Effects of Perceived Susceptibility Covid-19 Television Messages on Vaccine Adoption Behavior among Youths in Kiambu County

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Abstract

Covid-19 is the recent global health pandemic which has caused a lot of deaths across the globe. The pandemic severity ranged from mild to severe with risks increasing with age. One of the notable interventionsin increasing vaccine measures and adoption of the protocols put in place was through communication. The television was fast in sharing messages pertaining to the likelihood of contraction. These messages swayed public opinion resulting in different behavioral patterns, and for this, case adoption or rejection of different Covid-19 vaccines. As such the study aimed at investigating the effects of perceived susceptibility Covid-19 television messages on vaccine adoption behavior among youths in Kiambu County. The study adopted mixed method methodology, such that the data was analyzed qualitatively and quantitatively for validity. The qualitative data was derived from news items on Covid-19 for Citizen TV, NTV and KTN. Further 346 respondents participated in the questionnaires. From the Categorization analysis 98.5% youths felt susceptible while 1.5 % unsusceptible. The Chi square test returned a statistically insignificant results ($x2=0.408$, $df=1$, $p=0.412$), odds ratio [AOR: 2.1, 95% CI] and analysis of variance regarding the two categories returned insignificant value with p at 0.418. This implied that the perceived susceptibility Covid-19 television messages had no influence on Covid-19 vaccine uptake among youths in Kiambu County.

Keywords: Perceived susceptibility, pandemic, Covid-19, vaccine, adoption behavior

INTRODUCTION

Covid-19 is the recent global public health crisis which was declared a pandemic in March 2020. The pandemic emerged in China in December 2019 and its spread elevated topics of concern globally (Khanna et al., 2020; Van Damme, 2020). The pandemic was a major cause of deaths from its emergence to 2022 (WHO,2022).According to Tarakini et al. (2021), the pandemic was more than a health crisis due to it dynamism in affecting different societies and economies. The effects varied globally based on the exceptional systems, cultures, economy and development. The impacts, informed the government and partners towards tailoring responses.

The first Covid-19 case was confirmed in Africa in May 2020 and in March 2020 another case was confirmed in Kenya. This prompted the need for timely data and evidence for the purposes of mitigation. The virus was transmitted by person-to-person contact and could be controlled by social distancing, washing hands, putting on face masks, sanitizing, and vaccination. In January 2020, the Covid-19 geneticsequence was shared through Genetic Initiative on sharing all Influenza Data (GISIAD) which saw major commitment to address the virus. In March 2021, Kenya received the first consignmentof 1.02million AstraZeneca Vaccine, which saw theMinistry of Health launch plans and campaigns in conjunction with

the media to vaccinatefrontline workers (WHO, 2021) and later in August 2021 mass vaccination.

Noticeably, one of the major interventions towards dealing with pandemic was use of efficient communication. The media at large played a vital role in adoption and prevention behavior in society. During Covid-19 pandemic, the Television was swift in sharing about the risks of the pandemic (Ranjit et al., 2021).The risks messages were aimed at causing denial of contractions; feelings of one can contract Covid-19. The youths' knowledge on stages of pandemic was intrinsically shaped by the messages broadcast via television.Further, studies done in China revealed that the public willingness to obey the protocols put in place was influenced by the information at hand (Zhong et al., 2020). In support of this, Banik et al. (2021) found out that 6 in every 10 youths had information about Covid-19 in Bagladesh. In a similar study conducted in Kenya by Karijo et al. (2021), it was found out that there was high information consumption by youths and knowledge of Covid-19 symptoms, prevention and coping strategies as aired via different communication channels.

Further, MacFarlane and Rocha (2020); Mheidly and Fares (2020); Radu (2020), state that while communicating on health pandemics, the population takes information as it is. Liang et al. (2020); Chaiuk and Dunaievska (2020); Yoshioka and Maeda (2020), state that information can influence people's perception and behavior, psychological disorders inclusive. According to Brindha et al. (2020), the media was employed to diffuse susceptibility information about the novel pandemic. As such, the youthswere exposed to all sorts of information from different media platforms on Covid-19 content.

In a research conducted by Tang and Wong (2003), on *predicators of health behaviors and effect of community prevention measures in Hong Kong*, it was found out that Chinese citizens with low susceptibility engaged less in mitigation measures (De Coninck, 2020) as with Covid 19 pandemic. Additionally, in addressing the roles of perceived susceptibility and severity constructs, health theories bring out the aspect of external stimuli such as informational cues such as interpersonal communication, persuasive messages and for this study, media content can influence preventive behavior of diseases (Ranjit et al., 2021).

According to Jones et al. (2015), informational cues affect health behavior by influencing perception of susceptibility of a disease. The perception gained from acquiring media content with susceptibility message components may motivate people to engage or disengage in a specific behavior. Further study by Chang (2016) on behavioural *recommendations in health research news as cues to action: self-relevancy and self-efficacy processes* found out that health media coverage influences behavioural intention through cognitive processing of risk evaluation, social norms in health areas, for instance, the 2009 H1N1(Driedger, 2021).

Vidanapathirana et al. (2005), in their study on mass media interventions for promoting HIV testing, found out that media influence perception of health risks and end up getting tested. Similarly, Lin andLagoe (2013), in their study on the *effects of news media and interpersonal interactions on H1N1 risk perception and vaccination intent* found out that perceived susceptibility messages influence people to get vaccinated against H1N1 flu.In a study measuring *threat perception and information cues influencing behavior*, Ranjit et al. (2021) found out that people are unlikely to adopt recommendations unless they believe that they are vulnerable. During public health emergency people are required to understand the risks of the disease and safety measures. For instance, the scientific understanding is not constant, it keeps changing daily. As such the updates were communicated resulting in new recommendations which calls for different preventive behavior. According to Elliot and Thrash (2016), people must feel at risk threatened to avoid.

Ranjit et al. (2021), citing of susceptibility messages in the media content and usage statements such as *one is at risk of getting Cov1d-19, chances of getting Covid-19 are high, we are all vulnerable to the pandemic, there is likelihood of contracting Covid-19 and reporting on high percentages of contractions* induce certain perception and behavior in the society. Media-channeled susceptibility messages elicit undesirable perception, reactions and reproduce as well as challenge existing stereotypes about a pandemic.

In addition, De Rosa and Mannarini (2020) noted that people estimate susceptibility and prevalence of an infectious pandemic in correspondence to example and misrepresentations of issues in the media content. Exposure to media content towards pandemics on the threats, risks, causal, solution and responsibility creates different behaviours(Ngure & Mberia, 2019). In this regard, the present study explored the effects of perceived susceptibility messages. The main objective of the study was to investigate the effects of perceived susceptibility towards Covid-19 television messages on vaccine adoption behavior among youths in Kiambu County. The null hypothesis was stated as below:

Ho₁: Perceived susceptibility Covid-19 television messages have no significant effects on the vaccine adoption behavior among youths in Kiambu County.

METHODOLOGY

The study was mixed, and the data was analyzed qualitatively and quantitatively for validity of the study. The qualitative and quantitative data employed cross-sectional research design while qualitative data used content analysis. The cross-sectional research design was applied to measure the outcome of television messages on Covid-19 versus the adoption of Covid-19 vaccine among Kiambu County youth. The cross-sectional research design accounted for acceptance and rejection of adoption behavior and the accompanying exposures of Kiambu county youths especially when the vaccines were made available to every Kenyan (Kothari, 2004); 23rd August to December 2021, the period in which national Covid-19 vaccination in the country was rolled out (MoHK, 2021c).

Further, to describe the messages, the researcher employed content analysis. This is because the research topic was established on content analysis of television news content on Covid-19 pandemic for message elements to be derived from video clip. Additionally, more data was collected through questionnaires on effects of Covid-19 pandemic television messages and moderating variables effects. Thus, the investigator sought to find out the effects of Covid-19 television messages on vaccine adoption behavior among youths in Kiambu County by use of content analysis and questionnaire.

Population for television messages was three television stations (Citizen TV, KTN and NTV) for content analysis and youths in Kiambucounty, Kenya. Based on Media Council of Kenya state of the media report 2021, Citizen TV is the most watched TV station with 27% followed by KTN 11% then NTV 9% (MCK, 2021). Further, the MCK (2021) noted that 58% of Kenyan consume TV content in a typical day where the most watched content is news, followed by entertainment, religious content, and sports content.

Going by the report from Ministry of Health Kenya dated 30th May 2022, approximately 8.45 million people had been fully vaccinated against Covid-19 country wide with only 579458 people from Kiambu country. This statistics of the fully vaccinated people in the county was very low (MoHK, 2022) against the MoHK 1.7 million people target by December 2021.

Further, according to Joachim et al. (2022), media actively engage with different sources of information. Joachim et al. (2022) found out that the common sources of Covid-19

content was social media at 40.30% followed by TV programs at 31.43% and then radio at 23.9%. As such, an indicator of youths watched television content.

The studywas narrowed down to Thika Town Constituency, Ruiru constituency and Kiambaa constituency in KiambuCounty. They had five and above Covid-19 vaccine centers(MoHK, 2021b). Thika Town constituency is highly populated; most developed and has the highest number of hospitals among other constituencies in the county while Ruiru and Kiambaa Constituencies come 2nd and 3rd in the list of the constituencies that had the highest number of vaccine centers. In addition, out of the 53 Covid-19 vaccine centers, 13 of them were in Thika Town Constituency, Ruiru constituency had 8 and Kiambaa town constituency had 6 centers (MoHK, 2021b).

The quantitative data derived from the questionnaires were analyzed using content analysis. The questionnaires, arranged according to codes, were then analyzed using Statistical Package for Social sciences software. Inferential and Descriptive statistics was used to interpret the quantitative data obtained on variables appropriate to the objective of the study. The researcher analyzed different videos clips from You Tube. The news video clips were analyzed using qualitative content analysis as a research instrument. The content analysis instrument helped in compressing video clips content into Covid-19 messages transcripts. The transcriptions were done using Rask AI and YouTube software. The transcripts allowed the researcher to make suggestions and explanation on the unsaid, and dominance ideologies (Fairclough, 2003).

RESULTS

To determine the social demographics characteristics of youths who participated in the study. The demographic characteristics included age, gender, religion, and education. The distribution is presented in table 1:

Table 1: Distribution of Social demographics of respondents

Social demographics of respondents					
Age	**Frequency**	**Percentage**	X^2	**df**	**p-value**
18-24	284	82.1	.003	2	0.008
25-30	46	13.3			
31-35	16	4.6			
TOTAL	346	100.0			
Gender	**Frequency**	**Percentage**	X^2	**df**	**p-value**
Female	225	65.0	.009	1	0.009
Male	121	35.0			
TOTAL	346	100.0			
Religion	**Frequency**	**Percentage**	X^2	**df**	**p-value**
Christian	295	85.3	.910	2	0.668
Muslim	40	11.6			
Traditional	11	3.1			
TOTAL	346	100.0			
Level of education	**Frequency**	**Percentage**	X^2	**df**	**p-value**
Primary & below	3	0.9	.039	3	0.008
Secondary	17	4.9			

Vocational/college	96	27.7
University	230	66.5
TOTAL	346	100.0

Data collected showed that majority of the youths were aged between (82.1 %) 18-24. This was followed by respondents aged between 25 to 30 and 31 to 35 years, 13.3% and 4.6% respectively. Combining the two age groups accounted for 17.9% of all the respondents. This asserts that those aged between 18 to 24 years took or did not take vaccines. The number decreased with age increase. Further, the Chi-square test with p value set at P=0.05 returned statistically significant results (X^2=.003, df= 2, P= 0.008).

Further, most of the respondents were females, 65% were females and 35% were males and 225 females out of 346 respondents participated in the study. The Chi-square, results were (X^2=0.009, df=1, P= 0.009).The findings revealed that more than 85.3 % of the respondents were Christian, 11.6% were Muslims and 3.1% were traditional. The chi-square test returned a statistically insignificant results (X^2= 0.910, df=2, p=0.668). Further, those respondents who attained primary school level of education and below were 0.9 %, those who attained secondary level were 4.9%, while 27.7 % had college education and 66.5% who were the majority had attained university education and above. The chi-square test returned statistically significant results (X^2=0.039 df=3, p=0.008).

Television messages
The data collected showed that out of 17 news videos analyzed from Citizen TV, 16 perceived susceptibility elements, out of 7 from KTN, 7 had perceived susceptibility, out of 6 from NTV, 6 had perceived susceptibility. Borrowing from HBM and EPPM threat messages comprise two aspects: *Perceived severity and susceptibility*.In susceptibility, too much fear may not lead to desired results since people who are at risk of contraction pay least attention to threatening messages. In Covid-19 news reports on infections and recoveries the pandemic was perceived as either probable or highly probable. From the three sampled TV stations the messages had susceptibility appeals as demonstrated in the transcripts.

MOH alarmed by the rising Covid-19 infections in the Country

*In the last 24 hours, the positivity rate has jumped to a worrying 18%, sparking fears of a new wave. Health cabinet secretary Mutahi Kagwe says the current spark has…*https://youtu.be/BkRHvR1ZUgM

COVID-19 positivity rate at 30.6% as MOH announces 1,223 new cases

*The Covid-19 rate has continued on an upward trend today after 1223 people tested positive for the disease, from a sample size of 4,003 tested in the last 24-hours…*https://youtu.be/3LOPhJkG0HI

Susceptibility Category
To investigate the effects of perceived susceptibility Covid-19 television messages on the vaccine adoption behavior among youth in Kiambu County, it was important to look for susceptibility categories. The findings were as presented in the tables below.

Table 2: Susceptibility Category

SUSCEPTIBITY CATEGORRY		
	Frequency	Percent
Not susceptible	5	1.5
Susceptible	334	98.5
Total	**339**	**100.0**

Based on the findings, out 339 youths who had watched Covid-19 content via different TV stations, majority of the youths felt susceptible; 98.5% youths felt susceptible while 1.5% did not feel susceptible. From the score and categorization of the seven susceptibility elements, a scale of 0-17.5 was categorized as not susceptible and a scale of 17.6-35 was categorized as susceptible. These findings demonstrated that people feel susceptible or unsusceptible after receiving risk information. The risk perception stems from messages received.

Chi-square test returned a statistically insignificant results ($x2=0.408$, df=1, p=0.412). Additionally, based on the odds ratios computation the study revealed that the odds of vaccine adoption among youths in Kiambu County who perceived themselves as susceptible was 2.1 times compared to those who did not perceive themselves as susceptible [AOR: 2.2, 95% CI]. This implied that the youths who were susceptible were more likely to adopt Covid-19 vaccines compared to those who were not susceptible. The perceived susceptibility messages reflect the subjective risk of contracting diseases, thus denial or acceptance of contraction. Perceived susceptibility is crucial in regular protection behavior.

Finally, analysis of variance regarding the two categories of respondents (those who perceived themselves as susceptible and those who did not) was done based on the susceptibility scale. The findings were as indicated in the table 3.

Table 3: Perceived susceptibility statistical findings

Binary logistics regressions							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1ᵃ	Susceptibility	.744	.920	.655	1	.418	2.104
	Constant	-1.15	1.829	.395	1	.530	.317

As demonstrated in the table the P value (P=0.418) is greater than 5% which implies of no statistical relationship between perceived susceptibility Covid-19 television messages and vaccine adoption behavior among youths in Kiambu county.

Vaccine adoption patterns
The study sought to find out whether the youths had received Covid-19 vaccines. The finding on vaccine adoption rate was as illustrated below:
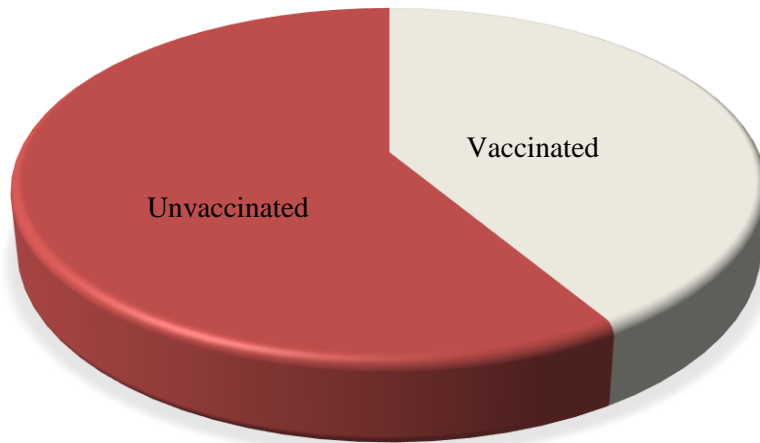
The study found out that majority of youths in Kiambu County had not been vaccinated. 202 (58.4 %) out of 346 youths had not received vaccines and 144 (41.6%) youth had been vaccinated with different vaccines. Media is a key tool in fight against pandemic. This is because how the media designs and disseminates news influences mitigation measures. Increasing vaccines hesitancy was noted globally (Kennedy, 2020; Richmond et al., 2020).This finding collaborates with Osur et al. (2020), that regardless of availability of Covid-19 messages and free vaccines the uptake of the same remained low among youths; 65.0% of youths correlated their rejection of vaccines to information, drug effectiveness and safety 42.0% and 45. % respectively (Osur et al., 2022). Further, Sileo (2024) noted that there was hesitancy of Covid-19 vaccine adoption across different demographics.

Discussion

The study sought to find out whether the perceived susceptibility Covid-19 messages had any effect on vaccine adoption behavior among youth in Kiambu County. The findings were that the perceived susceptibility Covid-19 television messages had no influence Covid-19 vaccine uptake among youths in Kiambu County. Further, the results agree with the null hypothesis:

Ho$_1$: *Perceived susceptibility Covid-19 television messages have no significant effects on the vaccine adoption behavior among youths in Kiambu County*.

The findings of this study disagree with prior studies, that when people perceive themselves susceptible, they are likely to be vigilant and are prevention focused against contraction (Updegraff et al., 2015). However, when people perceive themselves less susceptible, they ignore control measures.

Further, television Covid-19 news items were sources of risk related information as Kenyans made decisions on whether to observe protocols put in place or go for vaccines. By airing fear messages through analysis of daily new infections, deaths, recovery, those in ICU and home-based care unit per different demographics (counties, gender and age) showed the probability of infections (*I can contract Covid-19, or I cannot contract Covid-19*). The extent to which individuals considered Covid-19 to be probable led to attitudes, Covid-19 behavioural control and information seeking on the pandemic.

Further, people are unlikely to adopt recommendations unless they believe that they are vulnerable (Ranjit et al., 2021). On the contrary, as elaborated by the HBM, the perceived susceptibility construct may not always lead to desired outcomes due to perceived barriers

and stimulus needed to initiate decision-making process to acceptance of the health action (Champion & Skinner, 2008).

Further, the modifying variables such as demographics, psychosocial and structural variables can influence health action. As much as the media shares pandemic information using the susceptibility frames, positive results are not guaranteed. The cue to action, perceived barriers and moderating variables can affect the perception of health-related behavior (Sulat et al., 2018).

Conclusion

The study found that there was low vaccine uptake amongst youth regardless of the susceptibility messages on Covid-19. This implies that the susceptibility messages did not influence adoption of vaccine among the youths. From the categorization analysis majority (98.5%) felt susceptible. People are likely to adopt health measures if the perceive themselves as susceptible, but this was not the case. Therefore, the study concluded that perceived susceptibility messages may not always lead to positive and desired results in health campaigns and communication.

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