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Effectiveness of the Use of Social Media Platforms in Public Health Campaigns

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Abstract

This research has evaluated the effectiveness of the use of social media for the promotion of public health. Social media platforms have been used to promote the flu vaccine among students and employees on Saint Martin's University's campus. Saint Martin's University's e-mail and twitter page have been utilized as the primary means to send messages consist of images and texts that urge SMU community members (students and employees) to take the flu shot to protect themselves and others around them. Moreover, examination and evaluation of the existing literature and some academic studies that were conducted previously to assess the efficacy of the utilization of social media for promoting public health has been done. The participants in this research were students and employees attending SMU during the Fall semester of 2017. It was hypothesized that the number of students and employees who got the flu vaccine throughout the Fall semester of 2017 will surpass the number of students and employees received the flu shot in past years where the social media platforms were not employed for the promotion of the flu shot on SMU campus.

Keywords

Social Media, Flu Vaccine, Efficacy, College Campuses, Public Health

1. Introduction

Influenza is a serious contagious disease that targets the respiratory system of the human body. Influenza may infect all ages, and it can be more dangerous and risky for individuals of vulnerable populations (e.g., children and elderly), (Hatzifoti & Heath, 2009: pp. 113-130). Many undesirable consequences can result from the infection of the influenza. Hospitalization is considered as one of the most common consequences that is usually associated with the infection of the

influenza, while death is the least common consequence. However, death is still a possible outcome that people infected with the influenza virus can end up with. Therefore, getting the flu vaccine every season is the best action people should take for the sake of protecting themselves and others around them against this serious disease.

Covid-19 has affected peoples' lives both economically as well as socially nationwide. An enormous number of people around the world preferred not to gather or even meet with others believing that they could protect themselves and their beloved ones from catching the virus (Covid-19). Lack of gatherings among people is one of the most prominent indicators of weak social connections of a given society. Another collateral damage resulted due to the emergence of Covid-19 was reflected on the global economy. Many countries suffered an unexpected increase in prices of mostly all products. Loss of jobs was another common consequence affected many individuals as a result of the economic crisis brought about by Covid-19 (Cheek, 2023: pp. 426-430). Awareness of public health was constructively affected by the social media during the time of Covid-19 pandemic. People became more aware of the importance of personal hygiene for instance. A good example best illustrates that would be sanitizing and washing hands more frequently compared to previous times. Thus, peoples' attitude changed accordingly (Gurm et al., 2023). In terms of the most effective social media applications, both Twitter and the e-mail at educational settings represented reliable and efficient platforms that can be counted on when fighting against public health issues. Using social media applications represent an excellent tool for promoting public health for many reasons, which can include reaching a tremendous number of people in no time as well as a lot less cost as opposed to a wide variety of ways of delivering information (Latha et al., 2020).

Social media refers to a variety of applications that allow their users to do many different activities within the network, such as commenting, chatting, liking, making calls, texting, taking videos, and posting too. During recent years, an enormous influx of new social media platforms has been taking place. As a result, the number of those applications' users has been growing dramatically. As social media applications enable their users to engage in several different activities, they also can be harnessed themselves to serve beneficial aims. In fact, the promotion of public health information and the augmentation of the vaccination rate are considered some of those constructive objectives that social media platforms may serve.

College campuses represent one of multiple suitable environments where the influenza viruses can rapidly spread and affect a significant number of people. Like some vulnerable groups, colleges' community members are at a high risk of being infected with the influenza viruses due to the continual exposure in close spaces like classrooms. Therefore, college community members should get the flu vaccine every season to minimize the likelihood of being infected with the influenza virus, as well as to protect themselves and others around them against

this serious contagious disease.

Many studies stated that several online campaigns aimed to promote public health through the employment of social media and web-based strategies, and most of those studies concluded that the use of social media for health promotion was the most effective strategy as opposed to other strategies like print materials (Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013; Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016; Korda & Itani, 2011; Noar, 2006). Moreover, one of these studies found that inclusion of celebrities and sportspeople attracted more attention and increased the number of video viewers and also the study found that video posts were the most viewed posts compared to photo, text and link posts (Kite, Foley, Grunseit, & Freeman, 2016). Increasing awareness among workers about the flu vaccine and making them aware that the event was taking place at a specific time were some of those health-related topics. The study concluded that although the goal of making at least 90% of employees aware of the flu vaccine event was not met, the use of social media succeeded in increasing public health awareness (Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016). Overall, most studies concluded that the use of social media is an efficient and is a successful strategy to promoting public health. Therefore, public health organizations should consider the use of social media when planning to promote public health-related information.

The present study aims to systematically examine and evaluate the effectiveness of social media applications when employed for promoting public health including the flu vaccine. Some researchers examined the use of social media platforms when utilized for the promotion of public health, and they concluded that the use of social media applications to promote public health is a successful and an effective strategy (Korda & Itani, 2011; Noar, 2006). Although multiple promotional strategies were employed for the sake of promoting the flu vaccine among college students, social media platforms were found to be the most effective promotional strategy employed (Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013). The present study predicted that the number of Saint Martin's University's community members who received the flu vaccine during the Fall semester of 2017 will exceed the number of those members got the flu shot in previous years due to the use of social media platforms for promoting the flu vaccine on SMU campus in the Fall semester of the year 2017.

A study was conducted by several researchers recently for the sake of assessing the effectiveness of social medial applications when employed for promoting public health, and they all reach a consensus that social media platforms are effective and successful tools to be used for this purpose (Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013). Many researchers concluded that public health social media campaigns resulted in increase of public health awareness and positive change of attitude about public health-related topics among community members (Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tri-

carico, Delendi, & Brusaferro, 2016). Some researchers agreed that social media applications are efficient and productive tools used for the promotion of public health, because of some advantages like the less cost and their ability to reach and cover an extensive range/a significant number of people in no time (Korda & Itani, 2011). The present research study was theoretically informed by (Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016) study. Therefore, the present study employed the same theoretical framework that the previously mentioned study used, which is the communication-persuasion model. This model is defined as the process of having the participants follow multiple steps that are already set and designed to lead the follower to conformity of certain behaviors.

Many researchers suggested that an additional research is needed in order to determine whether or not the use of social networking sites is an efficient and a successful tool for promoting public health and increasing public health awareness as well as to specify the most employed applications by public health organizations (Balatsoukas, Kennedy, Buchan, Powell, & Ainsworth, 2015). Several studies call for the need for the research in this area (Kite, Foley, Grunseit, & Freeman, 2016; Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016; Korda & Itani, 2011). The present study will be both beneficial and contributive to this area, because it will help informing public health organizations and agencies that are interested in employing social media applications for promoting public health of whether the use of social media platforms for this purpose is an effective tool or not. Moreover, the present study will be useful for some researchers and other entities interested in studying the efficacy of social media applications when purposefully harnessed for the sake of promoting public health and increase public awareness about public health-related topics.

The purpose of the present study is the systematic examination and assessment of the efficacy of social media platforms when utilized for promoting public health including the flu shot and the augmentation of public health consciousness, especially on college campuses. Participants in the present study included faculty members, staff, and students attending Saint Martin's University during the Fall semester of 2017. Saint Martin's University is a Catholic liberal arts educational institution located in Lacey WA, the United States.

2. Framework

2.1. Theoretical

In terms of theory, the following quote best describes the Symbolic Interactionist Approach, which has been adopted by the present study: "*In SI, meaning making is a social process. To define a situation we put ourselves in the position of the other actors in the situation. We also draw on an inner voice called the 'generalized other' or the 'me'* (Mead, 1934), *which develops from infancy as we internalize the influences of important individuals and social institutions. Often*

this inner voice is broken down into distinct voices representing the different 'reference groups' (Shibutani, 1955) *to which we belong and the roles we perform. We temporarily adopt the perspective that fits best with how we define ourselves in any given situation. A perspective is 'an angle on reality, a place where the individual stands as he or she looks at and tries to understand reality'* (Charon, 2007: p. 3). *We engage in an internal conversation with these perspectives to define our current situation and so determine how to behave.*" (Oliver, 2011: p. 411).

The present study aimed to assess the effectiveness of the use of social media applications when employed for urging members of the community to get vaccinated against the Influenza, as well as for promoting public health among community members. Moreover, the present study aimed to evaluate the degree to which students, staff, and faculty report receiving a flu vaccine, and to explore the reasoning behind vaccine acquisition or evasion. Theoretically, the present study was informed by the Symbolic Interactionism Theory, which stipulates that "People will react to something according to the meaning that that thing has for them (the meaning being created through our interactions with society, culture, and other people)." In this study, Saint Martin's University's community members represented the individuals who reacted to those "E-mails and Tweets" that strived to propel them to get the flu shot during the Fall semester of 2017. Consequently, some people got the flu vaccine, but others did not. For those who received it, perhaps it meant to them "immunization and protection", while for those who did not receive it, the flu vaccine might meant to them a cause of sickness; the reason that leads to a long lasting cold "a myth believer". Individuals in both groups (vaccinated & non-vaccinated), as indicated in Oliver's 2011 study, have involved in "*internal conversation with perspective*" in order to decide whether they would get vaccinated or not. As a result, each individual has acted/behaved accordingly. In this sense, the Symbolic Interactionism Approach is related to the present study.

2.2. Literature Review

There are many various demographic factors by which the use of social media applications can be affected. Race, gender, level of education, and income significantly play a significant role in terms of utilizing the social media, especially to search information about health issues. Individuals with high educational level reported greater use of social media applications as compared to those who hold high school diploma or equivalent. Doctors and residents achieved the highest rate of increase among all employees in terms of responding and getting the flu shot (Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016). This finding may signify the important role educational level plays in terms of the flu vaccine acquisition. Several researchers indicated that young individuals reported greater adherence to the use of social media platforms as the primary means of communication (Conte, Quattrin, Filiputti, Cocconi, Ar-

noldo, Tricarico, Delendi, & Brusaferro, 2016). Many researchers found that males reported greater use of social media applications as compared to female users (Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013). Respondents who answered the questions in the survey were four hundred and twenty-one students. Female students represented the majority of respondents by being three hundred and twelve female students of the entire sample population 421 (Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013). Both men and women use the social media for health-related topics. However, men were found to use social media more than women (Korda & Itani, 2011). These evidences may be a strong indication that like many other demographic factors, gender plays an important role when it comes to the use of social media applications when seeking information and knowledge about health-related issues.

Demographic factors like gender play an important role not only in the use of social media applications, but also in minimization and/or maximization of public health issues diffusion. A recent study was conducted purposefully to explore whether or not exposure to advertisement that focuses on the negative effects of tobacco would change attitudes toward smoking and lead people to quit smoking. The study found that female participants held more positive attitudes toward the (*point of sale*) ads as well as the study indicated that females were more supportive on smoking quit than did males (Allen, Davis, Kamyab, & Farrelly, 2014).

Efficacy of promotional strategies vary. Nonetheless, web-based strategies strikingly achieved best results among all other strategies employed. A handful of researchers concluded that print-materials have been used in the past as the primary means of communication to promote the flu shot. However, the results were insignificant and unsatisfactory (Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016). Several researchers have employed different interventions to assess the effectiveness of each intervention. Consequently, those researchers collectively indicated that web-based interventions brought abought the greatest outcomes among other interventions employed (Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013). One of the prominent results they found was that, students who attended the web intervention reported the greater desire to get the flu shot among all intervention groups, while students who had the brochure were found to be the less interested to get the vaccine. Therefore, online strategies are successful and are effective tools for the promotion of public health.

A recent study conducted purposefully for the identification of the specific traditional methods and Facebook features that public health associations use in advertising. Also, the study aimed to identify the most attractive method or Facebook feature that users respond to. The study concluded that positive emotional appeal was identified as the most common method that has been used in those campaigns, while the least common method employed was the use of "fear

appeal" (Kite, Foley, Grunseit, & Freeman, 2016). In addition, the study indicated that the inclusion of well-known athletes and famous individuals in video posts attract viewers' attention and increase the number of likes too. And therefore, the study encourages the use of such incentives to achieve more success and better outcomes (Kite, Foley, Grunseit, & Freeman, 2016). Moreover, the study found that video posts seemed to be viewed a lot more than photo posts, while both texts and links were reported as less attractive posts compared to video and photo posts. Therefore, online strategies are successful and are effective tools for the promotion of public health, especially when are equipped with such attractive features.

Like in other promotional strategies, the degree of influence of social media platforms on people can vary from one group to another. The efficacy of social media applications when employed for promoting public health can influence people differently, especially in terms of age. In fact, late adults may be influenced by social media campaigns significantly than do middle adults. A study was conducted recently to evaluate the impact of the multimedia campaign by comparing pre-test and post-test results taking into consideration all of knowledge, attitude and practice as indicators that referred to in the study as (KAP). Consequently, the study found that young respondents showed greater adherence to the use of social media platforms as the primary means of communication (Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016). Moreover, a recent study examined different data in effort to assess the role social networks play in health communication campaigns. The study aimed to explore how communication between parents and their children on drug use can be effected by anti-drug activities executed through campaign messages. Also, this study examined the influences of both social media and campaign exposure on campaign-related topics in interpersonal communication. One of several significant findings this study reached was that socially isolated people to be the most affected societal group by the social media campaigns (Lee, 2012). Thus, social media applications can reach more people than do print-materials and other non-web-based promotional strategies.

Multiple benefits can result from the use of social media in health communication. Increase of public consciousness and behavior change strikingly represent the most notable outcomes. In terms of behavioral change, weight loss, seat belt, oral health, physical activity and alcohol use reported the highest rate and were positively affected by social media campaigns. According to Wantland, Portillo, Holzemer, and Slaughter 2004 study of web-based and non-web-based interventions, despite the fact that the improvement was not significantly remarkable. However, the online approach positively affected users (Korda & Itani, 2011). Some applications positively showed a great effect when were implemented on the national population (Korda & Itani, 2011). According to Snyder and Hamilton 2002, health mass media campaign positively impacted people and helped changed behaviors (Noar, 2006). Therefore, social media campaigns can affect

attitudes, behaviors as well as awareness about health can be increased. According to Murray, Burns, See Tai, Lai, and Nazareth 2005, some applications that are used for health communication have improved some crucial aspects like clinical and behavioral results and the user knowledge as well (Korda & Itani, 2011). Social media campaigns can affect attitudes, behaviors as well as awareness about health can also increase (Lee, 2012). Moreover, the utilization of social media applications is beneficial and constructive, because it emotionally motivates patients. Hence, positive change in behavior and augmentation of public awareness can be an obvious indication of social media platforms' success and effectiveness in promoting public health.

As employed types of social media applications by public health agencies may differ, degrees of interactions between the patient and the care provider/physician may also differ based on the utilized social media application (e.g., Twitter & Facebook). A recent study was conducted for the sake of identifying the most utilized social media platforms in medical facilities (e.g., hospitals and health centers) as well as to determine whether the utilization of social media platforms is a strategy being implemented and used by many health facilities as a form for distributing health-information (Thackeray, Neiger, Smith, & Van Wagenen, 2012). Moreover, the study aimed to determine whether caregivers/practitioners employ social media as primary means of communication between them and their patients or not. The study found that each health department uses social media for sharing health-related information with patients. However, applications employed by health departments can differ. For instance, some facilities used You Tube but others utilized Twitter. And, some of health departments employed both applications. Although social media platforms used by health departments vary, Twitter was found to be the highest and richest in terms of response and interactions. Facebook had the second highest number in terms of engagement and use. The study concluded that mostly all health departments employ social media platforms. Nonetheless, the number of used applications by each department varies. Twitter was the most social media application employed by health departments (Thackeray, Neiger, Smith, & Van Wagenen, 2012).

A number of researchers indicated that to achieve better outcomes, health services' facilities/agencies should make much more effort to create a productive communicative scheme where greater number of patients/users can be reached (Thackeray, Neiger, Smith, & Van Wagenen, 2012). A recent study indicated that the way the campaign messages are designed play a significant role in making the effects become greater (Noar, 2006). Social media use for the promotion of health is effective, but it varies based on many factors like delivery method and accessibility. According to Snyder and Hamilton 2002, as exposure increases, campaign influences also increase (Noar, 2006). The use of social media evidently showed probable success and effectiveness for the promotion of the public health. Multiple studies concluded that the utilization of social media platforms is a successful and an effective strategy for the promotion of public health

(Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016; Korda & Itani 2011; Mena, Llupià, García-Basteiro, Sequera, Aldea, Bayas, & Trilla, 2013).

Several researchers called for the need of additional research in order to evaluate the efficacy and success of social media applications as a tool for promoting public health including the flu vaccine on college campuses as well as to identify the most utilized applications by public health facilities (Balatsoukas, Kennedy, Buchan, Powell, & Ainsworth, 2015). Also, a handful of other studies suggested and encouraged additional research in this area in order to achieve and reach better outcomes (Kite, Foley, Grunseit, & Freeman, 2016; Conte, Quattrin, Filiputti, Cocconi, Arnoldo, Tricarico, Delendi, & Brusaferro, 2016; Korda & Itani, 2011).

Consequently, the present study will be both beneficial and contributive to this area, because it will assist informing public health organizations and agencies that are interested in employing social media applications purposefully for promoting public health of whether the use of social media platforms for this goal is an effective tool or not. Moreover, the present study will be useful for some researchers and other entities interested in studying the efficacy of social media applications when are harnessed for the sake of promoting public health as well as increasing public consciousness about topics related to public health generally. The present study will also be a good contribution in terms of expanding the existent empirical work which previously looked into multiple relevant dimensions concerning this subject. The present study may be a good contribution in terms of filling a hole empirically as well as in the existent literature related to this area. The present study can contribute to the existing literature and empirical work related to this area in many ways. In fact, by identifying some demographic factors that play a significant role in terms of the use of social media applications, reaching significant findings (e.g., increase or decrease in the vaccine's receiver number) by which the efficacy of the use of social media platforms for promoting public health among members of the community can be assessed, by identifying the most effective social media application employed, and/or by specifying the degree to which students, staff, and faculty report receiving a flu vaccine, and to explore the reasoning behind vaccine acquisition or evasion.

3. Methods

The present study employed *The Interrupted Time Series Design*, which Bernard (2013) described as "*getting data from a series of points before and after an intervention and evaluating statistically whether the intervention has had an impact*." Before employing the social media platforms for promoting the flu vaccine at Saint Martin's University and sending out images with typed-texts on them "the intervention" to motivate SMU community members to get the flu shot, data were collected from many different sources about the use of social

media for the promotion of public health. In addition, informational and historical background about the use of social media in public health campaigns was collected before employing the intervention. The intervention in this research is represented in the "images and text" that were sent out to SMU community members through social media (SMU e-mails and SMU Health Center's Twitter page). After introducing the intervention (by sending images out) to participants, evaluation of whether or not the intervention has had an impact on the SMU community has been done. Therefore, this method has been found to be the best fit for present study. An online survey has been sent out to Saint Martin's University's community members in the Spring semester. This survey has been emailed to SMU population through the SMU student e-mail accounts. In this survey, the SMU population has been asked to respond to a combination of both open-ended and closed-ended questions. Moreover, this study has employed another research method, which was the review of the existing literature (comparative data analysis).

3.1. Methodological Approach 1: (The Interrupted Time Series Design)

A study was conducted in the year of 2013 by (Mena, Llupia, Gracia-Basteiro, Sequera, Aldea, Bayas, & Trilla) purposefully for growing the habit in students attending a medical university to getting the flu shot every season as well as to evaluate several promotional strategies and determine the most effective strategy employed. Four different interventions were employed at the beginning in this study, and later results were compared for the sake of assessment. Moreover, participants were randomly chosen. Therefore, this study was one of multiple studies that informed the present study's methodological approach. Also, a study was conducted in the year of 2014 by (Allen, Davis, Kamyab, & Farrelly) participants were exposed to the intervention, and later the effectiveness of the intervention was assessed based on the posttest results. And, this is exactly what has been done in the present study. Participants received images with text on them that encourages participants to get the flu shot. At the end of the semester, an assessment has been done to evaluate the effectiveness of the intervention and whether the intervention has had an impact on participants or not. Thus, the present study's methodological approach is informed by previously mentioned studies.

3.2. Methodological Approach II: (Online Survey)

In the Spring semester of 2018 an online survey has been sent out to the Saint Martin's University's community members through the SMU e-mail accounts. The survey included a combination of both closed-ended and open-ended questions. Survey takers were asked to indicate whether they are students, staff, or faculty. Then, survey takers have been asked whether they took the flu vaccine this season or not and why they took it or did not take it. Survey takers have also

been asked to indicate where they took the flu vaccine if they did whether at the SMU Student Health Center/SMU flu clinics or not. Eventually, the survey takers were asked if they saw the social media posts about the flu vaccine and the flu clinic during the Fall semester of 2017. After administration of this posttest, the efficacy of the use of social media applications for promoting public health including the flu vaccine on college campuses has been assessed.

3.3. Methodological Approach III: (Scan and Review of Existing Evidence Design)

This research adopted another methodological approach, which is the review of the existing literature and evidences including a search and a revision of academic papers and peer-reviewed studies. A study was conducted in the year of 2015 by (Balatsoukas, Kennedy, Buchan, Powell, & Ainsworth) employed the same methodological approach by reviewing many studies and based on those studies the evaluation of the effectiveness of public health social media campaigns was done. A study was conducted in the year of 2006 (Noar) had also used the same methodological approach and reviewed the literature of the health mass media campaigns for the last decade. Moreover, a study was conducted in the year of 2011 by (Korda & Itani) reviewed the existing literature including studies previously done to assess the effectiveness of the use of social media platforms for the promotion of public health. So, all studies above employed the same methodological approach, and therefore, they all informed the methodological approach that the present study has adopted and employed.

3.4. Procedure

Images with typed-text on them urging the Saint Martin's University's community members to get the flu vaccine at the flu clinic that took place twice during the Fall semester of 2017 were sent out to all students and employees at Saint Martin's University through SMU e-mails and the SMU Health Center's Twitter page where everyone has the chance to view those messages either on their Twitter page or in their SMU e-mail Inbox. Students have been asked upon their arrival to the flu clinic "How did they hear about the flu shot?", so the number of students come and get the flu shot can be known, as well as the specific social media platform most students heard about the flu vaccine through can be determined. At the end of the Fall semester of 2017, the Health Center provided a document that showed the number of people got the vaccine during this semester through the social media campaign. Then, the number of people received the flu vaccine during the Fall semester of 2017 based on the document provided has been compared to the number of people got the flu shot in past years based on other documents that the Health Center provided. By doing so, the effectiveness of the use of social media platforms for promoting the flu vaccine which is a part of the public health has been assessed. At the same time, a scan and review of the existing literature about the efficacy of the use of social media applications

for the promotion of public health have been done to complete the second part of this research which is the evaluation of the use of social media campaigns for promoting public health through reviewing the existing evidence and studies conducted on the same topic.

4. Sampling Strategy

In terms of the sampling strategy, the present study employed the (Disproportionate Sampling). Specifically, this sampling strategy that the present study used to avoid the underrepresentation of subpopulations, which were students and employees in this study. Data in the present study were collected through the examination of existing documents as previously mentioned. Documents show and reveal the number of SMU community members received the flu vaccine through the Fall semester of 2017 and other documents that reveal the past two-years results were obtained from the SMU Health Center. Then, a comparison and assessment took place based on those documents "results". At the same time, analysis and close-scan of the existing literature and previous peer-reviewed studies came about, and based on those results have been yielded of this procedure, the effectiveness of the use of social media platforms for promoting public health including the flu vaccine has been evaluated.

4.1. Participants

Faculty members, staff, and students attending Saint Martin's University during the Fall semester of 2017. Saint Martin's University is a Catholic liberal arts educational institution located in Lacey WA, the United States.

4.2. Materials

Six colored-images with a motivating text and details about the flu clinic including date that the flu clinic took place on, time, and location are typed on images. Images vary in color, figures appear on each image, and motivating phrases. However, they all strive to achieve the goal of urging the Saint Martin's University's community members to get the flu shot and be protected against the influenza.

4.3. Results

Setting:

After harnessing SMU e-mails and the SMU Health Center's Twitter page to send out images with the typed-text on them urging the Saint Martin's University's community members to get the flu vaccine at the flu clinic that took place twice during the Fall semester of the year 2017, the Student Health Center provided a list of detailed numbers of SMU community members who got the flu vaccine during the Fall semester of 2017 (e.g., 32 students heard about the flu shot through their SMU students e-mail account), as well as the SMU Student Health Center provided other lists that revealed numbers of SMU community

members who received the flu shot in previous years where social media applications were not used for promoting the flu vaccine on SMU campus. After receiving the documents/detailed lists that revealed the number of SMU members received the flu vaccine in the Fall semester of 2017 and past years, a comparison "*comparative data analysis*" has been done for the sake of evaluating and determining whether or not the use of social media applications on SMU campus for promoting the flu shot has had an impact.

The present study predicted that the number of students and employees who got the flu vaccine throughout the Fall semester of 2017 will surpass the number of students and employees received the flu shot in past years where the social media platforms were not employed for the promotion of the flu shot on SMU campus. An online questionnaire was sent out through email to the entire population of Saint Martin's University. The survey consisted of several questions asking participants about demographic information (e.g., gender), while mostly other questions asked participants to indicate whether or not they saw the social media posts, whether or not they received the flu vaccine, reasoning behind getting the flu vaccine, and participants were asked to indicate whether or not they think others should get vaccinated with explaining why they think other people should or should not receive the flu vaccine.

The number of participants who took the survey was 107. However, one participant did not respond to all questions for some reason. Therefore, some questions represent only 106 responses. Female participants represented 71.7% (76 female), while male participants constituted 27.4% (29 males) of the sheer number of participants. Participants who self-identified as genderqueer represented 0.9% (1 participant) in this study. Student participants in the present study represented 52.3% (56 students). Faculty participants represented 15.9% (17 faculty member), while staff participants constituted 31.8% (34 participant). 42.1% of participants (44) reported that they did not get the flu shot. 57.9% of participants (62) reported getting the flu vaccine during the Fall semester of 2017.

4.4. Reasoning for the Flu Vaccine

Participants demonstrated distinctively different reasoning behind getting the flu vaccine. A handful of participants indicated that receiving the flu shot is a habitual annual practice for their families as a whole, and therefore, they got vaccinated. Several participants reported that being part of the school's basketball and/or football team "*athletes*", they are always required to get vaccinated against the flu. Overall, protection against the influenza either personally or publicly was found to be the most encouraging motivation that the vast majority of participants reported on the reasoning aspect. Lack of money, unavailability (no time), allergy to the flu vaccine's ingredients, fear of side effects associated with the flu shot, and mistrust and disbelief in the efficacy of the flu vaccine were found to be frequently reported by a significant number of participants.

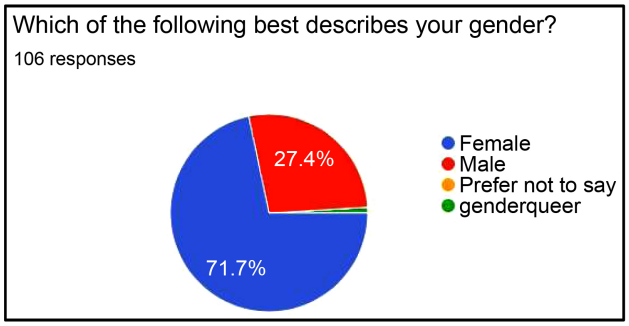
4.4.1. Location

Furthermore, of the total number of participants, 39.3% (42 participant) reported not getting the flu vaccine at all during the Fall semester of 2017. Participants who indicated receiving the flu shot at the Saint Martin's University's Student Health Center during the Fall semester of 2017 represented 19.6% (21 participant) of the total participants' number, while 32.7% (35 participant) reported getting the flu vaccine at other clinics. Some participants constituted in 8.4% (9 participants) still indicated receiving the vaccine but at other non-clinical settings (e.g., Walgreens' & Walmart's). Although the number of participants who received the flu shot at the SMU Student Health Center was found to be comparatively insignificant as opposed to those who got vaccinated at other clinics, records obtained from the SMU Student Health Center showed that the number of SMU community members who got the flu shot during the year of 2017 has increased as opposed to the number of flu vaccines given in past years. Based on records obtained from the SMU Student Health Center, during the year of 2015, the flu vaccines received by the Saint Martin's University's community members was 189. But, the flu vaccines received by the SMU community members in the year 2016 has been 148.

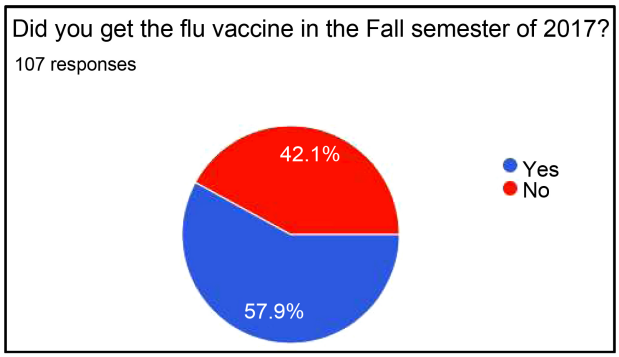
4.4.2. Social Media Use

It is noteworthy, the SMU Student Health Center did not employ social media applications for promoting the flu vaccine on the SMU campus in 2015 nor in 2016. However, when the SMU Student Health Center in the year of 2017 harnessed social media platforms, especially Twitter and E-mail, the number of the flu vaccine received by the SMU community members significantly increased as opposed to both years 2015 and 2016. According to records obtained from the SMU Student Health Center, during the year of 2017, the number of the flu vaccines received by SMU community members was 211. Moreover, 62% (62) of respondents indicated that they saw the social media posts that were sent through e-mails. As a result, they interacted and got the flu vaccine, while 44% (44) respondents reported not seeing/receiving the social media posts through emails.

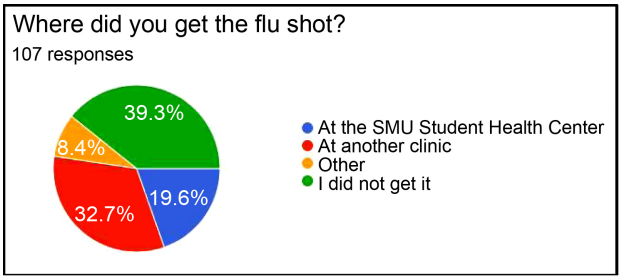
In addition, participants were asked to indicate whether or not they think other people should get the flu vaccine with explaining why they think other people should or should not receive the flu vaccine. 16% (17 respondents) reported that other people should not get the flu shot, while 84% (89 respondents) indicated their recommendation and assertively emphasized that others should receive the flu vaccine every season for both personal and public immunity and protection. It is noteworthy, most respondents who recommended others to take the flu shot emphasized the public "community" health more than personal. For those who indicated unnecessity of taking the flu vaccine, most respondents revealed that due to the ineffectiveness of the flu shot, people should not waste their money and time to take it.



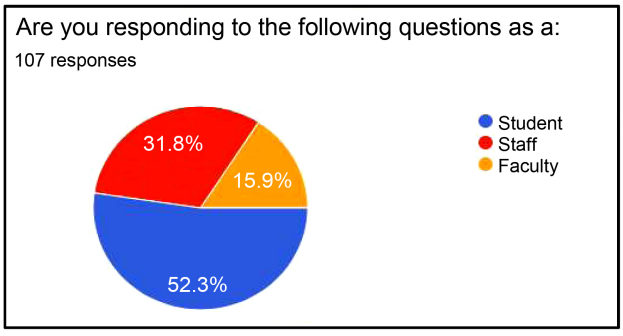
This chart displays participants' gender in percentages.



This chart displays the number of both respondents received the flu vaccine and those who indicated not getting vaccinated.



This chart shows in percentage the number of respondents received the flu shot at the SMU Student Health Center, other clinics, non-clinical settings as well as the number of participants reported not receiving the flu vaccine.



This chart displays in percentage the number of faculty, staff and students' respondents who got vaccinated against the influenza.

4.5. Discussion

Social Implications:

There are several distinct social implications of the present study's findings. Creating a healthier and more immunized society is one of the most prominent social implications of the present study's findings. As mentioned in results section, many respondents reported that the motivation that propelled them to get the flu vaccine was because they are part of the school's sport team. Moreover, a number of other respondents reported that they received the flu shot because they have always been believing that getting vaccinated against the influenza is a habitual annual practice for all family members. By being required by employer and/or sponsor to get the flu vaccine every season, the party requiring one to get vaccinated is greatly assisting and being an important part of establishing a healthier and more immunized community. Similarly, when parents/guardians grow the habit of getting the flu shot seasonally in their offspring, they are contributing to the process of making the society healthier and more immunized as well as they are contributing to the process of the public health promotion. Most respondents indicated that they received the flu vaccine at other clinics (not at the SMU Health Center), and this is still be viewed as one of the constructive social implications of the present study's findings. Although the vast majority of participants reported getting the flu shot outside the SMU Student Health Center, employing social media applications for promoting public health caused people to get vaccinated against the influenza. And, the increase in the number of people getting vaccinated against the flu was one of the main goals the present study aimed to achieve. Thus, this finding represents a good social implication came about in the present study. As previously pointed, 84% of respondents indicated their high recommendation for other people to get vaccinated against the influenza, while 16% of participants did not demonstrate nor recommend others to get the flu shot. This finding may signify the desirable social implication that was brought about by the use of social media applications for the promoting of public health. By looking at percentages, one could notice the obvious discrepancy between those who did not recommend others to get vaccinated and the flu vaccine supporters/recommenders. Those who recommended other people to get the flu shot significantly represented a higher number as opposed to those who opposed the vaccine and/or recommended others to receive it. And, this finding signifies the wanted and constructive social implication.

Social Significance:

The use of social media applications for promoting public health including the flu vaccine on Saint Martin's University's campus helped augmenting the number of SMU community members to get vaccinated. Although the number of people reported receiving the flu shot at the SMU Student Health Center was comparatively trivial to those who got vaccinated elsewhere, the utilization of social media platforms for promoting public health and encouraging the community members to get vaccinated against the influenza brought about an in-

crease in the number of people receiving the shot according to documents obtained from the SMU Student Health Center. Hence, this finding may be viewed as a social significance of the present study, because it signifies the use of social media applications for the promotion of public health as a tool that brings about beneficial desirable outcomes for the society as a whole.

Collectively, several of the present study's findings demonstrated both social significance and social implications. A number of findings in the present study showed how contemporary societies can become healthier and more immunized by employing social media applications for promoting public health. The main reason behind the use of social media platforms being beneficial is that, social media applications' ability to reach considerably massive populations not only locally but also around the world in no time. Moreover, nowadays and probably future generations are a lot more inclined to utilize social media in general as the primary means of communication, which they spend most of their time on.

5. Conclusion

The *Interrupted Time Series* Design was one of several methodological approaches the present study employed. When employing this methodological approach, the present study utilized several different interventions as previously explained in detail in the method section. A few weeks later, detailed reports were obtained from the Saint Martin's University's Student Health Center. Those reports revealed the number of the flu vaccines given in the last three years. According to records obtained from the SMU Student Health Center, during the year of 2015, the flu vaccines received by the Saint Martin's University's community members has been 189. But, the flu vaccines received by the SMU community members in the year 2016 has been 148. Noteworthy, the SMU Student Health Center did not employ social media applications for promoting the flu vaccine on the SMU campus neither in the year of 2015 nor in 2016. However, when the SMU Student Health Center in the year of 2017 harnessed social media platforms, especially Twitter and E-mail, the number of the flu vaccine received by the SMU community members significantly increased as opposed to both years 2015 and 2016. According to records obtained from the SMU Student Health Center, during the year of 2017, the number of the flu vaccines received by SMU community members was 211. Obviously, the increase of the number in the flu vaccines given to the SMU community members in the present study is attributed to the utilization of social media applications and the role they played in promoting the flu vaccine on Saint Martin's University's campus. Moreover, the increase in the number of flu vaccines received by the SMU community members refers to the degree of the strong influence and the success that social media platforms achieved in promoting public health including the flu vaccine among the SMU community members. Hence, the use of social media platforms has had an impact on participant. Thus, social media applications are efficient and successful tools that public health organizations/agencies may rely on for promoting

vaccines among people as well as promoting and increasing public health consciousness among individuals.

The *scan and review of existing literature* was another methodological approach that the present study employed. After reviewing the existing literature and evidences including a search and a revision of academic papers (e.g., peer-reviewed studies) purposefully for investigating and identifying whether or not the use of social media applications for promoting public health is an effective and successful strategy, the present study gleaned several significant findings. First, the utilization of social media platforms is an efficient and a successful strategy as compared to many other strategies employed by a number of organizations for promoting public health. Second, the effectiveness of social media, ability to reach more people, and influence can vary based on the type of social media application employed and the number of people use it. Third, a handful of public health organizations/agencies, but not all utilize social media platforms for promoting public health among patients as well as communication between physicians/providers and their patients. Moreover, some social media applications can be more effective and successful due to the specific features they possess which some other applications lack. In fact, some social media platforms like the Facebook allow its users to like, comment, and publically share. Some other applications have no such options or features. Also, there are several specific strategies can be employed for achieving better outcomes, especially as hook to attract users' attention when promoting public health through social media applications. Inclusion of well-known athletes as well as other famous individuals is an efficient and an influential strategy that leads to achieving better results.

Methodological limitations can be one of several hurdles that may impact or somewhat bias the findings. In terms of methodological limitations, inability to access larger population was the only methodological limitation the present study experienced. In other words, the present study wished to have access to another population besides the Saint Martin's University's community members where the likelihood to obtain more information as much as the researcher wanted can be done. Having access to larger population not only would have enriched the data this study has collected, but also it could have allowed the study to more likely ensure that both compromise and bias of findings are avoided altogether.

Social media platforms can be employed for many distinct purposes. Augmenting people's consciousness about public health and how society can be healthier is a significant dimension that social media applications can be used for. Since the number of social media platforms' users becomes considerably greater, social media applications become more attractive and more effective tool to be employed for promoting public health. Moreover, saving time and reaching greater number of people in no time are some of those attractive features that social media possess. Therefore, social media platforms seem to be a helpful and effective strategy to be utilized for public health promotion.

The present research study aimed to evaluate the use of social media applica-

tions for the promotion of public health through a variety of methods including *Interrupted Time Series*, *the scan and review of existing literature*, *and eventually through electronically distributing an online survey*. The present research study comparatively analyzed data based on obtained records from the SMU Student Health Center. By doing so, this research will contribute to the area of whether the use of social media applications are effective tools for promoting public health including the flu vaccine as well as the present study will contribute to the both empirical studies concerning this subject and the existing literature related to the efficacy of the utilization of social media platforms for the promotion of public health.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Allen, J. A., Davis, K. C., Kamyab, K., & Farrelly, M. C. (2014). Exploring the Potential for a Mass Media Campaign to Influence Support for a Ban on Tobacco Promotion at the Point of Sale. *Health Education Research, 30,* 87-97. https://doi.org/10.1093/her/cyu067

Balatsoukas, P., Kennedy, C. M., Buchan, I., Powell, J., & Ainsworth, J. (2015). The Role of Social Network Technologies in Online Health Promotion: A Narrative Review of Theoretical and Empirical Factors Influencing Intervention Effectiveness. *Journal of Medical Internet Research, 17,* e141. https://doi.org/10.2196/jmir.3662

Bernard, H. (2013). *Social Research Methods: Qualitative and Quantitative Approaches*. Sage Publication.

Charon, L. (2007). An Inspirational Tale for Employee Engagement. *Journal of Leadership Studies, 1,* 3-89. https://doi.org/10.1002/jls.20029

Cheek, N. N. (2023). People Think the Everyday Effects of the COVID-19 Pandemic Are Not as Bad for People in Poverty. *Journal of Experimental Psychology: Applied, 29,* 425-439. https://doi.org/10.1037/xap0000442

Conte, A., Quattrin, R., Filiputti, E., Cocconi, R., Arnoldo, L., Tricarico, P., Delendi, M., & Brusaferro, S. (2016). Promotion of Flu Vaccination among Healthcare Workers in an Italian Academic Hospital: An Experience with Tailored Web Tools. *Human Vaccines & Immunotherapeutics, 12,* 2628-2633. https://doi.org/10.1080/21645515.2016.1186319

Gurm, K., Wampold, B. E., Piatt, C., Jagodzinski, R., Caperton, D. D., & Babins-Wagner, R. (2023). Effectiveness of Telemental Health during the COVID-19 Pandemic: A Propensity Score Noninferiority Analysis of Outcomes. *Psychotherapy, 60,* 231-236. https://doi.org/10.1037/pst0000472

Hatzifoti, C., & Heath, A. W. (2009). Influenza in the Elderly. In S. L. Percival (Ed.), *Microbiology and Aging: Clinical Manifestations* (pp. 113-130). Humana Press. https://doi.org/10.1007/978-1-59745-327-1_6

Kite, J., Foley, B. C., Grunseit, A. C., & Freeman, B. (2016). Please Like Me: Facebook and Public Health Communication. *PLOS ONE, 11,* e0162765. https://doi.org/10.1371/journal.pone.0162765

Korda, H., & Itani, Z. (2011). Harnessing Social Media for Health Promotion and Beha-

vior Change. *Health Promotion Practice, 14,* 15-23. https://doi.org/10.1177/1524839911405850

Latha, K., Meena, K. S., Pravitha, M. R., Dasgupta, M., & Chaturvedi, S. K. (2020). Effective Use of Social Media Platforms for Promotion of Mental Health Awareness. *Journal of Education and Health Promotion, 9,* Article No. 124. https://doi.org/10.4103/jehp.jehp_90_20

Lee, C. (2012). The Role of Social Capital in Health Communication Campaigns: The Case of the National Youth Anti-Drug Media Campaign. *Communication Research, 41,* 208-235. https://doi.org/10.1177/0093650212446332

Mead, G. H. (1934). *Mind, Self, and Society from the Standpoint of a Social Behaviorist.* University of Chicago Press.

Mena, G., Llupià, A., García-Basteiro, A. L., Sequera, V., Aldea, M., Bayas, J. M., & Trilla, A. (2013). Educating on Professional Habits: Attitudes of Medical Students Towards Diverse Strategies for Promoting Influenza Vaccination and Factors Associated With the Intention to Get Vaccinated. *BMC Medical Education, 13,* Article No. 99. https://doi.org/10.1186/1472-6920-13-99

Noar, S. M. (2006). A 10-Year Retrospective of Research in Health Mass Media Campaigns: Where Do We Go From Here? *Journal of Health Communication, 11,* 21-42. https://doi.org/10.1080/10810730500461059

Oliver, C. (2011). The Relationship between Symbolic Interactionism and Interpretive Description. *Qualitative Health Research, 22,* 409-415. https://doi.org/10.1177/1049732311421177

Shibutani, T. (1955). Reference Groups as Perspectives. *American Journal of Sociology, 60,* 562-569. https://doi.org/10.1086/221630

Thackeray, R., Neiger, B. L., Smith, A. K., & Van Wagenen, S. B. (2012). Adoption and Use of Social Media among Public Health Departments. *BMC Public Health, 12,* Article No. 242. https://doi.org/10.1186/1471-2458-12-242