant health status awareness via mHealth improve patient outcomes such as BMI, HR, and BP.