Aniekie Motloutsi
Postgraduate student, Department of Communication, Media and Information Studies, University of Limpopo (aniekiemotloutsi@gmail.com)

Dr Elizabeth Lubinga
Research Associate, University of Limpopo (elizabeth.lubinga@ul.ac.za)

DOI: https://dx.doi.org/10.18820/24150525/Comm.v22.7
ISSN 2415-0525 (Online)
Communitas201722:87-97

COMMUNICATING MALE BREAST CANCER: KNOWLEDGE AND AWARENESS AMONG SOME SOUTH AFRICAN YOUTH

ABSTRACT

Minimal research exists on the knowledge and awareness of male breast cancer. Although male breast cancer is a relatively uncommon disease, there is an increasing incidence in Sub-Saharan Africa. However, minimal awareness among the public has led to ignorance about symptoms, often resulting in the late diagnosis of the disease. Consequently, praxis pertaining to male breast cancer is informed mostly by research on well-publicised female breast cancer, yet studies show that while the two may have similarities, they are not identical. Theoretically, the Health Belief Model and the Developmental Health Model are applicable to the study. A cross-sectional survey of some university students, using a self-administered questionnaire, was conducted to examine knowledge and awareness of male breast cancer. Results indicate a general lack of knowledge about the disease. The majority of students were of the view that there should be more campaigns about male breast cancer. Such studies are crucial in informing health promotion organisations in the formulation of gender-specific/inclusive campaigns required to create awareness.

Keywords: health communication; health literacy; health messages; Health Belief Model; Developmental Health Model; male breast cancer; knowledge; awareness; university students; South Africa

INTRODUCTION

Globally, a dearth of knowledge and awareness about male breast cancer (MBC) is evident in most societies. Low publicity and/or low prevalence could partially explain this lack of awareness about MBC. However, there is an increasingly growing incidence of MBC in Sub-Saharan African countries (Bunkley *et al*. 2000; Herbst 2016; Ndom 2012). Studies from seven sub-Saharan countries, including South Africa, indicate a male to female breast cancer ratio of 1:14, meaning that breast cancer was found to be 14 times less common among males than females (Bunkley *et al*. 2000: 91). In Kenya this ratio is 1:7. While these ratios indicate the relative scarcity of the disease, they also serve as an indication of the higher prevalence of MBC in Africa; the American ratio is

1:100, meaning breast cancer is 100 times less common among males than females (American Cancer Society 2017).

Bunkley *et al*. (2000) posit that there might be an increased incidence of breast cancer among men in Sub-Saharan Africa, alluding to black males. Statistics from the 2012 South African National Cancer Registry support this assumption. More than 50% of the men historically diagnosed with MBC were black, with the other half constituted all three other South African racial population groups combined (Cancer Association of South Africa 2017). In a meta-analysis of studies on male breast cancer from 27 African countries, Ndom *et al*. (2012: 238) observe that the male-to-female ratio was higher in Sub-Saharan Africa than in North Africa. These authors (*ibid*.) add that, considering that black males in the United States have a higher male-to-female ratio than white males, this may suggest that genetic background is an important risk factor for consideration of prevalence among black males. Such statistics raise the question of whether and to what extent men, specifically black men, are aware that they can get breast cancer.

Statistically, in developed countries (American Cancer Society 2017) MBC forms less than 1% of all breast cancers, and less than 1% of all cancers for men when compared to female breast cancer (FBC), which is the most common type of female cancer worldwide, with an estimated 1.3 million women diagnosed annually. The American Cancer Society's estimate for 2017 is that 2 470 men will be diagnosed with MBC (American Cancer Society 2017). This may not be a large number compared to the 255180 new cases of female breast cancer estimated for the United States in 2017. However, in comparison, MBC is more aggressive and deadly. Herbst (2011: 6) states that although men rarely get breast cancer, it is more deadly. Yet, if diagnosed at an early stage, the survival rate increases.

The increase in deaths from MBC has been attributed in part to almost no public education programmes. Steyn *et al*. (2014: 1) note that in South Africa public awareness about MBC is lacking. Healthcare facilities for the diagnosis and treatment of the disease, particularly in the public sector, are inadequate. Swergold *et al*. (2014: 321) are of the view that a lack of defined screening programmes for men-at-risk, as well as delayed diagnosis, compounds the problem. Ndom *et al*. (2012: 238) state that because of the ignorance of patients, combined with limited medical resources in many African countries, MBC is often diagnosed late. In both developing and developed countries, the common factor according to researchers appears to be lack of public education, which leads to ignorance among the male population. The low numbers of MBC cases may be attributable to undetermined and undocumented cases of men with MBC, who, due to lack of awareness, are not aware that they have the disease.

In South Africa, not only are more men diagnosed with breast cancer, but males are increasingly diagnosed with MBC at a younger age. Traditionally MBC is associated with age and is especially common amongst men older than 50. In 2016, the South African Cancer Association (CANSA) revealed that men as young as 25 are presenting with breast cancer (Herbst 2016). In addition, two out of three men who visit clinics with breast problems are diagnosed with MBC. According to CANSA (2017), the 2012

statistics from the South African National Cancer Registry showed that although the majority of men diagnosed with MBC were between the ages of 50 and 80, the youngest men diagnosed with the disease were aged between 15 and 19.

Against this background this article sought to determine whether young South African males, aged 15 and older, are aware that they should engage in routine breast self-examination or that they should seek immediate professional help if they experience breast problems.

THEORERTICAL FRAMEWORK

The Health Belief Model

Health communication campaigns could be instrumental in creating the necessary public awareness of MBC. Tomaselli and Chasi (2011: 93) state that health communication campaigns disseminate health messages through public education with the aim of changing the social climate to encourage healthy behaviour, create awareness, change attitudes and motivate individuals to adopt recommended behaviour. If men were aware that they too could develop breast cancer, it could lead to increased knowledge about risk factors, signs of the disease and its symptoms. Thus, most authors agree that there is a need to increase awareness of the disease (Kipling *et al*. 2014; Robinson *et al*. 2008; Steyn *et al*. 2014).

Theoretically, the Health Belief Model (HBM), proposed in the 1950s by Hochbaum and modified by Rosenstock and Kegels, was designed to explain and predict preventive health behaviour. Schiavo (2013: 41) describes the HBM as a risk-learning model with one of the goals being that of teaching new information about health risks and the behaviours that minimise those risks. Schiavo (*ibid*.) states that the overall premise of the HBM is that knowledge will bring change. This knowledge is brought to the intended groups through an educational approach that primarily focuses on messages, channels and spokespeople. In terms of this study, the HBM highlights the important role of mass media campaigns in providing what is termed as “cues to action”. Cues to action motivate people to take health action. Communication-related modifying factors (mass media campaigns, interpersonal advice, illness of a family member, and health professional advice) influence an individual’s perceived threat of the health problem.

The HBM proposes several constructs. Individual perceptions in the form of perceived susceptibility, perceived severity, perceived benefits and perceived barriers are influenced by modifying factors, such as demographic variables (age and gender), as well as socio-psychological factors (personality and social class). Take, for example, perceived susceptibility: if a person thinks that they are at risk of a particular health problem, then they might be more willing to engage in behaviour that decreases that risk. Applied to this study, such behaviour could be in the form of an individual (man-at-risk) engaging in self-screening, especially if he was made aware of MBC through a relative who has been diagnosed with the disease and/or is genetically pre-disposed or he could lessen risk factors, such as smoking.

The Developmental Health Model

The Developmental Health Model (DHM), developed in the 1970s, could also be applied to this study, especially regarding the interpersonal interaction between patients, family members and healthcare providers. According to the DHM, health is a phenomenon of the family, which can be developed through the learning of healthy behaviour (coping and development skills). With regards to the interaction with health professionals, the Model outlines four stages of development: during the orientation stage the patient is exposed to the therapist, during the identification stage they interact more closely with the therapist, during the third stage medical services are sought, and during the resolution stage they utilise the services of a health professional.

It is not the purpose of this article to detract from the efforts focused on, the achievements made in addressing, or the gravity of the prevalence of FBC. Instead, the article argues that there should be an additional focus on an increase in breast cancer communication campaigns targeting males. The only evidence of any type of MBC campaign in South Africa was found in a few media articles during October 2016. More visible campaigns focusing on MBC are yet to be implemented and measured in terms of their impact on awareness and knowledge among male recipients.

DISPARITIES BETWEEN FEMALE AND MALE BREAST CANCER MESSAGES

Several studies indicate that, in the case of breast cancer, men are marginalised and that messages on breast cancer are gendered (Donovan & Flynn 2007; Thomas 2010; White *et al*. 2011). Globally recognisable Pink Ribbon campaigns have been successful at promoting breast cancer awareness. Pink as a colour traditionally symbolises women, while the pink and blue ribbon, meant to symbolise MBC, remains relatively unknown. As Hughes (2013) argues, "for any man who finds himself to be the one in 100,000 diagnosed with breast cancer annually, that lack of inclusion in awareness campaigns is doubtless troubling and a bit mysterious, given the Pink Ribbon campaign's otherwise thunderously loud and sweeping reach". Rayne *et al*. (2017: 247) observe that as breast cancer awareness and advocacy has increased in Africa over the past decade, it has mimicked trends from Western Europe and the United States, becoming strongly allied with female colours and themes.

As indicated above, widespread ignorance among males means that men are not aware of the disease. In a qualitative study conducted in the United States, Thomas (2010: 37) found an 80% lack of awareness that men can get breast cancer; in fact, one of the participants stated that men cannot get breast cancer because "they don't have breasts, they have chests". In South Africa, Rayne *et al*. (2017: 249) found that 67% of participants in a telephonic survey of 18 survivors were not aware of the fact that men could get breast cancer, before their own diagnosis. As Thomas (2010: 32) asserts, "whether assumptions prevail that men cannot get breast cancer and that the disease is rare, male breast cancer has widely been ignored".

In contrast, FBC attracts national and international gender-exclusive health interventions. Several international organisations, including the WHO and the Breast Health Global Institute (BHGI), have facilitated campaigns intended at creating awareness amongst women, mainly in limited and middle-resource countries (Sambanje & Mafuvadze 2012). Perhaps such measures are influenced by the fact the health problem remains highest amongst women, with diagnosis and treatment of the cancer in low-income countries remaining poor, thus creating the need to focus scarce financial and other resources on the bigger health problem of FBC. The WHO (2017) states that in 2015 more than 90% of high-income countries reported treatment services being available, in comparison to less than 30% of low-income countries. International efforts targeting women often run concurrently with national campaigns conducted by individual countries. In South Africa the month of October has been dedicated to educating the public about breast cancer, yet such media and public outdoor campaigns address the disease from an entirely female perspective. As Hughes (2013) points out:

> Celebrities from across the spectrum … have donned the ubiquitous pink ribbon, raising awareness and funds for research and treatment. Millions more worldwide have walked, run or organized charitable events, auctions and parties for the cure … despite that brightly illuminated soapbox, the issue of breast cancer in men remains the proverbial red-headed stepchild of the cancer movement.

Reedijk (in Hughes 2013) reasons that MBC "gets caught at a later stage of development because it's simply not on most men's radar, nor that of their family doctors. That makes broadcasting the message — that men can and do contract breast cancer — crucial." He adds, "If there was an ad in a popular magazine about breast cancer, it would be nice to see one sentence at the bottom saying, 'By the way, men can get breast cancer, too. Please see your family doctor if you have any breast symptoms'." Kipling *et al*. (2014: 29) state, "Men should be offered a service tailored to their needs, rather than being 'shoe-horned' into a service designed to care for women".

Some researchers observe that disparities exist between the knowledge, treatment and management of female and male breast cancer. They argue that MBC is not properly understood, with some studies indicating that MBC is physically and psychologically different from FBC, and therefore affects men differently to women (Johansson *et al*. 2014; Robinson *et al*. 2008; Ruddy *et al*. 2013; Sanguinetti *et al*. 2016). According to Johansson *et al*. (2014: 527), most of the understanding of MBC has been extrapolated from knowledge of FBC, and even though differences (and some similarities) have been reported, the same information is used to determine management strategies. Sanguinetti *et al*. (2016: 8) are of the view that the clinical and pathological features of MBC do not exactly match those of FBC. It is argued that men living with breast cancer have different needs and perspectives towards the disease; therefore they may require different male gender-specific psychosocial interventions by health care professionals (Fish *et al*. 2015). According to these authors (2015), psychosocial factors such as embarrassment, fear and anxiety are risk factors that act

as barriers to health seeking amongst men. Publicity about MBC would be crucial in creating the necessary knowledge about the disease.

The purpose of this study was to assess knowledge and awareness of MBC amongst university students in South Africa. Sambanje and Mafuvadze (2012) conducted a study on the knowledge and awareness of university students about FBC and posited that university students should have an adequate level of understanding about health problems, as studies from developed countries indicate that generally breast cancer awareness increases with the level of education. However, there is limited information about the awareness and knowledge of MBC among university students in South Africa and Africa in general. This study not only solicited responses from the potentially affected population, namely males, but included female students as well. Women were included in the study because knowledgeable women can be sources of knowledge and can act as pillars of support to affected partners, relatives and friends (McMenamin *et al*. 2005). However, it is important to note that the purpose of this study was not to compare knowledge and awareness between male and female, but rather to describe knowledge and awareness amongst university students in general, thus as representative of a group of a specific age and education level.

METHODOLOGY

A cross-sectional survey aimed at assessing awareness and knowledge of MBC was conducted among some university students in South Africa. A total of 252 students (106 male and 146 female) from the University of Limpopo completed the questionnaire. Ethically, the principles of informed consent and voluntary participation, as well as emphasis on the confidentiality of participant identity, were adhered to. Participants were verbally and visually informed that they had the right to decline to participate or to discontinue participation at any time during the process of answering the questionnaire, if they chose to do so. Consent forms were offered to and were signed by participants in affirmation.

The questionnaire included closed and open-ended questions on types of exposure to MBC health campaigns by participants, knowledge about whether men could get breast cancer, the causes, risk factors and self-examination. Socio-demographic depicters intended to solicit participant information, such as gender, age, faculty as well as level of enrolment, were measured. The section on exposure to health communication campaigns included both closed and open-ended questions about whether participants had seen or heard campaigns about MBC, in which media, or from whom they were exposed to such campaigns. These were considered to be some of the factors that could influence the knowledge and awareness of MBC among the participants.

Five questions were asked in order to assess the knowledge of MBC. Participants were asked the question, “Do men get breast cancer?” Responses offered to participants to the question were “yes” (agree), “no” (disagree), and “I don’t know”. The same responses were offered in reply to questions about whether they knew the risks, signs and age at which men were more likely to get breast cancer. Some of the questions

were followed by open-ended questions; for example, participants were asked to name the risks and signs of MBC. Data was analysed using the Statistical Package for the Social Sciences (SPSS) Version 23. Descriptive statistics with cross-tabulations were performed on the data, resulting in the generation of frequencies for the "yes", "no" and "do not know" answers. Pearson's Chi-square tests were used to examine possible associations between variables, significance level at $p < .05$.

FINDINGS

Baseline demographic descriptive statistics of the study from the closed questions in the questionnaire are presented in Table 1.

TABLE 1: BASELINE DEMOGRAPHIC CHARACTERISTICS

DEMOGRAPHICS		**(N=252)**	
Gender		n (%)	
Male		106 (42%)	
Female		146 (58%)	
Age (years)		**Academic Year**	
<18	3 (1%)	First year	71 (30%)
18-20	73 (30%)	Second year	47 (20%)
21-23	109 (43%)	Third year	41 (17%)
24-26	46 (18%)	Fourth year	28 (12%)
27-29	8 (3%)	Postgraduate	51 (21%)
>30	13 (5%)		

Breast cancer awareness

Additional statistics were derived from questions on the knowledge and awareness about MBC as presented in Table 2. The results indicate that most participants have never seen or heard any health message about MBC in the media or from a health professional, amongst others. Participants were offered a total of 12 options to select from, indicating where they could have been exposed to MBC messages. The options were categorised into mass media (radio, television, posters, newspapers and magazines); online (the Internet and social media); public communication (campaigns by cancer organisations, as well as at schools); and interpersonal channels (friends, relatives or health professionals). Table 2 only reflects the positive returns with regard to the medium of communication. None of the other above-mentioned options were selected. Whereas many of the respondents knew the colour symbolising FBC (56%), the majority (91%) were not aware of the colour that symbolised MBC. Most of the

participants (66%), however, advocated for a need to have more campaigns on MBC in order to create the necessary awareness about the disease.

Knowledge: Risks, symptoms and self-examination

As displayed by Table 2, most of the respondents did not know that men can get breast cancer. This is reflected in the number of negative responses, comprising of participants who said "no" and those who said that they "do not know" (79%). The majority of the participants (92%) stated that they did not know the symptoms of the disease, 95% did not know the risks, while 66% did not know at which age males were more likely to get MBC. When asked whether they would be willing to screen for MBC, of the men who took part in the study (n=106), 70% indicated a willingness to undergo screening.

Answers to the open-ended questions reinforce the statistics. With regards to a question on risk factors, one of the participants said that men get breast cancer "through the different altitude they are exposed in, then some may be polluted" [sic]. More revealing were the answers to the question asking participants to explain whether men can get breast cancer. The ensuing responses include references to the hormonal make-up of men, the fact that men do not have breasts, or that men do not have mammary glands and do not breastfeed:

> "They don't have hormone oestrogen and progesterone which can result to multiplication of cell rapidly in the body" [sic].
>
> "I think it's because they don't have breasts but chests and nipples."
>
> "…because it affects people who breastfeed and men don't".
>
> "…only women contains glands making the breasts more functional" [sic].

TABLE 2: RESPONSES ON THE KNOWLEDGE AND AWARENESS OF MBC

AWARENESS	N (%)		N (%)
Seen or heard MBC messages (medium of communication)		There should be more MBC campaigns	
Radio	1 (0.3)	Yes	164 (66%)
Television	1 (0.3)	No	46 (18%)
Internet	4 (2%)	I don't know	42 (16%)
Health Professional	1 (0.3)	Do you know someone who has been diagnosed with MBC?	
No exposure	245 (97%)	Yes	6 (2%)

AWARENESS	N (%)		N (%)
Colour of ribbon for MBC		Colour of ribbon for FBC	
Blue	12 (5%)	Blue	10 (4%)
Pink	3 (1%)	Pink	138 (56%)
Pink & Blue	4 (2%)	Pink & Blue	9 (4%)
Purple	3 (1%)	Purple	5 (2%)
I don't know	230 (91%)	I don't know	90 (34%)
KNOWLEDGE			
Do men get breast cancer?		Do you know the symptoms of MBC?	
Yes	52 (21%)	Yes	19 (8%)
No	61 (27%)	No	231 (92%)
At which age are males most likely to get breast cancer?		Do you know the risk factors of MBC?	
<12 (Pre-teen)	1 (1%)	Yes	11 (5%)
13-19 (Teenagers)	3 (1%)	No	241 (95%)
20-35 (Youth)	24 (10%)	Would you screen for MBC (males only: n=106)	
36-50 (Elders)	34 (14%)	Yes	75 (70%)
>51 (Old Age)	19 (8%)	No	31 (30%)

DISCUSSION AND CONCLUSION

As with every disease, knowledge and awareness play an important role in allowing at-risk populations to make informed decisions. This study advocates for the provision of knowledge and the creation of awareness about MBC among the public and health professionals through male-focused health campaigns. This was confirmed by the majority of the participants (66%) who were of the view that there should be MBC-focused campaigns. The Internet and social media could be effective channels of communicating MBC.

Similar to the few studies that have been conducted on knowledge and awareness about MBC amongst men in general (Thomas 2010; Rayne *et al*. 2017), male university students who participated in the study were not aware that they too could get breast cancer. If MBC is presenting at an earlier age (Cancer Association of South Africa 2017), then it is incumbent upon health promotion organisations and governments to educate the public about the disease. The lack of MBC knowledge and awareness among university students in this study may be symptomatic of widespread ignorance

in society. As Sambanje and Mafuvadze (2012) argue, university students tend to be better informed about health issues than the average person.

Recommendations include that studies be conducted on relevance to the African context, such as how perceptions about MBC are possibly influenced by cultural beliefs, with the goal of informing message designers in constructing relevant campaigns. This article proposes that designing gender-inclusive breast cancer campaigns and other health initiatives, which target both men and women, could be instrumental in raising awareness about MBC, while minimising the use of financial resources.

REFERENCES

American Cancer Society. 2017. What are the key statistics about breast cancer in men? [Online]. Available at: www.cancer.org/cancer/breast-cancer-in-men/about/key-statistics.html [Accessed on 22 August 2017].

Bunkley, D.T., Robinson, J.D., Bennett, N.E. & Gordon, S. 2000. Breast cancer in men: Emasculation by association? *Journal of Clinical Psychology in Medical Settings* 7(2): 91-97. https://doi.org/10.1023/A:1009553613564

Cancer Association of South Africa. 2017. National Cancer Registry 2012. [Online]. Available at: www.cansa.org.za/files/2017/03/SA-National-Cancer-Registry-2012-web-feb-2017.pdf [Accessed on 22 August 2017].

Donovan, T. & Flynn, M. 2007. What makes a man a man? The lived experience of male breast cancer. *Cancer Nursing* 30(6): 464-470. https://doi.org/10.1097/01.NCC.0000300173.18584.37

Fish, J.A., Prichard, I., Ettridge, K., Grunfeld, E.A. & Wilson, C. 2015. Psychosocial factors that influence men's help-seeking for cancer symptoms: A systematic synthesis of mixed methods research. *Psycho-Oncology* 24: 1222-1232. https://doi.org/10.1002/pon.3912

Herbst, M.C. 2011. Breast cancer fact sheet. Cancer Association of South Africa.

Herbst, M.C. 2016. Male breast cancer awareness. [Radio interview]. The Forum at 8. SAfm. 19 October. 08H00-09H00.

Hughes, K. 2013. MBC: Ignored by Pink Ribbon, Buoyed by Peter Criss, Richard Roundtree. [Online]. Available at: http://www.samaritanmag.com/1671/male-breast-cancer-ignored-pink-ribbon-buoyed-peter-criss-richard-roundtree [Accessed on 22 August 2017].

Johansson, I., Killander, F., Linderholm, B. & Hedenfalk, I. 2014. Molecular profiling of male breast cancer – Lost in translation? *The International Journal of Biochemistry & Cell Biology* 53: 526-535. https://doi.org/10.1016/j.biocel.2014.05.007

Kipling, M., Ralph, J.E.M. & Callanan, K. 2014. Psychological impact of male breast disorders: Literature review and survey results. *Breast Care* 9: 29-33. https://doi.org/10.1159/000358751

McMenamin, M., Barry, H., Lennon, A., Purcell, H., Baum, M., Keegan, D. & McDermott, E. 2005. A survey of breast cancer awareness and knowledge in a Western population: Lots of light but little illumination. *European Journal of Cancer* 41: 393-397. https://doi.org/10.1016/j.ejca.2004.11.015

Ndom, P., Um, G., Bell, E.M.D., Eloundou, A., Hossain, N.M. & Huo, D. 2012. A meta-analysis of male breast cancer in Africa. *The Breast* 21: 237-241. https://doi.org/10.1016/j.breast.2012.01.004

Rayne, S., Schinippel, K., Thomas, J., Reid, J. & Benn, C. 2017. MBC has limited effect on survivors' perceptions of their own masculinity: A record review and telephone survey of patients in Johannesburg, South Africa. *American Journal of Men's Health* 11(2): 246-252. https://doi.org/10.1177/1557988316631512

Robinson, J.D., Metoyer, K.P. & Bhayani, N.J. 2008. Breast cancer in men: A need for psychological intervention. *Journal of Clinical Psychology in Medical Settings* 15: 134-139. https://doi.org/10.1007/s10880-008-9106-y

Ruddy, K.J., Giobbie-Hurder, A., Giordano, S.H., Goldfarb, S., Kereakoglow, S., Winer, E.P. & Partridge, A.H. 2013. Quality of life and symptoms in male breast cancer survivors. *The Breast* 22:197-199. https://doi.org/10.1016/j.breast.2012.12.014

Sambanje, M.N. & Mafuvadze, B. 2012. Breast cancer knowledge and awareness among university students in Angola. *Pan African Medical Journal* 11(1): 70

Sanguinetti, A., Polistena, A., Lucchini, R., Galasse, S., Avenia, S., Triola, R., Bugiantella, W., Cirocchi, R., Rondelli, F. & Avenia, N. 2016. Male breast cancer, clinical presentation, diagnosis and treatment: Twenty years of experience in our Breast Unit. *International Journal of Surgery Reports* 20:8-11. https://doi.org/10.1016/j.ijscr.2016.02.004

Schiavo, R. 2013. *Health communication: From theory to practice*. USA: John Wiley & Sons.

Steyn, A., Du Plessis, J. & Meyer, S. 2014. ABC - Advocates for Breast Cancer. *South African Medical Journal* 104(5). https://doi.org/10.7196/SAMJ.8277

Swergold, N., Murthy, V. & Chamberlain, R.S. 2014. Males at high risk for breast cancer: Who are they and how should we screen them? *Surgical Science* 5:320-331. https://doi.org/10.4236/ss.2014.57054

Thomas, E. 2010. Men's awareness and knowledge of MBC. *The American Journal of Nursing* 110(10): 32-40. https://doi.org/10.1097/01.NAJ.0000389672.93605.2f

Tomaselli, K. & Chasi, C. 2011. *Development and Public Health Communication.* Cape Town: Pearson Education.

White, J., Kearins, O., Dodwell, D., Horgan, K., Hanby, A.M. & Speirs, V. 2011. Male breast carcinoma: increased awareness needed. *Breast Cancer Research* 13(5): 219. https://doi.org/10.1186/bcr2930

World Health Organisation. 2017. Cancer. [Online]. Available at: www.who.int/mediacentre/factsheets/fs297/en [Accessed on 22 August 2017].