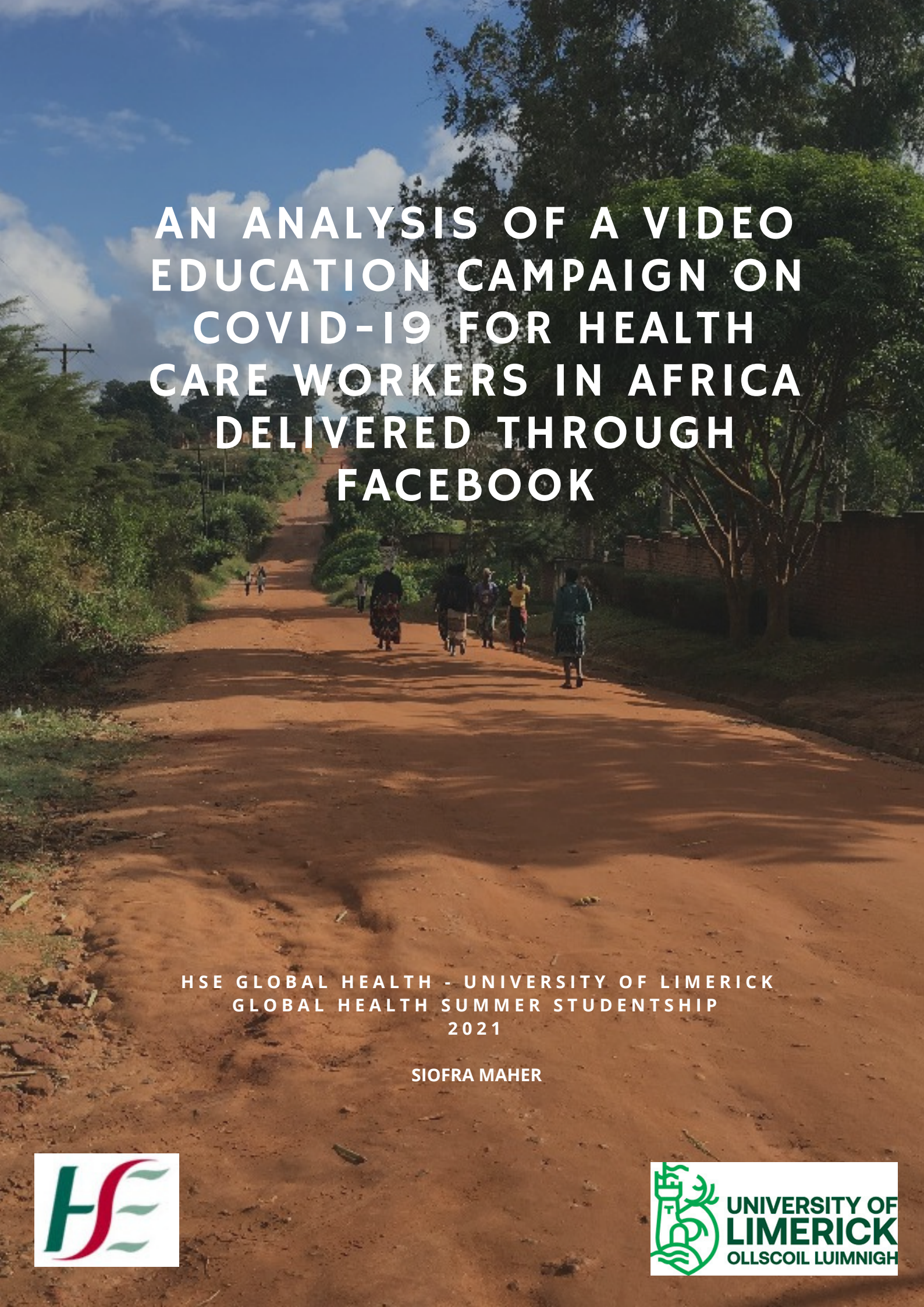


AN ANALYSIS OF A VIDEO EDUCATION CAMPAIGN ON COVID-19 FOR HEALTH CARE WORKERS IN AFRICA DELIVERED THROUGH FACEBOOK

HSE GLOBAL HEALTH - UNIVERSITY OF LIMERICK
GLOBAL HEALTH SUMMER STUDENTSHIP
2021

SIOFRA MAHER

EXECUTIVE SUMMARY

SUMMARY

The COVID-19 pandemic required rapid dissemination of accurate information across the world to healthcare workers as well as the general public. Social media represents an opportunity to undertake this. The aim of this study was to analyse a healthcare worker education campaign in Africa delivered through the social media platform Facebook and discuss the feasibility of this approach for future healthcare workers and public health campaigns.

Delivering this programme through the Facebook platform allowed for dissemination across the entire continent of Africa. Total reach of the Facebook campaign was 6,356,846 and total impressions was 12,767,118. The video with the highest reach was "Hand washing steps for health workers' with a reach of 1,479,603. The total campaign 3-second plays was 2,189,460 decreasing to 77,120 for 100% play duration.

This analysis showed the merit in conducting an educational campaign through an online social media platform such a Facebook. The low cost and wide availability of social media sites makes them a useful and rapid information dissemination tool. Facebook advertising campaigns may have the ability to reach large populations and achieve a range of engagement outcomes which would be more cost effective and have greater reach when compared with traditional media.

TIPS FOR FUTURE CAMPAIGNS

- Consider what **social media platform** is most widely used in your target geographic area and demographic
- Ensure the videos are **brief** and have the main points within the first 30 seconds as drop off is highest after this time
- Explicitly encourage people to **like, share and comment** on the videos to improve views and reach
- **WhatsApp** is a major social media
- platform in Africa so encourage multi-platform sharing of videos and content. Ensure sharing of content is available on **Android phones**
- Consider what **metrics** you will evaluate in advance of starting the campaign and evaluate both the reach of your campaign (e.g. reach and impressions in Facebook) as well as engagement (such as likes and percentage video play in Facebook)
- Consider what **languages** are needed. Delivering the campaign through multiple languages may encourage more engagement particularly if aimed at general public
- Consider having your social media site **verified** as a provider of trusted information if this is offered by your social media provider

Summary of Results

The highest impression and reach was with **men** aged **24-35**.

The country in which the campaign had the highest reach was **Algeria**.

The video with the highest **reach** focused on **hand washing** for health care workers.

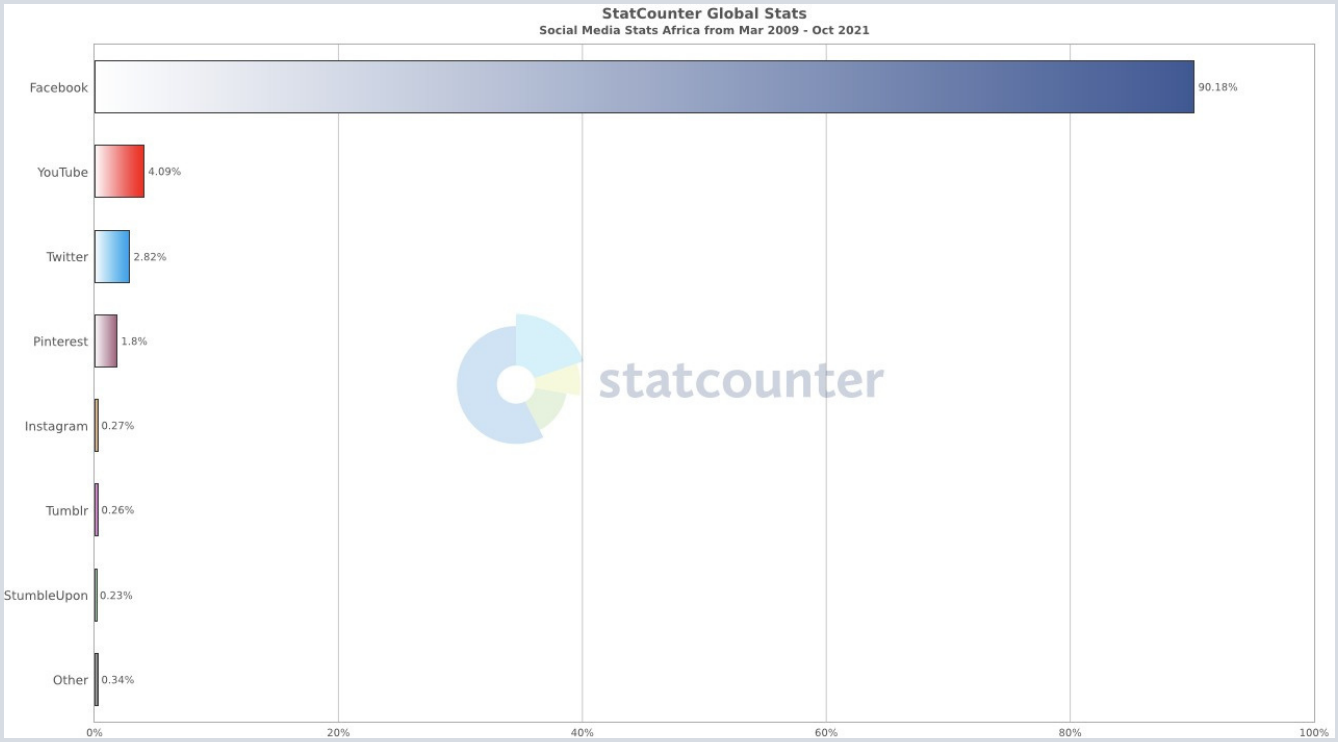
The video with the highest video **plays at 100%** was **‘COVID-19 and HIV for health care workers'.**

The sum total of all the 14 educational video '3-second plays' or ‘views’ was **2,189,460.**

A vast majority of these were on an **Android smartphone** (1,886,436 or 86%), a further 117,399 were viewed on an iPhone (5.3%) and 90,780 on desktop computers (4%).

The complete set of videos are available at https://www.esther.ie/covid-19/

Use of Social Media Platforms in Africa



Understanding Facebook Data Analysis

Reach

The number of people who saw the ads at least once. Reach is different from impressions, which may include multiple views of your ads by the same people. Reach figures are estimated

Impression

The number of times the ads were on screen

Results

The number of times the ad achieved an outcome, based on the objective and settings you selected

Link Clicks

The number of clicks on links within the ad that led to advertiser-specified destinations, on or off Facebook

Frequency

Is the average number of times a user sees the ad

3-second play

The number of times the video was played to the 3-second mark, used as a proxy for 'views'

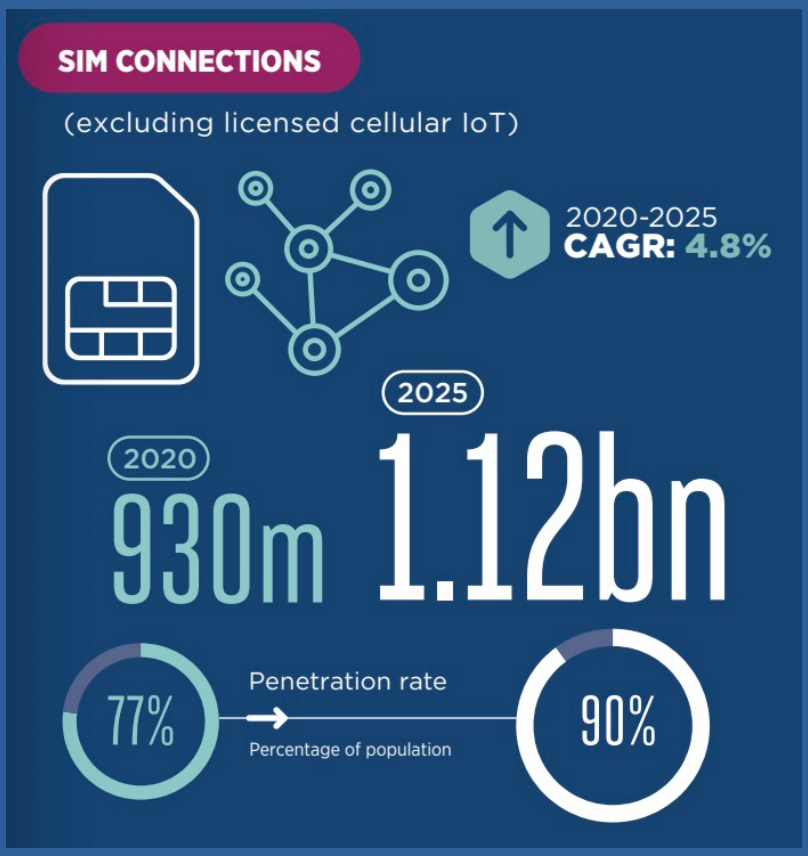
50% Video Play

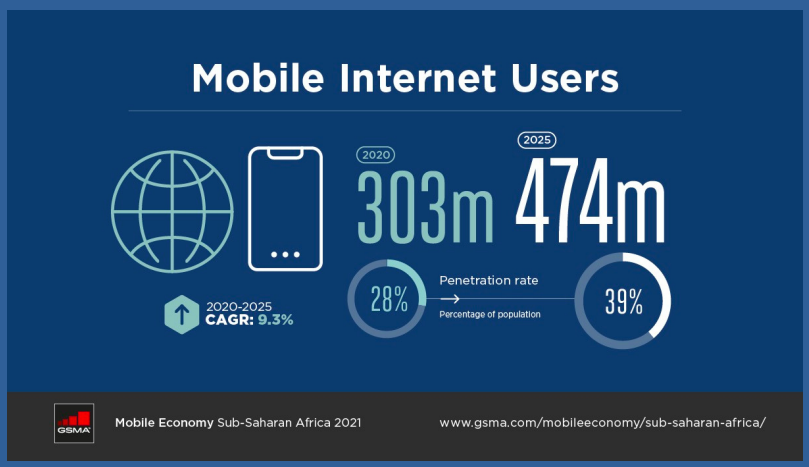
The number of times the video was played to 50% of its length

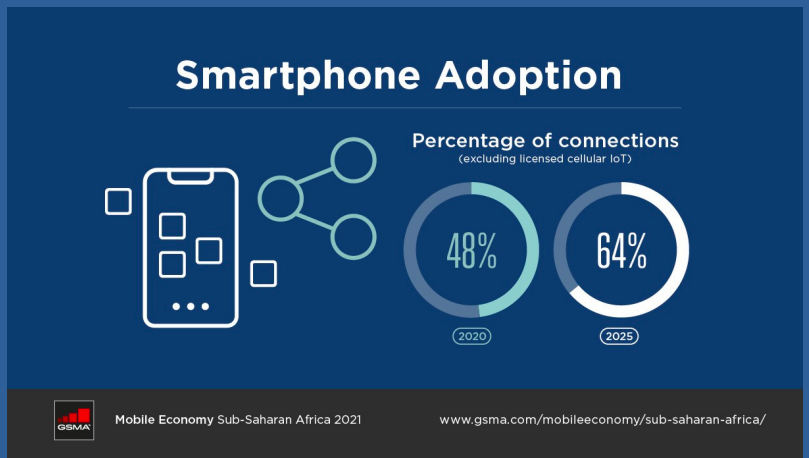
100% Video Play

The number of times the video was played to 100% of its length

Key statistics from GSMA report
“Mobile Economy in Sub -Saharan Africa 2021”







Introduction

COVID-19 or Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-Cov2) cases were first confirmed in Wuhan, China during December 2019 (Liu, Kuo and Shih, 2020). Since then, the spread of the virus has been rapid (Bajgain et al., 2021) The first case in Africa was reported in February 2020 (Salyer et al., 2021). As of July 2021, cases within Africa had risen to approximately 6.2 million (WorldoMeter . 2020. COVID-19 Coronavirus pandemic., 2021). Most African countries have experience with infectious diseases such as Ebola, HIV (Human Immunodeficiency Virus), Tuberculosis, and Malaria), however African countries were put under severe additional strain with COVID-19 (Egeru, Dejene and Siya, 2020), (El-Sadr and Justman, 2020). In particular access to accurate and timely information for healthcare workers was difficult.

Social media has a significant impact on human lives and human behaviour and its effect is only increasing. Various social media platforms such as Facebook, Twitter, Instagram and WhatsApp have allowed for dissemination of information at a rate which far surpasses traditional media. The increasing access to 3G and 4G creates the opportunity to use these platforms to provide information to healthcare workers even in remote and rural settings. Never in the history of a global pandemic has information been so readily available and accessible than this (COVID-19 pandemic) time. This spread of information has proven to be both useful and damaging. The validation of information and the spread of misinformation pose immense challenges for healthcare providers and the importance of distilling factual, up-to-date content within these social media platforms remains an ongoing struggle (Goel and Gupta, 2020)**.**

Methods

In March 2020, a rapid needs assessment of learning needs regarding COVID-19 for healthcare workers in St John's Hospital in Mzuzu, Malawi was undertaken using email and web meetings to identify topics and key information sources for COVID 19 topics and means of dissemination. At the end of this process, 14 topics were identified, and a range of national and international guidelines identified. The use of short animation videos issued using social media (predominantly Facebook but also by WhatsApp) was identified as the best way of quickly supplying information. Each animation was created by an editorial team involving medical, nursing, public health and health management personnel in Malawi and Ireland.

Videos were released as they were created. The language was English. The videos can be viewed at https://www.esther.ie/covid-19/. The videos were made available on this webpage, on a YouTube channel and on a dedicated Facebook page 'COVID-19 Preparedness for health facility in a low resource area'. This analysis evaluates the Facebook page component only. The advertisements were approved by Facebook and an advertisement campaign promoting the video posts was carried out during several periods between June 14, 2020, and January 8th, 2021, targeting initially Malawi alone and from August 14th, 2020, countries in Africa in general and those over 18 years of age who had interest in health topics were the targeted audience. The ad campaign finished in October 2020. The ad invited people to view the video but did not encourage users to like the post. The result defined was not a link click but just video view in isolation. To assess the impact of these videos Facebook Ads Manager dashboard was used to extract data on July 21st, 2021.

The video campaign was analysed for reach , impressions , likes and video play times (3 second , 50% and 100% video plays) . Results are reported for the total campaign and for each individual video. They were also analysed by country, age and gender. We also analysed what devices were used to view the videos. Explanations of these metrics are provided in the report in introduction. These parameters were chosen as reach, impressions and likes measuring the extent of dissemination of the campaign while video play times give an indication of engagement with the videos (Adams, 2021).

Results

Total reach of the Facebook campaign was 6,356,846 and total impressions was 12,767,118. The videos were viewed in every country in Africa during this time with both francophone and anglophone countries included. The video with the highest reach was “Hand washing steps for health workers’ with a reach of 1,479,603. The total campaign 3-second plays or view was 2,189,460 with a decrease to 125,402 for 50% views and 77,720 for 100% duration views. The highest reach was in males aged 25-34 (table 3).

The country in which the campaign had the highest reach was Algeria. The video with the highest reach focused on hand washing for health care workers. Finally, the video with the highest video plays at 100% was ‘COVID-19 and HIV for health care workers.

Three second video plays were used to evaluate devices used to view the videos. 86% of these were on an Android smartphone (1,886,436, 86%) with 5.3% on an iPhone (117,399) and 4% on desktop computers (90,780).

Table 1: Data analysis of Facebook video marketing Campaign ran from May 2020-Oct 2020, gender and age by reach

Age	Gender	Reach	Impressions
18-24	female	435,223	1,443,836
18-24	male	443416	1,471,556
25-34	male	1,247,299	4,803,424
25-34	female	811,051	3,175,178
35-44	male	661,539	2,803,172
35-44	female	438,295	1,694,361
45-54	male	291,856	1,203,339
45-54	female	197,643	790,177
55-64	male	155,656	610,724
55-64	female	101,381	470,697
65+	male	187,402	688,736
65+	female	214,027	906,291

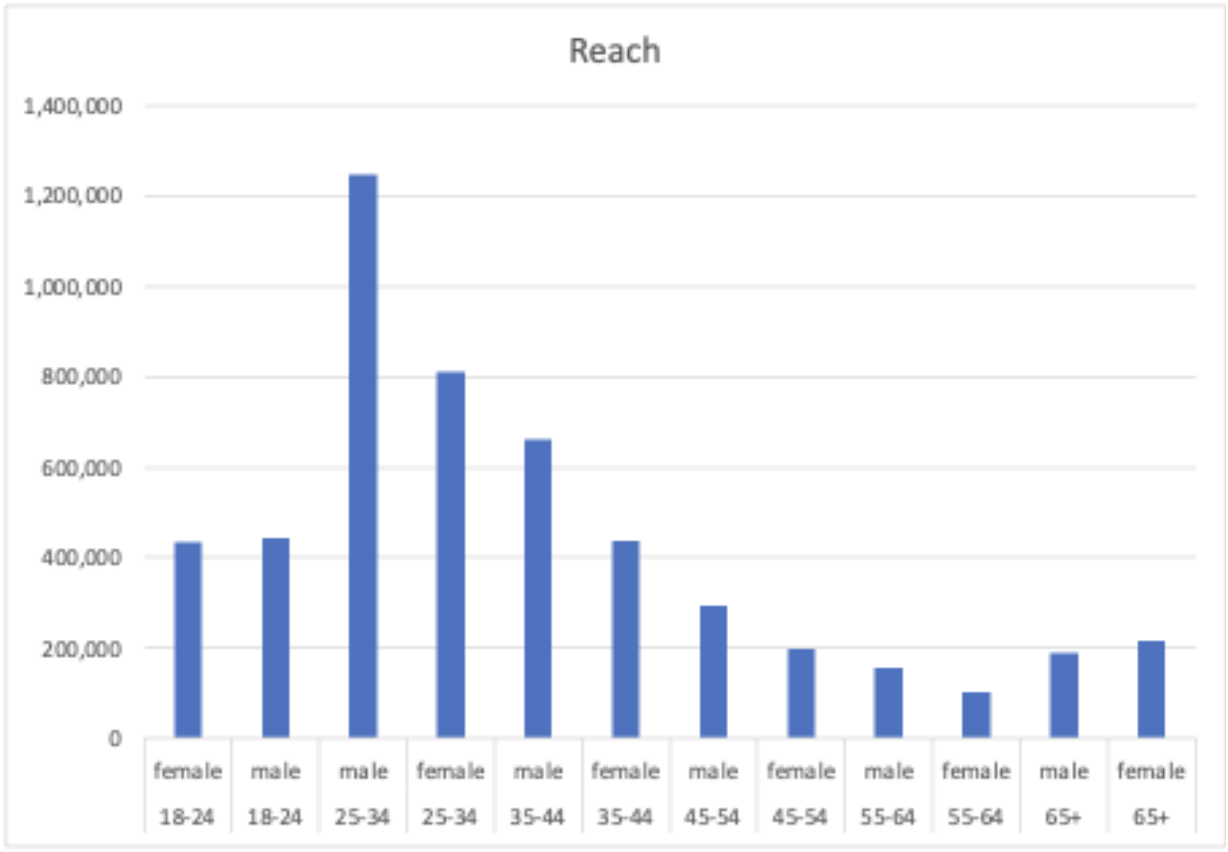


Figure 1. Reach of videos by age and gender

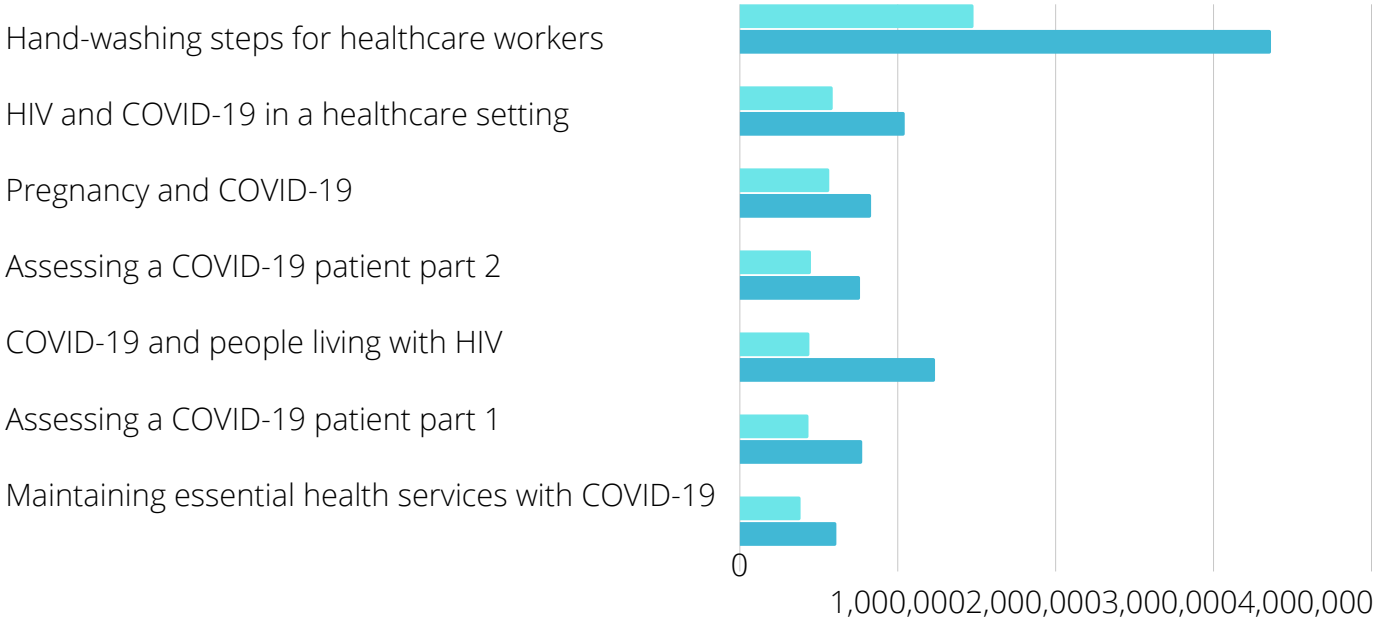
Table 2. Video campaign for individual countries (descending reach)

Country	Reach	Impressions	3-Second Video Plays/View	Video Plays at 50%	Video Plays at 100%
Algeria	1,072,186	4,277,001	605,799	52,313	41,490
Ethiopia	846,894	4,957,776	241,602	4,149	1,984
Morocco	459,801	1,272,630	220,995	14,864	9,930
Kenya	328,722	953,321	95,196	5,313	1,413
Tanzania	263,182	763,789	45,745	1,044	371
Zambia	263,182	954,513	88,793	6,550	1,558
Tunisia	196,619	588,192	114,034	10,324	8,511
Libya	189,450	589,109	79,178	5,053	3,732
Botswana	163,849	757,702	96,388	7,346	1,695
Mozambique	138,247	445,484	31,996	1,365	489
Namibia	130,055	957,006	163,882	10,074	2,811
Uganda	114,694	374,006	31,032	1,330	385
Nigeria	111,622	189,114	31,520	2,490	664
South Africa	108,550	274,069	85,413	8,665	2,183
Burundi	101,381	331,723	18,156	2,954	767
Sierra Leone	90,117	420,782	19,533	1,218	430
Madagascar	89,093	210,004	10,868	1,095	257
Somalia	61,443	170,269	14,978	807	413
Egypt	59,395	94,668	14,783	2,449	2,089
Malawi	41,986	385,080	48,521	1,154	406
Zimbabwe	35,842	103,825	16,466	887	277
South Sudan	24,577	72,510	7,291	504	158
Mauritania	23,553	80,575	11,026	360	205
Guinea	19,457	48,491	4,228	230	62
Angola	19,457	49,540	7,025	506	190
Cameroon	18,433	36,960	3,364	372	90
Gambia	17,409	69,856	11,109	438	172
Senegal	17,409	21,330	1,158	95	39
Rwanda	14,337	20,801	2,609	195	46
Mali	13,313	36,979	2,124	104	42
Guinea Bissau	13,313	40,450	2,971	215	46

Table 3 Video campaign for individual videos (descending reach)

Campaign Name	Reach	Impressions	3-Second Video Plays	Video Plays at 50%	Video Plays at 100%
Hand Washing Steps for Health Workers	1,479,603	3,363,359	288,124	21,289	6,306
Health care workers treating COVID-19 and HIV	585,527	1,039,788	130,976	13,179	**9,174**
Pregnancy and COVID-19	562,971	826,420	106,798	9,300	7,513
Assessing The Possible COVID-19 Patient: Part 2	447,395	756,265	121,696	9,634	7,678
People living with HIV and COVID-19	438,963	1,232,092	144,646	14,624	2,841
Assessing The Possible COVID-19 Patient: Part 1	431,913	770,182	148,241	9,208	7,613
How to maintain essential health services with COVID-19	381,323	606,254	115,226	12,010	**9,738**
How to protect healthcare workers during COVID pandemic	355,033	563,123	106,419	9,632	8,152
Preservation of the Physical and psychological well-being of Health care workers during COVID-19	345,354	528,172	111,680	8,184	7,096
Myths and Facts about COVID 19	328,805	1,003,944	135,861	5,150	2,236
Palliative Care for COVID-19 patient	325,985	895,900	133,175	3,696	1,556
Preparing your institute for COVID-19	325,526	521,326	103,787	8,780	7,422
PPE (Personal Protection Equipment) in a health setting	236,226	455,792	11,428	101	40
Covid-19 Preparedness for Health Facility in Low-Resources Settings – Video views	112,222	204,501	37,266	615	355

Impression and Reach for Top 5 videos



Light blue= reach

Dark blue= impressions

Discussion

This study showed that a Facebook education campaign for healthcare workers using geotargeted adverting was successful with wide geographic reach and engagement. The most watched video 'Hand washing for healthcare workers' had a reach of 1.8 million and the campaign in total had a reach of 6.35 million and an impression of 12 million. This is almost double compared to earlier health campaigns such as the HPV education campaign ran by Diamond-Smith et al., and 3.4 million higher than Byker et al., 1.8 million which looked at long-acting contraception. However, the novelty of the COVID-19 pandemic has meant that direct comparisons to the campaign and research findings may be limited. In particular this study gives detail on engagement with videos through measuring duration of video play and demonstrates the importance of this metric when evaluating campaigns.

In the new age of social media, many government organisations along with academic organisations are turning to web pages such as YouTube, Facebook and Twitter to encourage engagement amongst students and health care workers. This may be beneficial however measuring the impact of health education campaigns in achieving change may be difficult with this novel method due to the wide geographic spread and inability to determine if the user gained knowledge or changed behaviour due to the interaction on such a large scale.

However, studies focused on smaller geographical areas have shown the effectiveness of this technique. In India, a six-week paid Facebook campaign to inform young people about iron and folic acid tablets and their effect on iron deficiency anaemia showed improved knowledge in this topic surveyed a random population sample, pre and post-campaign (Diamond-Smith et al., 2020). In Burkina Faso, it was found that animated videos significantly increased retention of knowledge when compared to journalist videos (p=0.003) in a campaign to educate about Dengue Fever (Hébert et al., 2020). At a general population level, health campaigns can also have an impact. In the United States a paid Facebook ad campaign educating woman on long-acting reversible contraception (LARC) saw an increase of use of LARC as a contraception choice for women from 'treated' areas (people exposed to the Facebook campaign) versus those not exposed to the campaign (Byker, Myers and Graff, 2019). Other studies have shown no impact of a Facebook educational campaign surrounding Human Papilloma Virus (HPV) virus which targeted middle-aged mothers to increase uptake of HPV vaccine in their sons and daughters (Chodick et al., 2021). Eliciting the factors that lead to the success and failures of such campaigns will be important as well as developing standardised methodologies and metrics to develop and evaluate campaigns.

Using social media for healthcare professional education may be of particular benefit in low income settings where access to educational opportunities may be limited. The increasing use of smartphones and expansion of 3G, 4G and 5G networks provides the opportunity to provide information to even the most remote and rural areas. Use of social media platforms varies from country to country and in developing a campaign it is important to identify the most used platform. For instance, in Malawi Facebook has a 45.22% share while Youtube has a 3.62% share highlighting the importance of tailoring the method of delivery depending on the geographic area and reach. Although use of the English language alone did not appear to be a barrier in this video campaign it has been shown in general public health campaigns to be an issue. This may be because this campaign focused on healthcare workers who may be more likely to have English as a language.

Ensuring that the information is accurate will also be a key issue. The potential benefits of using social media include keeping in line with cultural and generational changes along with the ability to spread information at a rapid rate but there is also the possibility of propagation of misinformation Li et al., published work in 2020 looking at the impact of this within the social media platform YouTube and found that 27.5% of the videos found contained non-factual information, totalling 62,042,609 views (Li et al., 2020). Engagement of more healthcare workers with social media and education on misinformation will be important (Katz and Nandi, 2021). A number of platforms have introduced a verified status which highlights that they are trusted providers of information and this status should be encouraged for all social media platforms.

This study included a large geographic area and reach of videos with detailed information on engagement by measuring percentage of each video viewed also. We were not able to evaluate in detail the viewing of these videos on other social media platforms in the target audience. Anecdotally, the videos from this campaign were shared through the Facebook platform to WhatsApp messenger platform. WhatsApp is the most used social media app in Africa with WhatsApp penetration of 97%, 96% and 95% in Kenya, South Africa and Nigeria respectively (GlobalWebIndex, 2020). This sharing through platforms only is challenging to quantify and with these figures included the results of the campaign may have been reflected differently.

The videos were only available in English and this may have also been a potential limitation. English is a widely spoken language within anglophone countries such as Kenya in which English is the official language. However, in other parts such as Algeria the country that contributed the most views the percentage of English speakers is only 7% and it is not an official language according to the Euromonitor international report 2011. Future researchers and organisers such be advised to invite viewers to like and share the content which further boosts engagement and audience. This was not done by this campaign and meant that despite individual post views being in the millions, page likes remained at 1,400 Facebook users which is low compared to other campaigns (WorldBank, 2021).

Conclusion

This analysis demonstrated that an educational healthcare worker education campaign through an online social media platform such a Facebook can achieve rapid dissemination to a wide geographic area.

The low cost and wide availability of social media sites makes them a useful and effective information dissemination tool. Further work is required on developing methodologies and metrics to aid in creating and evaluating social media campaigns including their impact on knowledge and practice.

Acknowledgements

I would like to acknowledge the generous support of the HSE Global Health Programme in providing this Global Health Summer Studentship to undertake this work. I also wish to thank Prof. Liam Glynn, Monica Casey and Dr Joe Gallagher from the University of Limerick for their assistance and Mr Hastings Gondwe and Dr Elias Phiri from Malawi for their expert insights.

Views from the Field

Interview with Dr Elias Phiri, Public Health Doctor at the Malawi-Liverpool Wellcome Trust:

I work in Malawi-Liverpool Trust which contributes to Queen Elizabeth Central Hospital. My clinical research is in paediatrics. We spread the videos through Facebook links and they were used in the department for continued professional development. We used most of the videos available for this purpose. I was also involved in a group which provided these videos for continuing professional development to healthcare workers nationally through the Malawi Ministry of Health. The videos were useful in and training and education early in pandemic. There was panic among health care workers and these videos gave some information. We found the timing was good, the language was accessible to all health care workers, and material appropriate for health care workers. We have no changes to suggest for further videos on COVID 19. However there are a number of other areas affecting sub Saharan Africa where a similar approach would be useful such as

- Communication to front-line works and general population
- Sepsis, diagnosis and better understanding
- Pathway to access to healthcare- in general
- Encourage male health seeking behaviour as they tend to present later with illness

Interview with Mr. Hastings Gondwe, Clinical Officer, St John's Hospital, Malawi

I am a clinical officer at St John’s Hospital, Mzuzu and the Non Communicable Disease Fellow with the Gorey Malawi Health Partnership. We shared these videos through Facebook and WhatsApp with colleagues. They were most commonly viewed on Facebook and the most commonly viewed video was on hand washing. We found these videos useful to provide information to many people and explain how to prevent and treat Covid-19. The videos were well received although not everyone in Malawi speaks English. If they had subtitles or translated into local languages it may improve uptake in different populations. Some of the videos could be a bit shorter also to encourage engagement. However this format is very useful to disseminate information and I would like to see them used to promote community awareness of conditions such as rheumatic heart disease so that people would recognise these conditions at an earlier stage. They could also be used to train healthcare workers on the diagnosis and management of rheumatic heart disease, how to take blood pressure correctly and for diabetes education particularly around diet and lifestyle

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