

## Assessing the Effectiveness of Public Health Campaigns in Promoting Healthy Behaviors

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Submission: Sept 19, 2023; Accepted: Nov 27, 2023; Published: Dec 19, 2023

### Abstract

**Background:** Campaigns for public health have a critical role in influencing health-related behaviors and fostering community wellness. The purpose of this study is to evaluate how well different public health initiatives can impact and maintain good behavioral changes in a range of demographic groups. The study tries to find effective techniques that have shown long-lasting benefits on behavior modification by synthesizing empirical evidence from multiple campaigns. Moreover, it explores the significance of cultural competence and customizing messaging for demographic segments to augment campaign effectiveness and resonance.

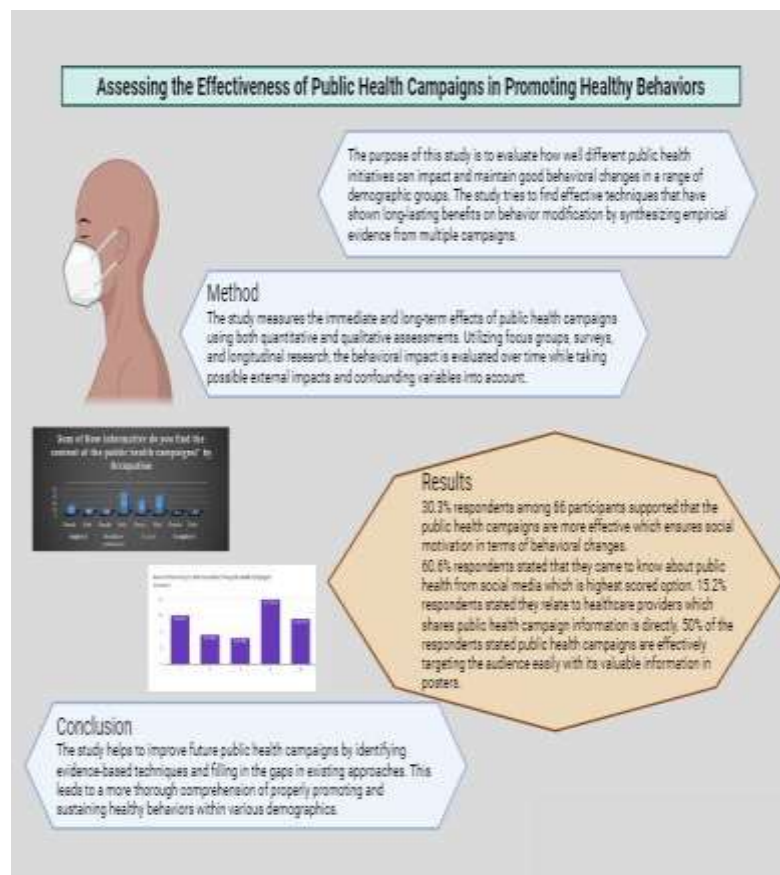
**Methodology:** The study measures the immediate and long-term effects of public health campaigns using both quantitative and qualitative assessments. Utilizing focus

groups, surveys, and longitudinal research, the behavioral impact is evaluated over time while taking possible external impacts and confounding variables into account. The study also looks at how social media and technology might be combined to maximize campaign participation and reach.

**Conclusion:** The purpose of this research's findings is to give public health professionals, legislators, and campaign designers useful information. The study helps to improve future public health campaigns by identifying evidence-based techniques and filling in the gaps in existing approaches. This leads to a more thorough comprehension of properly promoting and sustaining healthy behaviors within various demographics.

**Keywords:** Young Adult, Age Factor, Attitude to Health, Infection risk, Campaign effectiveness, Nutrition, Public health interventions.

### Graphical Abstract



## Introduction

Public health campaigns are coordinated efforts to enhance population health and avoid or treat diseases, injuries, and other medical conditions. These programs aim to improve overall health and wellness among individuals and communities by fostering greater understanding and changing behavior (1). Public health campaigns can address a wide range of issues, including environmental concerns, mental health, chronic illnesses, infectious diseases, and lifestyle choices. In order to inform the public about the dangers of smoking and the benefits of quitting, public service announcements, instructional resources, and advertisements are widely employed in anti-smoking campaigns (2).

Advocacies aimed at enacting or modifying public health regulations may center on matters such as prohibiting smoking in public spaces or enacting laws that restrict the intake of sugar-filled beverages. Mental health campaigns aim to reduce the stigma associated with mental illness, raise public awareness of available resources, and encourage individuals to seek help when necessary (3). To reach a broad audience, public health campaigns typically use a variety of media outlets, including print materials, radio, social media, television, and community activities. For these campaigns to be successful, a comprehensive strategy that takes into account cultural factors, target audiences, and the campaign's specific goals is usually required (4). Ongoing evaluation and assessment are essential to determine these program impact and effectiveness throughout time.

Public health initiatives have the potential to avert illnesses and save healthcare systems a substantial amount of money. By focusing on the underlying causes of health issues and promoting preventive measures, campaigns can reduce the cost of treating chronic illnesses and managing epidemics. To address global health concerns including malnutrition, infectious diseases, and access to clean water, public health campaigns are crucial. They back international programs designed to improve health outcomes and reduce health disparities. In order to prevent disease, encourage healthy behavior, and create environments that support well-being, public health programs are essential (5). They support and manage the challenges posed by public health concerns.

The goal of public health campaigns is to create and maintain positive behavioral changes, but doing so is a difficult process that requires meticulous preparation, execution, and evaluation. By including behavioral science ideas, such as understanding of social effects, barriers, and motives, the effectiveness of interventions can be boosted (6). Using campaign strategies that align with psychological theories may help identify the most effective means of influencing behavior modification. The content and delivery of campaign messages are crucial. It is important to communicate with the target audience in a way that is interesting, clear, and in line with their beliefs (7). When relevant language and imagery are employed, messages are more likely to stick in the mind.

By adding interactive elements like gamification, online platforms, and community events, participation and engagement can be increased. Involving the audience in the process of altering their behavior fosters accountability and dedication. Continuous assessment of the campaign's efficacy is made easier by the use of monitoring and feedback technologies (8). To improve efficacy, adjustments can be made over time based on data-driven insights. Often, proven efforts are part of bigger, longer-term goals. Creating campaigns with sustainability in mind requires integrating behavior modification programs into existing public health campaigns and community activities (9). It is essential to evaluate campaign outcomes on a frequent basis and to be flexible in adapting strategies in response to feedback. Adaptability and reactivity to emerging trends and difficulties are key components of sustained effectiveness. Collaborating with relevant stakeholders, including local government, community organizations, and healthcare specialists, can improve the campaign's reach and impact (6). It is through considering these factors and continuously reviewing and refining plans that public health campaigns may most effectively impact and sustain positive behavioral changes in communities (10).

Highlighting social proof and making use of cultural norms might be beneficial. By demonstrating that peers or other well-respected individuals engage in the desired behavior, one can influence people to adopt and sustain that behavior. Highlighting and emphasizing the advantages of altering one's behavior can be an effective way to motivate individuals (11). Acknowledging successes, no matter how small, contributes to the idea that positive change leads to positive results. Goal-setting, self-monitoring, and problem-solving are examples of cognitive-

behavioral techniques that have been successful in behavior adjustment. Encouraging people to set appropriate goals and providing them with the necessary tools for self-evaluation can help people make long-term behavioral changes (12). Customized and personalized messages that consider the preferences, motivations, and challenges of everyone are more likely to be retained. Using campaigns to target certain demographic groups or population segments increases their relevance and effectiveness.

Giving people the skills and knowledge, they need to adopt and maintain the desired behavior is crucial. People can make long-lasting changes by participating in education programs that focus on developing practical skills (13). Fostering peer support and building social networks around the behavior change can lead to long-lasting outcomes. Peers and similar experiences can establish a supportive group that helps sustain people's motivation. It may be possible to address people's challenges with the behavior change process by offering crisis intervention and support services. This additional support can prevent relapses and lead to long-lasting gains. Implementing interventions at various levels, including the individual, community, and policy levels, can result in a comprehensive and durable impact. Combining strategies that target multiple aspects of behavior may reinforce each other. Allowing people to take charge of their own health and make decisions on their own fosters a sense of ownership. When people believe they are in control of the process, they are more likely to stick with positive behavioral adjustments. Maintaining behavior modification requires ongoing support and follow-up over an extended period. Long-term participation ensures that people receive the support they require to get past setbacks and disappointments.

### **Epidemiology of public health campaigns**

The epidemiology of public health campaigns is the application of epidemiological principles and methods to analyze the planning, implementation, and outcomes of public health efforts. This field aims to assess the degree to which campaigns achieve their objectives, identify the factors that contribute to their success or failure, and offer evidence-based strategies for future campaigns. Planning and designing public health campaigns is aided by epidemiologists who do formative research, identify target demographics, and assess the appropriateness and viability of

treatments (14). The choices made on the goals, strategies, and outcomes of the campaign are informed by epidemiological data. Public health campaigns are crucial for promoting healthy behaviors and shielding populations from a variety of health issues. Epidemiology, the study of the patterns and causes of health-related states or occurrences in specific populations, and the importance of this research to the control of health problems are directly related to public health campaigns (15). Epidemiological concepts guide the planning, execution, and evaluation of these initiatives.

Before launching a campaign, epidemiologists conduct baseline assessments to ascertain the target population's current level of key health indicators and behaviors. A point of reference for evaluating changes over time is provided by this data. Epidemiological methods are used to monitor public health programs. Monitoring the scope and coverage of interventions, assessing how closely the original plan is adhered to, and identifying any challenges or deviations from the intended course of action are all necessary to achieve this (16). Epidemiologists assess procedures to ascertain the effectiveness of a campaign. Assessing the level of community involvement, evaluating the efficacy of implementation, and making sure interventions are administered as planned are all necessary for this. Process reviews are helpful in identifying areas where ongoing campaigns require improvement.

Epidemiological research can be used to select the target population for public health campaigns based on the prevalence, risk factors, and demography of the health concern (17). Epidemiology is the study of how certain health diseases are associated with behavioral risk factors, such as hazardous sexual behavior, smoking, inactivity, and bad dietary habits. Public health campaigns aim to reduce the risk of illness by focusing on and altering these habits. Epidemiology is a crucial element in assessing how well public health initiatives are working. Examining how health outcomes and behaviors have changed over time is a crucial part of the process (18). Surveys, health assessments, and other epidemiological methods are used to determine whether the campaign's objectives are being met. Public health practitioners can adapt their strategies to changing population characteristics and health situations thanks to epidemiological data (19). It is simpler to identify emerging health hazards and modify programs accordingly when there is ongoing monitoring. Epidemiology is the

foundation for designing, implementing, and assessing public health programs (20). This guarantees that programs are successful in promoting healthy behaviors among populations, well-targeted, and grounded in research.

Epidemiological tools are used to detect any unintended or adverse effects of public health efforts. This entails keeping a watch on any negative impacts the campaign might have on people's mental health, health-related behaviors, or community social dynamics. Epidemiology contributes to the economic evaluation of public health campaigns by assessing their cost-effectiveness (21). This means assessing the campaign's costs in relation to its outcomes, considering potential savings on healthcare costs as well as potential health benefits. Epidemiologists bridge the information gap between research and practice by turning campaign assessment data into actionable recommendations for legislators, public health professionals, and community stakeholders. By applying epidemiological ideas throughout a public health campaign's lifecycle, researchers can methodically assess the campaign's efficacy, identify areas for improvement, and assist in the development of evidence-based policies for enhancing population health (22, 23).

The health of Saudi Arabia's populace has improved significantly during the past 30 years. The average lifespan in the Kingdom has risen from 53.9 years to 70.9 years because of significant investments in testing, regulation, control, and research (24). In the Kingdom, the Saudi Food and Drugs Authority (SFDA) is an organization that works to improve public health. The main goal of regulating food, medication, and medical device promotion and use is to provide a healthy lifestyle for the country's citizens (25). The patients and participants generally indicated they were highly amenable to receiving messages about public health promotion via SMPs. More than two-thirds of research participants primarily used the internet to look up information on health-related topics. Better knowledge of a variety of topics, including breastfeeding and women's health, was demonstrated by followers of social media accounts that disseminated relevant information (26). The "Saudi Arabia Networking for Aiding Diabetes (SANAD)" system is one organized method of disseminating such information, and these followers indicated a greater interest in obtaining more content along similar lines. Several characteristics were linked to increased levels of online "health-related information-seeking behavior," such as being female, being younger, being married,



having a higher income, having more education, and spending more time on the internet.

Public behavior played a major role in determining how well the Saudi government's significant measures to counteract the COVID-19 outbreak worked. To stop the virus from spreading, the public had to follow the precautions put in place by the authorities. The degree of adherence was probably impacted by people's perceptions and understanding of COVID-19. Numerous national studies have been carried out in Saudi Arabia to comprehend these characteristics and the underlying influences they have on individuals (27). Apart from the dread of infection, the psychological effects of the COVID-19 pandemic would have been intensified due to the execution of measures like communal quarantine, social separation, and lockdowns. The prevalence and contributing elements to the COVID-19 pandemic's psychological impacts on Saudi Arabia's healthcare staff and public have been the subject of several national research (28). For example, a study with 2081 participants discovered that the respective prevalence percentages for anxiety and depression were 7.3% and 9.4%. While Saudis, married people, the jobless, and those with a high income were more prone to anxiety, non-Saudi citizens, those 50 years of age and older, divorcees, retirees, university students, and those with low income were more likely to experience depression (29). During the pandemic, high levels of depression, anxiety, insomnia, perceived stress, and low resilience were noted by 582 undergraduate students in another study. Higher levels of stress, anxiety, and depression were substantially correlated with lower resilience, a high frequency of sleeplessness, pre-existing mental health issues, and learning challenges.

Handling the COVID-19 threat requires raising awareness among the targeted communities, especially the less educated ones. The situation may get worse because of ignorance. Misinformation can be addressed via awareness programs that use trustworthy sources to provide proper information. Additionally, these programs must to actively work to change people's perceptions about practical preventive measures. Unlike in many other nations, public health programs in Saudi Arabia aim to prevent and promote health by addressing a variety of health-related issues (28). Vaccinations and other preventative steps against diseases like the flu, TB, and other infectious illnesses may be the focus of campaigns. Campaigns should focus on increasing public knowledge of the lifestyle choices that contribute to non-



communicable diseases like obesity, diabetes, and cardiovascular disorders (30). These advertisements may encourage regular exercise, a healthy diet, and frequent checkups with the doctor. The importance of mental health is rising on a global scale. Campaigns may be designed to lessen stigma, raise awareness, and motivate people to seek mental health care. Maternal and child health is a common emphasis of programs, which also include immunization regimens, appropriate nutrition for moms and babies, and prenatal care.

Public education initiatives aimed at preparing people for calamities, natural disasters, or health problems may be conducted (31). The project intends to comprehensively assess the effectiveness of public health campaigns in promoting healthy behaviors among a varied population, with a focus on understanding the influence of campaign exposure on the adoption of beneficial health habits.

#### **Objectives:**

- To evaluate the target audience's understanding and recall of important health-related marketing messaging.
- To investigate the relationship between being exposed to public health campaigns and embracing healthy habits while taking age, gender, socioeconomic position, and geography into account.
- To determine whether demographic groupings would respond differently to public health campaigns and investigate the reasons that might be affecting these differences.
- To investigate how long-term exposure to public health programs affects people's ability to maintain good habits.
- To investigate how the public views public health efforts, as well as the factors that encourage and impede behavior change.

#### **Methods and Materials**

##### **Research Type**

This study will employ a cross-sectional research design to collect data at a single point in time.

##### **Sampling**

The target population is 16-70 which gathers a broader range of society to observe.

Use stratified random sampling to ensure representation across different demographics including age, gender, and socioeconomic status.

66 respondents from UAE are collected as the sample size based on statistical considerations and resources available.

### **Questionnaire Development**

This study developed a comprehensive questionnaire with a mix of closed-ended and open-ended questions.

Research questions should cover awareness of public health campaigns, perceptions of campaign messages, and the impact on behavior. They ensured clarity, simplicity, and cultural sensitivity in question formulation.

### **Dependent Variables**

Healthy behaviors (e.g., regular exercise, balanced diet, preventive health measures).

### **Independent Variables**

Exposure to public health campaigns, awareness, and comprehension of campaign messages.

### **Quantitative Analysis**

Use statistical software to analyze closed-ended responses.

Explore correlations between campaign awareness, message comprehension, and behavioral outcomes.

### **Informed Consent**

Inform participants about the purpose of the survey and obtain their consent.

Guarantee anonymity and confidentiality.

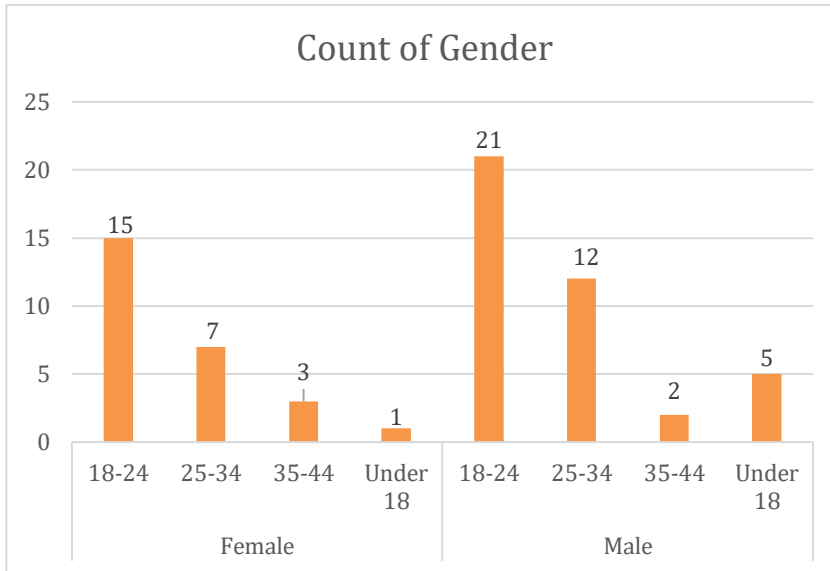
### **Limitations and Challenges**

Identify potential limitations, such as response bias or the influence of external factors on survey outcomes.

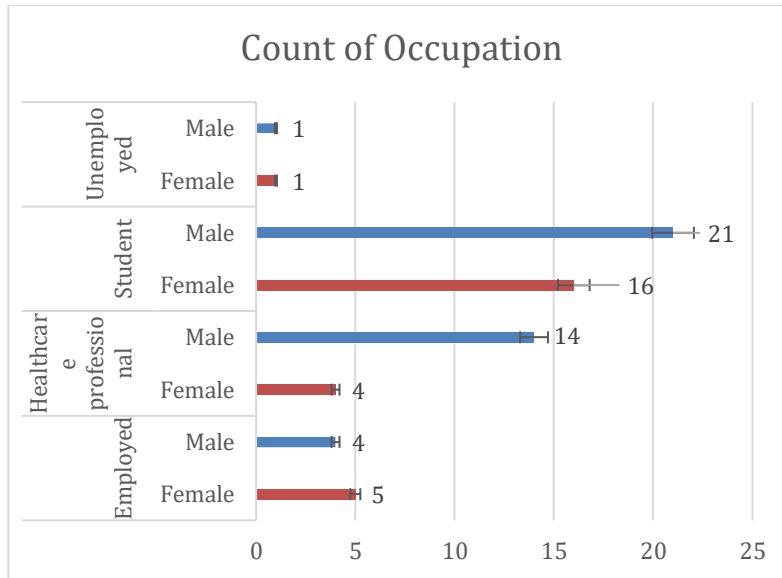
### **Results and Discussion**



**Figure 1:** Target country, as per the graph all the respondents are from Saudi Arabia only.



**Figure 2:** Count of Gender

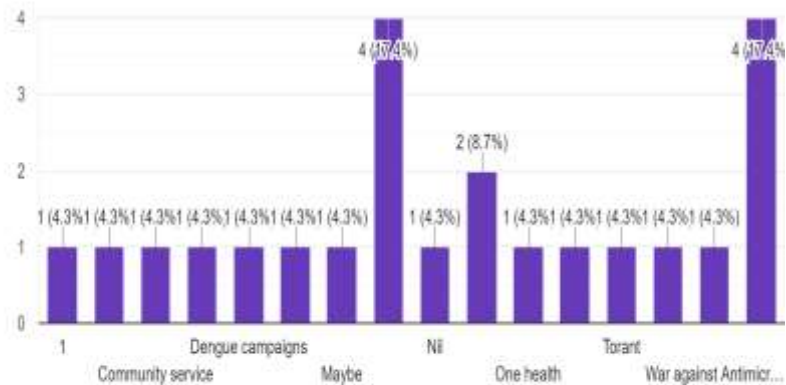


**Figure 3:** Count of occupation.

Both the figures 2 and 3 describes about the number of respondents based on their gender and occupation. Most of them are students.

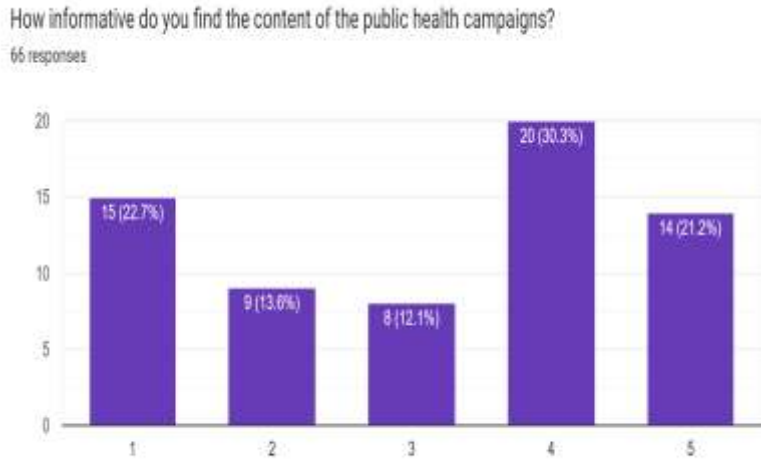
If yes, please specify the campaigns you are aware of.

23 responses

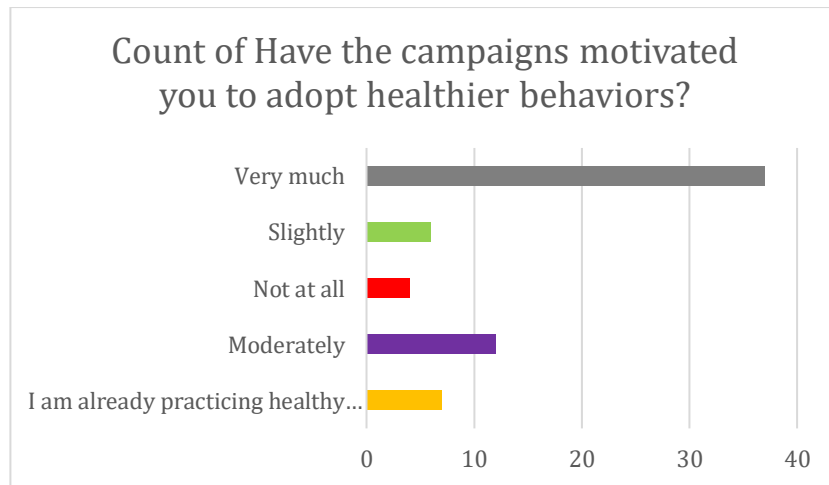


**Figure 4:** Total number of respondents for campaigns awareness.

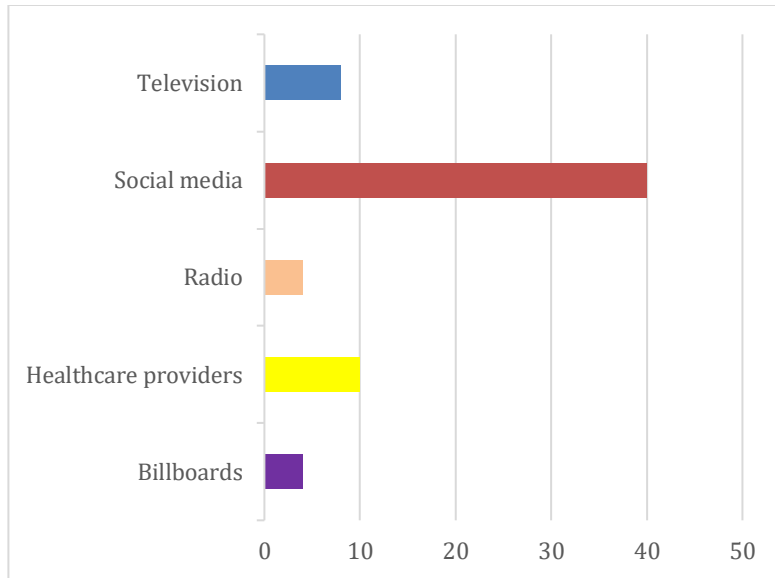
This image describes those who are accepting that they know the details of public health campaigns stated some public health campaign names as per figure 4. Responses are shown in detailed percentile data.



**Figure 5:** How informative public health campaigns are? 30.3% respondents among 66 participants supported that the public health campaigns are more effective which ensures social motivation in terms of behavioral changes as per figure 5.

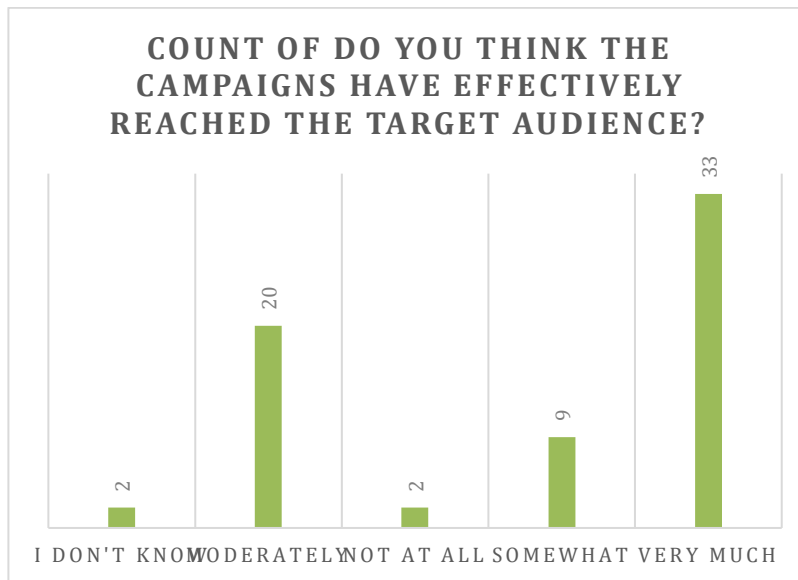


**Figure 6:** Count of Do you think the campaigns have effectively reached the target audience? Half of the respondents agreed to share informative messages clearly that updates behavioral changes in a community as per figure 6.



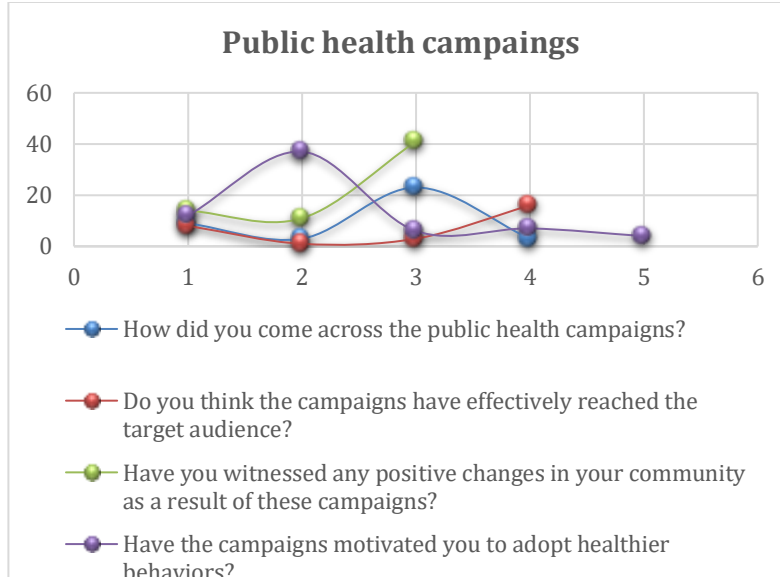
**Figure 7:** Count of How did you come across the public health campaigns?

60.6% respondents stated that they came to know about public health from social media which is highest scored option as per figure 7. 15.2% respondents stated they relate to healthcare providers which shares public health campaign information is directly.



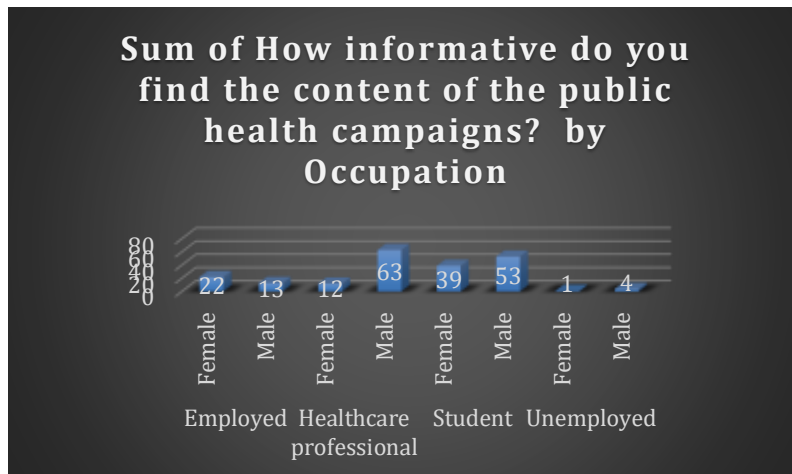
**Figure 8:** Count of Do you think the campaigns have effectively reached the target audience?

50% of the respondents stated public health campaigns are effectively targeting the audience easily with its valuable information in posters as per figure 8.



**Figure 9:** Have the campaigns motivated you to adopt healthier behaviors? Vs. How did you come across the public health campaigns? Vs. Do you think the campaigns have effectively reached the target audience?

As per the scatter plot in figure 9, all the demographics demonstrated in details with different identification marks.



**Figure 10:** Sum of How informative do you find the content of the public health campaigns?

**Discussion**

Public health campaigns frequently encourage safe sexual practices, handwashing, immunizations, and other preventive behaviors. A community's ability to spread sickness can be decreased by implementing behavioral changes in these areas, which can help prevent and control infectious diseases. Overall



health outcomes can be enhanced by positive behavioral changes like giving up smoking, upping physical activity, and adopting healthier eating choices. These modifications could improve well-being, lower the risk of chronic illnesses, and make the populace healthier. Campaigns for public health that focus on underserved people or communities can aid in addressing health disparities. Modifications in behavior among these communities may result in better health outcomes and lessen health and healthcare access inequities.

Safety-related behavioral adjustments, such as utilizing seatbelts, donning helmets, and driving defensively, can lower the number of collisions and injuries. The goal of public health initiatives addressing safety-related concerns is to make both individuals and communities safer. Public health initiatives that involve communities in the process of changing behaviors might provide people the confidence to take charge of their health. Community-based programs encourage a feeling of shared accountability and ownership, which helps maintain long-term healthy habits. The adoption of preventative techniques and better behaviors by individuals may result in a decrease in the expenditures of healthcare related to treating avoidable diseases. Environmentally friendly behavior modifications, such as cutting back on waste, using less energy, and encouraging sustainable lifestyles, can benefit the environment and advance more public health objectives. To determine the success of these programs and to guide future efforts to advance health and well-being, it is crucial to track and assess the long-term effects of behavioral changes brought about by public health campaigns.

Public health efforts benefit from media attention because it spreads information to a wider audience. News sources, social media sites, and other media channels can quickly spread campaign messages, raising public awareness. Public conversation is sparked and people are encouraged to talk about health-related topics by media coverage. A greater public face of the campaign encourages people to become involved by spreading the word, engaging in peer discussions, and actively looking for pertinent resources. Coverage by the media becomes crucial for disseminating accurate and timely information during public health emergencies or crises. The public can be organized and informed about important actions, emergency protocols, and preventive measures with the aid of an effective media communication strategy.

Thanks to media attention, public health authorities may immediately correct disinformation. Rapid and precise media communication helps dispel erroneous information while ensuring that the public receives trustworthy, fact-based information. When public health issues are widely covered in the media, they can attract greater funding and attention. This makes it possible for public health programs to be established and maintained and can involve funding from the government, contributions from the public, or support from non-governmental organizations. When people are overburdened with information, they may become desensitized to health messages due to frequent and extensive media coverage. Achieving a sustainable outcome necessitates finding a compromise between maintaining public awareness and avoiding desensitization. Numerous elements, such as public discourse and media coverage, influence public health programs. Numerous elements, such as public discourse and media coverage, influence public health programs. When utilized effectively, the media may be a powerful tool for spreading knowledge, motivating people to support public health initiatives, and promoting healthy lifestyle choices. To optimize beneficial effects, messaging, accuracy, and cultural sensitivity must be carefully considered. Their cost-effectiveness significantly influences the success and sustainability of public health efforts. A well-planned, economical campaign makes the most of the scarce resources available, guaranteeing the achievement of public health objectives. Cost-effective campaigns maximize the utilization of all available resources, including human, financial, and technology resources. The campaign will reach its target audience and accomplish its goals with minimal waste if resources are allocated efficiently. Long-term sustainability of cost-effective programs is more likely. Campaigns can sustain their momentum and produce great health outcomes without undue dependence on funding in the short term when resources are handled effectively. Successful campaigns can be scaled and replicated when cost management is done well. Techniques that have shown to be economical in one situation can be modified and implemented in another, increasing the campaign's potential influence on a variety of demographics. Stakeholder and public confidence in the campaign is increased when cost-effectiveness is demonstrated. People and organizations are more likely to support and participate in the campaign when they perceive that their contributions are being used effectively, which promotes cooperation and trust.

The capacity of public health programmed to create social motivation and encourage behavioral change within communities is typically a key factor in their effectiveness. Ads for public health are more successful when they reflect the values and social norms of the time. The target audience is more likely to accept and absorb messages that align with their cultural beliefs. Involving the community in the planning and execution of health programs fosters a sense of civic duty and accountability. This interaction increases the likelihood of a long-lasting behavioral change. Having trustworthy role models and influencers who promote healthy behaviors can have a big impact on social motivation. A person may be more likely to copy behaviors that someone they respect or look up to. Positive reinforcement in the form of incentives and rewards can motivate individuals to adopt healthy behaviors. This could be in the form of little rewards, praise from the community, or other strategies for positive reinforcement. Promoting health literacy is essential to fostering understanding and empowering individuals to make decisions based on their information. Campaigns should use clear message to increase motivation and understanding. It is typical for behavior change to require constant reinforcement and communication. Instead of being one-time events, public health campaigns should be ongoing projects with regular updates and reminders.

### **Conclusion**

In conclusion, public health initiatives that effectively make use of social motivation and community dynamics have a higher probability of bringing about behavioral change. By considering cultural context, including the community, and employing individual-appealing strategies, campaigns can promote a positive social environment.

### **Acknowledgments**

All authors contributed equally towards manuscript design and data collection and writing part

### **Conflicts of Interest**

Abbreviations

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