Encouraging vaccination against Human Papillomavirus: A case study of the Gauteng Department of Health's social media health messaging

Submitted by Alifa Dil Hossain

Student Number: 214505550

Thesis submitted in fulfilment of the requirements for the degree of

Master of Social Science in Counselling Psychology

In the

DISCIPLINE OF PSYCHOLOGY

School of Applied Human Sciences, College of Humanities, University of KwaZulu-Natal, Pietermaritzburg, South Africa.

August 2024

Supervised

by

Dr Nicholas Munro
(Supervisor)

DECLARATION

I, Alifa Dil Hossain, declare that:

1. The research reported in this thesis, except where otherwise indicated, is my original research.

2. This thesis has not been submitted for any degree or examination at any other university.

3. This thesis does not contain other persons' data, pictures, graphs, or other information, unless specifically acknowledged as being sourced from other persons.

4. This thesis does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

a. Their words have been re-written, but the general information attributed to them has been referenced.

b. Where their exact words have been used, then their writing has been placed in italics and inside quotation marks and referenced.

5. This thesis does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the thesis and in the References sections. The cover page from a Turnitin originality report is included as Appendix 2

Signature of student

Date: 31 May 2024

Signature of supervisor

Date: 13 August 2024

DEDICATION

This dissertation is dedicated to my late father and best friend, Ebrar Hossain, who taught me to never give up on my goals irrespective of the hurdles. I would not have dreamt to become a psychologist if it was not for him introducing me to the profession, and that inspired me to opt for a career path as a mental health professional. My drive to persevere through hardship and pursue excellence came from him. He has always been my biggest cheerleader and his passion for life will continuously motivate me to do my best.

ACKNOWLEDGEMENTS

My dedication and motivation to complete this dissertation took a lot of effort and hard work, but it is incomplete without making a few special mentions to those who helped me reach this point in my life and career:

- First and most importantly, I want to express immense gratitude to the Almighty for guiding me through this difficult and challenging journey. Thank you, Oh Almighty, for blessing me with this opportunity, granting me patience, and the strength to continue.
- A huge thank you goes to my supervisor, Dr Nicholas Munro, for being the most responsive, helpful, efficient, and the best supervisor I could have ever asked for. Your continued academic support is highly appreciated.
- Thank you to my mother, Delowara Begum Hossain, for always making my life easier so that I could finish my degree with ease. I appreciate all the effort that you've continuously made for me to achieve my dream. Thank you Mummy for helping me wholeheartedly even before I could ask.
- Thank you to my sisters Nithi and Ramina Dil Hossain, you both always pick me up whenever I feel down, and you were always a call away. Thank you for your consistent understanding and upliftment.
- I'd like to take a moment of appreciation to all my friends who comforted me during unfortunate times while completing this thesis. I love you all!
- Last but not the least, thank you Ahhad for pushing me to finish my qualification, standing beside me, cheering me on, and supporting me to reach my goal. I would not be at this point in my life without you.

ABSTRACT

The Human Papillomavirus (HPV) is one of the most widely spread Sexually Transmitted Infections (STI) and frequent exposure can cause cervical cancer in women, often resulting in death. Due to the high incidence of cervical cancer fatalities, the World Health Organisation (WHO), recommended the HPV vaccine as a prevention strategy. In South Africa, cervical cancer is the leading cause of cancer-related deaths among women. Since 2014, the South African government rolled out a free HPV vaccine, to girls attending public schools in grade 5 aged 9 years or older, in an attempt to reduce their risk of developing cervical cancer. Despite initial programme success within the first few years of the rollout, the HPV vaccine uptake has decreased since and especially during the COVID-19 pandemic. It was found that 'anti-vaxxer' attitudes further impacted all vaccine initiatives and that these attitudes and opinions tended to be most vocal on the variety of social media platforms available today. Social media has become a main mode of communication and a primary source of information for many across the world. This study aimed to explore the social media health messaging regarding the HPV vaccine programme for schoolgirls and public's reactions to these health messages on the Gauteng Department of Health's (GDOH) social media handles and official website. The GDOH was specifically chosen for this study due being the most populous province and the economic hub of the country. Grounded in the Health Belief Model (HBM), this qualitative study aimed to analyse health messaging conveyed by the GDOH, how it was received by the public, and what health beliefs were elicited from the HPV vaccine programme's health messaging. It was found that the GDOH used timing, repetition, combining the HPV vaccine programme with other health initiatives, and education regarding HPV vaccine prevention against cancer, as health communication strategies to increase and motivate for HPV vaccine uptake. It is identified that the public became disinterested from the use of repetitive posts, demanded further education and information pertaining to the HPV vaccine, contested the age group chosen, and viewed the HPV vaccine programme as gendered. Data from the GDOH's social media and official website indicate that all six constructs of the HBM were strategically implemented to motivate parents and guardians to consent for the HPV vaccine. However, the GDOH needs to engage and collaborate with the public further to effectively increase and improve HPV vaccination uptake among schoolgirls.

LIST OF FIGURES

LIST OF TABLES

Table of Contents

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This introductory chapter provides an overview of the contextual foundations of the research reported in this dissertation. The research was focused on the health communication strategies used by the Gauteng Department of Health (GDOH) as part of their Human Papillomavirus (HPV) vaccine programme, which is delivered through the Integrated School Health Programme (ISHP) -based, coordinated, and implemented jointly by the Departments of Basic Education, Health, and Social Development (Integrated School Health Programme (ISHP), 2012). The chapter first provides the background and rationale for the study, and then the objectives of and need for the study, and related research questions. The section of the chapter detailing the background and rationale of the study also integrates a justification for the study by providing relevant contextual knowledge which lead to the current research problem.

1.2 Background and rationale to the study

One of the most widely spread Sexually Transmitted Infections (STI) is HPV (Mavundza et al., 2021). While HPV is generally asymptomatic, research indicates that women frequently infected by certain types of HPV are more susceptible to developing cervical cancer, which can sometimes be fatal (WHO, 2020). Certain HPV types can cause several other cancers such as anal, vaginal, vulva, penile and oropharyngeal cancer (de Martel et al., 2017).

The World Health Organisation (WHO) (2022) reports that more than 95% of cervical cancer globally is caused by HPV. More specifically, “cervical cancer is the fourth most frequently diagnosed cancer and the fourth leading cause of cancer-related death among women worldwide” (Amponsah-Dacosta et al., 2022, p.2). Due to the high incidence of HPV causing cervical cancer, the WHO recommends the HPV vaccine to create immunity and prevent cervical cancer (Wiyeh et al., 2019). Countries ought to reach 90% of HPV vaccine coverage for girls under the age of 15, 70% of women should be screened for cervical cancer from the ages of 35 to 45, and 90% of cases with cervical diseases should be treated by the year 2030 for effective combatting of cervical cancer (WHO, 2022a; WHO, 2020).

As mentioned above, there are various strains or types of HPV, however the HPV vaccine which targets HPV types 16 and 18 has been recommended by WHO because these types are

the cause of 70% of cervical cancer. Girls should be given one or two doses for effective immunisation against HPV 16 and 18. Since the beginning of 2024, as per evolving guidelines from the WHO (2022b), South Africa is now providing a single dose of the HPV vaccine as compared to the two doses which were provided prior to 2023 in previous years (South African Government News Agency, 2024). However, it should be noted, people who are immunocompromised (such as those who are HIV-infected) should be given three doses (WHO, 2022b).

Cervical cancer infections are most prevalent among women from low-and-middle-income (LMICs) countries (Arbyn et al., 2020). Due to limited resources, late detection of the cancer, and poor treatment opportunities in LMICs, many women who develop cervical cancer in these cancers of these cases prove to be fatal. Therefore, the goal of WHO is pivotal in assisting LMICs in combating high rates of cervical cancer mortality as well as for all women globally given the high incidence of HPV causing cervical cancer (Arbyn et al., 2020).

In South Africa, cervical cancer is the leading cause of cancer-related deaths (Bruni et al., 2021). It has also been stated that HIV-positive women are prone to persistent HPV infection and have a higher risk of not surviving cancer due to their diminished immunity. This is concerning because South Africa has the highest number of people living with HIV globally (Amponsah-Dacosta et al., 2022; Simbayi et al., 2019). Also, women have a higher risk of HIV infection and are most infected (Simbayi et al., 2019).

Young girls under the age of 15 are most vulnerable to acquiring HIV/AIDS as well as HPV, which then creates a greater risk of cervical cancer (Amponsah-Dacosta et al., 2022). Therefore, South Africa needed to implement a national rollout of the HPV vaccine for young girls before their sexual debut to contribute to cervical cancer prevention, reduction, and eradication efforts. The country's free vaccination rollout began in 2014 by the National Department of Health (NDOH) for girls attending public schools in grade 5, aged 9 years or older (Amponsah-Dacosta et al., 2022).

The NDOH released a two-vaccine schedule for girls attending public schools. By 2020 60% of eligible girls aged between 9-14 years attending public schools were given the complete HPV vaccine dose, which is significantly behind the WHO's 90% goal. In addition, girls attending private schools are not included in the national vaccination schedule, and so the HPV vaccine uptake rate among private school girls is not known (Amponsah-Dacosta et al., 2022).

As with global trends the COVID-19 pandemic further compromised the schools-based HPV vaccination programme due to schools being closed and the intermittent move to distant learning in 2020/2021. The COVID-19 outbreak and the subsequent release of its vaccination policy globally and in South Africa also inflamed existing, but possibly more hidden, 'anti-vaxxer' attitudes, which further impacted the HPV vaccine rollout and uptake (Amponsah-Dacosta et al., 2022). Access to the HPV vaccine and lack of resource allocation during the pandemic further compromised uptake (Amponsah-Dacosta et al., 2022).

It was evident from the COVID-19 vaccine rollout that while most people may agree to take vaccines, 'anti-vaxxers' tend to be more vocal/outspoken about their hesitancies, and these hesitancies are frequently voiced on social media platforms which may inadvertently influence others' perceptions around the necessity and safety of vaccines (Wiyeh et al., 2019; Lee-Won et al., 2017). The 'anti-vaxxer' rhetoric on social media is likely to lead people who consume content from social media to question vaccines and become hesitant to accept vaccines as part of their healthcare routine. This is because according to Chauke et al. (2021), people may believe information gained from social media as being credible, which significantly brings into question legitimate social media health messaging for vaccine promotion. Therefore, 'anti-vaxxer' attitudes may impact the health messaging displayed for the HPV vaccine programme by the GDOH, other credible sources of social media vaccine messaging, and will subsequently affect the way people respond to all forms of social media messaging (Wiyeh et al., 2019).

Despite the use of social media to spread anti-vaccination messages, it has also been used to promote health. In the last decade, using hashtags on social media as a means of garnering more public interaction and attention has also become more common. Using hashtags to promote health has shown to be a very successful way to get attention from a large number of people and encourage participation in social media (Muralidharan et al., 2018). Hashtags aid in the categorisation and finding of material and make it simple for users to locate and join in on pertinent conversations. They make health-related communications more visible and accessible, enabling organisations and people to spread knowledge, increase awareness, and encourage healthy habits. Muralidharan et al. (2018) found that the deliberate use of hashtags in health campaigns greatly boosted audience participation and information sharing on social media sites like Twitter. Therefore, utilising hashtags in health promotion initiatives might be a useful tactic for optimising results and encouraging online community involvement. Utilising online platforms and methods to increase social mobilisation towards health-related decisions

is becoming more common and a preferred method to reach more people. However, it should be noted that hashtags can also be used by conspirators such as 'anti-vaxxers' to spread health misinformation and fear which could potentially prevent individuals from making beneficial health decisions (Wiyeh et al., 2019).

Social media has become the primary source of information for many, and having vocal anti-vaxxers on social media platforms is concerning for public and global health efforts. Given the critical role that social media plays in informing public and global health attitudes, beliefs, and subsequent practices, it would therefore be essential to analyse the South African government's (and specifically the Department of Health's) health messaging on their social media handles regarding the HPV vaccine rollout for schoolgirls and the public's reactions to it. This study will focus specifically on the Gauteng Department of Health's (GDOH) social media health messaging.

The rationale for the choice of focusing on the GDOH is because Gauteng is the country's economic hub, and the most populous province in the country (Nhamo et al., 2021). This study may be beneficial to the GDOH's social media health messaging that would be received by larger amounts of people within South Africa given that it has the highest number of people living in the province. Results gained from this study may be valuable to understand how HPV health messaging is being received to ensure that the GDOH has efficient health communicative strategies, that aims to motivate South Africans in making healthier, protective, and preventative health choices in the long run. This would ultimately reduce vaccine hesitancy as well, particularly in Gauteng.

The results gained from this study could spearhead future research regarding vaccine health messaging, particularly regarding the HPV vaccine. It could potentially inform GDOH regarding the significance of health communication via social media and assist in future social media content. The next section outlines the objectives and research questions that this study aims to address.

1.3 Objectives of and need for the study:

The research objectives for the study reported in this dissertation were:

1. To interrogate social media health messages created by the Gauteng Department of Health on the HPV vaccination programme for schoolgirls.

2. To analyse the public's reactions to social media health messages from the Gauteng Department of Health regarding the HPV vaccination programme for schoolgirls.

3. To explore implied beliefs the Gauteng Department of Health elicits from its health messaging regarding the HPV vaccination programme for schoolgirls.

1.4 The research questions for the study:

Linked to the abovementioned research objectives, the related research questions were:

1. What social media health messages does the Gauteng Department of Health share on the HPV vaccination programme for schoolgirls?

2. How does the public react to social media health messages from the Gauteng Department of Health regarding the HPV vaccination programme for schoolgirls?

3. What beliefs does the Gauteng Department of Health elicit from its health messaging regarding the HPV vaccination programme for schoolgirls?

1.5 Overview of chapters

An overview of the six chapters presented in this dissertation will be provided. Chapter one introduces the research topic, the background and rationale for this study. This chapter also outlines the research objectives and questions identified to compile the study. In the following chapter, existing literature on HPV immunisation globally and within South Africa are explored as well as the theoretical framework, which was the HBM. Furthermore, this section highlighted existing studies that adopted the HBM in relation to the HPV immunisation programme. Each of the six constructs of the HBM were explained in conjunction with relevant and existing literature. Chapter three describes the research methodology which outlines the research paradigm, design, setting, sampling, data collection methods, limitations of the study, data analysis, and ethical considerations. In chapter four the findings of the study are described and analysed, followed by a detailed discussion of the findings in relation to the HBM and existing literature in chapter five. Finally, in the concluding chapter a summary of the findings, limitations, strengths, and recommendations for further research are explored.

1.6 Conclusion

In concluding the introductory chapter, this research aims to understand and explore the importance of health messaging using social media, specifically related to the HPV vaccine initiative for schoolgirls by GDOH. This chapter provided a concise background overview of the HPV vaccine advocated by WHO and the importance of this in terms of cancer prevention. The significance of this vaccine in South Africa was also highlighted due to the high incidence of cervical cancer related deaths within the country. Lastly, the chapter informs the reader on the research objectives and questions that this study aims to address. The following literature review chapter will provide detailed accounts of previous research conducted on the HPV vaccine globally and within South Africa. It will also outline the theoretical foundation that will be used.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Given the focus of the research reported in this dissertation (i.e., health messaging pertaining to the schools-based HPV vaccination programme in South Africa), the literature reviewed in Chapter 2 aims to provide insight into previous research conducted on HPV, particularly the HPV immunisation programme globally as well as within South Africa. It is important to understand and explore existing literature to motivate the reader regarding the chosen research area. Reporting on previous research regarding the HPV immunisation programmes around the world and within South Africa, will give the reader a snapshot of what has been done and the identified gap which in this case, is the lack of research on GDOH's social media health messaging regarding its HPV vaccine programme for schoolgirls.

It appears that there have not been many studies exploring the use of social media to promote the HPV vaccine. Various countries including South Africa have encountered challenges in increasing HPV vaccine coverage and have not been able to reach the targeted goal set by WHO (Ledibane et al., 2023; WHO, 2016). It was also found that vaccine hesitancy may be one of the biggest contributors to unmet targets that is largely due to the lack of awareness and misinformation regarding the HPV vaccine (Ledibane et al., 2023; Oketch et al., 2023; Hall et al., 2019; Khosa et al., 2022; WHO, 2016). The reported studies in this chapter enforce the importance of raising awareness, educating people and close collaboration with stakeholders to increase HPV vaccine uptake. All these factors emphasise more communication. One of the main mediums of communication all over the world and in South Africa, is social media (Chauke et al., 2021). Therefore, it is essential to explore social media communication regarding HPV to understand what health messages are being conveyed and how it is being received by the public, specifically in the Gauteng province.

Finally, this chapter also unpacks the theoretical framework adopted for this study which is the Health Belief Model (HBM) (Abraham & Sheeran, 2005). The six constructs of HBM will be explained in detail, thereafter previous studies that utilised HBM in relation to using social media as a medium of communication as well as the HPV vaccine programme will be reported on, due to the current study being based on social media and the HPV vaccine programme. In essence, this chapter attempts to provide a detailed motivation for this study based on the existing and available literature.

2.2 HPV immunisation programme globally

This section explores previous research conducted on the HPV vaccine globally. An account of the mentioned studies in this section, informs the reader of factors impacting HPV vaccine coverage and possible suggestions to improve HPV vaccine uptake in different countries. Former studies conducted in various parts of the world also deliver a glimpse of what has been done to promote the HPV vaccine as well as the challenges of its implementation.

One of the leading causes of cervical cancer is continuous exposure to HPV which as mentioned previously, can prove to be fatal. It was for this reason that the HPV vaccine was introduced by WHO as part of its global cervical cancer elimination strategy (WHO, 2020). Despite the importance of the immunisation programme for HPV in preventing cervical cancer, only an estimated 21% of girls have been given the first dose in 2022 globally (WHO, 2023a). According to the WHO (2023a), this is still a noteworthy improvement from 16% in 2021 as more countries have now included the HPV vaccine as part of their national immunisation programmes.

In order to significantly reduce exposure to HPV, WHO (2016) recommended countries to include the HPV vaccine programme as part of a school-based initiative which has shown to reach a notable number of people who would otherwise not have access or be aware of the vaccine. According to WHO (2016), HPV vaccine initiatives encountered challenges such as social sensitivities because it is an STI, and it is availed to a very young age group of girls whose parents are typically reluctant to engage in conversations around their daughters' prospective sexual activity and risk. Other challenges regarding HPV vaccine initiatives include a lack of social mobilisation and communication between the relevant stakeholders, as well as high operational costs (WHO, 2016). The challenges outlined by WHO (2016) will be further unpacked by other studies.

The challenge regarding HPV vaccine funding identified by WHO (2016), resulted in a reduced coverage rate globally. Hall et al. (2019) discusses the future financial implications if HPV vaccines are not implemented. In New Zealand, Hall et al. (2019) investigated the effectiveness of HPV immunisation and screening, and the overall benefits of this for women in the long run. It was found that if 90% of girls are provided with the vaccine, then by 2035 there will be a significant decline in diseases caused by HPV especially cervical cancer. While it is costly to increase screening and vaccination services, Hall et al. (2019) highlights that costs in the short term outweigh the future loss of life and significant increased future financial implications

associated with treating cancer and other HPV related infections. They discuss the importance of planning and adequate resource allocation, to combat the challenge of heightened financial costs for the HPV vaccine programme. Hall et al. (2019) advocates for a "prevention is better than cure" approach which reduces costs in the long run. The effectiveness of HPV immunisation for young girls and screening for women reveals the importance in reducing larger financial burdens in the future as well as a significant loss of life.

Another reason for the relatively slow pace in implementing the HPV vaccination programme has been attributed to programmatic interruptions as a result of the COVID-19 pandemic which redirected healthcare and immunisation efforts towards minimising the spread of COVID-19 (WHO, 2023). According to Vorsters et al. (2022), the difficulties with healthcare delivery globally, were due to newly instilled social distancing measures and the increased demand for healthcare services during COVID-19, which caused an overall decline in the HPV vaccine offering and subsequent uptake. However, the introduction of covid vaccines also assisted in gaining ideas on how to improve HPV vaccination services and increase testing and screening resources which could benefit other vaccine initiatives as well (Vorsters et al., 2022). Particularly for adolescent girls and boys, HPV vaccination is emphasised as a critical preventive measure to lower the incidence of infection and related malignancies (Vorsters et al., 2022). Additionally, it would be essential to implement Pap smear and HPV testing services for early detection of any HPV related illness. Vorsters et al. (2022) highlights the requirement for a thorough strategy to battle HPV, which include immunisation, screening, awareness, and education.

One of the countries that reached a high vaccine coverage rate is England, with vaccine coverage reaching 86.7% in 2013/14 which is very close to the WHO 90% coverage goal. This high rate was achieved due to a school-based HPV vaccination routine (Paterson et al., 2019). However, over the years there has been a gradual decline in vaccine coverage in England as well. Paterson et al.'s (2019) study to evaluate the HPV vaccine delivery dynamics involved interviews with 39 participants employed by the country in some part of the HPV vaccine implementation. It was found that collaboration between the relevant stakeholders was important to improve vaccine uptake in schools. This study also emphasised the importance in raising awareness of the HPV vaccine and its benefits. Effective communication to address misconceptions among parents and guardians was found to increase vaccine acceptance as well (Paterson et al., 2019). Evidently here, there is a lack of knowledge regarding HPV

immunisation, and it is important to work in a collaborative effort with relevant stakeholders such as parents, guardians, and educators, to increase the HPV vaccine uptake.

Grodzicka's (2021) study in Ireland highlights that HPV uptake will only improve if there is evidence-based communication with communities. Healthcare providers also need to work collaboratively with the public to improve vaccine initiatives in general. According to Grodzicka (2021), people and women in particular give importance to their agency and refuse to accept a top-down (hierarchal) approach in the health sector which contributes to vaccine hesitancy. There is a disregard in the value of community members and working closely with them to increase and improve public health (Grodzicka, 2021). Government and health professionals need to give importance to the public's views and opinions, as according to Grodzicka (2021) "perhaps, once women are trusted and we create more fair approaches to healthcare (encouraging partnership rather than hierarchical relationships), this suspicion towards vaccinations will also begin to fade" (Grodzicka, 2021, p. 82).

From the above studies the importance of effective communication to improve awareness and educating the public is emphasised to increase HPV vaccine uptake. This shows that communication is vital to advocate for successful HPV vaccination programmes, therefore this study has significance in understanding a medium of communication that is regularly and vastly used which is social media.

The importance of collaborative initiatives with the community to streamline communication and increase compliance can be seen when Oketch et al. (2023) conducted a systematic review and meta-analysis in sub-Saharan Africa. Oketch et al. (2023) investigated communication strategies in improving HPV vaccine uptake, given that most HPV infections are found in women from LMICs due to various systemic challenges such as lack of resources and high incidence of HIV (Arbyn et al., 2020). It was found that communication of the HPV vaccine is essential to increase uptake so that communities are well informed of its significance. Simply educating the public is not sufficient. The government and relevant stakeholders such as health professionals need to include valuable community members in the decision-making process so that they feel included and do not treat this initiative as something external making it irrelevant (Oketch et al., 2023).

Vaccine hesitancy is noted to be one of the main reasons for the decline in global vaccine uptake, and there are various reasons which cause reluctance among people to take vaccines

(Oketch et al., 2023; Vorsters et al., 2022; Grodzicka, 2021; Paterson et al., 2019). Notable in various studies is the importance of education and awareness in addressing vaccine hesitancy and reluctance (Oketch et al., 2023; Vorsters et al., 2022; Grodzicka, 2021; Paterson et al., 2019). Many times, parents and guardians are misinformed regarding vaccines and are of the view that it will negatively impact their child in the long run. Therefore, they do not consent for their children to get vaccinated (Oketch et al., 2023; Vorsters et al., 2022; Grodzicka, 2021; Paterson et al., 2019). There are also various conspiracy theories regarding vaccine uptake (Chauke et al., 2021; Wiyeh et al., 2019). Due to the increase in social media use over the years, conspiracy theories are now largely shared online through the various social media platforms (Chauke et al., 2021; Wiyeh et al., 2019). Therefore, it is beneficial to enquire and analyse the health messaging on social media of HPV vaccine programmes to improve future initiatives that address conspiratorial attitudes displayed via public's reactions.

To synthesise the findings from this section, it is seen that the reduced rate of HPV vaccine coverage among girls is due to various reasons, however a factor that has continuously highlighted was inefficient communication with the target population. It is understood that the importance of collaboration, effective communication, and community engagement is necessary to improve HPV vaccine uptake, and vaccine hesitancy is largely attributed to awareness gaps among the public. Therefore, studies that explore communication strategies in attempts to create immunity from HPV are encouraged to improve future HPV related initiatives.

Now that an overview of HPV vaccine research across different countries has been reported and global coverage rates were also given, it is essential to focus specifically on studies conducted in South Africa pertaining to the HPV immunisation programme. The next section provides contextual literature and a stance on the relevance for this study to be based on GDOH's social media HPV health messaging.

2.3 HPV immunisation programme in South Africa

It is essential to explore previous studies conducted in South Africa regarding HPV vaccine implementation for schoolgirls to understand what has been researched and identify a gap for this particular study. Given that this is a study based on social media, having an idea of previous social media studies on the HPV vaccine would be beneficial. There was a study conducted on Western Cape Department of Health's Facebook page particularly people's response to a post

that was promoting the HPV immunisation programme for schoolgirls (Wiyeh et al., 2019). The results depicted that despite most people agreeing that the HPV vaccine should be implemented in schools for girls, there were various apprehensions for parents to consent to the vaccine which were: some people feared that HPV vaccine initiative might be a hidden agenda by the government, it would affect girls' fertility, and they are too young to be vaccinated (Wiyeh et al., 2019).

According to Wiyeh et al. (2019), people perceived themselves and their children as having a reduced risk of getting cervical cancer, therefore, not seeing the need to vaccinate. It was also shown that individuals who had more knowledge about HPV and cervical cancer or knew someone who had cervical cancer were more willing to vaccinate (Wiyeh et al., 2019). The results of Wiyeh et al.'s (2019) study highlight the underlying perceptions and concerns that guardians have in terms of vaccinating their daughters from HPV. As such, it is understood that exploring public's reactions to the HPV vaccine specifically in Gauteng would be beneficial as it appears that previous research on GDOH's HPV vaccine initiative specifically pertaining to its social media has not been done.

As much as parents perceive their daughters to be at low risk of getting HPV or cervical cancer, there are also various systemic challenges that reduce vaccination rates. Ledibane et al.'s (2023) study conducted in Tshwane investigated HPV vaccine uptake due to Tshwane Health District being the largest municipality by surface area in South Africa with very low vaccine uptake. Tshwane is situated in the Gauteng province which is the intended location of focus for this study. It was found that fee-paying public schools had higher vaccine uptake than the no-fee paying public schools. The no-fee public schools were situated in areas with higher rates of poverty, more female and child-headed households, higher rates of unemployment, and lower adult education rates. The reason for the decreased vaccine uptake was due to unsigned consent forms and higher rates of absenteeism in the no-fee paying schools (Ledibane et al., 2023).

It appears that systemic challenges act as barriers in accessing the HPV vaccine drives at schools and accessing the awareness initiatives created by GDOH. Ledibane et al. (2023) conclude that an increase in societal awareness and mobilisation initiatives would improve vaccine uptake. Hence, there is a need for studies to analyse the health messaging on the HPV immunisation programme for schoolgirls to understand what the GDOH's social media health messages are and how it is being received by the public. Furthermore, referring to Ledibane et

al.'s (2023) study, the current study will assist in understanding how the GDOH is increasing societal awareness online and how these online mobilisation initiatives are being raised.

As previously mentioned, vaccine hesitancy appears to be a major contributing factor in decreased HPV vaccine uptake across various countries and in South Africa as well. Khosa et al. (2022) investigated vaccine hesitancy of HPV immunisation for girls in public schools in the Sedibeng district in the Gauteng province. Here, it was found that most parents lacked knowledge of the vaccine and were uncomfortable providing consent for their daughters to vaccinate (Khosa et al., 2022). Therefore, it would be important and relevant to analyse the Gauteng Department of Health's social media messaging to further explore their contributions and information shared regarding the HPV immunisation of girls at schools. This social media study would also give an indication of the public's reactions to these health messaging posts. The information gained from this study could spearhead further interest and research regarding HPV immunisation as it is an essential step taken by the Government to save women's lives from cancer-related deaths.

Another study by Ngcobo et al. (2019) investigated vaccine acceptance and hesitancy in South Africa. It was found that this area of research is limited, and more studies need to be conducted to find out about vaccine reluctance and measures to address it. While South Africa has implemented and funded the HPV vaccination programme, it is crucial that there are clear policies in place to help strengthen the program. South Africa has made some significant strides in the prevention of cervical cancer (Ngcobo et al., 2019). Policies must address areas of uncertainty that could breed mistrust and anticipate issues that might cause vaccine hesitancy. In order to better educate and guide national policies, local research should be carried out to better understand HPV vaccine hesitation (Ngcobo et al., 2019).

Majiet et al. (2021), conducted a bibliometric study to analyse vaccine and immunisation research in South Africa. It was found that published studies regarding HPV was the second most researched disease after HIV. Tuberculosis (TB) was the third most researched, not very far behind HPV. This is significant as HIV and TB are both major epidemics and causes for concern in South Africa given the high rates of it in the country. The allocation of financial resources for TB is also given precedence over HPV initiatives. While there have been substantial studies conducted in the country, the researchers are of the view that further research on vaccines and immunisation needs to be conducted to improve public health and for successful interventions in the future (Majiet et al., 2021).

From the reported studies there is an overall acknowledgement and advocation to create more research in exploring effective measures to increase HPV vaccine uptake and to understand reasons for reluctancy, which will be attempted by the researcher's present study. Therefore, the researcher has chosen this area of study to further increase studies on HPV, particularly the GDOH's school-based initiative for schoolgirls and its social media health messaging.

The literature reviewed in this section highlights the need to conduct further research on HPV vaccine programmes and to enquire about the factors that prevent vaccine uptake in South Africa. It is acknowledged that people are misguided and misinformed regarding HPV vaccine effectiveness. There is also the perception that the age group for the HPV vaccine is too young causing reluctance among parents. It was also found that vaccine hesitancy is significantly due to increased conspiracy theories. The emphasis on awareness and community engagement were seen through the studies reported globally and within South Africa as well, therefore, the need to explore health communication is necessary. Hence, this study will be effective in enquiring about health message communication created by GDOH regarding the HPV vaccine. The next section of this chapter identifies the theoretical framework that will be used to ground the proposed study in. The purpose of the theoretical framework is to provide some explanatory basis for why individuals may or may not use information (primarily through social media) to inform their health-related beliefs, attitudes, and decisions.

2.4 The Health Belief Model

The Health Belief Model (HBM) is extensively used in explaining health-related attitudes, beliefs, and actions, and is therefore commonly used in research studies linked to health-related topics. The basic tenet of the HBM model is to provide an understanding of why people adopt specific health-related actions to safeguard themselves and why they sometimes choose not to. This model has six constructs: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, cues to action, and self-efficacy (Abraham & Sheeran, 2005; Champion & Skinner, 2008). These constructs are meant to help us comprehend the psychological aspects that affect people's choices about their health-related behaviours. The HBM looks at how people perceive risk, severity, rewards, and barriers. It also looks at the role of cues to action and self-efficacy in explaining why people choose to or do not engage in health-promoting behaviours.

The first construct from the HBM (i.e., perceived susceptibility) pertains to how vulnerable an individual may feel about a particular illness (Abraham & Sheeran, 2005). In other words, in the HBM, health related attitudes, behaviours, and actions are regarded as being determined by how susceptible or vulnerable an individual feels they are to acquiring a specific illness. There are several ways to interrogate perceived susceptibility for an illness, but one way could be to explore health messages shared by government health departments and others on social media platforms. Social media messaging is a form of communication that may allude to perceptions of vulnerability pertaining to an illness and its sequelae (e.g., HPV and cancer) (Lee-Won et al., 2017).

The second construct from the HBM (i.e., perceived severity) can be explained as an individual's perception of the seriousness of a health problem or condition. People are more likely to take preventative or curative action if they see/perceive a health issue as being severe. It could be an anticipated perceived seriousness of an illness that could potentially occur in future, such as cancer. Perceived severity is also a person's understanding that being affected by an illness (which in this case is regarding HPV or cancer), considered severe or not (Abraham & Sheeran, 2005). This construct can be communicated via social media health messages created by government health departments due to social media contributing large sources of information to people, it is one of the main mediums of access to information and knowledge, and a dominant medium of communication (Chauke et al., 2021; Mishaal & Abu-Shanab, 2015). Perceived severity can be interrogated regarding illnesses such as HPV and cancer from health message social media communication created by government health departments and how it is perceived and received by the public.

Perceived barriers are the third construct in the HBM, which is explained to be the perceived difficulties or unwanted costs in making a health-related decision. Perceived barriers are generally personal and specific hurdles experienced by individuals that ultimately prevent them from taking a specific health action such as vaccinating. These hurdles act as barriers that prevent a person from making a health-related decision (Abraham & Sheeran, 2005). Examples include financial implications, time constraints, inconveniences, conspiracy theories, and hesitation due to side effects. Therefore, if there are lowered perceived barriers then an individual will more likely be willing to make a health-related choice. Perceived barriers can be explored via social media health related studies by exploring reactions to health messaging

online in the form of likes and comments to a particular health related post (Freedman et al., 2016).

An example of how the HBM understands people's decision making regarding perceived susceptibility and severity can be seen in Galbraith-Gyan et al.'s (2018) study with African American parents and daughters. According to Galbraith-Gyan et al. (2018) it is imperative to be familiar with health beliefs to promote HPV vaccine acceptance, together with recognising and redressing beliefs that act as barriers among parents as well as for their daughters. Such endeavours will be beneficial in future development of accurate HPV vaccine promotion initiatives. It was found that perceived susceptibility and severity were less as parents were under the impression that their daughters would not be sexually active at a young age. It can be seen that perceived severity and susceptibility was tied in with the belief of their daughters not being sexually active (Galbraith-Gyan et al., 2018). The results from this study assert the importance in adopting HBM to curb the reduced vaccine uptake and to understand people's perceived seriousness and vulnerability to an illness. It is also beneficial to identify what causes the reluctancy to undertake an important health decision and reduce these perceived barriers.

The fourth construct from HBM is perceived benefits. This construct pertains to the understood benefits of undertaking a particular protective health behaviour, for example people choosing to vaccinate to protect themselves from illness/disease such as HPV or cancer. Perceived benefits are the person's assessment of the benefits and rewards of a suggested course of action in terms of lessening the likelihood or intensity of a health issue. The decision to adopt a specific health activity is influenced by the expected rewards of that decision (Champion & Skinner, 2008). For example, vaccinating would protect a person from an illness and disease which would be beneficial for a person's current and long-term health including their expected longevity. Benefits of adopting health related decisions are vastly motivated by government health departments (Mishaal & Abu-Shanab, 2015). Since social media and online communication has become prominent in today's day and age, government health departments regularly use this medium to communicate the perceived benefits of making health decisions such as using a condom or vaccinating (Mishaal & Abu-Shanab, 2015).

Cues to action is the fifth construct in the HBM which is described as cues or motivators that influence an individual to make a health-related decision. These can be external like media campaigns or medical professionals' recommendations (Champion & Skinner, 2008). It can also be internal like experiencing physical symptoms or having a firsthand experience with an

illness that influence your cue to perform a health-related action. Cues to action are very important in influencing or motivating for a person to make a healthy decision (Champion & Skinner, 2008). In Galbraith-Gyan et al.'s (2018) study as explained above, parents acknowledged that if their daughters were sexually active, then having genital warts and an increased cancer risk would be a concern, hence HPV vaccination would be prioritized and acknowledged as a perceived benefit. This shows that physical symptoms or having firsthand experience with an illness increases cues to action. External cues to action could be educating people, and for the current study on HPV health messaging in GDOH, educating parents is of utmost importance to ensure they consent for their daughters to receive the HPV vaccine. According to Galbraith-Gyan et al. (2018) cues to action among parents increased once they were more educated on the HPV vaccine which shows improved cues to action due to education by the government.

The sixth and final construct of HBM is self-efficacy which pertains to the belief that one is capable of carrying out a suggested health activity successfully. A greater level of self-efficacy will increase the chances of making healthier choices (Champion & Skinner, 2008). In relating this construct to Galbraith-Gyan et al.'s (2018) study, it was found that daughters had a lack of self-efficacy due to their parents' being the deciding factor on whether to vaccinate against HPV or not due to the use of consent forms. This is an indication of the importance in adopting HBM to analyse and explore aspects that act as potential barriers in reducing a person's efficacy to vaccinate against HPV and what increases vaccine acceptance.

According to Fitriani et al. (2018) whose study adopted HBM in relation to the HPV vaccine, uptake increases when people are better informed about it which subsequently increases perceived susceptibility and severity. This is essential to note as the current study will attempt to explore the perceived susceptibility and severity using HPV health messaging online. One notable perceived barrier was the lack of family support which also corresponds with previous research (Khosa et al., (2022); Wiyeh et al., (2019); Galbraith-Gyan et al., (2018)), in that family or legal guardians are the people who provide consent for underage girls. Therefore, hesitancy by guardians would prevent girls from being vaccinated. It should be noted that Fitriani et al.'s (2018) study was conducted in Indonesia where the HPV vaccine is not compensated by the government hence the public pays for it, which acted as a barrier in taking the HPV vaccine. Financial implications are one of the most common perceived barriers to receiving health care and in making healthy decisions (Champion & Skinner, 2008). However,

in South Africa (Khosa et al., 2022) and according to Gyan et al. (2018) in America, the government's advocation of the HPV vaccine (the HPV vaccine is provided as one of both countries' national health initiatives) is treated with caution which gave rise to vaccine conspiracy theories. Therefore, it would be interesting to analyse the public's reactions and what their beliefs about the GDOH's HPV vaccine initiative are.

According to Jones et al. (2014), the HBM effectively explains studies that are focused on forms of human communication. Since this study will be based on social media health messaging, the present study would be beneficial, because social media has become a primary means of communication. To some extent, it has even replaced face-to-face communication due to convenience and at times it is even the preferred mode of communication. The use of social media also became the primary mode of communication during the COVID-19 pandemic, and it is still widely used (Chauke et al., 2021). Hence, the HBM would be ideal for understanding the communication of health-related messaging on social media.

Frequently utilised in health-related research, the Health Belief Model (HBM) provides a fundamental framework for comprehending people's attitudes, beliefs, and behaviours connected to their health. The HBM explores the psychological aspects influencing health behaviours through its six main constructs, providing insight into the reasons behind people's decisions to engage in or refrain from specific health-related activities. All six constructs were unpacked and explained in relation to online social media communication as well the HPV vaccine initiative.

Previous literature using social media and the HBM were reviewed, and studies that adopted HBM in understanding vaccine hesitancy regarding the HPV vaccine were also reported, to understand the theoretical foundation of HBM in accordance with the present study. In concluding this section, the HBM provides a strong framework for assessing and resolving obstacles to vaccine uptake and successfully promoting public health initiatives. It also provides insightful information about the complexities of health-related decision-making, particularly in the context of social media health messaging. Therefore, the HBM is a suitable theoretical foundation chosen for this study.

2.5 Conclusion

To sum up the findings covered in chapter two, this literature review aimed to provide a detailed account of previous research conducted on the HPV vaccine both globally and within South Africa. From the studies reviewed globally, the importance of collaboration with various and relevant stakeholders is highly encouraged to increase HPV vaccine uptake. It is also essential to involve community members in creating effective HPV vaccine initiatives. Both these factors are improved with communication which was a common denominator largely preventing vaccine uptake and increasing vaccine hesitancy among people. It was found that effective communication with people would improve awareness and knowledge, and subsequently increase HPV vaccine uptake. However, it is evident that despite the prominence of online communication, studies investigating its effectiveness regarding HPV vaccine initiatives has not been explored, hence this study has grounds to further beneficial research in this regard.

Within South Africa further research on the HPV vaccine programme has been encouraged. It was found that importance should be given to explore preventative factors that cause reduced HPV vaccine uptake. From the studies covered, it was also found that parents are reluctant to consent for their daughters to vaccinate due to the chosen age group, as parents and guardians feel their daughters are too young to receive a vaccine that might imply and encourage early sexual debut. Awareness and community engagement was also encouraged in South Africa therefore, it is essential to explore health communication which is a means of addressing awareness and engagement in communities. Given the observed gap and need for increased research of the HPV vaccine programme, it is beneficial to compile the present case study on GDOH's social media health messaging regarding the HPV vaccine programme for schoolgirls.

The final section of the chapter unpacked HBM and its six constructs that will be used as the theoretical framework for this study. HBM is an effective theory in conceptualizing health related studies as it unpacks people's attitudes, beliefs, and behaviours in choosing to make a health decision or not. It was also found that HBM can be effectively used, considering the current study's focus which is health messaging regarding the HPV vaccine programme, because this theoretical framework unpacks what kind of health communication is taking place, and the manner in which it is being received in relation to the six constructs.

The next chapter focuses on the methodology used to compile this study, which grounds the manner in which this research took place. Detailed explanations of reasons for choosing the specified methodological approaches will be unpacked.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The following chapter will outline the research methodology and methods used for this study. The chapter describes the research paradigm, research design, research setting, sampling methods, data collection and management, limitations, and the data analysis technique adopted. The research methodology is guided by this study's objectives and theoretical framework which is the HBM. The main objectives of this study were to interrogate the social media health messages created by the GDOH on the HPV vaccine for schoolgirls, to analyse the public's reactions to these health messages, and to explore the implied beliefs GDOH elicited from its health messaging. Ethical considerations will also be highlighted, and an account of the credibility, dependability, transferability, and confirmability are provided to ensure the maintenance of trustworthiness and rigour throughout this qualitative study.

3.2 Research Paradigm

The study reported in this dissertation is located in a social constructionist research paradigm. Social constructionist research acknowledges that realities are created from various interactions among people through talk and language (Burr & Dick, 2017). This paradigm is also more suitable for qualitative studies as it tries to understand people's interactions (e.g., through language such as text and talk) and how meaning is then socially constructed (Rehman & Alharthi, 2016). Given that this study will primarily analyse online text-based interactions on GDOH's social media handles, social constructionism is understood as an applicable and suitable paradigm.

For this study, the researcher aimed to gain an understanding of the language associated with a specific sub-set of health messages from the GDOH by analysing its social media data. It is important to acknowledge that social media health messaging portrayed by GDOH could be viewed and understood in varied ways due to the shared interaction of GDOH with the public. The shared interaction between the GDOH and the public alludes to the social media engagement that takes place on the GDOH's social media handles. Therefore, a social constructionist research paradigm was deemed suitable for this study because it acknowledges that there is not one singular view of reality but rather multiple shared realities (Burr & Dick, 2017). Overall, grounding the research within a social constructionist paradigm enabled the

researcher to attempt to interpret the socially constructed meaning from common wording and language used in the GDOH's social media data specifically pertaining to the HPV vaccine program for schoolgirls. This study is based on social media, which is a platform for social engagement online, therefore social constructionism is an effective research paradigm as it aims to understand and unpack language-based social interactions.

3.3 Research Design

The study adopted a qualitative research design to underpin the analysis of health messages portrayed by the GDOH regarding HPV immunisation for schoolgirls on their social media platforms. A qualitative design is generally understood to be beneficial in gaining rich information and an in-depth understanding of complex phenomena (Terre Blanche et al., 2016). Qualitative designs function to "enhance understanding of the context of events as well as the events themselves" (Sofaer, 1999, p.2). As a result, a qualitative design was suitable for a study on social media messaging because the researcher aimed to understand the context of the GDOH's health messages, the possible wording behind these messages, how they share the information, and how meaning might be constructed in relation to social media posts.

The study will assist in highlighting the importance of the HPV vaccination for young girls and the GDOH's contributions toward the 90% coverage goal, set by the WHO (2022). As a country heavily burdened by HIV infections in women especially (a population that is already immunocompromised), it is vital that the HPV immunisation is given significance (Wiyeh et al., 2019). Women who are HIV positive have a higher risk of contracting HPV thereby significantly increasing their susceptibility to cervical cancer which could ultimately result in death (Amponsah-Dacosta et al., 2022). This study may also inform further research and may assist the government in its future social media endeavours regarding the HPV immunisation program as well as for cervical cancer.

3.4 Research setting

The proposed study did not take place in any specific location as it used social media data that was publicly available online. The study explored GDOH's social media health messages and the public's reactions on platforms such as Facebook, X (formerly and popularly known as Twitter-hence this study will refer to its former name), Instagram, and its official website regarding the HPV vaccine implementation for young girls at public schools. Social media data

was analysed from 2016 until the present. In 2014, the South African government embarked on a national HPV vaccination rollout programme through ISHP. However, the researcher found the earliest HPV related data in 2016 and no prior data related to the HPV vaccine was found, hence this was used as the start date for data collection and analysis. Data was collected from the year 2016 until May 2023 when the researcher completed sufficient data collection to enable her to write up her results (e.g., in this dissertation) on.

3.5 Sampling and Data Collection

All data from this study was available in the public domain and formed part of the sample. 74 posts from Facebook, 31 posts on Instagram, 23 on Twitter, and 15 newsletters from the GDOH's official website were found from the year 2016 until May 2023 regarding the HPV vaccine programme for schoolgirls. Only a waiver of ethics review was required since no participants were actively involved in this study. In the study planning phase, there was uncertainty about the requirement of gatekeeper's permission (e.g., from the GDOH) for this study because all data collected was available in the public domain. Previous similar research, for example by Wiyeh et al. (2019), reported that gatekeeper's permission and ethics review were not needed to conduct the study because data is available and accessible to the public. Despite previous similar research indicating that gatekeeper's approval and ethics review were not needed for studies of social media data in the public domain, efforts were made to contact GDOH to obtain gatekeeper's permission. Contact was made to the Communications Chief Director as well as to their secretary via WhatsApp, email, and telephonically. The researcher is currently awaiting the GDOH's response. In terms of ethics review, this study applied for and obtained an exemption from ethics review the Human and Social Sciences Research Ethics Committee (HSSREC) based at the University of KwaZulu-Natal (application number: 00021653) (see Appendix 1). Gatekeeper's permission was not required by the HSSREC for the researcher to proceed with the study.

Although automatic web and social media scraping tools exist (e.g., Python, Bright Data), for the scope and purposes of this study it was decided to manually scrape data from the eligible online sources (Voss et al., 2017). It was also reasoned that the inherent technical know-how and time required to learn any automatic web and social media scraping tool would outweigh the benefits that these tools would offer. Therefore, to identify relevant web and social media posts created by GDOH, the researcher included keywords such as HPV, HPV vaccine, cervical cancer, and genital warts in the manual search functions of its web and social media platforms.

These keywords were chosen as they are all interrelated in terms of HPV and the HPV vaccine (Mavundza et al., 2021). Any social media post, message, or update from 2016 which specifically communicated about the HPV vaccine was included in the data set. The public's reactions (e.g., comments, emojis, posts) to these health messages were also included in the data corpus to gain an understanding of their reactions and implied beliefs pertaining to HPV and HPV vaccination. All identifying information related to a member of the public's comment or post (e.g., their social media "name" and display picture) was removed from the data set.

It was reasoned that using the GDOH's social media stance on the HPV vaccine as a sample would produce insightful information regarding the educational and motivational steps taken by the government to ensure that healthy decisions are made by the public. It was therefore useful to have an online sample because knowledge and information are now primarily accessed via social media. It is slowly becoming the main mode of education and communication as well (Chauke et al., 2021). Therefore, the researcher aimed to analyse what kind of social health messages were communicated by the department.

3.6 Data Collection Management

Data was systematically collected from social media posts made by the GDOH regarding the HPV vaccine. The researcher screenshotted data that was relevant to this study. Any social media post, message, or update which specifically communicated about the HPV vaccine were included from 2016 until May 2023. Data was collected from the GDOH's website, Facebook, Twitter, and Instagram profiles. Any post related to the research topic was included in the study and posts that are unrelated were excluded. The keywords as mentioned above (HPV, HPV vaccine, cervical cancer, genital warts) were used to collect relevant social media data. All information pertaining to the HPV vaccination implementation program was included as part of the data and any social media data not related to the program was excluded.

A separate folder was created to store all the posts which formed part of the data in this study. Social media posts were copied from the social media platform and pasted into Microsoft Word documents. When copying and pasting the data (social media posts and comments/reactions by members of the public), additional information such as the source and date were also recorded. For example, a copied and pasted post had an indication that this was a Facebook post on a specific date and time, and it was saved in the Facebook folder. This assisted the researcher in organising the data collection process.

Most of the data was found on Facebook and it was convenient to locate posts related to the HPV vaccine programme due to a built-in search function on the platform. Twitter also had an incorporated search function thereby making it easier to filter information according to the specified keywords relevant to this study. The GDOH's official website also produced a sufficient amount of data for this study in the form of monthly newsletters. Screenshots of the articles relevant to this study were taken and pasted it in the government's website folder.

3.7 Limitations

Some limitations in the methodology were noted due to difficulty in accessing data online. The reasons for difficulty in access were due to the websites crashing, difficulty in scrolling manually through all the posts which caused the website to refresh, as well as possible removal of tweets, posts, or newsletters from previous years by GDOH. These are common limitations experienced when researchers manually scrape web and social media data but are also experienced when using automatic web and social media scraping tools (Voss et al., 2017). According to Marti et al. (2019), one of the main challenges with conducting online studies and using social media to retrieve online data is accessibility. The researcher had to manually scroll for GDOH's Instagram page due to the absence of a search function on the platform. This proved to be challenging and took longer than the other social media platforms as the researcher had to physically look through all the Instagram posts created. It was also found that GDOH has only recently become active on Instagram and does not actively use the site. A limited amount of data was found from 2016 until 2019 and most of the data collected were recent posts and tweets ranging from 2020 until 2023.

3.8 Data Analysis

Data was analysed using Reflexive Thematic Analysis (RTA) formally known as Thematic Analysis (TA), which is defined as a continuous process of finding common patterns and threads within the data collected (Braun & Clarke, 2021). RTA is theoretically and paradigmatically flexible hence it appeared to be the most suitable approach to analyse the data in conjunction with a social constructionist research paradigm and the HBM as the theoretical framework (Braun & Clarke, 2021). Given that the data collected from social media involved interactions between GDOH and the public, it was necessary to understand the common patterns that emerged from the language and words used in the posts and the meanings that emerged from the language and wording used. The researcher was not particularly inclined to

focus on subject positions within the discourses in the social media posts but rather on the common patterns in the text, and hence RTA was preferred over discourse analysis. Although discourse analysis is a common method of analysis in social constructionist research, RTA can be used where the focus of the research and research questions are not on subject positions within discourses, but rather on patterns of meaning among interactions (Braun & Clarke 2021).

RTA involves six steps which will be explained in reference to this study. The first step is called familiarisation, this is when the researcher made a concerted effort to frequently view the social media data collected, to ensure that they become familiar with the content (Byrne, 2021). In the second step, the researcher thereafter attempted to create codes from the data. This was done by naming the data (screenshots of the social media data) into codes. For the purpose of this study, the researcher first viewed all the health messages and then created a code for the relevant posts in accordance with the research questions and the theoretical framework. The researcher grouped posts that were similar and accounted for similar health messages into one code. The third stage involved the researcher attempting to create themes by combining similar codes together (Byrne, 2021). Some codes overlapped and had the same meaning hence the researcher needed to collate them into one theme. The researcher made use of a thematic map in the form of a table to tabulate the social media posts, tentative codes, and tentative themes, for efficiency.

The fourth stage followed when the researcher reassessed and revisited the themes to ensure coherence (Braun & Clarke, 2021). In the fifth stage, the researcher attempted to name and define the themes. The final stage was to report the findings in a comprehensive manner (Byrne, 2021). The research questions were used as a guide to report the findings of this study. It should be noted that a reflexive thematic analysis involves constant reflection and revisiting of the steps in creating the themes to prevent personal biases. It is not a linear process, and the researcher revisited previous stages to produce a well analysed study (Braun & Clarke, 2021).

3.9 Ethical Considerations relevant to the study

All data collected from this study was available in the public domain therefore a waiver was required to continue with the study. The university's research committee, HSSREC, granted the researcher a waiver (see Appendix 1) which indicated that this study was exempted from the ethics review, hence the ethical considerations are minimal. However, to ensure

confidentiality all identifying information in relation an individual's reaction, comment, or post on the GDOH's social media platforms were removed to respect and abide by the Protection of Personal Information Act (POPI Act) (2019). Attempts were also made to attain gatekeeper's permission even though previous research did not require this to continue with their study since all the data is made available to the public online (Wiyeh et al., 2019). It should be noted that as per the University's requirements for Master's training and completing this dissertation, the researcher needed to complete an online ethics training with TTREE. This ensures that the researcher is well informed about the necessary requirements in producing an ethically sound research paper.

Some principles in accordance with Emanuel et al. (2008), relevant to this study were considered. This study ensures that the principles of collaborative partnership, social value, scientific validity, and an independent ethical review were applied. Collaborative partnership are attempts to ensure that collaboration is made with relevant stakeholders in this respective study (Emanuel et al., 2008). This was followed by ensuring that attempts were made to receive gatekeeper's permission. There were no active participants involved in the study, hence collaboration with them was not necessary. This study ensures to assist with future endeavours related to public health particularly regarding HPV immunisation, hence it follows the principle of the study adding social value to the community and its participants (Emanuel et al., 2008). Scientific validity was adhered by ensuring that the researcher followed relevant research methods that were valid and reliable and according to the research objectives. The principle of applying for an ethical review with an independent body was followed as this research received a waiver from HSSREC to conduct this study (Emanuel et al., 2008).

3.10 Credibility

Credibility is defined as a strategy to ensure trustworthiness in qualitative research. It is maintained by ensuring that the findings from this study are credible (Stenfors et al., 2020). The researcher ensured this study was credible and triangulation was achieved by gaining data from more than two sources (Tracy, 2010). This was followed by using the three main social media platforms of the GDOH as well as its official website. All information gained from this study were from credible sources as it was collected directly off the official social media handles and website of GDOH. Since it is a social media study and the data is readily available online, issues of credibility are addressed (Shenton, 2004). Furthermore, to ensure that the findings are trustworthy the researcher continuously consulted with their supervisor to ensure

that data analysis accurately followed using RTA in conjunction with the HBM and the research objectives.

The researcher went through a rigorous process to ensure the internal validity of the data. Attempts were made to include all relevant data on the social media pages as thoroughly as possible. The researcher attempted to look through Facebook manually as most data was collected from this platform, but after some time, the website slowed down and refreshed the page, which was also noted with Twitter. However, whatever data the researcher collected manually, was already found using the search option. This was done to ensure all information relevant to this study was collected and the researcher remained true to the research objectives.

3.11 Dependability

Dependability in qualitative research is defined as maintaining reliability in research by ensuring that the researcher accurately follows and reports on all the steps and procedures necessary. It is to ensure that future researchers can also use this study for further research (Stenfors et al., 2020). All information and data collected from this study were made available for review purposes to ensure dependability of this study.

The researcher has also attempted to accurately report on all aspects of a sound qualitative study by providing detailed descriptions of the research design, data collection, data analysis, discussion of the findings, and the limitations of this study. The researcher also attempted to authentically follow the process of RTA in reporting the data and using the HBM to ensure that the findings are dependable and are conceptually based on a theoretical framework (Shenton, 2004). This prevents the researcher from drawing their own conclusions without a valid backup.

3.12 Transferability

If a study can be used for further research, it is transferable. Transferability ensures the generalisability of a study to other potential research contexts (Stenfors et al., 2020). Being cognisant and clearly stipulating all the qualitative measures for reliability and validity and ensuring that the methodology was followed accurately, enabled the researcher to create a study that could be used for future research, thereby making it transferable (Stenfors et al., 2020).

3.13 Confirmability

Confirmability is addressed by ensuring that the discussion of the data and findings of this study remains objective and free from the personal biases of the researcher (Stenfors et al., 2020; Shenton, 2004). The researcher attempted to report the findings of this study as accurately as possible by regular consultations with their supervisor to ensure that objectivity was maintained. The data corpus was also shared with the supervisor to confirm the findings gathered in the study. The information gained from this study is also confirmable due to the data collected being readily available online.

3.14 Reflexivity

According to Gillani (2021), it is impossible for qualitative studies to be conducted free from the researcher's personal views on the intended topic, given the nature of this research method. As a woman, I deeply care about female centric issues being a representative of the vulnerable gender especially when it comes to health concerns (Amponsah-Dacosta et al., 2022). I believe that the health care system is quite gendered. Placing the sole responsibility on females by providing the HPV vaccine to schoolgirls heavily impacts women's abilities in protecting themselves from impending illnesses.

After the COVID-19 pandemic I was also made aware of the evident disparity between 'pro and anti-vaxxers'. Personally, as a vaccinationist I found these polarising notions on vaccines intriguing. I found myself having difficulty in solely trusting the healthcare system of the country after observing the various conspiracy theories that were shared online about vaccines and immunisation in general (Wiyeh et al., 2019). I am a firm believer of one's personal agency and the right to choose for oneself. Compiling this study gave me an alternative perspective regarding vaccines as I was enlightened by people's valid concerns regarding side effects which are often not addressed or considered by government healthcare providers and policy makers (Wiyeh et al., 2019). It is important to address factors such as side effects when it comes to vaccination and immunisation programmes in order for people to confidently and informatively make personal healthcare decisions.

3.15 Conclusion

In concluding the chapter, the researcher has provided descriptions of the research paradigm, research design and research setting of this study with an explanation given by the researcher, for choosing these specific methods to carry out this study. This chapter also provided a detailed description of actions undertaken during sampling, data collection and data analysis. RTA is explained in conjunction to this study. The chapter concludes with an account of the ethical considerations taken to complete this study, and an explanation is given of all the criterion followed to evaluate a qualitative study.

CHAPTER FOUR: FINDINGS

4.1 Introduction

This chapter reports on the findings that were generated during and after the analysis of the data. Specifically, the chapter presents the themes that were identified during the analysis of the text-based data (i.e., social media messages) and corresponding digital artefacts (figures) that formed part of the data corpus. To assist the reader in highlighting certain aspects of the figure relevant to the identified theme, the researcher underlined, squared, or circled the respective text in red. In total, four themes were identified following the text and artefact analysis by the researcher, and some of these themes were thought to be best represented with the aid of sub-themes. Each of the four themes, and where relevant, underlying sub-themes are presented in this chapter with supporting data and extracts to substantiate them.

4.2 Themes and sub-themes

The following themes and sub-themes were identified: The use of repetition and timing to convey the importance and urgency of HPV vaccination for girls; Combining the HPV vaccine campaign with other health promoting campaigns; Educative health messaging: A preventative relationship between HPV vaccination and cancer; and Gendered HPV immunisation health messaging. Subthemes were identified for Theme 1 and 3, followed by the conclusion of this chapter. The table below provides a short summary of the themes identified.

Table 1

Summary of the identified themes

Main Theme	Sub-theme	Description/definition
1) The use of repetition and timing to convey the importance and urgency of HPV vaccination for girls	1.1) Sub-theme: Repetition as a health communication strategy 1.2) Sub-theme: Timing in health communication strategies 1.3) Sub-theme: Disinterest from the public	Theme 1 highlights the attempts made by GDOH to emphasise the importance of HPV vaccination for girls, with the continuous observed use of repetition at key times during the year as a health communication strategy. While the GDOH used repetition as a strategy to communicate urgency it also appeared from online

		comments and the lack thereof that the public became disinterested.
2) Combining the HPV vaccine campaign with other health promoting campaigns	No sub-theme	Theme 2 conveys how messaging pertaining to HPV, the HPV vaccine, and the HPV vaccine campaign are frequently presented in conjunction with other (related) health interventions and campaigns (e.g., measles vaccine, other vaccines, pap smear awareness).
3) Educative health messaging: A preventative relationship between HPV vaccination and cancer	3.1) Sub-theme: Calls for education	Theme 3 signals the multiple figures displaying detailed information about HPV immunisation and its subsequent prevention from cancer. This theme further elaborates on GDOH's attempt to emphasise the importance of HPV immunisation by educating the public regarding cancer. While the GDOH made several attempts to educate the public regarding HPV immunisation against cancer, it appeared that there were queries from the public requesting further educative health messages.
4) Gendered HPV immunisation health messaging	No sub theme	Theme 4 highlights the distinct gendered pattern of the HPV vaccine programme which is exclusively provided to girls.

4.3 Theme 1: The use of repetition and timing to convey the importance and urgency of HPV vaccination for girls

The first theme describes the manner in which the GDOH emphasised the importance and urgency of the HPV vaccine for girls by repeatedly sharing the same digital artefact several times on its various social media platforms such as Facebook, Twitter, Instagram and the

GODH's official website. Using repetition of the same figure which was posed as direct communication to parents and caregivers regarding the HPV vaccine and urging them to sign consent forms were interpreted as ways of communicating urgency and importance of the HPV vaccine.

It was noted that the HPV vaccine reminders were shared almost every day during March until April, especially in 2023, which is generally the period when the first round of the vaccine is provided at public schools for girls. Also, while the GDOH repeatedly shared the same figure (see Figure 1), it was also shared at specific key times in the year during the period when the GDOH team was approaching schools to provide the HPV vaccine. However, while repetitive posts made at key times during the year were interpreted as conveying urgency and importance, it also appeared that the public became disinterested in the posts due to a lack of interaction on these posts and/or the posting of comments unrelated to HPV. Three sub-themes that were identified within the first theme were repetition as a health communication strategy, timing in health communication strategies, and disinterest from the public. Each of these sub-themes are presented below, providing further details embedded within the main first theme.

Figure 1

Reminder of the HPV first dose campaign in 2023

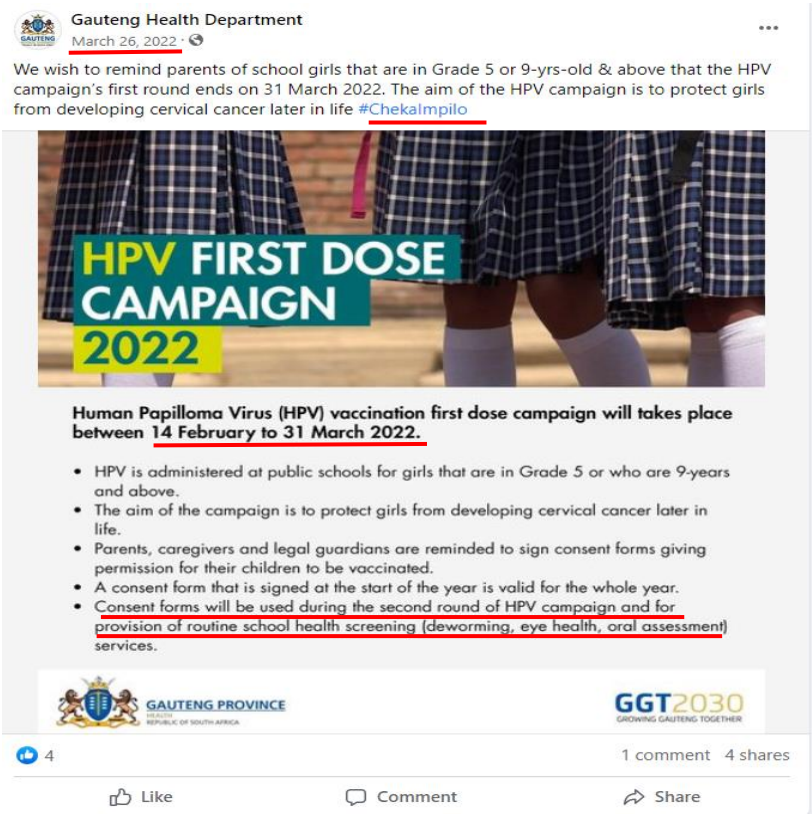
4.3.1 Sub-theme 1: Repetition as a health communication strategy

The sub-theme, repetition as a health communication strategy, intends to convey how the GDOH seemed to use a single advert about the "HPV first dose campaign" repeatedly, and across its multiple social media platforms between February and March 2023 (see Figure 1). The message in Figure 1 is addressed to all caregivers of schoolgirls, and at key times in the year (see sub-theme 1.2).

Of all posts made by the GDOH on its social media platforms and on their website, between January and April 2023, all data pertaining to HPV repetitively used the same figure. Reminders were also shared in previous years repeatedly, however there was a slight difference in the graphics and wording between messaging in 2023 and messaging in 2022 (see Figure 2 for messaging from 2022). Figures 1 and 2 appeared to act as a reminder to the public, and specifically "parents, caregivers, and legal guardians" regarding when the GDOH schools' health team would be approaching public schools and when schoolgirls in Gauteng could be vaccinated against HPV.

Figure 2

Reminder of HPV first dose campaign in 2022



Given that the same image was shared several times on GDOH's various social media platforms, this could imply an attempt to convey the importance and urgency of the message pertaining to the HPV vaccination programme. The notion of the messaging being important and urgent is implied through repeated reminder messaging and is also supported via GDOH's use of the hashtag "#AsibeHealthyGP" (underlined in Figure 1) multiple times, and on all their HPV related posts and content in the year 2023. The hashtag message, "#AsibeHealthyGP" directly translates to "let's be healthy Gauteng". It appeared to be direct communication to the people in Gauteng in their mother tongue.

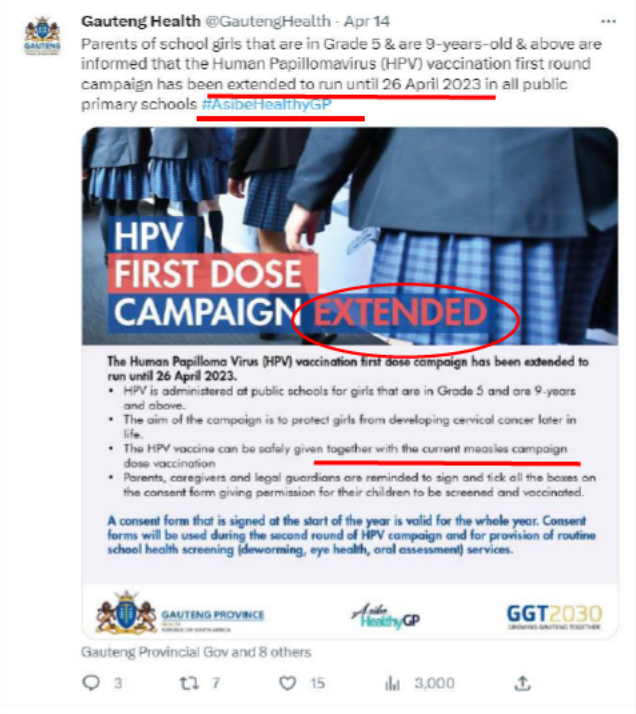
Using a hashtag to advocate for the HPV vaccine is strategic as the hashtag on social media and in everyday discourse seems to have taken on a range of rhetorical and metacommunicative functions, one of which may be to enhance social and collective action (Muralidharan et al., 2018). The repeated use of the "#AsibeHealthyGP" hashtag probably functions to increase impact, views, and shares on the GDOH's social media posts, thereby suggesting their attempt to emphasizing the urgency and importance of the HPV vaccine programme. It is noted that a hashtag "#ChekaImpilo" was also used in Figure 2 for the 2022 post which means "check your health" and it appears to be an attempt in emphasizing the importance of HPV vaccination as a means of having your health in check.

It should be noted that in the year 2023, the HPV first dose campaign was also extended to ensure that more girls were vaccinated (see Figure 3). The extension of the campaign beyond the initial 31 March 2023 end date, also implies the GDOH's attempt to advocate for the urgency and importance of the HPV vaccine. The extension was necessitated due to the measles outbreak early in 2023 and the subsequent disruption to the standard school-based health programme (Mathebula, 2023).

According to the World Health Organisation (WHO) (2023b), there was an increase in the measles outbreak across South Africa, therefore it appears that the GDOH attempted to provide both the vaccines for measles and HPV concurrently for convenience, hence the mention of safety in taking both vaccines together in the above Figures 1 and 2.

Figure 3

Extension of the first dose campaign in 2023



Even though the HPV vaccine was provided together with the measles vaccine in 2023, (further elaborated on in theme 2), the HPV vaccine was highlighted in bold capital letters, again showing the importance and emphasis of the HPV vaccine. Information was also provided that the HPV vaccine was safe to be given together with the measles campaign implying the importance of communicating the safety associated with HPV vaccine dual administration.

In addition to the use of repetition to convey the importance and urgency of the HPV vaccine, through the artefacts depicted in Figures 1 to 3, additional information regarding the vaccine rollout and the reason for the vaccine were also provided. This information probably also serves to reinforce the importance and urgency of the HPV vaccine. For example, brief information about the HPV vaccine preventing cervical cancer is provided, along with the safety of HPV vaccine given concurrently with the measles vaccine.

Both Figures 1 and 3 have the same wording and were shared several times on the GDOH's social media pages and on its website. Presumably GDOH paid for an advertising or health communication company to develop and produce an advert for the purposes of communicating HPV vaccine and campaign content, and so it would make financial sense that this advert is

shared regularly. It was observed that this figure (Figures 1 and 3) was mostly shared on Facebook since the beginning of 2023.

4.3.2 Sub-theme 2: Timing in health communication strategies

The sub-theme timing in health communication strategies relates to the observed attempt by GDOH in sharing HPV related content at specific times in the year. Figure 4 and 5 below were shared in March 2023 (Figure 1 as well), on GDOH's Instagram and Facebook pages respectively. It is noted that GDOH would actively share reminder posts in March which is shortly before the first term ends, and it is also the last month for the first round of the HPV vaccine.

According to the South African Government (2023), the first term concludes on the 24th of March in Gauteng. However, in 2023 the first dose was also extended until the 26th of April as can be seen in Figure 3 above. An extension was also not provided in previous years for the HPV vaccine which implies urgency and importance of increasing the HPV vaccine uptake.

Figure 4

Instagram post of the first dose campaign in March

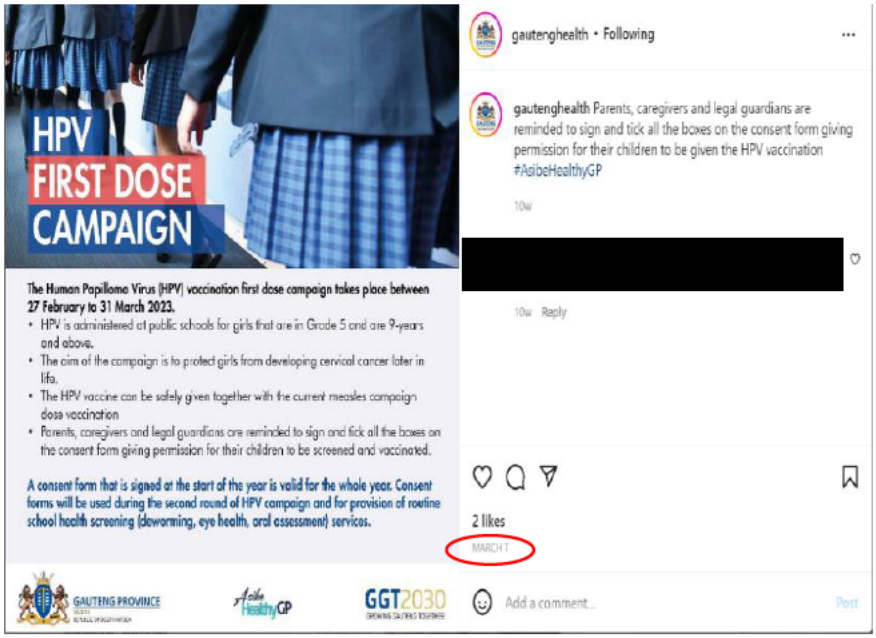
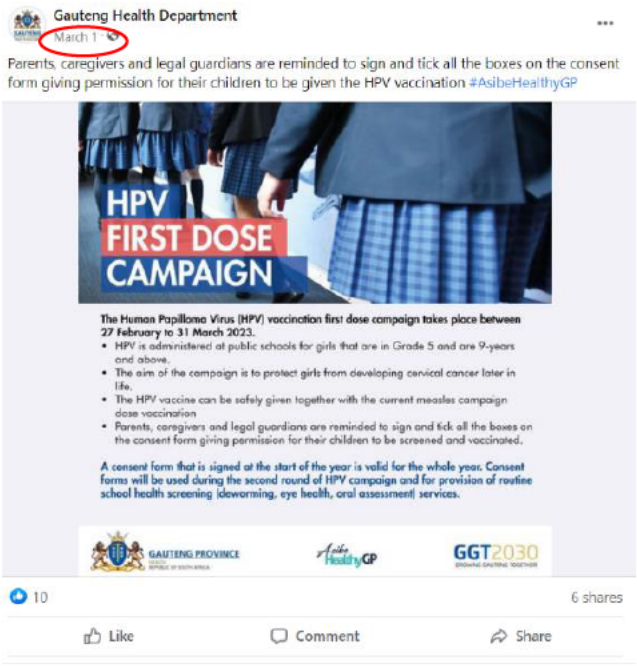


Figure 5

Facebook post of the first dose campaign in March



As can be seen above, both figures have the same wording and were shared in the beginning of March (on the 1st and the 7th) acting as repetitive reminders implying urgency and importance in guardians signing consent forms for their daughters to get vaccinated. Timing of social media posts and regular reminders during key times in the year was noted on GDOH's social media pages. It was noted that despite the release of public HPV vaccine programme in 2014, the GDOH only seemed to start posting HPV related content from 2016 onwards on its social media pages as well as on its official website.

Evidence of the first post on the HPV vaccine was only found on Facebook and Instagram in February 2016 (see Figure 6). Figure 6 was shared on Instagram and the same figure was shared on Facebook on the same day. Reminders regarding HPV content and the vaccine drive on social media appeared to be very limited during 2016. It appears that the GDOH became more active and would post regularly since 2020. This could be due to the rapid increase and reliance of social media since the COVID-19 outbreak (Mason et al., 2021).

Figure 6

First and earliest post of the HPV vaccine in 2016

However, it should be noted that Figure 6 which provides information regarding cervical cancer was also shared in mid-February 2016 which is shortly before the first annual vaccine drive begins in public schools. This once again highlights the GDOH's attempt in creating urgency and showing the importance of the HPV vaccine by posting information regarding its prevention of cervical cancer shortly before the first dose is made available. This shows that timing was used a health communication strategy as well.

Regarding timing of posts related to the HPV vaccination programme for schoolgirls, it is noted that posts would be shared regularly during February and then again in the second quarter of the year specifically in October since 2020. Also, it seemed that HPV related posts shared in October of each year since 2020 (i.e., at the time of the second round of HPV vaccinations) were embedded in posts pertaining to cancer awareness (e.g., pap smears and ways to reduce cancer risk), using these messages around cervical cancer detection as a strategy to remind the public about the HPV vaccine campaign. October is also the final month before the rounds of the second dose for the HPV vaccination ends.

Figures 1-5 are posts commonly found in the first school term and Figures 7 and 8 below are examples of posts commonly shared in the October of each year since 2020 for cancer awareness. October is cancer awareness month (Gathers et al., 2021), and the researcher

noticed that posts shared towards the end of the year were centred around highlighting protection against cervical cancer in the form of HPV vaccination and regular pap smears.

Figure 7

Cancer awareness post in October 2022

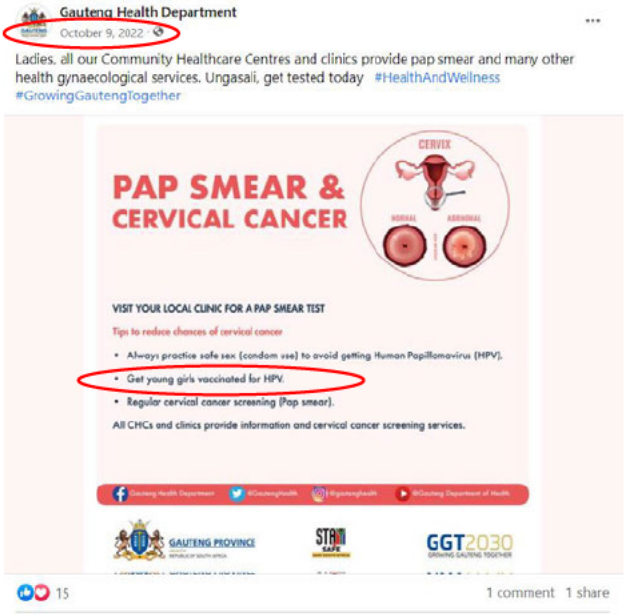
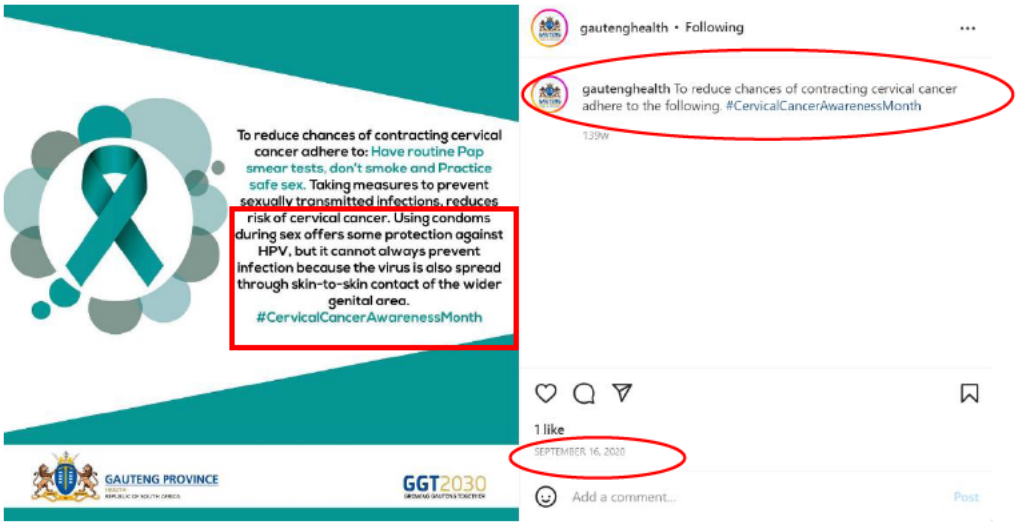


Figure 8

Cervical cancer awareness post in 2020



From the figures shared above, it is evident that most of the HPV data related to school reminders would be shared from February to April (first term of schools) (Figures 1-6) and again in September to October (third term) (Figures 7 and 8) during the cancer awareness months (Gathers et al., 2021). Changing posts in accordance with cancer awareness months, highlights the theme of timing and GDOH's active attempts to remain relevant with that specified time period and trend as a health communication strategy.

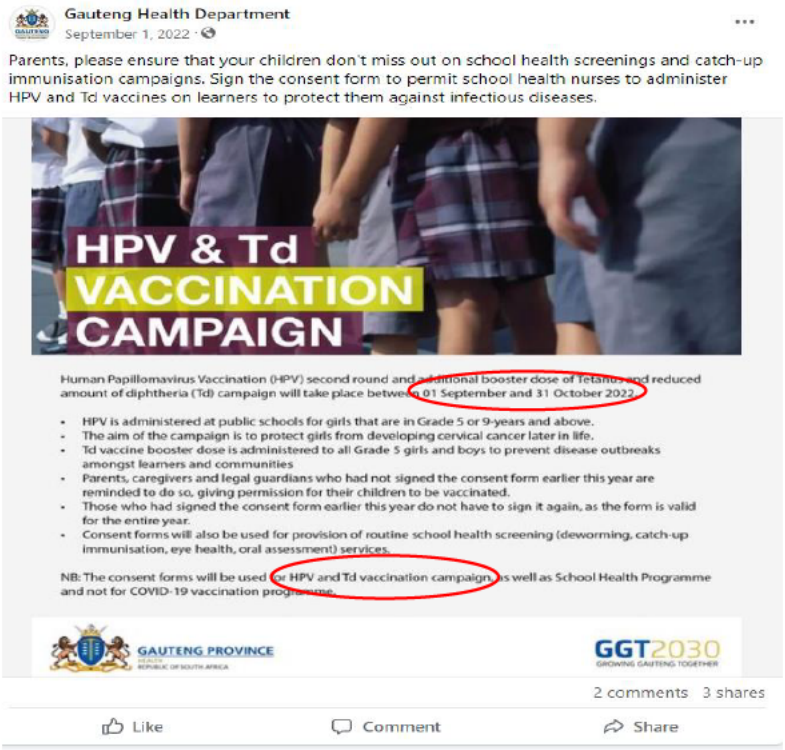
Figure 7 was shared largely on Facebook and Instagram from August 2022 until 2023, however, it did not appear before 2022. Figure 7 is captioned with a "#CervicalCancerAwarenessMonth," thus depicting the difference in the posts shared from the beginning of the year and the shift towards cancer awareness while still advocating for the HPV vaccine. The time specific posts also appear to have a shift in terms of the target audience.

In Figures 1-6, the focus is primarily on young school going girls, whereas in Figure 7 and 8 there appears to be a shift in focus towards all young women. The timing appears to be instrumental in changing the appearance of the GDOH's posts. This could emphasise the beginning of the year to be more focused on school going girls and the end of the year catered to all young women.

Understandably, posts were frequent during those times because the first round of the HPV vaccine is given between the 27th of February to the 31st of March (see Figures 1-5), and the second round is given from the 1st of September to the 31st of October (see Figure 9). This pattern has been maintained since 2016 until the current year.

Figure 9

Second round of vaccine post



The time specific posts indicate when the GDOH school's health team would actively approach schools to provide the HPV vaccination. This would naturally be the occurrence as it was the most relevant time to share those posts because they would be giving out the HPV vaccine (first and second round of the HPV vaccine) for a specified duration.

Creating and sharing posts from February to April, and then again from September to October which are also during cancer awareness months, act as a powerful health communication strategy. During those months people might be more eager to acquire knowledge regarding cancer and to actively partake in preventative measures such as vaccinating against HPV (see the date when Figure 10 was posted) and (see comment on Figure 11- "Thanks for the information").

Figure 10

Date of cancer awareness post

Figure 11

Appreciation of cancer related post

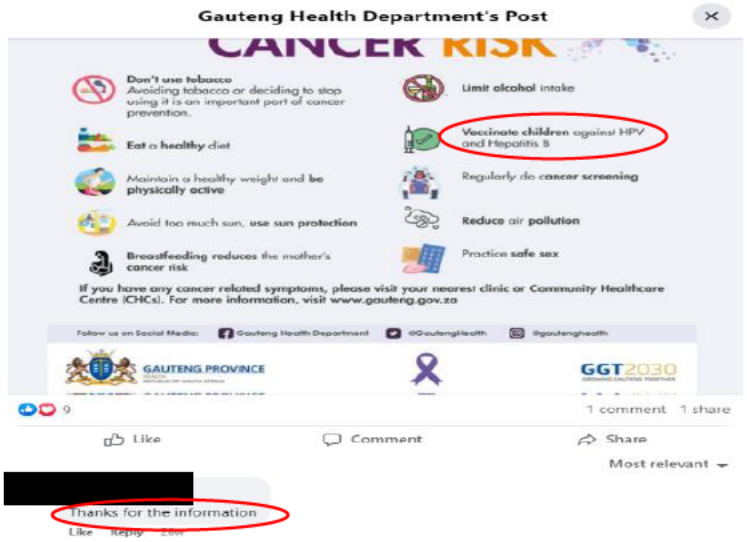


Figure 10 shows when the post was shared by GDOH, which was on the 21st of October 2022. GDOH has also used the #CancerAwareness which again reiterates the importance of timing and linking cancer awareness together with advocating for the HPV vaccine. The comment circled in Figure 11 above shows a member of the public's appreciation and acknowledgement of the post regarding protection against cervical cancer, one of which is vaccinating against HPV. This is some indication that using timing as a communication strategy can be beneficial and well received by the public.

4.3.3 Sub-theme 3: Disinterest from the public

It is evident that the GDOH made concerted efforts to convey the urgency and importance of the HPV vaccine using repetition and timing as strategies to engage and motivate the public. However, repetition of the posts might have also created disinterest from the public. This disinterest was seen in the ways that people reacted to and commented on the HPV vaccine related posts, especially to repeated posts. For repeated posts, it was found that increasing numbers of comments made did not relate to HPV or the HPV immunisation program but would include comments from potential scammers promising jobs or finding a lover. Figures 12 and 13 (see below) include content which illustrates this point.

Figure 12

Unrelated comment on Instagram

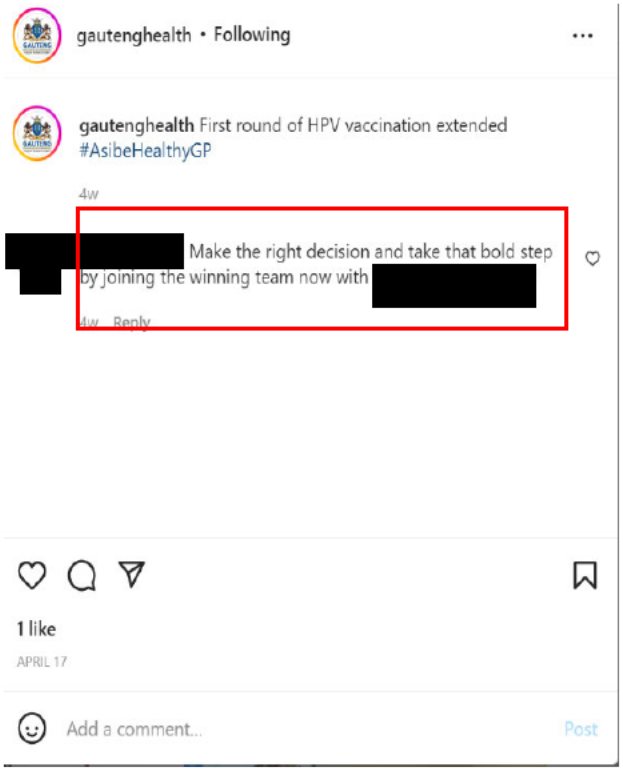


Figure 13

Unrelated comment on Facebook

Such comments were regularly found on Instagram and Facebook. Irrelevant tweets on twitter or comments on the government's website were not found by the researcher. Retaining such comments by the GDOH also potentially creates a negative narrative about the HPV vaccine. It could possibly imply that the vaccine and vaccination campaign are not a serious initiative. It also communicates the perception of the public on the HPV vaccine related posts to the GDOH, that the public do not deem it significant. It can also be seen that overall, from all the Figures shared, there were a reduced amount of likes and shares of posts regarding the HPV vaccine, which is noted specifically since in 2023. Both the above highlighted comments were from different accounts/profiles shown on Instagram and Facebook and were found on few posts shared by the department. This shows that scammers have open access to the department's posts with little to no consequences.

4.4 Theme 2: Combining the HPV vaccine campaign with other health promoting campaigns

The theme combining the HPV vaccine campaign with other health promoting campaigns, communicates the HPV vaccine being promoted together with other health related initiatives by the GDOH. Specifically, the GDOH has continuously advocated for the HPV vaccine together with another vaccine campaign or health initiative. As noticeable in Figures 1 and 3-5, messaging pertaining to the HPV vaccine was combined with messaging pertaining to the

measles vaccine in 2023. In Figure 2, messaging pertaining to the HPV vaccine was combined with other routine school health screening services such as deworming and eye health. In Figure 6, the GDOH messaging (from 2016) communicates how the HPV vaccine will be provided with deworming tablets. Figure 7 speaks about motivating the public to get pap smears and protecting themselves against cervical cancer, while also speaking of getting young girls getting vaccinated for HPV.

While the post depicted in Figure 8 may not directly advocate for the HPV vaccine, it highlights the importance of using safe sex measures to protect oneself from HPV, communicating that "the virus is also spread through skin-to-skin contact of the wider genital area." This messaging conveys the importance of vaccinating against HPV as it is very easily contracted even with condom use. Here, the dangers of HPV are shown together with ways in reducing chances of cervical cancer. Figure 9 shows GDOH sharing a reminder for the second dose of the HPV vaccine together with the Tetanus and Diphtheria (Td) vaccine.

Figure 10-11 shows more information in reducing cancer risk and informs the public regarding the HPV vaccine and Hepatitis B. From all the Figures shared and mentioned above, it was clear to the researcher that a common pattern emerged, which was the HPV vaccine being promoted together with various other health related campaigns and initiatives by GDOH.

4.5 Theme 3: Educative health messaging: A preventative relationship between HPV vaccination and cancer

Health messaging used to show a preventative relationship between HPV vaccination and cancer highlights an ongoing pattern observed by the researcher with the HPV related data set. However, while the GDOH made several attempts to educate the public regarding the vaccine and cancer prevention, it is also significant to find out how the public responded to being educated. It was found that even though there seemed to be sufficient education regarding cancer protection and prevention via HPV vaccination, the public still demanded further education pertaining to other aspects of the vaccine, such as age-related queries for the HPV vaccine, availability of HPV vaccines for private school goers, and regarding side effects. There is one subtheme under Theme 3, and this subtheme is conceptualised as calls for education by the public in response to HPV vaccine posts. The researcher will first outline the overarching theme regarding educative health messaging and thereafter unpack the public's

response to the GDOH's educational attempts by presenting the subtheme of calls for education.

It appears that GDOH placed regular emphasis on the importance of cancer prevention via the HPV vaccination as can be seen in Figures 6, 7, 8, 10 and 11. It was also observed that the GDOH made various attempts by posting regularly to signify the importance of the HPV vaccine in preventing cancer. Both Figures 7 and 10 were regularly shared on the GDOH's Facebook and Instagram pages. The post regarding pap smears and cervical cancer (Figure 7) was shared several times on Facebook and Instagram the earliest being August 2022 until January 2023.

On the GDOH's Instagram page, Figures 7 and 10 were also shared a number of times since 2022. This could be due to the GDOH only recently becoming more active on Instagram as compared to their other social media handles. The researcher notes that perhaps the GDOH has attempted to use the new features of technology, due to the Meta Platform submerging Facebook and Instagram, thereby making it easier to post on both the social media platforms at the same time. The advantage of this is that one post can be shared simultaneously on both platforms.

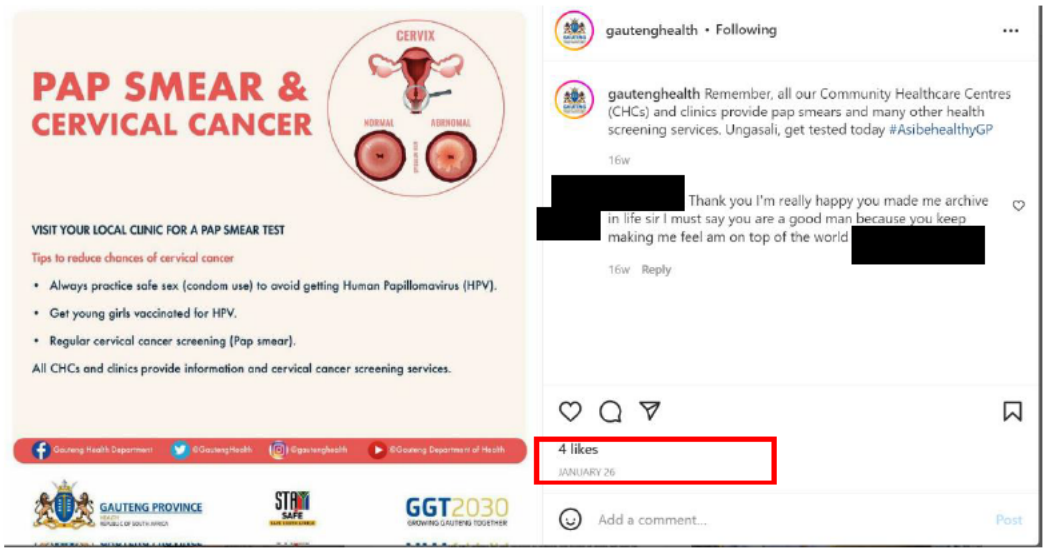
While attempts to share the same post were also made in the past on both Facebook and Instagram it appears that GDOH makes more regular use of Facebook. However, on Twitter and the GDOH's official website, this has not been the case as there are no posts of Figure 7 shared on these respective platforms. Figure 14 and 15 of the same post being shared on Instagram and Facebook are presented below.

Figure 14

Same post on Facebook

Figure 15

Same post on Instagram



Both posts (Figure 14 and 15) were shared on the 26th of January 2023. Both images were also liked 4 times. The above image emphasises the importance of preventing cervical cancer and how to reduce its likelihood. Noticeably the post on Instagram has a comment that is not

relevant to the image at all. It appears that Figure 14 and 15 is a newly developed infographic that GDOH created as an attempt to increase cancer risk awareness and knowledge.

Several attempts have been made by the GDOH to provide information, knowledge, and assistance regarding the HPV vaccine and its prevention of cancer. Such attempts can be seen from posts about when the HPV vaccine will be administered, to whom, where, providing extensions, awareness regarding cervical cancer and prevention measures (Figures 1-15). Interestingly, due to the format of newsletters used on GDOH's official website, it was found that more detailed information was provided (see Figure 16).

Figure 16

GDOH website newsletter on the HPV vaccine

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

MEDIA STATEMENT

MONDAY, 27 FEBRUARY 2023

HPV VACCINATION GETS UNDERWAY

The Gauteng Department of Health (GDoH) wishes to inform parents, caregivers and legal guardians of school girls that are in Grade 5 or 9-years-old and above that the Human Papillomavirus (HPV) vaccination campaign's first round is taking place between 27 February to 31 March 2023 at all public primary schools.

The aim of the HPV vaccination campaign is to protect girls from developing cervical cancer (cancer of the mouth of the womb) later in life. Parents, caregivers and legal guardians who have not yet signed the consent form are reminded to do so in order to ensure that their children do not miss out on the HPV vaccination drive.

There are over 200 types of HPV viruses and research has shown that HPV types 16 and 18 account for 70% of cervical cancer cases. The HPV vaccine is very safe and effective in preventing the HPV infection caused by these two HPV strains (type 16 and 18). It is important to note that the HPV vaccine can be safely given together with the current measles vaccination.

A consent form that is signed at the beginning of the year is valid for the whole year. It is important that all parents and guardians tick the boxes on the consent form for their child to be screened and immunised. This consent form will also be used for routine health assessments as part of the Integrated School Health Programme (ISHP).

The ISHP includes provision of health education, eye, ear and oral assessments, catch-up immunisations and deworming, as well as the identification of any other health barriers that can affect a child's education.

Ends/

Issued by the Gauteng Department of Health

Figure 16 was posted on GDOH's official website as a media statement informing readers that the HPV vaccine drive will begin on the 27th of February 2023. The media statement educates the public that "the HPV vaccine campaign is to protect girls from developing cervical cancer" explaining that it is "cancer of the mouth of the womb". It is visible that more information regarding the "types of HPV viruses" and which types cause cervical cancer were outlined. More information about the ISHP and its objectives were outlined a bit more on the website.

This media statement outlines the causal preventative relationship between the HPV vaccine and cancer evidently. It can be seen from Figure 16 the amount of times cancer was mentioned to educate the public regarding the significance of this vaccine in preventing cancer. The health messaging takes the stance of educating the public, urging them to sign their daughter's consent forms, and also providing assurance that the consent form will also allow the ISHP to assist them together with other health concerns as highlighted in theme 2.

4.5.1 Sub-theme 1: Calls for education

There were several comments found specifically on GDOH's Facebook page indicating interest and queries about the HPV vaccine from the public. It was noted that no post made by a member of the public was responded to by the GDOH. Many of the comments were relevant questions calling for GDOH to provide education regarding the vaccine. If the questions and comments were responded to, this may have positively impacted the HPV vaccine uptake, not only for schoolgirls but for the general public as well. See Figures 17-18 below.

Figure 17

Query about HPV vaccination for adults

Figure 18

Comment about a parent's enquiry on the HPV vaccine

From the above Figures 17-18, it can be seen that the public responded to the GDOH's posts with concerns and questions about the HPV vaccine. In Figure 17 the individual wants to find out if the vaccine will be effective for adults. Figure 18 shows that parents whose children go to private schools (in this case "Curro") also wish to be vaccinated and in response another person from the public provided the information, "any public health facility will assist you" which the department did not respond to.

It appears that the public's queries remained unanswered and people who respond to these queries are other members of the public. Therefore, comments made by and to members of the public do not seem to be monitored. The comments also appear to highlight that the public has requests and concerns for further education in order to make an informed health decision regarding the HPV vaccine. There were also concerns regarding the chosen age for the HPV vaccine and side effects which were not addressed by GDOH (see Figure 19 and 20).

Figure 19

Parent's comments about the HPV vaccine age range

Figure 20

Most reacted Facebook post on HPV vaccination

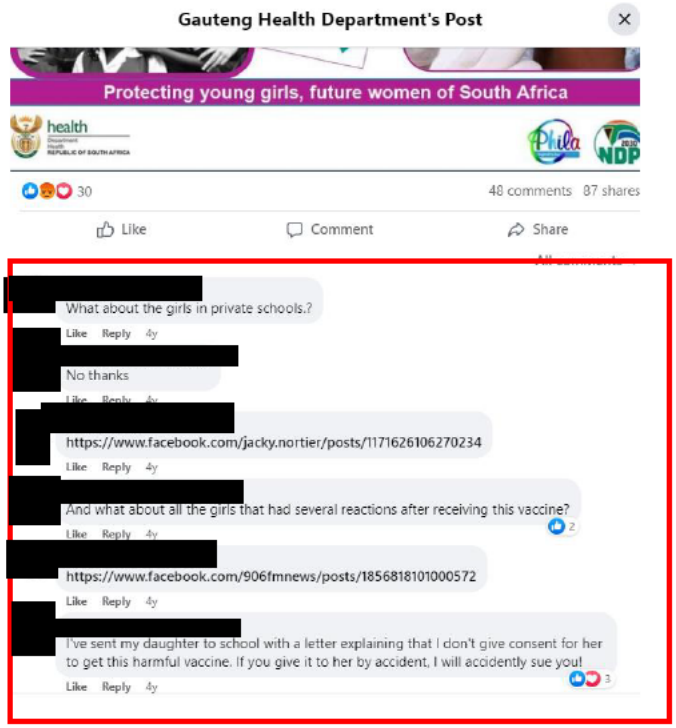


Figure 19 highlights concerns about the age and whether the vaccine is safe for girls in that age group. A person commented about the choice of age for the HPV vaccine and how the age for HPV vaccine implementation is "that's really young" as it is a STI implying a misunderstanding of why it is given so young. This comment depicts genuine concern regarding the HPV vaccine age group and communicates calls for further educative health messages which do not seem to be provided. There is also an attempt by another member of the public (i.e., replying to the query) "it's got to do with cervical cancer", therefore the response may not be accurate or well received by the public. The response to the comment appears again to be a call for education as to why girls in that age group are chosen to be vaccinated from HPV and confusion regarding the discrepancy between the chosen age and grade, as can be seen in the comment "but they say grade 5 or 9 years. I want to see a 9 year old in grade 5".

In Figures 19 and 20, one can see that the public's comments are polarised. While some people feel that the vaccine is effective others do not feel the same way. Figure 20 was taken from the GDOH's Facebook post and is a post which generated the most reactions regarding the HPV vaccine by the public. The post in Figure 20 was posted in 2019 and generated notably more negative reactions than positive ones. It is also evident that anti-vaxxers are vocal about their views and cause more of a reaction by the public than people who support vaccine initiatives (e.g., 3 likes for a comment made by a parent claiming that they will sue the GDOH if their daughter gets "accidentally" vaccinated against HPV). Hence, there appears to be a need and call for further education from GDOH as the public seem to be easily influenced by negative views of the HPV vaccine.

There is also a lot of concern about the side effects and potential harm that the vaccine may cause. This is shown from the comment in Figure 20 "what about all the girls that had several reactions after receiving this vaccine," which implies concerns and calls for further education regarding side effects of the HPV vaccine. The abovementioned comment was also liked by 2 people which implies agreement. This is seemingly a valid concern which could have been addressed by GDOH. Interestingly there are no posts highlighting the side effects of the HPV vaccine by GDOH which appears to be a direct call from people requesting further education by GDOH.

4.6 Theme 4: Gendered HPV immunisation health messaging

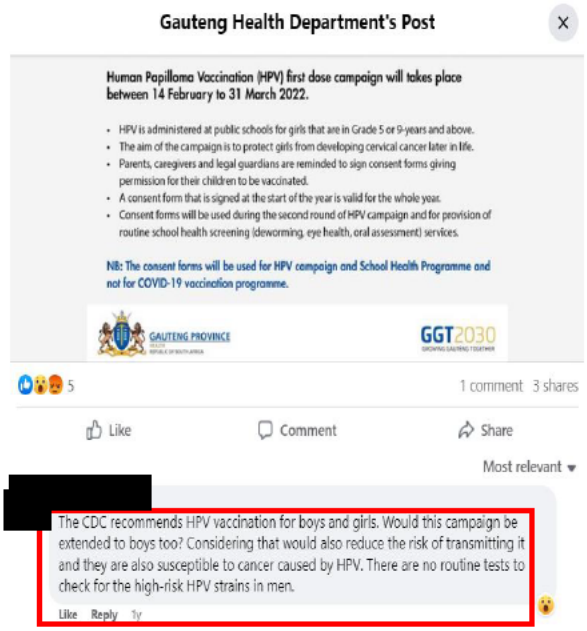
Gendered HPV immunisation health messaging outlines the gendered notion regarding the HPV vaccination programme by GDOH. There has been more emphasis on protection from cervical cancer which is a gendered disease only affecting women. This communicates the notion that HPV only infects girls and women, whereas HPV is a sexually transmitted disease carried by both males and females. Figures 21 and 22 below show the discontent of the public due to the vaccine only being offered to girls and not to boys.

Figure 21

Query about HPV vaccine for boys

Figure 22

Another query regarding provision of HPV vaccine for boys



Both the above screenshots show concern from the public regarding the vaccine only being offered to girls. From all the screenshots shared in this chapter only one (Figure 10) does not emphasise the gendered risk of cancer. It is the only post where it does not highlight that the HPV vaccine should only be administered to girls. While the department may focus on protecting girls and women from cervical cancer due to the increased mortality rate and high risk, if the same emphasis is provided to boys, then more people will be immunised by HPV thereby automatically reducing the chances of cervical cancer in women due to the reduced exposure to HPV.

Comments by people enquiring about boys being vaccinated for HPV also communicates that the public wants boys to receive this vaccine too, as shown in the comment "what about the boys?" (Figure 21). The GDOH exclusively emphasising girls to be vaccinated from HPV appears to communicate the narrative that girls and women are the sole carriers of HPV, and it acts as an additional responsibility placed on an already vulnerable gender towards STIs (Amponsah-Dacosta et al., 2022). A comment on the HPV related post (Figure 22) shows concerns "there are no routine tests to check for the high-risk HPV strains in men", that men can also contract cancer from exposure to HPV and that further research is required.

4.7 Conclusion

From the themes identified it shall be concluded that GDOH has done considerable work in creating awareness regarding the HPV vaccine for schoolgirls. There have been several attempts to increase vaccine uptake and inform the public regarding the vaccine by using repetition and time as a strategy. However, upon analysis of the publics' reactions it was found that the repetition of the posts also caused disinterest among the public due to unrelated comments from potential scammers. The second theme highlighted the GDOH's attempt in convincing people about the HPV vaccine by providing it with other vaccine initiatives which appeared to create convenience for the people as a motivation.

The third theme highlighted the GDOH's attempts at educating people regarding HPV vaccine and its direct impact in cancer prevention. While this pattern was noted, it was also noted that the public demanded further educative health messaging other than how or why HPV prevents cancer. It appeared that the public made considerable attempts in calling the GDOH for further education regarding the vaccine initiative. The final theme highlights that most posts shared about the HPV vaccine programme is a gendered notion and implies that the HPV vaccine is only girls or women's responsibility despite it being an STI that also significantly infects men. People's comments and reactions to the gendered health messaging was also noted to be of dissatisfaction as they also enquired as to why boys are not given HPV immunisation.

In concluding this chapter from the analysed findings, it communicates that the GDOH has indeed made multiple forms of attempts to increase HPV uptake and communicate the importance of it from the themes found in the health messaging. However, it appears that people interact with these health messages in polarised ways and wish for the GDOH to do more. The next section will further discuss the findings in relation to the HBM and relevant literature.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

The discussion chapter further unpacks the four themes and respective subthemes identified from the findings chapter. Themes identified in Chapter 4 were: The use of repetition and timing to convey the importance and urgency of HPV vaccination for girls; Combining the HPV vaccine campaign with other health promoting campaigns; Educative health messaging: A preventative relationship between HPV vaccination and cancer; and Gendered HPV immunisation health messaging. The first theme had three subthemes which were repetition as a health communication strategy, timing in health communication strategies, and disinterest from the public. The third theme had one subtheme which was calls for education. This chapter integrates the themes with existing literature and the theoretical framework. The following discussion will be outlined in the order of the themes identified while making references to the HBM, relevant literature, and to answer the research questions.

5.2 Theme 1: The use of repetition and timing to convey the importance and urgency of HPV vaccination for girls

The first theme alludes to the observed pattern of the GDOH's attempts in using repetitive posts at specific times of the year to reach out to parents and caregivers for signing the consent forms that will permit their daughters to be vaccinated against HPV. Repetition and timing were used as strategies to communicate the importance and urgency of the HPV vaccine programme for schoolgirls by the GDOH. These strategies seemed to be used as forms of behavioural motivation from the GDOH to parents and caregivers. This type of health messaging acts as an indication of the GDOH providing forms of cues to action to the public to motivate people for HPV vaccination, with cues to action being the fifth construct of the HBM (Abraham & Sheeran, 2005). According to Champion and Skinner (2008), the fifth construct (i.e., cues to action) can be external in the form of media campaigns or medical professionals' recommendations. In the case of the GDOH, a social media campaign on HPV immunisation for schoolgirls was used as an external cue to action.

Urgency and importance as strategies by the GODH could be due to the fact that cervical cancer is the leading cause of cancer-related deaths in South Africa, therefore it is a cause for concern that motivates for urgency and importance to be conveyed to parents and caregivers (Bruni et

al., 2021). Communicating urgency and importance to parents and caregivers in the form of timed repetitive posts is also because young girls under the age of 15 (identified as minors in South Africa) are most susceptible to STIs such as HIV/AIDS and HPV (Amponsah-Dacosta et al., 2022). Perhaps the high susceptibility to STIs encouraged the GDOH to inform and educate South African parents/caregivers to increase their own perceived susceptibility (first construct of HBM) to HPV and the perceived severity (second construct of HBM) of cervical cancer for the sake of their daughters (Abrahah, & Sheeran, 2005). An attempt was made by the GDOH to repeatedly post about the HPV vaccine at specific times in the year to show the urgency and importance of this vaccine.

The HPV vaccine was also seen as a perceived benefit (i.e., the fourth construct from the HBM) to prevent cervical cancer as according to Champion and Skinner (2008), a vaccine can be perceived beneficial because it prevents further illness. According to Mishaal and Abu-Shanab (2015), people believe and adopt the benefits of making health related decisions when it is motivated and advocated by government health departments. Therefore, the GDOH timeously posting about the HPV vaccine repeatedly, could be an attempt to increase perceived benefits (fourth HBM construct), perceived severity (second HBM construct) of cervical cancer and reduce barriers (i.e., the third HBM construct) as access to the vaccine was streamlined by the GDOH directly providing the HPV vaccine at schools.

It should be noted that the posts were directly communicating to parents, guardians, and caregivers because the age group chosen for the HPV vaccine (girls in grade 5 and are 9 years old or above) are minors according to South African law, hence parental consent is compulsory for schoolgirls to be vaccinated (South African Government News Agency, 2024). According to Galbraith-Gyan et al. (2018), in countries such as America, daughters had a decreased self-efficacy in making health decisions for themselves because their parents had authority to consent for their vaccination. Similarly, in South Africa giving parents the sole responsibility to consent for the HPV vaccine might lead to a diminished self-efficacy for young girls in having the capacity to protect themselves from HPV and cervical cancer. This speaks to the sixth construct of the HBM (i.e., self-efficacy), pointing to the decreased self-efficacy for sexual health in young girls, regardless of country, especially when consent to make health decisions pertaining to HPV vaccination is solely provided by parents/caregivers.

Despite multiple attempts made by the GDOH to increase perceived susceptibility and perceived severity within the public for HPV and cervical cancer, by using repetitive posts at

key times in the year, it appears that the public became disinterested. It was shown by the lack of interaction by the public on all HPV related posts made by the GDOH. Disinterest from the public communicates that perhaps they do not perceive their daughters as being susceptible to HPV and subsequently to cervical cancer (Champion & Skinner, 2008). This will be further elaborated in the sub-theme 5.2.3. Furthermore, people might see their daughters as being susceptible, vaccinate their daughters, and see the GDOH posts, but have acted already in agreement with the GDOH, hence they don't feel a need to post about their agreements.

Alternatively, it is also possible that the apparent public disinterest in the GDOH's social media posts on HPV is related to the GDOH not being engaged with at all via social media channels (i.e., the public do not think it is necessary or relevant to engage with the GDOH via social media, or large parts of the public do not have the technological means to engage with social media including posts made by the GDOH) (Ledibane et al., 2023).

5.2.1 Sub-theme 1: Repetition as a health communication strategy

The GDOH repeatedly shared a post motivating parents to sign the consent forms (see Figure 1). The post had details about when they were approaching schools, the aim of the HPV first dose vaccine campaign, what the vaccine is for, and the fact that it can be safely administered with other health campaigns (further elaborated in theme 2). The additional information regarding the HPV vaccine and the repetitive exposure of this information was perhaps an attempt by the GDOH to create awareness regarding HPV immunisation and its subsequent prevention of cervical cancer. This is because one of the main reasons for vaccine hesitancy within South Africa and globally is a lack of awareness (Ledibane et al., 2023; Oketch et al., 2023; Hall et al., 2019; Khosa et al., 2022; WHO, 2016).

The repetitive exposure to the HPV vaccine and reminders sent by the GDOH were attempts in educating and urging the public online, to consent for their daughters to vaccinate, as social media messaging is a form of communication that may allude to perceptions of vulnerability pertaining to an illness and its sequelae (e.g., HPV and cancer) (Lee-Won et al., 2017). These repetitive reminder posts to sign consent forms was an attempt to increase external cues to action (fifth HBM construct) for HPV vaccination as a form of motivation for parents or guardians to consent.

It was also noted that a hashtag was used on all HPV school related posts in 2023. The translation of the hashtag from IsiZulu to English "let's be healthy Gauteng" is yet another

social media strategy to motivate the public for HPV vaccination. In essence, the hashtag is used to ignite their health beliefs in making healthier choices for themselves and specifically for their daughters. Promoting health through the use of hashtags alongside social media posts functions to garner more public attention and engagement (Muralidharan et al., 2018). Hashtags aid in the categorisation and finding of material, making it simple for users to locate and join in on pertinent conversations (Muralidharan et al., 2018). This shows that the GDOH attempted to gain more momentum on their HPV vaccine programme for schoolgirls by adopting beneficial social media strategies such as the hashtag.

Using a language (isiZulu) that is spoken by majority of South Africans in the hashtag health messaging, and specifically in the Gauteng province, is also likely to enhance the extent to which the message has impact, is understandable, and relatable (Khanyile & Ballard, 2022). According to Fitriani et al. (2018), HPV vaccine uptake increases when people are better informed about it which subsequently increases perceived susceptibility, severity, benefits, cues to action, and self-efficacy (i.e., HMB first, second, fourth, fifth and sixth constructs). If a post appears to be more accessible, then chances are that people will perceive it to be more personal, hence the use of IsiZulu in the posts to gain attention was seen as favourable.

Repetition of posts and more engagement were more commonly found on Facebook as it was also noted that GDOH is more active on Facebook than its other social media pages. This could be due to the possible parental age group being more active on Facebook than other social media pages (Sinclair & Grieve, 2017). There would also be more engagement on Facebook from the public in the form of likes, shares, and comments.

5.2.2 Sub-theme 2: Timing in health communication strategies

Timing was used as a strategy in all health-related posts pertaining to the HPV vaccine programme for schoolgirls. It appeared that the GDOH wanted to remove a potential perceived barrier (third construct of HBM) by regularly informing parents/guardians when they would be approaching schools for the HPV vaccine. A potential perceived barrier could have been that parents/guardians were unaware of when the campaign was implemented at schools, therefore this was potentially prevented by the GDOH, by posting at times when they were actively approaching schools. There was a clear indication in their social media posts when they were providing the first and second dose to schoolgirls as well. One of the common perceived barriers is time constraints and this construct appeared to be addressed by the GDOH by

regularly and timeously informing people when they would vaccinate schoolgirls against HPV (Freedman et al., 2016).

Timing of the posts was essential because one of the largest municipalities by surface area in the country (Tshwane Health District) is situated in the Gauteng province which had very low HPV vaccine coverage due to unsigned forms and high rates of absenteeism (Ledibane et al., 2023). Although there were other systemic challenges identified for the reduced vaccine uptake, perhaps the GDOH repeatedly and regularly informing people the specific times when the HPV vaccine was being implemented, would encourage parents to sign consent forms and send their daughters to school, thereby reducing perceived barriers. According to Ledibane et al. (2023), societal awareness and mobilisation initiatives would improve vaccine uptake which was done by the GDOH in the form of timeous social media health messaging about the HPV vaccine.

An extension of the first HPV vaccine dose was provided in 2023 further emphasising the importance and urgency of HPV vaccination and an attempt to increase perceived susceptibility and severity in people (HBM first and second construct). It was also to combat any perceived barriers (third HBM construct) that could have prevented parents' daughters accessing the HPV vaccine as priority was given to the measles outbreak at the time, which could have been a barrier for parents to allow their daughters to vaccinate against HPV, hence an extension was provided (Mathebula, 2023). Lastly, the extension could also be seen as a perceived benefit (fourth HBM construct) because the GDOH considered the interruption of the vaccine from the measles outbreak and that it prevents parents from sending their children to school, therefore, their daughters' safety was prioritised. Here, it is evident that the GDOH attempted to address four pertinent HBM constructs (perceived susceptibility, severity, barriers, and benefits) by providing an extension.

It is noted that timing has been a recent strategy implemented by the GDOH as posts, images, and tweets were frequently shared from 2020 onwards, which could be alluded to the increased reliance on social media and online communication during the pandemic (Chauke et al., 2021). Social media is becoming more accessible and the preferred medium of communication even for health-related initiatives due to large numbers of people using the platforms (Mason et al., 2021). Using social media as a primary source of information has also been noted by Chauke et al. (2021). As with global trends, the COVID-19 pandemic further compromised the schools-based HPV vaccination programme due to schools being closed and the intermittent move to

distant learning in 2020/2021. This could be the reason that the GDOH also became more active regarding the HPV vaccine programme for schoolgirls after 2020 on their social media platforms (Amponsah-Dacosta et al., 2022).

As outlined in the findings chapter (see sub-section 4.3.2), there appeared to be a difference in the figures posted during the first half and the second half of the year. Posts were more aligned to school initiatives from February to April and from September to October the posts changed to cater for cancer awareness, because as previously mentioned, the latter months in the year are commemorated as cancer awareness months (Gathers et al., 2021). Cancer awareness and the combined promotion of the HPV vaccine was also appreciated by the public (see Figure 11, in sub-theme 4.3.2), influencing the perceived benefits (fourth HBM construct) of the vaccine because of its evident protection from cancer.

The strategic timing of the posts during the cancer awareness months addresses the lack of awareness regarding HPV vaccination and its effective cancer prevention. Specifically, the timing acts as a form of timeous and relevant education to the public to increase their perceived susceptibility, perceived benefits, cues to action as well as self-efficacy (i.e., the first, fourth, fifth, and sixth, HBM constructs). Upon seeing these posts, members of the public would be informed of the benefits of the HPV vaccine (i.e., that it protects a woman from developing HPV related cervical cancer later in life) and would be motivated to take protective health actions such as vaccinating against HPV or consenting for their daughters to be vaccinated against HPV. Due to the free of charge availability (perceived benefit) of the HPV vaccines at Community Healthcare Centres and public clinics, the ability to vaccinate would increase their self-efficacy in that they are capable of carrying out a suggested health activity (vaccination) successfully (Champion & Skinner, 2008).

5.2.3 Sub-theme 3: Disinterest from the public

Timing and repetition were used as strategic cues to action (fifth HBM construct) for the public. However, it appears that the timed and repetitive posts were not well received, due to the limited to no responses or reactions to GDOHs social media health messaging posts regarding the HPV vaccine programme for schoolgirls.

The apparent disinterest from people on the GDOH's social media pages regarding the HPV vaccine programme for schoolgirls may communicate that there is a reduced perceived susceptibility and perceived severity (first and second construct of HBM) of HPV (Abraham

& Sheeran, 2005). While parents might have perceived their daughters to be vulnerable to HPV and consented to the vaccination, perhaps they did not see the need to show their agreeableness on the GDOH's social media pages. Given the socioeconomic status of girls attending public schools, it is plausible that parents or guardians may not have had technological means and access to the GDOH's social media posts, hence the reduced interaction and apparent disinterest (Ledibane et al., 2023).

The use of the same reminder and image may be understood by the public as a form of eagerness and importance to vaccinate, however, it could have also caused the public to become disinterested to the posts as it is the same repetitive use of imagery and words. There was a lack of social media communication from the public, which has become a dominant medium for communication and implies disinterest due to the lack thereof (Mishaal & Abu-Shanab, 2015). Lack of variety in the GDOH's HPV health messaging might have promoted disinterest and complacency as well.

There were several unrelated comments communicating that perhaps the public might also have a decreased perceived susceptibility and severity (first and second construct of HBM) of HPV and cervical cancer. While benefits of repetition and timing can be seen, it is also acknowledged to decrease cues to action (fifth HBM construct) due to the disinterest and reduced interaction with HPV related posts. As mentioned above, it was found that in Tshwane, which is the one of the largest municipalities by surface area in Gauteng, HPV vaccine uptake was very low due to absenteeism and unsigned consent forms which communicates potential disinterest on the GDOH's HPV related online health communication as well (Ledibane et al., 2023).

The apparent disinterest from the public might also be due to the reduced perceived susceptibility (first HBM construct) of HPV and cervical cancer because people are of the opinion that the age group of girls chosen for HPV vaccine implementation is too young and too early for sexual debut (Wiyeh et al., 2019). Their perception of girls not having sex at a young age and consenting to the HPV vaccine may encourage sexual intercourse, appears to be perceived barriers (third HBM construct) to HPV vaccination and cervical cancer protection. Such a phenomenon is not only true in South Africa but globally as well (Khosa et al., 2022; WHO, 2016).

5.3 Theme 2: Combining the HPV vaccine campaign with other health promoting campaigns

The GDOH combined HPV and other health messaging on social media for concurrent consenting, to address potential perceived barriers (third HBM construct) about parents/guardians not having to seek separate services for multiple health conditions. Perceived barriers are generally personal and specific hurdles experienced by individuals that ultimately prevent them from taking a specific health action such as vaccinating. These hurdles act as barriers that prevent a person from making a health-related decision (Abraham & Sheeran, 2005).

The GDOH combined the HPV vaccine programme with other health promoting campaigns (e.g. measles, deworming, eye health, and Td). This health communication strategy appeared to address potential perceived barriers for vaccinating against HPV. Having to sign separate consent forms for measles, deworming, Td, and eye health, would have been an inconvenience to parents and the children. Hence, the GDOH aimed to address potential perceived barriers (i.e., not having to seek separate services for multiple health conditions) and was able to safely combine the HPV vaccine with other health promoting campaigns. This also acted as a cue to action (fifth construct of HBM) due to the combined health messaging addressing not one but many other health benefits. Any potential perceived susceptibility and barriers (first and third HBM construct) of illness regarding side effects, were also addressed by the GDOH. The GDOH used educative and informative health messaging to convince parents and guardians that it would be safe to have their daughters receive a dual vaccination with the HPV vaccine. However, while the GDOH addressed concerns regarding side effects for the combined administration of the HPV vaccine with other health initiatives, side effects particularly concerning the HPV vaccine alone were not addressed. This is further highlighted below in section 5.4.1.

Financial implications are one of the most common perceived barriers (third HBM construct) in receiving health care and making healthy decisions (Champion & Skinner, 2008). According to Fitriani et al. (2018), in Indonesia the HPV is not provided for as part of the government's health services and this proved to be a perceived barrier in parents and girls accessing the vaccine. However, since 2014, the government in South Africa has provided the HPV vaccine for free and as part of its national immunisation programme which addresses a highly contested perceived barrier of finances.

This dual promotion of HPV with other health initiatives as a social media health communication strategy appeared to be a perceived benefit (fourth HBM construct) as well. The financial burden of having to visit clinics to access the HPV vaccine and other health benefits which would incur transport costs and inconveniences of waiting in long queues are addressed by the GDOH providing the HPV vaccine with other health campaigns, physically at schools. Offering the HPV vaccine at schools also addresses perceived practical barriers (third HBM construct) of having to take your child to a clinic or the doctor (on a weekend or after school) to get the vaccination. Overall, the GDOH providing the HPV vaccine as part of a school-based programme and communicating about this on social media is an effective strategy to address perceived barriers and is a perceived benefit.

5.4 Theme 3: Educative health messaging: A preventative relationship between HPV vaccination and cancer

The GDOH made concerted efforts to educate people regarding the preventative relationship between HPV vaccination and cancer, particularly cervical cancer. Reduced perceived susceptibility (first HBM construct) could be due to lack of awareness and education in making health decisions for oneself, which was addressed multiple times on all posts by the GDOH related to HPV vaccines (Abraham & Sheeran, 2005). Every single post regarding the HPV vaccine had some form of educative messaging regarding cancer prevention. In fact, globally and within South Africa, the main reasons for the reduced HPV vaccine uptake are lack of education and awareness regarding the vaccine's effectiveness in cancer protection and prevention, (Ledibane et al., 2023; Oketch et al., 2023; Hall et al., 2019; Khosa et al., 2022; WHO, 2016), which the GDOH aimed to address through their social media HPV vaccine health messaging.

The educative health messaging regarding HPV and cancer prevention aimed to address the perceived benefit (fourth HBM construct) of vaccinating oneself and subsequently being protected from cervical cancer (Champion & Skinner, 2008). Motivating and educating the public also acted as forms of cues to action (fifth HBM construct), together with increasing the public's self-efficacy (sixth HBM construct) in protecting themselves from cervical cancer, which otherwise could be fatal. The public would learn about the advantages of the HPV vaccine—namely, that it shields women from acquiring cervical cancer linked to HPV—by viewing these posts, and they would be inspired to take preventive health measures like getting vaccinated against HPV or agreeing to have their daughters vaccinated against HPV (cues to

action). The ability to vaccinate would increase their self-efficacy in that they are capable of carrying out a suggested health activity (vaccination) successfully because the HPV vaccines are freely available (perceived benefit) at Community Healthcare Centres and public clinics (Champion & Skinner, 2008). Cervical cancer is a serious potentially fatal illness and having HPV immunisation addresses the perceived severity (second HBM construct) of cancer, this awareness has been depicted on all the GDOH's posts on HPV vaccines (Abraham & Sheeran, 2005).

The GDOH availing the educative information of cancer prevention, and the HPV vaccine being readily available in public schools for girls and in health clinics, free of cost, addresses any potential perceived barriers (third HBM construct) that might arise due to difficulties in accessing the HPV vaccine. As mentioned previously, the government provides the HPV vaccine to schoolgirls and in public clinics for free, this is a perceived benefit (fourth HBM construct) because the public won't have to pay for the vaccine which would have been a perceived barrier (Champion & Skinner, 2008). The GDOH's educative and informative health messaging of the HPV vaccine and depicting its fundamental relationship in the prevention of cervical cancer, addressed all six constructs of the HBM.

It was important for the GDOH to emphasise the HPV vaccine and its preventative relationship with cancer because research indicates that women frequently infected by certain types of HPV are more susceptible to develop cervical cancer (WHO, 2020), and because "cervical cancer is the fourth most frequently diagnosed cancer and the fourth leading cause of cancer-related death among women worldwide" (Amponsah-Dacosta et al., 2022, p.2).

5.4.1 Sub-theme 1: Calls for education

The sub-theme calls for education pertains to health message requests made by the public to the GDOH online, regarding various concerns. Many comments made by members of the public in response to the social media posts analysed for this study were questions to the GDOH requesting further knowledge and information about the HPV vaccine. It would have been important for the GDOH to respond to and address these concerns as vocal 'anti-vaxxer' attitudes were found in response to HPV vaccine related social media posts (see Figure 20 in section 4.5.1).

According to Chauke et al. (2021) and Wiyeh et al. (2019), 'anti-vaxxers' tend to be more outspoken about their hesitancies and it is often voiced on social media platforms which people

then consume and regard as credible. Vaccine hesitancies such as assumed side effects appeared to be a perceived barrier (second construct of HBM) in HPV immunisation because it would prevent people from taking a health decision which would be to vaccinate (Abraham & Sheeran, 2005). Perhaps GDOH should respond to the public's queries regarding the vaccine as this would increase interest and awareness which would possibly increase willingness to vaccinate and would offset 'anti-vaxxer' sentiments on the GDOH posts.

According to WHO (2016), HPV vaccine initiatives encountered challenges such as hesitancy from parents and guardians, because HPV is an STI, and the HPV vaccine is availed to a very young age group of girls creating discomfort from parents/guardians due to the HPV vaccine's connotation towards sex. Other reasons identified were a lack of social mobilisation and communication between the relevant stakeholders. This shows that it was pertinent for GDOH to communicate to the public regarding their calls for education as it would have been a socially mobilised strategy.

From the posts it was also found that despite education and information provided regarding the HPV vaccine, it is not enough because many parents had further questions regarding side effects. There are no posts highlighting the side effects of the HPV vaccine by GDOH, possibly due to plausible increased hesitancy by the public. However, if addressed and possible solutions are provided, perhaps it would be beneficial. Many times, parents and guardians are misinformed regarding vaccines and are of the view that it will negatively impact their child in the long run, and therefore they do not consent for their children to get vaccinated (Oketch et al., 2023).

According to Paterson et al. (2019), effective communication to address misconceptions among parents and guardians would increase vaccine acceptance, which shows that these calls and requests for further information and education made by the public would have been beneficial to the GDOH if they were responded to, as vaccine uptake is predicted to increase if a collaborative effort is made with parents, guardians, and educators regarding the HPV vaccine programme for schoolgirls (Paterson et al., 2019). Collaborative communication would be a notable cue to action (fifth construct of HBM) for parents and guardians as they would be directly involved in the decision-making process of the HPV vaccine programme for schoolgirls. Parents and guardians would also have an increased self-efficacy to consent to the vaccine with no concerns that it is potentially harmful to their daughters.

According to Ngcobo et al. (2019), policies must address areas of uncertainty that could breed mistrust and anticipate issues that might cause vaccine hesitancy. In order to better educate and guide national policies, local research should be carried out to better understand HPV vaccine hesitation. This once again highlights the need to respond to the public's requests for further education. External cues to action could be educating people, and for the current study on HPV health messaging in GDOH, educating parents is of utmost importance to ensure they consent for their daughters to receive the HPV vaccine.

5.5 Theme 4: Gendered HPV immunisation health messaging

It is evident from the social media health communication by the GDOH that the HPV vaccine programme was exclusively provided to girls despite HPV being an STI that affects both males and females and is one of the most widely spread (Mavundza et al., 2021). While HPV is generally asymptomatic and harmless, research indicates that women frequently infected by certain types of HPV are more susceptible to developing cervical cancer, which can sometimes be fatal (WHO, 2020). Certain HPV types can cause several other cancers such as anal, vaginal, vulva, penile and oropharyngeal cancer (de Martel et al., 2017), which shows that men are also vulnerable to HPV exposed cancers. However, women are more vulnerable to HPV infection because of its high incidence in potentially leading to cervical cancer. Such vulnerabilities and the GDOH exclusively providing this vaccine to girls communicates that it is gendered health messaging, but the public is questioning such a phenomenon.

According to Vorsters et al. (2022), HPV vaccination is emphasised as a critical preventive measure to lower the incidence of infection and related malignancies in both adolescent girls and boys. However, GDOH has been exclusively advocating girls to be vaccinated, which places the sole responsibility on girls/women to protect themselves from HPV. However, the sole responsibility of choosing to vaccinate against HPV is also not placed on girls as they are minors and cannot consent, which further potentially decreases their self-efficacy (sixth HBM construct) in being able to protect themselves. According to Galbraith-Gyan et al.'s (2018) study, daughters in America had a reduced self-efficacy due to their parents solely consenting to the HPV vaccine which could be the case for South African girls as well.

It should also be accounted for that South African parents may be under the impression that their daughters in eligible HPV vaccination age range are too young to be sexually active, and hence are not vulnerable to HPV or cervical cancer (Wiyeh et al., 2019). Such a reduced

perceived susceptibility and severity (first and second HBM construct) is despite the fact that young girls under the age of 15 are most vulnerable to developing HIV/AIDS as well as HPV, which then creates a greater risk of developing cervical cancer later in life (Amponsah-Dacosta et al., 2022).

For a country that is heavily burdened with STIs, the perceived susceptibility and severity (first and second construct of HBM) is still low among parents, which further exacerbates the risk of subsequent HPV infection and cervical cancer among women (Khosa et al., 2022). The perception of young girls not engaging in sex, therefore not requiring the HPV vaccine is a perceived barrier (third HBM construct) for young girls (Champion & Skinner, 2008). There is more of a resistance to discussing topics of a sexual nature (e.g., vaccinating against a STI) among and of relevance for a pre-adolescent age group-i.e., parents don't want to engage in discussions about their children potentially having sex in the future, as they may fear this encourages early sexual debut (WHO, 2016).

The fact that the HPV vaccine programme is gendered, is a perceived barrier (third HBM construct) for parents who wish to vaccinate their sons as well, because it is a dual responsibility. Girls and women should not be given exclusive responsibility for HPV vaccination due to their apparent high risk to illness (i.e., specifically cervical cancer) and vulnerability to other STIs such as HIV in South Africa (Simbayi et al., 2019).

5.6 Conclusion

In concluding the discussion chapter, it is found that GDOH has made considerable efforts to raise awareness regarding the HPV vaccine programme for schoolgirls. Repetition and timing were used strategically to influence and increase the public's perceived susceptibility and perceived severity to HPV and cervical cancer. Repetition and timing were used as social media strategies to communicate urgency and importance in order to increase and improve health beliefs among parents in protecting their daughters and consenting to the HPV vaccine. It also appeared that while the strategy of timing and repetition were beneficial, the public became disinterested towards HPV vaccine related posts alluding to reduced health beliefs in HPV immunisation and vulnerabilities to cervical cancer.

The GDOH also attempted to combine the HPV vaccine programme with other health initiatives to increase cues to action and perceived health benefits of consenting to the HPV vaccine programme for schoolgirls. There were also several attempts noted by the researcher

from the GDOH to educate and further increase cues to action among the public about cervical cancer prevention from the HPV vaccine. Education also leads to improved self-efficacy in making health decisions and though it was sufficient, the public appeared to request further education about the HPV vaccine to improve their personal cues to action, increase the perceived benefits of the vaccine, and their personal agency in making a health-related decision. The final theme discussed the gendered health messaging that was communicated and somewhat not well received by the public regarding the HPV vaccine programme for schoolgirls. It was understood that girls and women who are already immunocompromised should not be further pressurised to shoulder the burden of taking the HPV vaccine exclusively. This impacts their self-efficacy in protecting themselves against HPV and cervical cancer.

The next chapter will include the final concluding remarks regarding the above study. It aims to consolidate the findings by answering the identified research questions and objectives of this study. The chapter will also outline limitations that the researcher encountered in the duration of compiling this study and recommendations for future research.

CHAPTER SIX: CONCLUSION

6.1 Introduction

The following chapter will include final concluding remarks regarding this study. Reflections on the research objectives identified in Chapter 1 will be unpacked. The identified research objectives/questions were to interrogate the social media health messages created and shared by the GDOH on the HPV vaccine programme for schoolgirls, to analyse the public's reactions to these health messages, and lastly to explore implied beliefs the GDOH elicited from its health messaging regarding the HPV vaccine programme for schoolgirls. This chapter will also cover limitations identified and encountered in the duration of conducting the study, the strengths of the study and finally, suggestions for future research will be provided.

6.2 Reflections on research objectives

The study identified four themes that aimed to answer the research objectives and questions. Reflecting on the research objectives of this study, it was found that the GDOH aimed to strategically create and share health messages that would essentially increase HPV vaccine uptake, by parents and guardians adopting and consenting to the GDOH's HPV vaccine school-based initiative for girls. It was found that strategies such as timing, repetition, combination of the HPV vaccine campaign with other health promoting campaigns, and educative health messaging which highlighted the preventative relationship of HPV vaccination and cancer prevention, were applied by the GDOH to increase vaccine uptake.

These strategies to increase HPV vaccine uptake, were also implemented to elicit relevant health beliefs into making healthier choices by parents and guardians for their daughters due to successful HPV vaccine implementation and subsequent cancer prevention. Theoretically, the GDOH's posts on the HPV vaccine programme elicited all six constructs of the HBM in various ways as identified in Chapter 5. The GDOH attempted to increase perceived susceptibility and severity among parents and guardians, to motivate them for HPV immunisation and increase their perceived benefits, cues to action, and self-efficacy in their ability to protect their daughter's health and safety from cervical cancer. Perceived barriers were attempted to be reduced by ensuring that access to the HPV vaccine was convenient and cost effective due to the HPV vaccine readily offered at schools and in public clinics.

In some instances, there was appreciation and acknowledgement from the public regarding the HPV health messaging created by the GDOH. Information and education were shared to ensure that parents and guardians are adequately informed and cued into allowing their daughters to use the HPV vaccine programme. However, it appeared that over time the public became disinterested from the GDOH's HPV related posts due to the repetitive figures used and the lack of interaction by the public on the posts. It was also identified that the public wanted more engagement and demanded for further education from the GDOH regarding the HPV vaccine and its possible side effects. The public also appeared to be dissatisfied with the chosen age group and why the GDOH had specifically opted for that age group of girls which implied and encouraged early sexual debut, as well as the vaccine solely being provided to girls and not boys.

6.3 Limitations and strengths of the study

One of the limitations in conducting this study was difficulty in accessing data from previous years. Difficulties in data collection were also outlined in Chapter 3, section 3.7, which was a limitation encountered while conducting this study. Even though data was readily available online, it was found that data on Twitter and Instagram were less when compared to the data available on Facebook. It is possible that previous tweets by the GDOH regarding the HPV vaccine programme, may have been deleted as well as data on the GDOH's other social media pages. The GDOH had recently become more active on Instagram in the last 2-3 years. Therefore, most of the data collected were recent posts and tweets ranging from 2020 until 2023. This coincides with the rapid increase in social media usage and reliance due to the COVID-19 pandemic (Chauke et al., 2021). Perhaps the limitation of having only recent data is also seen as a strength as social media use for health messaging is a recent phenomenon (Muralidharan et al., 2018).

One of the strengths of this study is that there is limited research on social media health messaging especially pertaining to the HPV vaccine programme. Therefore, this study will spearhead further research in this field. As it is evident that there is an increased reliance on social media for information and education, conducting such studies are relevant and important to ensure government health policies are current, and in line with the demands of the public. Social media is also a convenient and impactful platform to engage and understand the public's perceptions of health initiatives created by the government, which was identified by the researcher through this study, hence it is a strength. The researcher was also able to identify

and outline the importance of adopting social media to promote the HPV vaccine programme for schoolgirls due to the convenient accessibility of larger amounts of people and the high reliance of social media for information and knowledge (Chauke et al., 2021), which acted as a strength to this study.

6.4 Recommendations for future research

One of the recommendations for future research is to conduct a quantitative study on the effectiveness of the GDOH's social media health messaging regarding the HPV vaccine. Collaboration with the GDOH in creating an online questionnaire and perhaps sharing it on their social media pages and the official website would garner more accurate information on the effectiveness of the GDOH's social media health messaging regarding the HPV vaccine programme for schoolgirls. Further online studies on HPV and other health epidemics would be highly beneficial in creating relevant and impactful health interventions by the government. A focus group discussion or conducting individual interviews with parents and caregivers, would be beneficial to understand and explore their perceptions of HPV and cancer risk for their daughters and sons.

It is also suggested and encouraged to conduct further research on HPV, as it would perhaps increase HPV vaccine uptake and awareness for both men and women, which would eventually assist in curbing cancer-related deaths among South Africans, especially for women. South African women are heavily burdened with poor health and illnesses which are often due to being systemically disadvantaged. Therefore, more studies on women's health to ensure their longevity and their overall wellbeing is encouraged.

6.5 Conclusion

In concluding this chapter and study it is identified that the relevance of conducting HPV related studies to curb cervical cancer mortalities, and to increase awareness of this phenomenon is essential. It is also identified that the GDOH has made considerable efforts to motivate and educate the public about HPV immunisation and the importance of it in preventing cancer. While further research on women's health topics is encouraged, it is identified that the sole responsibility of HPV vaccination should not be placed on girls and women, boys and men should also be encouraged and given access to vaccinate against HPV. This was also identified as a public query and demand on the GDOH's social media.

Close collaboration and engagement with the public will further improve health related initiatives created by the government, which would then be evidence based as well. It is also important to understand South Africans' perceptions regarding health-related decision making, to ensure effective and impactful health programmes created by the government and to encourage South Africans in making healthier decisions. It is identified that social media is a powerful platform and tool to access large amounts of people and to engage with them regarding health initiatives, therefore conducting an online case study on the GDOH's HPV vaccine programme for schoolgirls was beneficial and informative.

REFERENCES

Abraham, C., & Sheeran, P. (2005). The health belief model. In M. Conner & P. Norman (Eds.), Predicting health behaviour (2nd ed., pp. 28-80). Open University Press.

Amponsah-Dacosta, E., Blose, N., Nkwinika, V. V., & Chepkurui, V. (2022). Human Papillomavirus Vaccination in South Africa: Programmatic challenges and opportunities for integration with other adolescent health services? *Frontiers in Public Health, 10*. https://doi.org/10.3389/fpubh.2022.799984

Arbyn, M., Weiderpass, E., Bruni, L., de Sanjosé, S., Saraiya, M., Ferlay, J., & Bray, F. (2020). Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. *The Lancet Global Health*, *8*(2), e191-e203.

Braun, V., & Clarke, V. (2021). Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling & Psychotherapy Research*, *21*(1), 37–47. https://doi.org/10.1002/capr.12360

Bruni, L., Saura-Lázaro, A., Montoliu, A., Brotons, M., Alemany, L., Diallo, M. S., Afsar, O. Z., LaMontagne, D. S., Mosina, L., Contreras, M., Velandia-González, M., Pastore, R., Gacic-Dobo, M., & Bloem, P. (2021). HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010–2019. *Preventive Medicine*, *144*, 106399. https://doi.org/10.1016/j.ypmed.2020.106399

Burr, V., & Dick, P. (2017). *Social constructionism* (pp. 59-80). Palgrave Macmillan UK.

Byrne, D. (2021). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, *56*(56). https://doi.org/10.1007/s11135-021-01182-y

Champion, V. L., & Skinner, C. S. (2008). The Health Belief Model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), Health Behavior and Health Education: Theory, Research, and Practice (4th ed., pp. 45-65). Jossey-Bass.

Chauke, T. A., Obadire, O. S., & Malatji, K. S. (2021). Exploring the perceptions of youth about COVID-19 and the use of vaccine in South Africa. *Gender and Behaviour*, *19*(1), 17099-17115.

de Martel, C., Plummer, M., Vignat, J., Franceschi, S., 2017. Worldwide burden of cancer attributable to HPV by site, country and HPV type. Int. J. Cancer 141, 664–670.

Emanuel, E. J., Grady, C. C., Crouch, R. A., Lie, R. K., Miller, F. G., & Wendler, D. D. (Eds.). (2008). *The Oxford textbook of clinical research ethics*. Oxford University Press.

Fitriani, Y., Mudigdo, A., & Andriani, R. B. (2018). Health Belief Model on the Determinants of Human Papilloma Virus Vaccination in Women of Reproductive Age in Surakarta, Central Java. *Journal of Health Promotion and Behavior*, *03*(01), 16–26. https://doi.org/10.26911/thejhpb.2018.03.01.02

Freedman, R. A., Viswanath, K., Vaz-Luis, I., & Keating, N. L. (2016). Learning from social media: utilizing advanced data extraction techniques to understand barriers to breast cancer treatment. *Breast cancer research and treatment*, *158*, 395-405.

Galbraith-Gyan, K. V., Lechuga, J., Jenerette, C. M., Palmer, M. H., Moore, A. D., & Hamilton, J. B. (2019). African-American parents' and daughters' beliefs about HPV infection and the HPV vaccine. *Public Health Nursing*, *36*(2), 134-143. https://doi.org/10.1111/phn.12565

Gathers, D., Pankratz, V. S., Kosich, M., & Tawfik, B. (2021). Using big data to gauge effectiveness of breast cancer awareness month. *Preventive medicine*, *150*, 106695.

Gillani, D. (2021). Can and" Should" Qualitative Research Be Value-Free? Understanding the Epistemological Tussle between Positivists and Interpretivists. *J. Pol. Stud.*, *28*, 181.

Grodzicka. (2021). Taking vaccine regret and hesitancy seriously. the role of truth, conspiracy theories, gender relations and trust in the HPV immunisation programmes in Ireland. *Journal for Cultural Research*, *25*(1), 69–87. https://doi.org/10.1080/14797585.2021.1886422

Hall, M. T., Smith, M. A., Lew, J.-B., O'Halloran, J., Fentiman, G., Neal, H., Sage, M., & Canfell, K. (2019). The combined impact of implementing HPV immunisation and primary HPV screening in New Zealand: transitional and long-term benefits, costs and resource utilisation implications. Gynaecologic Oncology, 152(3), 472–479. https://doi.org/10.1016/j.ygyno.2018.10.045

Integrated School Health Policy. (2012). Health Basic Education. https://serve.mg.co.za/content/documents/2017/06/14/integratedschoolhealthpolicydbeanddoh.pdf

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2014). The Health Belief Model as an Explanatory Framework in Communication Research: Exploring Parallel, Serial, and Moderated Mediation. *Health Communication*, *30*(6), 566–576. https://doi.org/10.1080/10410236.2013.873363

Khanyile, Dr. S., & Ballard, D. R. (2022). *Language diversity in Gauteng | GCRO*. www.gcro.ac.za. https://www.gcro.ac.za/outputs/map-of-the-month/detail/language-diversity-gauteng/#:~:text=Table%201%20shows%20that%20the

Khosa, L. A., Meyer, J. C., Motshwane, F. M. M., Dochez, C., & Burnett, R. J. (2022). Vaccine Hesitancy Drives Low Human Papillomavirus Vaccination Coverage in Girls Attending

Public Schools in South Africa. *Frontiers in Public Health*, *10*. https://doi.org/10.3389/fpubh.2022.860809

Ledibane, T. D., Ledibane, N. R., & Matlala, M. (2023). Performance of the school-based human papillomavirus vaccine uptake in Tshwane, South Africa. *Southern African Journal of Infectious Diseases*, *38*(1), 1–6. https://doi.org/10.4102/sajid.v38i1.492

Lee-Won, R. J., Na, K., & Coduto, K. D. (2017). The effects of social media virality metrics, message framing, and perceived susceptibility on cancer screening intention: The mediating role of fear. *Telematics and Informatics*, *34*(8), 1387-1397.

Majiet, M. I., Haddison, E. C., Amponsah-Dacosta, E., Hussey, G. D., Muloiwa, R., & Kagina, B. M. (2021). Human vaccine and immunisation research in South Africa: a bibliometric study. *South African Medical Journal*, *111*(7), 649–654. https://doi.org/10.7196/SAMJ.2021.v111i7.15120

Martí, P., Serrano-Estrada, L., & Nolasco-Cirugeda, A. (2019). Social media data: Challenges, opportunities and limitations in urban studies. *Computers, Environment and Urban Systems*, *74*, 161-174.

Mason, A. N., Narcum, J., & Mason, K. (2021). Social media marketing gains importance after Covid-19. *Cogent Business & Management*, *8*(1), 1870797. Tandfonline. https://doi.org/10.1080/23311975.2020.1870797

Mathebula, N. (2023). *First round of HPV vaccination campaign extended*. Randfontein Herald. https://www.citizen.co.za/randfontein-herald/uncategorized/2023/04/17/first-round-of-hpv-vaccination-campaign-extended/

Mavundza, E. J., Iwu-Jaja, C. J., Wiyeh, A. B., Gausi, B., Abdullahi, L. H., Halle-Ekane, G., & Wiysonge, C. S. (2021). A Systematic Review of Interventions to Improve HPV Vaccination Coverage. *Vaccines*, *9*(7), 687. https://doi.org/10.3390/vaccines9070687

Mishaal, D. A., & Abu-Shanab, E. (2015). The effect of using social media in governments: framework of communication success. In *ICIT 2015 The 7th International Conference on Information Technology*, *12â* (Vol. 15).

Muralidharan, S., Ranard, B. L., & Boynton, M. H. (2018). Understanding the effectiveness of hashtags in health communication for public health promotion. Journal of Medical Internet Research, 20(11), e10204. https://doi.org/10.2196/10204

Ngcobo, N. J., Wiysonge, C. S., Cooper, S., & Burnett, R. J. (2019). Human papillomavirus vaccination acceptance and hesitancy in South Africa : research and policy agenda. *South African Medical Journal*, *109*(1), 13–15. https://doi.org/10.7196/SAMJ.2019.v109i1.13723

Nhamo, L., Rwizi, L., Mpandeli, S., Botai, J., Magidi, J., Tazvinga, H., Sobratee, N., Liphadzi, S., Naidoo, D., Modi, A. T., Slotow, R., & Mabhaudhi, T. (2021). Urban nexus and transformative pathways towards a resilient Gauteng City-Region, South Africa. *Cities*, *116*, 103266. https://doi.org/10.1016/j.cities.2021.103266

Oketch, S. Y., Ochomo, E. O., Orwa, J. A., Mayieka, L. M., & Abdullahi, L. H. (2023). Communication strategies to improve human papillomavirus (HPV) immunisation uptake among adolescents in sub-Saharan Africa: a systematic review and meta-analysis. *BMJ Open*, *13*(4), e067164. https://doi.org/10.1136/bmjopen-2022-067164

Paterson, P., Mounier-Jack, S., Saliba, V., Yarwood, J., White, J., Ramsay, M., & Chantler, T. (2019). Strengthening HPV vaccination delivery: findings from a qualitative service

evaluation of the adolescent girls' HPV vaccination programme in England. Journal of Public Health (Oxford, England), 43(1), 189–196. https://doi.org/10.1093/pubmed/fdz061

Protection of Personal Information Act. (2019). https://popia.co.za/

Rehman, A. A., & Alharthi, K. (2016). An introduction to research paradigms. *International Journal of Educational Investigations*, *3*(8), 51-59.

Saxton, G. D., Niyirora, J., Guo, C., & Waters, R. (2015). *#AdvocatingForChange: The Strategic Use of Hashtags in Social Media Advocacy*. Advances in Social Work. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3034801

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63-75. https://www.researchgate.net/publication/228708239

Simbayi, L., Zuma, K., Zungu, N., Moyo, S., Marinda, E., Jooste, S., Mabaso, M., Ramlagan, S., North, A., Van Zyl, J., Mohlabane, N., Dietrich, C., Naidoo, I., & the SABSSM V Team. (2019). *South African national HIV prevalence, incidence, behaviour and communication survey, 2017: Towards achieving the Joint United Nations Programme on HIV/AIDS 90-90-90 targets.* https://www.hsrcpress.ac.za/books/south-african-national-hiv-prevalence-incidence-behaviour-and-communication-survey-2017

Sinclair, T. J., & Grieve, R. (2017). Facebook as a source of social connectedness in older adults. *Computers in Human Behavior*, *66*, 363–369. https://doi.org/10.1016/j.chb.2016.10.003

Sofaer, S. (1999). Qualitative methods: what are they and why use them? *Health Services Research*, *34*(5 Pt 2), 1101–1118. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089055/

South African Government (2023). *School calendar*. https://www.gov.za/about-sa/school-calendar

South African Government News Agency (2024, February 18). *Parents urged to give consent for HPV vaccine.* https://www.sanews.gov.za/south-africa/parents-urged-give-consent-hpv-vaccine

Stenfors, T., Kajamaa, A., & Bennett, D. (2020). How to Assess the Quality of Qualitative Research. *The Clinical Teacher*, *17*(6), 596–599. Wiley. https://doi.org/10.1111/tct.13242

Terre Blanche, M. T., Durrheim, K., & Painter, D. (Eds.). (2016). *Research in practice: Applied methods for the social sciences*. Juta and Company Limited.

Tracy, S. (2010). Qualitative Inquiry. Sage, 837-849.

Vorsters, A., Bosch, F. X., Poljak, M., Waheed, D.-e-N., Stanley, M., & Garland, S. M. (2022). HPV prevention and control-the way forward. Preventive Medicine, 156. https://doi.org/10.1016/j.ypmed.2022.106960

Voss, A., Lvov, I., & Thomson, S. (2016). Data storage, curation and preservation. In L. Sloan & A. Quan-Haase (Eds). The SAGE Handbook of Social Media Research Methods (pp. 161-176). SAGE Publications Ltd, https://doi.org/10.4135/9781473983847

Wiyeh, A. B., Cooper, S., Jaca, A., Mavundza, E., Ndwandwe, D., & Wiysonge, C. S. (2019). Social media and HPV vaccination: Unsolicited public comments on a Facebook post by the Western Cape Department of Health provide insights into determinants of vaccine hesitancy in South Africa. *Vaccine*, *37*(43), 6317–6323. https://doi.org/10.1016/j.vaccine.2019.09.019

World Health Organisation. (2020). *Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem.* Global strategy to accelerate the elimination of cervical cancer as a public health problem (who.int)

World Health Organisation. (2022a). *The cancer we can eliminate – WHO/Europe urges Member States to consign cervical cancer to history.* https://www.who.int/europe/news/item/12-09-

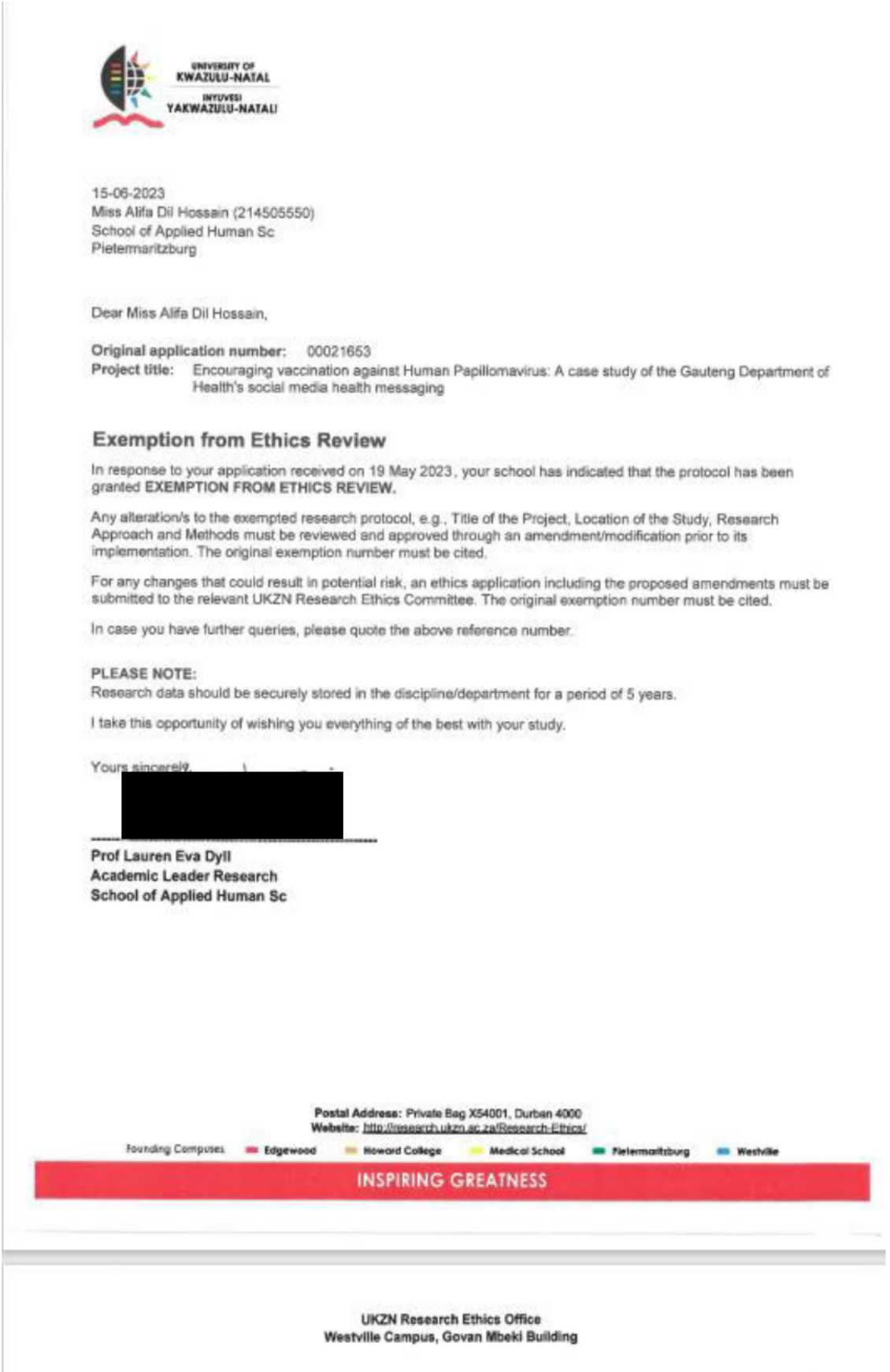
2022-the-cancer-we-can-eliminate---who-europe-urges-member-states-to-consign-cervical-cancer-to-history#:~:text=Countries%20need%20to%20reach%2090,invest%20in%20effective%20communicati%20strategies.

World Health Organisation. (2022b). *WHO updates recommendations on HPV vaccination schedule.* https://www.who.int/news/item/20-12-2022-WHO-updates-recommendations-on-HPV-vaccination-schedule

World Health Organisation. (2023a). *Immunization coverage.* https://www.who.int/news-room/fact-sheets/detail/immunization-coverage#:~:text=Global%20coverage%20for%20the%20first,80%25%20coverage%20that%20is%20recommended.

World Health Organisation. (2023b). *Measles-South Africa.* https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON447

Appendix 1: Ethics exemption letter



UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

15-06-2023
Miss Alifa Dil Hossain (214505550)
School of Applied Human Sc
Pietermaritzburg

Dear Miss Alifa Dil Hossain,

Original application number: 00021653
Project title: Encouraging vaccination against Human Papillomavirus: A case study of the Gauteng Department of Health's social media health messaging

Exemption from Ethics Review

In response to your application received on 19 May 2023, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW.**

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:
Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely

[redacted]

Prof Lauren Eva Dyll
Academic Leader Research
School of Applied Human Sc

Postal Address: Private Bag X54001, Durban 4000
Website: http://research.ukzn.ac.za/Research-Ethics/

Founding Campuses: Edgewood | Howard College | Medical School | Pietermaritzburg | Westville

INSPIRING GREATNESS

UKZN Research Ethics Office
Westville Campus, Govan Mbeki Building

Appendix 2: Turn it in report

Masters dissertation

by Alifa Dil Hossain

Submission date: 31-May-2024 06:08AM (UTC+0200)
Submission ID: 2392194430
File name: Alifa_Dil_Hossain_214505550_Complete_Dissertation_31_May.docx (7.42M)
Word count: 26198
Character count: 142804

Masters dissertation

ORIGINALITY REPORT

6%	6%	2%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of KwaZulu-Natal Student Paper	1%
2	researchspace.ukzn.ac.za Internet Source	1%
3	www.researchgate.net Internet Source	<1%
4	uir.unisa.ac.za Internet Source	<1%
5	www.nice.org.uk Internet Source	<1%
6	digitalcommons.georgiasouthern.edu Internet Source	<1%
7	scholarcommons.usf.edu Internet Source	<1%
8	Submitted to Lira University Student Paper	<1%
9	ehs.siu.edu Internet Source	<1%

10	Submitted to London School of Management Education Student Paper	<1 %
11	u-pad.unimc.it Internet Source	<1 %
12	Submitted to The University of Manchester Student Paper	<1 %
13	scholar.sun.ac.za Internet Source	<1 %
14	etd.uwc.ac.za Internet Source	<1 %
15	Submitted to University Der Es Salaam Student Paper	<1 %
16	bpac.org.nz Internet Source	<1 %
17	Submitted to Multimedia University Student Paper	<1 %
18	ir.uew.edu.gh:8080 Internet Source	<1 %
19	Submitted to University of Pretoria Student Paper	<1 %
20	pdfs.semanticscholar.org Internet Source	<1 %
21	www.medrxiv.org	