

Using Facebook Ads to promote blood pressure checks among African Americans in the United States: A descriptive study

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Abstract

Introduction: Although hypertension is common in the United States, the African American community is disproportionately affected by high blood pressure. The purpose of this study was to evaluate the use of Facebook ads and posts for an online health campaign to promote blood pressure checks among African Americans in the United States.

Methods: The Measure Your Pressure (MYP) health campaign administered from May 2019 to August 2019 included Facebook advertisements, Facebook posts, and an online blog article. The Facebook advertisements included learn more ads, like page ads, and a web-based survey ad. These ads were delivered to two target audiences: 1) individuals at least 18 years old and located in the U.S., and 2) individuals at least 18 years old, located in the U.S., with special interest or behavior in African American culture, and multicultural affinity: African American (US). A web-based survey was used to ask Facebook users' opinions about the MYP Survey ad. To compare the ads between the general and interest groups, t-tests were used to analyze the reach, impressions, results, and cost per result.

Results: There were 7 Facebook ads which reached 79,812 people. There were 121,683 impressions and 2,057 clicks. When comparing the ads between the general audience and interest groups, there was no significant difference for reach ($P = 0.377$), impressions ($P = 0.427$), results ($P = 0.356$), or cost per result ($P = 0.484$). There were 11 Facebook posts published which reached 2,171 users. Out of the 386 clicks received from the MYP Survey ad, there were only 11 that completed the web-based survey.

Conclusion: This study shows that it may be possible to indirectly reach larger portions of at-risk individuals with Facebook, but there is no significant difference between ad performance of target audiences using interest groups and general groups. Facebook does not make race demographics available to advertisers, so it is difficult to discern if the population of Facebook users reached were part of the African American community.

KEY WORDS: Advertising as topic; African Americans; blood pressure; internet; social media.

Riassunto

Introduzione: Sebbene l'ipertensione arteriosa sia comune negli Stati Uniti d'America, la comunità afro-americana è colpita in modo sproporzionato. Lo scopo di questo studio è stato quello di valutare i risultati di una campagna informativa online su Facebook di promozione della salute tra gli Afroamericani negli Stati Uniti d'America.

Metodi: Una campagna di promozione della salute chiamata "Misura la tua pressione", somministrata tra il Maggio e l'Agosto del 2019, ha incluso messaggi promozionali e post su Facebook ed articoli di riviste online. Le pubblicità su Facebook includevano messaggi per scoprire nuove informazioni, pagine intere di pubblicità, ed un sondaggio via web. Queste sono state rilasciate a due target di riferimento: 1) gli individui con almeno 18 anni residenti negli Stati Uniti d'America e 2) gli individui con meno di 18 anni residenti negli USA con un interesse special o un comportamento nella cultura afro-americana ed affinità multiculturale. Uno studio somministrato via web è stato usato per chiedere le opinioni degli utenti di Facebook sullo studio. Per confrontare gli annunci tra il gruppo generale e quello di interesse, sono stati utilizzati T-test per analizzare la portata, le impressioni, ed il costo per i risultati.

Risultati: Ci sono stati 7 annunci di Facebook che hanno raggiunto 79.812 persone, 121.683 impressioni e 2.057 click. Al confronto degli annunci tra popolazione generale e gruppi di interesse, non ci sono state differenze significative per ocnseguimento ($P = 0.377$), impressioni ($P = 0.427$), risultati ($P = 0.356$), o costo per risultato ($P = 0.484$). Ci sono stati 11 post pubblicati su Facebook che hanno raggiunto 2.171 utenti. Dei 386 click ricevuti dallo studio, solo 11 hanno completato l'indagine via web.

Conclusioni: Questo studio evidenzia come sia possibile raggiungere indirettamente larghe porzioni di individui a rischio con Facebook, ma non ci sono differenze significative sul rendimento degli annunci tra i gruppi di interesse e la popolazione generale. Gli annunci di Facebook non rendono utilizzabili i dati demografici agli inserzionisti, così è difficile discernere se la popolazione degli utenti di Facebook raggiunta è parte della comunità afro-americana.

TAKE-HOME MESSAGE

Facebook social media health campaigns offer the ability to reach large portions of at-risk populations. There is limited access to race demographics in Facebook for health campaigns, which makes it difficult to be certain health messages are reaching the intended groups who need the health communication and information.

Competing interests - none declared.

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INTRODUCTION

In the United States many public health and medical organizations are using social media sites to communicate health information to their patients and the public. The use of social media to communicate health information is often viewed positively and has been used to increase awareness of certain health issues while connecting patients to information that can help improve their health [1]. Research has shown that patients view social media as a convenient and helpful way to learn about health problems and that health information made available on social media sites can increase empowerment on the patient's behalf [1]. Successful health information communication focuses on modifying the health behaviors of individuals by promoting health topics [2]. Social media can be a useful tool for public health officials that are trying to disperse health information to large amounts of people.

Facebook is one of the most widely used social media platforms in the United States. The Pew Research Center reports that 69% of Americans use Facebook [3]. This number is considerably higher than other popular social media platforms such as Instagram (37%) or Pinterest (28%) [3]. White and Black demographics were reported equally at 70% stating they use Facebook, while the Hispanic demographic was slightly lower (69%) [3]. These reports indicate that Facebook is widely used as a social media platform in the United States and that it is also diverse in the different racial and ethnic backgrounds of its users.

The leading cause of death in the United States is heart disease which accounts for 25% of deaths in the United States [4]. There are numerous contributing factors in the development of heart disease, but one of the most common contributing factors is hypertension or high blood pressure (HBP). It has been estimated that 1 out of 3 Americans have HBP and are at an increased risk for developing heart disease and stroke [5]. HBP is a contributing risk factor for heart disease, which is often preventable. Many people who have HBP are unaware that they have the condition. HBP often has no symptoms and

is only diagnosed with routine blood pressure checks. Over time undiagnosed HBP that is left uncontrolled can cause damage to the heart and vascular system that is irreversible [6]. Efforts taken to reduce HBP can decrease the risks of developing heart disease and prevent premature deaths and chronic health issues that arise from cardiovascular disease.

Although HBP is common in the United States, the African American community is disproportionately affected by HBP. According to the Centers for Disease Control and Prevention (CDC), "high blood pressure is more common in non-Hispanic black adults (54%) than in non-Hispanic white adults (46%), non-Hispanic Asian adults (39%), or Hispanic adults (36%)" [7].

The higher prevalence rate of HBP within the African American population coincides with a higher need for blood pressure checks within the population. Public health efforts to raise awareness about blood pressure checks and their importance in diagnosing HBP could have a more profound impact on the health of a community when the members are at increased risks for development of HBP. The purpose of this project was to evaluate the use of Facebook ads and posts for an online health campaign to promote blood pressure checks among African Americans in the United States.

METHODS

Study overview

An online health campaign titled *Measure Your Pressure* was designed to raise awareness about HBP and promote blood pressure checks within the African American (AA) population. The campaign consisted of Facebook ads, Facebook posts, and an online blog article.

The Measure Your Pressure health campaign was part of a larger research study that consisted of 11 social marketing health campaigns. The aim of the original study was to evaluate the effectiveness of digital volunteering for public health community service.

Study design and procedure

This study used a descriptive research design

and data were collected primarily through Facebook Ads Manager. This study aimed to gain an understanding and describe the impact of an online health campaign designed to raise awareness about HBP and promote blood pressure checks within the African American (AA) population.

Study participants and sampling

The study participants were Facebook users at least 18 years old and located in the United States. This study sample included users who were reached through Facebook ads and posts. The total number of people reached was 81,983.

Study instruments and measures

Facebook ads were used to evaluate the differences between interaction of health campaign ads and determine the variations of engagement or user demographics. Facebook Ads Manager was used to measure the ads' performance including reach, impressions, unique clicks, costs, and cost per results. To better understand Facebook users' opinions about the MYP Survey advertisement, a web-based survey was administered using the survey tool SurveyMonkey.

Ethical aspects

For Facebook ads, data are anonymous since users' identifying information is not collected by Facebook Ads Manager; only aggregate data are available for all metrics. However, if a Facebook user engages with the ad through likes, shares, or comments, then their username information is available for these interactions only, but this does not reveal if they clicked on the ad or any Facebook metrics or demographics associated with them. Similarly, if a user engages with Facebook posts by liking, sharing, or commenting, then their username is revealed. For the web-based survey, the users are anonymous, and consent is required on the first page of the survey. Participants must agree to continue to the survey.

Facebook Ads

Seven Facebook ads were paid for and tracked through Facebook Ads Manager. The Facebook

ads consisted of learn more advertisements ($n = 2$), like page advertisements ($n = 4$), and a recruitment advertisement ($n = 1$) for a web-based survey. The Facebook ads were delivered at different time intervals between May 23, 2019, and June 30, 2019. For easy recognition and tracking, the hashtag #MeasureYourPressure was used on all Facebook ads. There were two target audiences used for the Facebook ads. Target Audience-1 included individuals that were at least 18 years old and located in the U.S., and Target Audience-2 included individuals that were at least 18 years old, located in the U.S., with special interest or behavior African American culture, and multicultural affinity: African American (US). All Facebook ads labeled *General* used Target Audience-1, and ads labeled *AA* used Target Audience-2.

Facebook Ads-Learn More

The intent of the Learn More ads ($n = 2$) was to provide health information about HBP beyond what can be included in the space available for a Facebook ad. The Learn More ads provided an external link to the American Heart Association information page on HBP (<https://www.heart.org/en/health-topics/high-blood-pressure>). This gave Facebook users an opportunity to obtain relevant information from a credible health organization. The same image and content were used for both Learn More ads (Figure 1), but there was one for each target audience.

Facebook Ads-Like Page

There were two different advertisements used for the Like Page ads, MYP 1 and MYP 2 (Figure 2). Both ads were used for each target audience ($n=4$). These ads were used to distribute quick facts about HBP and increase followers of the American Public University System (APUS) Public Health Facebook page to expand the online public health community outreach.

Facebook Ads-Web-based Survey Recruitment

The MYP Survey advertisement ($n = 1$) was

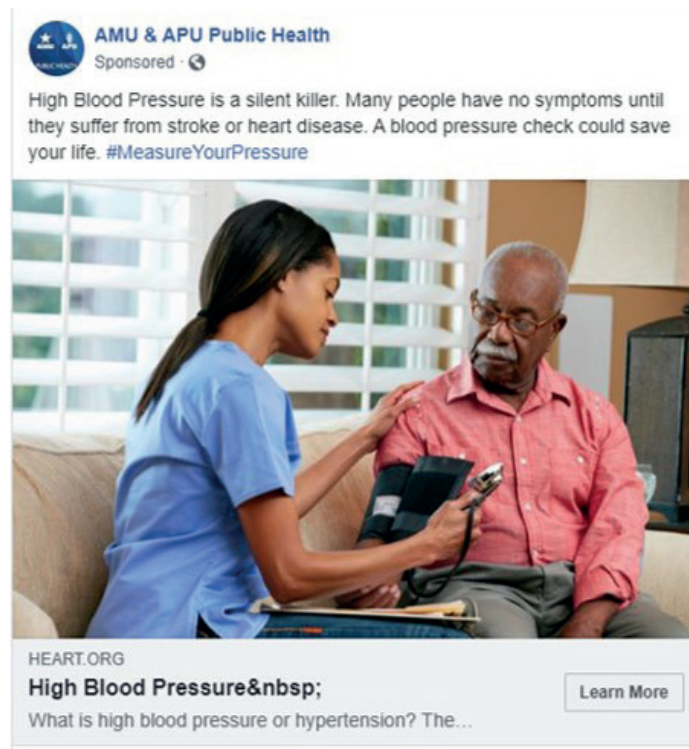


Figure 1. Facebook ads-Learn more, (Measure Your Pressure) MYP 1-General and MYP 1-AA.

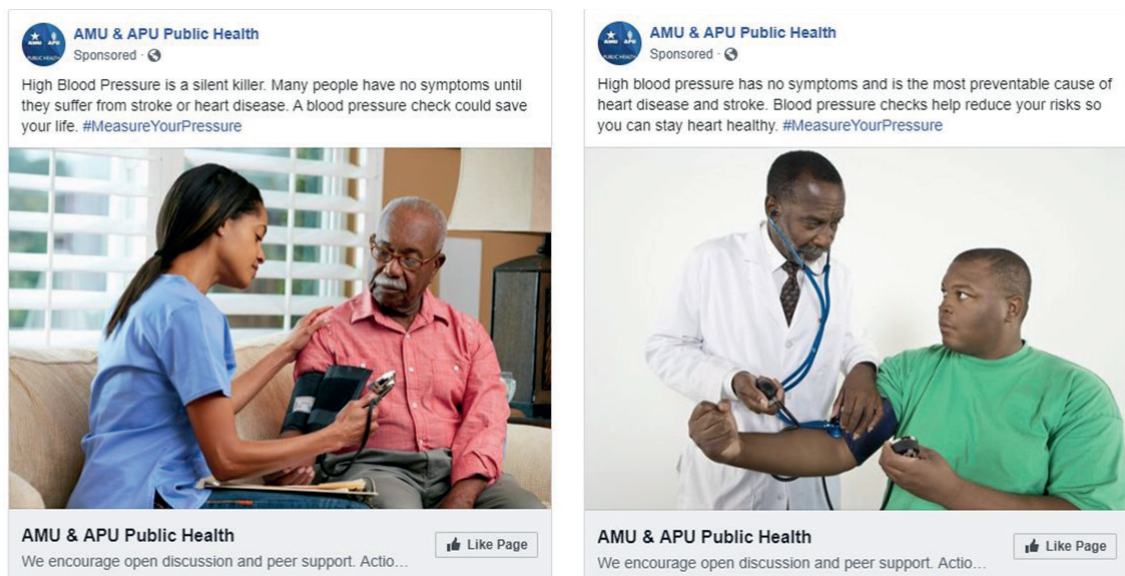


Figure 2. Facebook ads-Like page, (Measure Your Pressure) MYP 1-General and MYP 1-AA (left), and MYP 2-General and MYP 2-AA (right).

used for online recruitment of a web-based survey. The MYP Survey ad (Figure 3) included the same image as MYP 1 and similar content with slight variations. The ad linked directly to the web-based survey.

Facebook Posts

Facebook posts ($n = 11$) were used to provide health information to current Facebook

page followers. Posts related to the Measure Your Pressure health campaign were distributed from May 07, 2019, to August 12, 2019. The posts included health tips and facts, and external links to various health organizations such as the American Heart Association, Mayo Clinic, and Centers for Disease Control and Prevention. Facebook posts were written on the APUS Public Health Facebo-

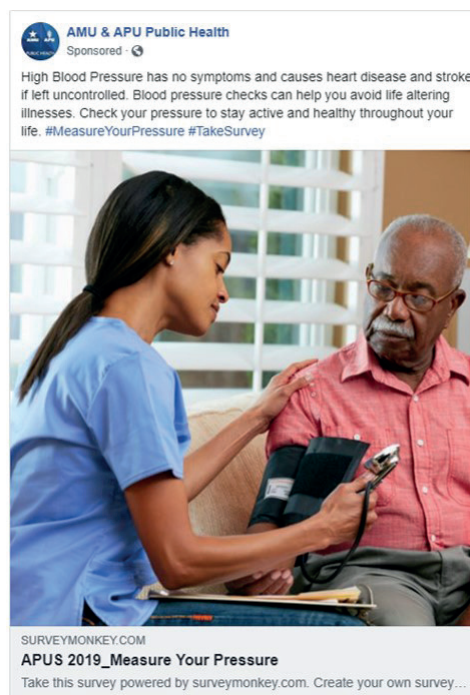


Figure 3. Facebook ad-Web-based survey recruitment, (Measure Your Pressure) MYP Survey.

ok page (<https://www.facebook.com/APU-Spublichealth/>).

Web-based Survey: Facebook users' opinion about Facebook Ad

To better understand Facebook users' opinions about the MYP Survey advertisement, a web-based survey was administered using the survey tool SurveyMonkey. The survey consisted of 9 questions including 4 Likert scale questions about the MYP Survey ad and 5 demographic questions. The inclusion criteria were Facebook users at least 18 years of age and located in the U.S.

Blog Article

There was a blog article published for this health campaign. The article, “#MeasureYourPressure: Take Action against Hypertension” was published on Aug 09, 2019. It was initially released on Phys.org, but later relocated to Science X – a leading web-based science, research, and technology news service which covers a full range of topics – which received a readership of five million every month. The online blog article was distributed through APUS Marketing, which publishes content on various media blogs. The blog article was

not included in results.

Measures and statistical analysis

After the ad delivery was completed, data were collected using the standard metrics from Facebook Ads Manager including reach, impressions, unique clicks, costs, and cost per results. Duration (number of days) of Facebook ads was also reviewed. Results are defined as the number of times an ad achieved an outcome, based on the objective and settings selected [8]. “Facebook measures reach as the number of people who saw the ad at least once. Impressions are the number of times the ad was on screen, which can include multiple views by the same person. Unique clicks are the number of people who clicked on the ad” [9]. To compare the ads between the general and interest groups, t-tests were used to analyze the reach, impressions, results, and cost per result.

RESULTS

Facebook Ads

The total number of people reached through all 7 Facebook ads was 79,812. There were 121,683 impressions and 2,057 clicks. All ads cost US \$1269.72. The best performing

ad campaign was MYP Learn More with the MYP 1-General being the best performing ad. Table 1 exhibits the advertisements' performance data. When comparing the ads between the general audience and interest groups, there was no significant difference for reach ($P = 0.377$), impressions ($P = 0.427$), results ($P = 0.356$), or cost per result ($P = 0.484$). The MYP Learn More ads were the overall best performing advertisements which had a reach of 47,836 people, 76,033 impressions, 1,191 clicks, and \$0.45 cost per result. The Learn More MYP 1-General was the best performing ad with a reach of 33,528,797 clicks, and \$0.44 cost per result. The Learn More MYP 1-AA followed in performance by reaching 16,960 people with 394 clicks and a cost per result of \$0.46.

The Like Page Facebook advertisements were less successful in their performance. The MYP Like Page ads were the least performing advertisements which had a reach of 8,776 Facebook users, 13,526 impressions, 480 clicks, and \$1.08 cost per result.

The MYP Survey advertisement had a reach of 23,200 people, 32,124 impressions, 386 clicks, and \$0.57 cost per result. Based on the cost per result, the MYP Survey ad performed similarly to the MYP Learn More advertisements.

Facebook Posts

There were 11 Facebook posts published to the APUS Public Health Facebook page. Most posts were distributed in May ($n = 5$) or June ($n = 2$) of 2019, which was also when the Facebook ads were being delivered. The Facebook posts reached 2,171 users with the best performing post reaching 689 people (high blood pressure increases your risks of transient ischemic attacks with link to Mayo Clinic), and the least performing post reaching 84 people (measuring blood pressure with link to Centers for Disease Control and Prevention).

Web-based Survey: Facebook users' opinion about Facebook Ad

Out of the 386 clicks received from the MYP Survey ad, there were 20 people who consen-

ted to the survey but only 11 completed the web-based survey. Since there was a small number of survey respondents and it only included Facebook users, the survey results cannot be generalized.

The survey respondents had slightly more females ($n = 6$) than males ($n = 5$). Most respondents were Caucasian ($n = 7$), aged 65 years or older ($n = 7$). The MYP Survey ad was distributed to the United States, but only 8 states were represented: Colorado ($n = 1$), Kentucky ($n = 1$), Minnesota ($n = 1$), Nevada ($n = 1$), Oklahoma ($n = 1$), Oregon ($n = 1$), Texas ($n = 2$), and Washington ($n = 1$). The descriptive characteristics are included in Table 2.

The web-based survey included questions about the respondents' opinion of the MYP Survey health campaign ad. The participants were asked about their feelings about the ad and its main message, if the content was relevant, and their personal health.

The survey respondents were asked what they thought about the MYP Survey ad overall; 54.5% liked it very much ($n = 4$) or liked it somewhat ($n = 2$), whereas 27.3% felt neutral ($n = 3$) and 18.2% disliked it somewhat ($n = 2$). Majority (63.6%) of respondents believed the health ad communicated the main message extremely well ($n = 3$) or very well ($n = 4$). Almost half (45.5%) agreed the health ad was extremely relevant ($n = 3$) or very relevant ($n = 2$) to their wants and needs. Similarly, 45.5% ($n = 5$) responded that it was somewhat relevant ($n = 2$), not so relevant ($n = 1$), or not at all relevant ($n = 2$) to their wants and needs.

Almost all ($n = 10$) self-reported their overall health as good ($n = 7$) or very good ($n = 3$). Five (45.5%) people reported going to a healthcare provider twice in the past 12 months, and 36.4% ($n = 4$) went four times. Table 3 includes the web-based survey responses.

DISCUSSION

Principal findings

In both the MYP Learn More and MYP Like Page Facebook advertisements, the ads performed similarly between the tailored advertisements for the African American target

Table 1. Facebook advertisement metrics for the Measure Your Pressure (MYP) online health campaign.

Facebook Ads	Clicks	Reach	Impressions	Cost per Result, US \$	Cost, US \$	Duration, Days
MYP Learn More	1191	47 836*	76 033	0.45	532.09	38
MYP 1-General	797	33 528	49 337	0.44	351.66	38
MYP 1-AA	394	16 960	26 696	0.46	180.43	21
MYP Like Page	480	8776*	13 526	1.08	516.52	38
MYP 1-General	132	2699	3618	1.06	139.46	38
MYP 2-General	205	4483	6165	0.98	200.06	38
MYP 1-AA	65	875	1463	1.17	76.09	21
MYP 2-AA	78	1451	2280	1.29	100.91	21
MYP Survey	386	23 200	32 124	0.57	221.11	26

*Reach of Facebook ad campaigns is not cumulative of all Facebook ad sets—this metric is determined by Facebook Ads Manager.

Table 2. Descriptive characteristics of web-based survey respondents.

Variables	Frequency (n=11)
Gender	
Male	5 (45.5%)
Female	6 (54.5%)
Age (years)	
18-24	0 (0.0%)
25-34	1 (9.1%)
35-44	0 (0%)
45-54	1 (9.1%)
55-64	1 (9.1%)
65-74	4 (36.4%)
75+	3 (27.3)
Missing	1 (9.1%)
Race/Ethnicity	
American Indian or Alaskan Native	1 (9.1%)
Asian/Pacific Islander	0 (0.0%)
Black or African American	0 (0.0%)
Hispanic	1 (9.1%)
White or Caucasian	7 (63.6%)
Multiple ethnicity/Other	1 (9.1%)
Missing	1 (9.1%)
States (where respondents live)	
Colorado	1 (9.1%)
Kentucky	1 (9.1%)
Minnesota	1 (9.1%)
Nevada	1 (9.1%)
Oklahoma	1 (9.1%)
Oregon	1 (9.1%)
Texas	2 (18.2%)
Washington	1 (9.1%)
Missing	1 (9.1%)

Table 3. Web-based survey responses about (Measure Your Pressure) MYP Survey Facebook Ad.

Survey Questions	Survey Answers	Frequency (n=11)
Thinking about the #MeasureYourPressure ad overall, which of the following best describes your feelings about it?	Like it very much	4 (36.4%)
	Like it somewhat	2 (18.2%)
	Feel neutral about it	3 (27.3%)
	Dislike it somewhat	2 (18.2%)
	Dislike it very much	0 (0.0%)
How well does the health ad communicate the main message?	Extremely well	3 (27.3%)
	Very well	4 (36.4%)
	Somewhat relevant	2 (18.2%)
	Not so relevant	0 (0.0%)
	Not at all relevant	1 (9.1%)
How relevant is the health ad to your wants and needs?	Extremely relevant	3 (27.3%)
	Very relevant	2 (18.2%)
	Somewhat relevant	2 (18.2%)
	Not so relevant	1 (9.1%)
	Not at all relevant	2 (18.2%)
In general, how would you rate your overall health?	Excellent	0 (0.0%)
	Very good	3 (27.3%)
	Good	7 (63.6%)
	Fair	1 (9.1%)
	Poor	0 (0.0%)
In the last 12 months, how many times did you visit your healthcare provider?	None	0 (0.0%)
	1 time	0 (0.0%)
	2	5 (45.5%)
	3	0 (0.0%)
	4	4 (36.4%)
	5-9	0 (0.0%)
	10 or more times	2 (18.2%)

audience and the General target audience. There was no significant difference in the reach, results, impressions, or costs per results of each ad sets.

Although race could not be used specifically to tailor the audience of Facebook ads, it would be expected that using the African American interests and behaviors options in the Facebook target audience would reach more African Americans through the advertisements. This is beneficial when sharing health information that may have a greater impact on African Americans. HBP is more prevalent within the African American population and promotion of blood pressure checks within this community can have a stronger impact of deterring cardiovascular disease.

The MYP Learn More-AA advertisements averaged approximately 19 people clicking on the learn more ad per day. With the assumption that African Americans were reached and with the 56% prevalence rate of HBP in this population [7], it would be almost 11 people per day who have high blood pressure and clicked on the advertisement to learn more. This number may be higher assuming that more individuals at risk would be clicking the ads to learn more, and of whom would benefit from the information received from the ad.

When looking at the MYP Like Page ad sets, there were variations in cost per results between the MYP Like Page-General and MYP Like Page-AA Facebook advertise-

ments with a slightly better performance of the General ads. There was not a significant difference between the outcomes of page likes from each ad set.

The Learn More ads cost per results were lower than the Like Page ads cost per results which demonstrates that people were interested in learning more about HBP and the importance of blood pressure checks. This finding is of interest to public health professionals because it shows that people reached through this study had a higher interest in finding more information on a specific health topic than they did in liking a health organization's Facebook page.

Social media health campaigns have gained respect over the years from leaders within the public health field because of their effectiveness in their ability to motivate small health behavior changes and their broad reach to many different people [10]. Social media offers public health practitioners the ability to extend health information to people who may be harder to reach with traditional methods of health communication such as from doctors' offices and hospitals. Health disparities within certain populations, such as the African American community, have been known to include cultural factors, environmental factors, and access to care issues that can impede health communication [11]. A lack of access to health information can greatly affect the overall health of a community. Social media health campaigns can bridge a gap between public health officials and populations who are experiencing health disparities.

Using Facebook interest groups to target specific demographics or communities is helpful in reaching certain populations [9, 12], but it is more difficult if the demographic is not an option in Facebook ads such as race. Out of all the ad sets in this study (i.e., learn more, like page, and survey ads) the most successful performing ads were the learn more ads that provided a link to a website with more information about HBP. People may want to learn more about health topics that are specific to their needs, and social media learn more health campaigns may be a strong resource

available to public health professionals to disperse the health information needed to large portions of people.

Study strengths and limitations

This study demonstrates the usefulness of reaching people without being constrained by physical space or geographical location. Community often refers to people living in one place, but with the internet this expands beyond a geographical location. Social media has shattered physical boundaries by connecting people through a virtual platform. This evolution has created online communities and more opportunities for public health outreach.

Using social media generates various limitations in research. This study's limitations include accessing only those with social media accounts during the specified timeframe, May 2019 to August 2019.

Facebook does not make race demographics available to advertisers. As this study was aimed at targeting the African American population, it was difficult to discern if the population of Facebook users reached were part of the African American community. Even though interest groups were chosen that were specific to the African American population, the percentage of African Americans reached or included in the interest groups could not be determined with data from Facebook Ads Manager.

CONCLUSION

Race can often be a determinant of health disparities and has proven to be a contributing factor for certain diseases [11]. Currently, Facebook does not release race demographics, but health professionals could benefit from racial demographics being released and allowed as part of the metrics data on Facebook Ads Manager.

It is assumed that Facebook guidelines are intended to protect certain populations from being targeted in a malicious or discriminatory way by advertisers, but it is limiting for health information sharing and health communication. Health information shared through web-based platforms can help deter

disease by promoting healthy behavior choices. The type of health information that is helpful to specific populations differs depending on the health needs of the population. Unless specific demographic information is made available to public health professionals who are responsible for disseminating health information, there will be a need for creative and innovative ways to evaluate who received the information dispersed.

Public health efforts continue to evolve as more programs and services are focused on online communities and web-based information sharing. These efforts have helped address chronic illnesses which are the leading causes of death in contemporary American society [13]. When health information that is pertinent to the health needs of a population is given to people within a community, there is a greater probability of positive impact on the population health of that community. Tailored social media health campaigns can help assist public health professionals in delivering health information and reaching larger portions of at-risk individuals.

Future recommendations

Further research on targeted social media health campaigns may provide insight into more efficient methods of health information sharing. The limitation of Facebook not disclosing race demographics hindered the ability to measure the actual reach of each race for persons responding to the ads in this study. A future study that involves measurable demographics with pertinent health information targeted through ads could be measured more precisely and give further insights into Facebook's ability to share targeted health information.

The results of this study – MYP Learn More ads performance being more successful than the Like Page and Survey ads – suggests that audiences are inclined towards learning more about specific health topics. These results reveal that people are searching for health information online, and it is essential to relay correct and credible health information to improve the public's health.

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