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## **Social media for health promotion: A visual analysis of “TB Proof” South Africa’s Facebook page**

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**Social media for health promotion: A visual analysis of “TB Proof” South Africa’s Facebook page**

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January 2020

**Abstract**

Health promotion is an educational tool that can be used to educate and create awareness of health issues through various media forms. The purpose of this study was to explore the use of social media (TB Proof South Africa’s Facebook page) in creating tuberculosis (TB) awareness. A qualitative case study approach was used to collect data from TB Proof South Africa’s Facebook page. An in-depth visual analysis of TB Proof South Africa’s Facebook page was carried out over a five-month period (from 1 February to 30 June 2017). The analysis of TB Proof South Africa’s Facebook page was conducted in order to determine the use of social media for health promotion. Such a comprehensive analysis was aimed at determining if the visuals on this page create awareness on TB as an illness. Common themes were identified including, TB medication, TB patients and healthcare workers raising awareness on TB. The findings have potential implications for health promotion efforts using social media.

**Keywords:** Health promotion, social media, facebook, tuberculosis (TB), health communication, TB Proof South Africa.

## **1 Introduction**

Social media has become an increasingly popular communication platform in the past decade. In the wake of the use of social media, health promotion strategies are changing to match the increasingly influential and rapidly evolving social media revolution. Social media present enormous opportunities in the field of health promotion by moving health promotion from one-to-many to include one-to-one and many-to-many simultaneously and reaching people in real time wherever they are located [32, 7, 59, 60].

Therefore, social media platforms such as Facebook have created an excellent opportunity to share tuberculosis (TB) related information [13, 30]. Facebook was launched in 2004 and currently has 2.6 billion active users worldwide [17]. Therefore, Facebook is one of the most popular and well-known social networking sites and it is currently the leading social media in the world [14, 17].

The main function of Facebook is to create an online social network with other users and share personal information and other content with the users' network [41]. Facebook also allows for the most interactive, extensive use of visuals, videos, messaging, and network connectivity [5]. Health-related information can be shared on Facebook. Therefore, Facebook has great potential to influence individuals' health behaviours by improving their access to health information and thereby improving health outcomes [47,13]. Therefore, researchers support the use of Facebook in health promotion [3, 13, 18, 31, 43].

Despite the extensive use of social media for health promotion, the research gap in the use of social media in TB health promotion has been well documented [35, 47, 20]. Globally, close to 10 million people contract TB each year, and the disease causes over 1.4 million deaths [45]. This public health problem (TB) ranks among the world's most serious health problems despite the innumerable unparalleled biomedical achievements in healthcare and medicine worldwide [20]. Therefore, it is important that health promotion interventions targeting TB are accentuated. This paper addresses this gap by exploring the use of TB Proof South Facebook page as a TB awareness platform.

## **2 Literature review**

Tuberculosis (TB) is among the top 10 causes of morbidity and mortality worldwide [46]. Globally, ten million people fell ill with TB in 2018 with the highest proportion of new cases per population from Africa [46]. In 2018, sub-Saharan Africa was reported to have a TB incidence rate exceeding 260 cases per 100, 000 population[46]. In Sub-Saharan Africa, South Africa is one of the countries with a very high infection rate [46]. Thus, the high burden of TB has necessitated using various strategies to create awareness of TB. Health promotion activities have been used to support the prevention and treatment of illnesses [36, 3]. Health promotion is, therefore, an important tool for disseminating information on TB. One of the ways through which health promotion can be used to disseminate information on TB is through social media. This is because social media are considered effective channels to positively influence health behaviours [6,13,30].

The main advantage of social media compared to traditional media is that social media offer the benefits of both mass and interpersonal communication. It can be used both as an awareness and dissemination tool to augment messages distributed through traditional media (for example, radio and television) and as an innovative way to collaborate, co-create content and engage with target audiences [34, 32]. Social media represent a better form of communication than traditional tools [13, 32].

People of all demographics are adopting these technologies and increasingly use them for health-related issues [30]. Given the easy broad reach and interactive features of social media, individuals turn to these outlets for health information and social support [19]. Social networks influence one's health by providing four broad types of support: emotional, instrumental, informational and appraisal [7,47]. Such support could help enhance one's ability to cope with stressful health challenges leading to a better health outcome. Therefore, social networks are considered effective channels to positively influence health behaviours [6,13,30]. People of all demographics are adopting these technologies and increasingly use them for health-related issues [30]. Therefore, social networking sites could be an attractive means of reaching the at-risk population, concerning TB, such as the South African population [28].

Social media platforms can be used to promote public health and improve functional health literacy [23]. For example, using social media platforms for health campaigns to demonstrate the dangers of smoking or dietary interventions will increase the spread of these campaigns

because of the popularity of social media [13]. Therefore, social media holds considerable potential for health intervention activities. Among developed countries, Canada is a case in point: social media has been used to embed and interject public health messages into daily online conversations [34]. Social media has also been used by Local Health Departments in the USA to educate and inform people about diabetes [25]. Among developing countries, social media has been used as a platform to extend dialogue and diffuse ideas that encourage sexual behaviour change in South Africa [22]. Social media (Facebook) can also be used to communicate TB-related information to South Africans. This is because Facebook also provides health promoters with the opportunity to change health communication from one-to-many to include one-to-one and many-to-many simultaneously [32].

The use of social media such as facebook results in the availability of social media data [34, 32, 54, 56]. Thus, many researchers explore social media analytics [32, 56, 57]. This is because social media platforms such as facebook offer important health promotional information. Therefore, social media such as facebook offers health promoters an opportunity to directly influence user's behaviour through framing [54, 56]. To frame is “... *to select some aspects of a perceived reality and make them more salient in a communication...*” [58]. Framing is important because frames influence behavioural outcomes [54]. Therefore, social media frames influence how users make sense of health information. One analytic task relating to frames is the use of visuals to support frame reflection [54]. Thus, the need for visual analysis of TB Proof South Africa’s Facebook page.

### **3 Method**

A qualitative case study approach was selected for this study since it allows for an in-depth analysis of a case within its real-life context [48]. Non-probability purposive sampling was used to identify the Facebook page that was used for this study. To select a sample for this study, a search was conducted of Facebook pages related to TB as an illness. Facebook’s search engine was used to find the pages that focus on TB in South Africa specifically. This search was conducted by using the abbreviation TB. One must have an existing Facebook account to be able to access TB Facebook pages. Therefore, the researcher’s Facebook account was used to access these pages. The search yielded many results; some of the non-profit organisations with TB Facebook pages included Stop TB Partnership, TB Alliance, The Union, Observatio Tuberculosis Brasil, and TB Proof South Africa. TB Proof South Africa’s Facebook page was selected to serve as the sample for the study. This page was chosen

because it is owned by a South African non-profit organisation and it is consistent with the scope of this specifically South African research.

Data for this study was compiled over a five-month period (from 1 February to 30 June 2017). This time period falls within TB awareness month, which is March. Thus data was collected prior, during and after TB awareness month. Visual thematic analysis was used to analyse and interpret data. This approach consisted of multiple stages of evaluation which were consistent with steps provided by Braun and Clarke [10].

Firstly, the researchers familiarised with the content of the data by looking at all visuals repeatedly to achieve immersion and have a broad perspective. Thereafter, initial codes were generated from the data. The researchers began this process by noting visuals to be analysed. Visuals were looked at many times and at the end of this phase, codes were generated from these visuals. Once a code was generated, it was matched with visuals that demonstrated that code. The next phase was to search for themes. During this third phase, codes were broken down into small segments of themes. A theme is an outcome of coding and analytic reflection. Various codes were combined to form an overall theme. Visuals on TB Proof South Africa's Facebook page were copied and pasted into a Word document to facilitate the coding process and identification of themes. During the fourth phase, the preliminary themes identified in the previous phase were reviewed. During this phase data extracts for each theme are read to ensure that selected extracts give meaning to each theme. Themes without enough data to support them are included into other themes. For this study, visuals were reviewed and similar ideas were put together. At this stage, the researchers identified the real meaning of each theme and working titles were assigned to the themes. The final stage of the data analysis process was to produce the report. This phase provides a concise, coherent, logical, non-repetitive and interesting account of the data theme [10]. A detailed interpretation of the visuals that constitute each theme was provided. The major themes that emerged from a visual thematic analysis that included an evaluation of the photographs posted by TB Proof South Africa on the organisation's Facebook page included TB medication, TB patients and healthcare workers raising awareness of tuberculosis.

#### **4 Conclusions**

Three main themes emerged from a visual analysis of TB Proof South Africa's page. Each theme is subsequently illustrated with example photographs.

## **Theme 1: TB medication**

TB medication is one of the themes that emerged from visual codes (data) on TB Proof South Africa's Facebook page. Various codes were combined to form the theme of TB medication. Medication is a substance that is taken into or placed on the body to cure, treat and relieve symptoms and prevent diseases such as TB [15]. For the purpose of this analysis, TB medication was identified through photographs of all medication that was posted on the organisation's Facebook page during the period of analysis for this study. Thus, this theme emerged from the photographs of TB medication posted on the organisation's Facebook page. This theme analysed photographs of tuberculosis medication aimed at treating those infected with tuberculosis. These photographs were used to inform users about new TB medication, and to encourage infected patients to follow through with treatment. A selection of photographs that depict this theme follow.



**Figure 1: A photograph of a healthcare worker giving medication to a TB patient**

**Source: <http://www.Facebook.com/TBproof/>18 May 2017**

This photograph depicts a healthcare worker giving TB medication to a TB patient. The healthcare worker is wearing Doctors without Borders clothing. Doctors without Borders, or Médecins Sans Frontières, is a non-profit, international, independent, medical and humanitarian organisation that seeks to bring healthcare to countries in crisis [16]. Therefore, this photograph suggests that non-governmental organisations, such as Doctors without Borders, help in the fight against TB. Furthermore, by giving this medication to the patient, the healthcare worker aims to motivate the patient to comply with treatment [1]. Thus,



healthcare workers can influence an individual's decision to comply with treatment or to adopt a certain behaviour. Furthermore, providing the patient with medication suggests that TB Proof South Africa's facebook page promotes awareness of TB by communicating the availability of TB treatment. This is because, this photograph suggests that there is medication or treatment for anyone suffering from TB. Therefore, individuals should seek medical help if they contract TB.

The interpretation of this photograph also relates to the Directly Observed Therapy Strategy (DOTS). The DOTS initiative aims to provide all TB patients with the correct support to ensure that they follow the treatment protocol, which is to take their medication at the right time and for the prescribed duration [38]. The DOTS can be done at a health facility, at home, in a community or at work [44]. A medical practitioner (for example, a healthcare worker or doctor) a relative, friend, neighbour or family member can operate as a DOTS supporter who is responsible for giving the patient their treatment [38, 46]. However, patients trust medical practitioners more and thus they are more likely to persist if the medication is given by a medical practitioner [29]. Therefore, in DOTS, healthcare workers meet with TB patients individually to watch them take each dose of TB medicine [12]. In essence, analysis of this photograph could imply two possible scenarios: a healthcare worker implementing the DOTS or a healthcare worker giving a patient medication to encourage them to comply with TB treatment. The finding from this photograph suggests that the TB Proof South Africa's Facebook page promotes DOTS and adherence to TB treatment. Figure 2 also constitutes the theme of TB medication.



**Figure 2: A photograph showing the past and current medication for extensively drug-resistant tuberculosis (XDR-treatment)**

Source: <http://www.Facebook.com/TBproof/16 February 2017>

The photograph in Figure 2 above depicts the former and current TB medication for extensively drug-resistant tuberculosis. The photograph clearly illustrates that the current TB medications are fewer in number compared to the former TB medication. In this photograph, *before* represents the former medication that was used for XDR-TB, and *after* represents the current medication that will be used for XDR-TB treatment. As evident in the photograph, the previous XDR-TB treatment involved taking injections, and 20 pills or more per day. With the current XDR-TB treatment, patients will be given two drugs namely, bedaquiline and linezolid, and pretomanid. As evident in the photograph above, XDR-TB patients will no longer take injections and will only take a total of five pills per day. By posting this photograph, TB Proof South Africa's Facebook page is creating awareness of the current TB medication. The analysis of this photograph indicates that there is progress regarding the development of TB medication. The next photograph (Figure3) also depicts this theme.



**Figure 3: A photograph showing child-friendly TB medication: new TB medication in candy flavours**

Source: <http://www.Facebook.com/TBproof/18 May 2017>

The photograph shows a handful of candy-flavoured TB medication for children. The medication has very attractive colours such as green, yellow and orange. It can be assumed that these colours are used as a strategy to attract and motivate TB-infected children to consume the medication. Patients need to be motivated to comply with their TB medication and many children do not adhere to treatment due to the bitter taste of the medication [4, 21]. In essence, a lack of pediatric-friendly medication is a barrier to persisting with treatment [21].

However, research has shown that flavoured medication for children improves their adherence to treatment. For example a study conducted by Horace and Akbarian-Tefagh [27] suggested the use of flavoured medication to improve treatment adherence for children. Therefore, the use of candy-flavoured medication is an important strategy to improve children's adherence to TB treatment. Implementing all possible strategies will help SA reduce TB infection rates [37]. This finding suggests that a lot of effort (attractive colours for medication) is put towards encouraging children to consume TB medication and it is also suggested that there is progress regarding the development of TB medication. By posting the photograph of the candy-flavoured TB medication, TB Proof South Africa is creating awareness of the existence and availability of candy-flavoured TB medication for children.

In the light of the above, data that constituted this theme demonstrated that TB Proof South Africa's Facebook page provides information on TB through photographs of TB medication. These photographs create awareness in different ways, which include encouraging TB patients to follow through with treatment, informing users about new TB medication, new development regarding TB medication, and adherence to TB treatment. This finding implies that photographs help maximise desired effects by encouraging the emotions necessary for persuasion.

## **Theme 2: TB Patients**

The theme of TB patients was identified through photographs of TB patients that were posted on TB Proof South Africa's Facebook page during the period of analysis in this study. Codes generated from photographs were combined to form an overall theme of TB medication. A TB patient is someone who has been diagnosed with tuberculosis and has been put on a full course of TB treatment [46]; this theme provides a discussion of photographs of TB patients that were posted on the organisation's Facebook page. Most of these photographs showed patients consulting with medical doctors. This finding indicates that despite the contagious

and deadly nature of TB, some medical doctors are still dedicated to helping patients fight the disease. These photographs were used as a scare tactic to display the reality of TB as it progresses on the human body. Thus, the pictures get worse as the disease progresses. The realities of the stages of TB are depicted in these photographs. A selection of codes (photographs) that constituted this theme is presented as follows.



**Figure 4: Photograph of a TB patient consulting with the doctor**

**Source:** <http://www.Facebook.com/TBproof/1> May 2017

This photograph shows an elderly man consulting with a doctor or health practitioner. The man is not lying on a hospital bed; he is at the doctor's office for a consultation, so he is an outpatient, who just came to the hospital for a check-up and (probably) to take his medication and leave. For many TB patients, infectiousness declines rapidly after commencement of appropriate TB treatment and patients with TB can be sent home, provided that the patient is on a standard treatment [12, 33, 42]. The DOTS programme advocates the use of outpatient services so TB patients on treatment can go to doctors just for check-ups [26].

The WHO DOTS programme advocates monitoring, supervision and support of TB patients during the treatment period [46]. It must be noted that the hospitalisation of TB patients is indicated only for severe cases or those that are likely to abandon treatment because of their social conditions, in case of complications of the disease, and in cases of retreatment [11].

Researchers have noted that [24, 26] that hospitalisation is only essential for severely ill patients, those with co-morbidities or associated conditions and patients with adverse reactions. In these cases, monitoring and support are important during the treatment process [24, 46]. It is the responsibility of the health practitioners to provide appropriate monitoring and support to patients undergoing TB treatment [46, 24, 26]. Monitoring and support for TB patients helps motivate the patients to persevere with treatment [38, 46, 24]. Therefore, TB cases require close monitoring and support. Figure 4 also shows that the doctor is not wearing a mask or gloves which suggests that TB patients who are on a standard treatment (or appropriate treatment) are not infectious [44, 45, 46]. Therefore, TB patients should not be stigmatised.

Further analysis of Figure 4 reveals that the patient and the doctor are having a conversation about the patient's treatment. The doctor is standing very close to the patient and looking at the patient very closely while communicating. The doctor's position and body language suggest a caring and good doctor-patient communication. Good doctor-patient communication has been shown to have a positive impact on health outcomes [38, 49]. A study conducted by Wong and Lee [50] suggested that good doctor-patient communication improves compliance with treatment, a higher level of patient and clinician satisfaction and a decrease in malpractice risk. The importance of close doctor-patient communication (relationship) can never be overstated because an effective treatment relies directly on the quality of this relationship [49]. The interpretation of this photograph suggests that good patient-doctor communication is essential in the fight against TB.

In the light of this, the doctor in Figure 4 is providing information during consultation and standing very close to the patient and looking into his eyes (motivation); this will help the TB patient to develop behavioural skills (to adhere to his treatment). Figure 5 is another photograph that constituted this theme.



**Figure 5: A photograph of a TB patient lying on a hospital bed**

Source: <http://www.Facebook.com/TBproof/>15 February 2017

Figure 5 above portrays a TB patient (a man) sitting in an upright position in a hospital environment or a hospital ward. The TB patient looks pale and sick, and TB Proof South Africa's have posted this picture of him as a scare tactic (a means of portraying TB as an illness). Behind the man are two other TB patients (a man and a woman). One can assume that the woman beside him is his wife, his friend or family that has come to visit him. The woman is sitting next to the man, implying that she is there to support and motivate him.

This finding suggests that people (family and friends) do care for loved ones who are infected with TB. It is important to note that the interpretation of this photograph is consistent with the theme of TB medication discussed above. Below is another photograph which constituted this theme.



**Figure 6 A photograph of a TB patient during consultation with a healthcare worker**

Source: <http://www.Facebook.com/TBproof/> 4 May 2017

Figure 6 above depicts a critically ill TB patient being examined by a healthcare worker or a doctor. As in the previous photograph (Figure 5) the photograph is not visually appealing because the patient looks very sick. This suggests that TB Proof South Africa posts photographs of critically ill TB patients to portray TB as an illness and that the organisation posts photographs of very thin TB patients as a scare tactic to encourage TB patients to adhere to TB treatment. Seeing these kinds of photographs on TB Proof South Africa's Facebook page will encourage adherence to TB treatment because users of the Facebook page can see that they will become critically ill (very thin) if they contract TB and do not adhere to a standard TB treatment. The man in Figure 6 above is extremely thin with his ribs jutting out of his chest; his skeletal torso is painfully visible. This photograph suggests that the patient could be suffering from either MDR-TB or extensively drug-resistant TB, the most difficult forms of TB. These forms of TB are chronic, and one of the effects on the patient's body is extreme weight loss [46]. As shown in the photograph, this patient has lost so much weight that one can see the bones of his body. The interpretation of this photograph suggests that the organisation's Facebook page creates awareness of the severity of TB by posting a photograph of a critically ill TB patient. In the light of the above, data that constituted this theme demonstrated that TB Proof South Africa's Facebook page provides information on TB through photographs of TB patients. The realities of TB as an illness are shown in these photographs.

### **Theme 3: healthcare workers raise awareness of tuberculosis**

Visual data from TB Proof South Africa's Facebook page demonstrated the theme of healthcare workers helping to raise awareness of tuberculosis. The codes generated from photographs of healthcare workers were combined to form this theme. WHO (2006) defines healthcare workers to be all people engaged in actions whose primary intent is to enhance health. For the purpose of this study, healthcare workers refer to doctors, nurses and laboratory technicians. The theme of healthcare workers emerged from visuals (photographs) on TB Proof South Africa's Facebook page. Hence, this theme provides a discussion of the photographs of healthcare workers who aim to create awareness of tuberculosis. An analysis of the visual content of photographs which constituted this theme is provided as follows.





**Figure 7 Photographs of a healthcare worker examining a chest x-ray**

Source: <http://www.Facebook.com/TBproof/>25 March 2017

The photographs portray healthcare workers holding the results of chest radiography for a tuberculosis patient. Radiography uses x-rays to visualise the internal structures of a TB patient [44, 45]. Chest radiography or chest x-ray has historically been one of the primary tools for detecting TB. A chest x-ray is an important tool for triaging and screening for pulmonary tuberculosis, and it is also useful to aid diagnosis when pulmonary TB cannot be confirmed bacteriologically [44]. However, it can also be used for diagnosing other forms of TB, such as pericardial TB or tuberculosis effusions [44]. By posting a photograph of healthcare workers holding a chest x-ray, TB Proof South Africa is informing users that radiography is available and can be used for TB detection. Anyone who feels any symptoms of TB should be tested. Figure 8 is another photograph depicting this theme.



**Figure 8: A photograph of healthcare workers raising awareness of tuberculosis**

Source: <http://www.Facebook.com/TBproof/>28 June 2017

Figure 8 depicts two photographs of healthcare workers holding posters titled zero stigma and unmask stigma that suggest that these healthcare workers are challenging the stigmatisation of tuberculosis. By doing this, healthcare workers are encouraging and motivating those infected with or affected by TB. Some TB patients do not adhere to treatment for fear of the

social stigma associated with the disease [40]. Even those who are infected do not disclose their status for fear of stigmatisation, and this leads to the rapid spread of TB [2].

The interpretation of this photograph correlates with Figure 4 and Figure 6. Figure 4 and Figure 6 clearly depict healthcare workers supporting and motivating TB patients in a hospital environment. Therefore, healthcare workers play a vital role in the fight against TB. The photographs also depict some of the healthcare workers holding letters that form the word TB Proof. This suggests that TB Proof South Africa's Facebook page is challenging tuberculosis by stating that we should all be TB Proof: TB Proof implies that everyone should be free of the disease. TB Proof also implies that even those infected should adhere to treatment and be TB Proof. The photographs also depict the healthcare workers wearing masks. The mask helps to prevent respiratory droplets being expelled from the mouth and nose into the environment.

The World Health Organisation also recommends that healthcare staff should wear masks to protect them from inhaling harmful respiratory particles, for example, multiple-drug-resistant tuberculosis bacteria. TB in all forms is also a major occupational hazard for healthcare workers [44, 45, 46]. Healthcare workers are on the frontline of the risk of contracting TB [45]. The average annual risk of developing TB is three times higher for healthcare workers (across all settings) compared to the general population [45, 51] Healthcare workers must, therefore, also protect themselves from contracting the disease. By posting a photograph with healthcare workers wearing masks, TB Proof South Africa is creating awareness that even healthcare workers are susceptible to contracting TB and everyone should adopt TB preventive behaviour.

Analysis of this photograph also suggests that healthcare workers must protect themselves to be able to serve the sick individuals. Healthcare workers are deeply committed to supporting and helping their patients. However, they also need to protect themselves from the disease while doing their job. A single TB patient could infect up to 15 persons [24, 26, 45], so by wearing masks, healthcare workers are helping to reduce TB infection rates. It is worth noting that visual thematic analysis of TB Proof South Africa's Facebook page suggests that photographs play a major role in creating health awareness. This is evident from the themes that emerged from visual thematic analysis. The themes of the use of TB medication, TB patient and the theme of healthcare workers create awareness of tuberculosis. This finding concurs with the assertion that visuals (photographs) are a successful option to increase

health awareness, decision making, autonomy and engagement [52, 53]. Thus, the interpretation of these photographs suggests that visuals help increase the chances that the target audience will adopt TB preventive behaviours.

The primary purpose of this study was to explore the use social media (TB Proof South Africa's Facebook page) for promoting awareness of TB. Results of visual analysis data analysis suggested that social media creates awareness of tuberculosis. This was evident from the themes that emerged from a visual analysis of TB Proof South Africa Facebook page. The findings from visual analysis suggested the theme of TB Patients, TB medication and healthcare workers create awareness of TB. Photographs of TB medication enhanced awareness in different ways, which include encouraging TB patients to follow through with treatment, informing users about new TB medication, new developments in connection with TB medication, and adherence to TB treatment.

The theme of TB patients was identified through photographs of TB patients that were posted on TB Proof South Africa's Facebook page during the period of analysis in this study. The theme of TB patients focused on photographs showing patients consulting with medical doctors. These photographs were used as a scare tactic to display the reality of TB as it progresses on the human body. Thus, the pictures get worse as the disease progresses. The realities of the stages of TB are depicted in these photographs. Photographs that constituted the theme of healthcare workers focused on the photographs of healthcare workers on TB Proof South Africa's facebook page during the analysis period.

In sum visual thematic analysis of TB Proof South Africa's Facebook page suggests that social media can be used as a health promotion platform. Findings also suggested that photographs play a major role in creating health awareness. This finding concurs with the assertion that visuals (photographs) are a successful option to increase health awareness, decision making, autonomy and engagement [52, 53]. Results from this study are consistent with the literature reviewed above, as themes that emerged from visual analysis suggested that TB Proof South Africa's Facebook page is used to create TB awareness. In line with the above discussion, it can be concluded that social media can be used as a health promotion platform.

### **Implications for health promotion**

This study shows that social media platform has the potential to meaningfully create health awareness. This is because the findings from TB Proof South Africa's Facebook page suggested that health promotion via social media creates TB awareness in South Africa. This is essentially because the themes that emerged from the visual analysis of TB Proof South Africa's facebook page were primarily focused on creating awareness of TB. Therefore, social media (Facebook) is an appropriate health promotion platform. This reflects the ideas presented in the literature that health promotion via social media can create health awareness [13, 7, 31, 3]. Thus, social media offers health promoters an opportunity to bypass traditional media and directly influence user's behaviour through framing.

## **5 Recommendations**

The study is limited as it represents only one social media platform on a singular health topic, and thus cannot be generalised to all health-related social media platforms. It is recommended that further research could be conducted on a large scale with more social media platforms (for example facebook and twitter) that promote different illnesses. Therefore, comparative studies that investigate the use of other health-related social media platforms are recommended. Further research can compare different social media platforms to better explore the use of social media for health promotion. In addition, further research can also be conducted using different data collection methods (such as interviews) to complement the visual analysis method.

## **Limitations**

This study is limited in that the study's findings are not directly replicable. This is because the content on Facebook pages continues to evolve and change [3, 13]. There is no record of any visual that may have been altered or deleted prior to the analysis period. Therefore, it is possible that TB Proof South Africa had engaged in monitoring activities (deleting or editing inaccurate or inappropriate visuals). Hence, the results of this study should be read with the above unavoidable caveat in mind.

## References

- [1] X, Ai,K, Men,L,Guo, T, Zhang, Y, Zhao, X, Sun, H, Zhang, G, He, J.M, Van Der, Welf, S, Van Den Hof, Factors associated with low cure rate of tuberculosis in remote poor areas of Shaanxi Province, China: A case control study,BioMed Public Health 201010(112).
- [2] K, Abney,Whoever said a little dirt doesn't hurt? Explaining tuberculosis (TB)-related stigma in Khayelitsha, Cape Town,Doctoralthesis: University of Cape Town, 2011.
- [3] K, Abramson, B, Keefe, WY, Chou, Communicating about breast cancer through Facebook: a qualitative analysis of a breast cancer awareness page. Journal of Health Communication20 (2) (2015) 237–243.
- [4] A.A, Adane, K.A,Alene, D.N, Koye, B.M, Zeleke, Non-adherence to Anti tuberculosis treatment and determinant factors among patients with tuberculosis in North West Ethiopia. Plos One8(11) (2013) e78791
- [5] C, Anderson, The impact of social media on lodging performance. Cornell Hospitality Report 12(15) (2012)6-11.
- [6] E.J, Apatu, M, Alperin, K.R, Miner, D Wiljer, A drive through web 2.0: An exploration of driving safety promotion on Facebook. Health Promotion Practice14(1) (2013) 88–95.
- [7] S.A, Asongu, J.I, Uduji, E.N, Okolo-Obasi, Homicide and social media: Global empirical evidence. Technology in Society 59 (2019b) 101188.
- [8] S.A, Asongu, N.M Odhiambo, Governance and social media in African countries: An empirical investigation, Telecommunications Policy,43 (5) (2019b) 411-425.
- [9] S.M, Barnard, The identification of criteria for the optimal use of Facebook pages for marketing purpose in South Africa: An exploratory study. Masters dissertation. Pretoria: University of South Africa, 2015
- [10] V, Braun, V, Clarke, Using thematic analysis in psychology. Qualitative Research in Psychology 3 (2) (2006) 77–101.
- [11] J.D.S, Caliari, R.M.D Figueiredo, Perfil de pacientes com tuberculoseinternadosem hospital especializado no Brasil. *RevistaPanamericana de Infectología*, 9(4) (2007) 30–5.
- [12] Center for Disease Control and Prevention, (2016) <https://www.cdc.gov/>.

- [13] W.S, Chou, A, Prestin, C, Lyon, K.Y, Wenk., Web 2.0 health promotion: reviewing the current evidence AM. J. Public Health. 103 (2013) 9-18.
- [14] V.N, Claudette, The perception of social media as a promotional mix element in star-graded accommodation establishments in the Western Cape province of South Africa. Masters dissertation. Pretoria: University of South Africa, 2014
- [15] J.A, Cramer, A, Roy, A, Burrel, C.J, Fairchild, M.J, Fuldeore, D.A Ollendorf, P.K Wong, Medication compliance and persistence: Terminology and definitions. International Society for Pharmacoeconomics and Outcomes Research (2008)44–47.
- [16] Doctors without Borders 2012, [cdn.doctorswithoutborders.org/sites/usa/files/.../msf\\_usa\\_annual\\_report](http://cdn.doctorswithoutborders.org/sites/usa/files/.../msf_usa_annual_report)
- [17] Facebook, 2020, <http://www.newsroom.fb.com/company-info>.
- [18] A.D, Farmer, C.E Bruckner, Holt, M.J, Cook, S.D, Hearing, SD, Social networking sites: A novel portal for communication. Postgraduate Medical Journal, 85 (2009) 455–459.
- [19] S, Fox, Medicine 2.0 peer health care. In Report: Health, Social Networking. 2011, <http://www.pewinternet.org/reports/2011/medicine-2.0.aspx>.
- [20] V.A, Gerace, A quantitative investigation of the effectiveness of social media in delivering a tuberculosis health communication campaign to millennial college students, 2014
- [21] D.M, Gibbs, R.L, Goodall, V, Giacomet, A, McGee, A, Compagnucci, H, Lyall, Adherence to prescribed antiretroviral therapy in human immunodeficiency virus-infected children in the PENDA 5 trial, Paediatric Infectious DiseaseJournal 2(1) (2003) 56–62
- [22] E, Govender, L, Dyll-Myklebust, R, Delate, N, Sundar, N, Social networks as a platform to discuss sexual networks: InterSEXions and Facebook as catalysts for behaviour change. African Communication Research6 (1) (2013) 65–88.
- [23] A, Gupta,M, Tyagi, D, Sharma, Use of social media marketing in healthcare. Journal of Health Management,15(2) (2013) 293–302.

- [24] J.R, Hargreaves, D, Boccia, C.A, Evans, M, Adato, M, Petticrew, J.D.H, Porter, JDH, The Social Determinants of Tuberculosis: From Evidence to Action. *American Journal of Public Health* 101 (4) (2011) 654–62.
- [25] J.K, Harris, N.L, Mueller, B.A, Snider, D, Haire-Joshu, Preventing chronic disease: *Public Health Research, Practice and Policy* 10(2) (2013) 1–10.
- [26] H.U, Hongyan, C, Jiaying, D, Kaori, W.U, Sato, Yang, Zhou, Huijiang, Pingbo, Hong Wang, Factors that associated with TB patient admission rate and TB inpatient services cost: A cross-sectional study in China. *BioMed Central*.2016
- [27] A.E, Horace, J, Akbarian-Tefagh, Disguising the taste of antiretrovirals for pediatric patients infected with Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome: creative flavor compounding and techniques, part 1, *International Journal of Pharmaceutical Compounding*, 17(5) (2013) 388–391.
- [28] K, Jones, K.A, Baldwin, P.R, Lewis, PR, The potential influence of a social media intervention on risky sexual behaviour and Chlamydia incidence. *Journal of Community Health Nursing*,29(2) (2012)106–120.
- [29] A, Kagee, Treatment adherence in South African primary healthcare, 2005
- [30] H, Korda, Z, Itani, Harnessing social media for health promotion and behaviour change. *Health Promotion Practice*, 42 (2013) 1–9.
- [31] B.L, Neiger, R, Thackeray, S.A, Van Wagenen, C.L, Hanson, J.H. West, M.D, Barnes, Use of social media in health communication: Purposes, key performance indicators, and evaluation metrics. *Health Promotion Practice*, 13(2) (2012) 159–164.
- [32] C.D, Norman, Social media and health promotion. *Global Health Promotion*19(4) (2012) 3–6.
- [33] H.S, Schaaf, A, Mandalakas, E, Chiapini, A, Zumla, B.J Marais, Preventing the spread of multi-drug resistant tuberculosis and protecting contacts of infectious cases. *Clinical Microbiology and Infection*23(3) (2017)147–153.
- [34] R, Schein, K Wilson, J, Keelan, Literature review on the effectiveness of the use of social media. Peel Public Health. Brampton: Region Peel, 2010



- [35] S, Sharma, R, Killan, F.H Leung, FH, Health 2.0. Lessons learned: social networking with patients for health promotion. *Journal of Primary Care and Community Health* 5 (3) (2014) 208–210.
- [36] J, Sixsmith, P, Doyle, M, D'Eath, M.M, Barry, MM, Health communication and its role in the prevention and control of communicable diseases in Europe. Current evidence, practice and future developments. Stockholm, 2014.
- [37] South African Department of Health, The draft national infection prevention and control guidelines for TB, MDRTB and XDRTB. Government Printers: Pretoria, 2016.
- [38] J.T, Sukumani, Experiences of family members caring for tuberculosis patients at home at Vhembe district of the Limpopo Province', *Curationis*35(1) (2012) 54–58.
- [39] TB Proof South Africa, 2019 <http://www.Facebook.com/TBproof/>.
- [40] S, Tadesse, Stigma against tuberculosis patients in Addis Ababa, Ethiopia. *PLoSOne*11(4) (2016) e0152900.
- [41] H, Uttenhout, The use and effect of social media in health communication about common head lice. Master's dissertation. Twente: University of Twente, 2012.
- [42] G, Van Cutsem, P, Isaakidis, J Farley, E, Nardell, G, Volcheenkov, H, Cox, Infection control for drug-resistant tuberculosis: Early diagnosis and treatment is the key. *Clinical Infectious Diseases*62(3) (2016) S234–243.
- [43] P, Woolley, M Peterson, M, Efficacy of a health-related Facebook social network site on health seeking behaviours. *Social Marketing Quarterly*, 18(18) (2012) 29-39.
- [44] World Health Organisation. 2015. [http://www.who.int/tb/publications/global\\_report/en](http://www.who.int/tb/publications/global_report/en). Accessed 16 May 2019.
- [45] World Health Organisation, Global Tuberculosis Report, 2016
- [46] World Health Organisation, Global Tuberculosis Report, 2020.
- [47] Y, Zhang, D, He, Y Sang. Y, Facebook as a platform for health information and communication: a case study of a diabetes group. *Journal of Health Communication* 37 (3) (2013) 9942.

- [48] RK, Yin, Case study research and applications. Design and methods. Sage Publication, 2018.
- [49] T, Hellin, T, The physician-patient relationship: recent developments and changes. *Haemophilia* 8 (2002) 450–456.
- [50] Y.S.M Wong, A, Lee, Communication skills and doctor patient relationship. *Medical Bulletin* 11(3) (2006) 7–9.
- [51] I, Baussano, P, Nunn, B, Williams, E, Pivetta, M, Bugiani, F, Scano, F, Tuberculosis among healthcare workers. *Emerging Infectious Disease* 17(3) (2011) 488–494.
- [52] L, Alegria, L, Margarita, Polo, L, Antonio, Gao, L, Shan, L, Santana, L, Luz, Rothstein, L, Dan Jimenez, L, Aida, Normand, L, Sharon-Lise, Evaluation of a patient activation and empowerment intervention in mental healthcare. *Medical Care* 46(3) (2008) 247–256.
- [53] C.S, Bruggers, R.A, Altizer, R.R, Kessler, C.B, Caldwell, K, Coppersmith, L, Warner, G, Bulaj, Patient-empowerment interactive technologies. *Science Translational Medicine* 4(152) (2012) Ps16.
- [54] E, Baumer, F, Polletta, Developing Computational Supports for Frame Reflection. In Proc. iConference 2013.
- [55] S, Chen, L, Lin, X, Yuan, Social Media Visual Analytics. 36 (2017) 3 STAR – State of The Art Report
- [56] J, TANG , J, SUN, C, WANG, Z, YANG Z, Social influence analysis in large-scale networks. In Proceedings of the 15th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD (9) (2009) 807–816.
- [57] L, Hemphill, A, Culotta, M, Heston, Framing in Social Media: How the U.S. Congress uses Twitter hashtags to frame political issues 2013
- [58] R.M, Entman, Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43 (4) (1993) 51–58.
- [59] S A. Asongu, N. M. Odhiambo, Social Media and inclusive Development in Africa, *Information Development* (2020), DOI: 10.1177/02666666920920342.

[60] S A. Asongu, N. M. Odhiambo, Tourism and Social Media in the World: An Empirical Investigation, *Journal of Economic Studies*, 46(7), (2019) 1319-1331.