



A REVIEW OF THE PERCEIVED BARRIERS WITHIN THE HEALTH BELIEF MODEL ON PAP SMEAR SCREENING AS A CERVICAL CANCER PREVENTION MEASURE

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ABSTRACT

Aim: This study reviews the impact of perceived barriers on Pap cervical smear screening within the Health Belief Model (HBM) as an important prevention programme. Background: This research proposes to study perceived barrier constructs within the aforementioned model in order to understand reasons that might contribute to the consistency of Pap smear uptake. Previous use of HBM has shown that the main cause underpinning in affecting change is to alter behaviour (Webb and Sheeran, 2006). While use of HBM has made a positive influence on behavioural change by way of 'cues to action' element in its construct, the cues to action effect could be as good or as bad as the receivers' perception (Rosenstock et al., 1994). It appears that HBM does not work when it comes to non-health behaviour prediction (GALVIN KT, 1992) Methods: a comprehensive literature review was carried out to identify, analyse, synthesize and evaluate the best-published information scholars, researchers and practitioners published in this subject area (Fink, 2009). Keywords used including perceived barriers of Health Belief Model, perceived barriers towards cervical cancer screening, perceived barriers towards pap smear in prevention of cervical cancer using the databases CINAHL, PubMed, Science Direct, Elsevier, and Emerald for journal



papers published between the years 1994 until 2012. Studies published before 2008 normally focused on established theory and models, whereas subsequent studies were based on perceived or identified barriers to Pap smear screening uptake. Previously published barriers affecting cervical screening include differences in social class, education levels, knowledge and awareness, attitudes, fatalistic expressions, embarrassment issues, fear of pain, cost and time. Conclusion: an understanding and appreciation of perceived barriers inform healthcare providers in cervical cancer prevention screening and are described below. Perceived barriers construct rests in the middle of the process between intentions and behavioural change. Varying levels of perceived barriers to Pap smear uptake depend upon a countries socioeconomic development and culture.

Keywords: Perceived barriers, cervical cancer, pap smear, Health Belief Model

INTRODUCTION

Cervical cancer is well recognised as the third most leading diagnosed in overall women's cancer disease in the world (Jemal *et al.*, 2011). Most cases were detected in the developing countries in comparison to the developed countries. Based on global cancer epidemiological statistics, cervical cancer is the third most diagnosed cancer among women in the world and the fourth leading cancer that contribute to the mortality rate. Prevention of cervical cancer has been intensively studied in order to reduce or eliminate the occurrence of this significant disease, which has a negative impact on population mortality and morbidity. Despite intensification of research in this area, findings reveal that many women still not participate in cervical cancer prevention programmes conducted by the health provider. The number of registered cases and deaths maintain high and are increasing in developing countries. For example, in Nigeria, lack of awareness is the main reason for women not attending screening clinics (Ezem, 2007). In India, the risk of disease remains high although there is a decline in reported incidence rates. In Eastern European countries such as Serbia and Montenegro, the rate of cervical cancer has increased from 18.6 to ca. 40 per incidents per 100,000 reported in 1982 and 2005 respectively. Records from South Africa have shown a marked decrease in Pap smear screening with 32,365 25,143 in 1982 and 1992 attending respectively. In Thailand, there are as many as 6,000 new cases diagnosed annually (Denny *et al.*, 2006). Records in Malaysia have shown that no reduction in the prevalence of cervical cancer has been noted to date (Wong *et al.*, 2009). The latter study focused on the Pap smear test (Tavafian, 2012). It remains uncertain as to why women still refuse to attend the screening programmes held (Twinn and Cheng, 2000; Oon *et al.*, 2011). This current study describes perceived barrier construct within Health Belief Model and how it may influence cervical screening uptake. Addressing perceived barriers using a strategic system response will impact positively on screening uptake (Day *et al.*, 2010).

Health Belief Model

The Health Belief Model (HBM) is a conceptual framework used to understand health behaviour and possible reasons for non-compliance with recommended health action [13, 14]. This model is used normally to investigate health related behaviour (Burak and Meyer, 1997) and was originally designed to address issues for people who do not participate in prevention programmes (Bloom and Gundlach, 2000). Designed by a group of social psychologist in early 1950s, HBM was used to establish reasons for the widespread failure in screening and to determine effective preventive measures (Janz and Becker, 1984). HBM can provide guidelines for program development allowing planners to understand and address reasons for non-compliance. The HBM addresses four major constructs for compliance with recommended health actions: (1) perceived barriers of recommended health action, (2) perceived benefits of recommended health action, (3) perceived susceptibility of the disease, and (4) perceived seriousness of the disease. The following appear relevant in terms of HBM operation, modifying variables (culture, education level, past experiences, skill, and motivation, to name a few), cues to action (illness of a family member, media reports, mass media campaigns, advice from others, reminder postcards from a health care provider, or health warning labels on product), and self-efficacy (belief in one's own ability to do something); affect our perception of susceptibility, seriousness, benefits, and barriers (Paek *et al.*, 2011). Cues to action are normally used to stimulate the delay behaviour towards health. Patients who have had gone through the screening process believed to significantly have more cues to action compared to those who did not (Burak and Meyer, 1997). Summary of key perceived barriers influencing Pap smear screening uptake is presented in Table 1.

Perceived Barrier Construct

Perceived barriers were reported as important in various studies that focused on behaviour (Janz and Becker, 1984). Understanding and identifying barriers can be used enhance participation rates in prevention programmes even when offered free of charge (Farooqui *et al.*, 2013). Individuals may reconsider attending cervical screening if barriers are identified and subsequently hurdled (Janz and Becker, 1984). Previously published barriers affecting cervical screening include differences in social class, education levels, knowledge and awareness, fatalistic expressions, embarrassment issues, fear of pain, cost and time and many others which are to be included in the perceived barriers construct for methodological element of this current study. Previous studies have revealed that the Champion's Health Belief Model is valid and reliable and has been used in different countries and cultural background (Guvenc *et al.*, 2011). This HBM model is also an explanatory theory that will both guide and inform why certain problems or barriers exist (Glanz and Rimer, 1997).

Embarrassment

Researchers previously reported that embarrassment (Al Sairafi and Mohamed, 2009) influences cervical cancer screening uptake using pap smear method. Most women feel



uncomfortable with the idea of vaginal examination or ‘private parts’ (Austin *et al.*, 2002; Oon *et al.*, 2011) with medical practitioner. Numerous studies have attempted to explain this matter. Previous study in the US reported that 31% of Hispanic women undertook the pap smear test admitted that the process was embarrassing, while 60% of women who did not present for screening also stated the same (Byrd *et al.*, 2004). Screening by male doctors affected women’s decision in presenting for examination (Austin *et al.*, 2002; Al-Naggar, 2012; Redhwan Ahmed, 2012). In Australia, research carried out by Australian-Chinese community also found that patients were embarrassed during cervical screening. Researchers also indicated that the feeling of embarrassment remains even if performed by a female doctor. Previous researchers reported that culture and religious factors are prominent as the exposure of the vagina is a sensitive issue and relates exclusively to husband and wife (Kwok *et al.*, 2011). Research in Mexico, Ecuador and Venezuela for Latin American also reported similar patient discomfort (Agurto *et al.*, 2004). In Botswana, the absence of female nurses or doctors preventing women for attending screening (Ibekwe *et al.*, 2011). The latter was also evident as a distinct perceived barrier in African-American (Ogedegbe *et al.*, 2005), the United States of America, Maori and in New Zealand (Lovell *et al.*, 2007). Many respondents indicated that women doctors are gentler than their male doctor counterparts (Twinn and Cheng, 2001; Kwok *et al.*, 2011).

Fear of Pain

Participants in a study admitted they did not go for cervical screening because of fear of pain and discomfort during the screening process (Byrd *et al.*, 2004). Respondents assume that this physical test will cause pain as the test kit has to be inserted into the vagina in order to take the sample (Al Sairafi and Mohamed, 2009). Other researchers reported that rumours spread by their close family members or friends that the screening process is painful (Byrd *et al.*, 2004). Some of the respondents in a Malaysian study also expressed fear when they looked at instruments used in the same Pap process (Farooqui *et al.*, 2013). A respondent of an Australian-Chinese study reported that the ‘Pap test is something very painful and she always cried after performing the screening’ (Kwok *et al.*, 2011). There are also documented reports of women expressing a feeling of pain during cervical screening (Ogedegbe *et al.*, 2005).

Knowledge and Awareness

Inadequate knowledge (Al Sairafi and Mohamed, 2009) and lack of awareness can become a barrier to cervical cancer prevention (Al-Naggar, 2012). Many participants in previous screening studies revealed that they have little knowledge of cervical cancer (Oon *et al.*, 2011) and early screening using the Pap test can save their lives. Respondents also reported that they perceive that cervical cancer ultimately leads to death and can never be cured (Sankaranarayanan *et al.*, 2001; Austin *et al.*, 2002; Wong *et al.*, 2009; Institute, 2012). Recently (April 2012), the National Cancer Institute published a fact information write-up on their website to educate public regarding the myths and fact of cancer, highlighting the above



issue. Respondents in a Malaysian study stated that cervical cancer arises from contracting sexually transmitted diseases (Wong *et al.*, 2009). Some respondents also feel that insufficient information is made available about the centres providing the screening facilities (Abotchie and Shokar, 2009; Al-Naggar *et al.*, 2010; Aniebue and Aniebue, 2010). Other respondents expressed concern that they would lose their virginity if they undertook the cervical screening test. This may relate in part to lack of knowledge regarding Pap smear screening process and the socio-background of the family (Abotchie and Shokar, 2009; Al-Naggar *et al.*, 2010). A Malaysian study revealed that about 50% of cervical cancer patients are not well-educated as they leave school at primary level (Othman and Rebolj, 2009). This is believed to influence the low level of awareness among these women. An Indian study showed that the low level of awareness was attributed to the socio demographic background of the respondents (Saha *et al.*, 2010). Lack of knowledge regarding cervical cancer and associated Pap screening preventing Zimbabwean women from attending healthcare clinics (Mupepi *et al.*, 2011).

Attitudes

Women sometimes have their own perception (Khoo *et al.*, 2011) regarding cervical cancer and the Pap smear. Studies revealed that some women believe that women attend screening programs as they have been engaged in an active sexual lifestyle or contracted a sexually transmitted infection (STI). Because of this perception, many women don't attend for screening until the systems are well established and the condition is life threatening. Previous research also revealed that if women feel healthy they feel no immediate need to attend for screening (Hewitt *et al.*, 2004). Respondents attended screening only after experiencing significant clinical symptoms including yellowish discharge or bleeding from the vagina. There is also the contributing factor of not wanting to receive positive test results from the Pap smear (Oon *et al.*, 2011). Some women also avoid cervical cancer screening as they want to avoid emotional stress and distraction and it will only bring worries upon their family (Wong *et al.*, 2009). Albeit life threatening, many respondents did not want to learn more about cervical cancer as found the issue uncomfortable (Austin *et al.*, 2002; Al-Naggar *et al.*, 2010). Young Hispanic women refuse to attend screening as they would not want to admit engaging in sexual intercourse (Byrd *et al.*, 2004). Other women failed to present for screening as they believed that they would contract an infection from the Pap smear test procedure (Al Sairafi and Mohamed, 2009).

Some Zimbabwe women didn't present for screening as they felt that they had no family history of cervical cancer and therefore it was not necessary to attend (Mupepi *et al.*, 2011). In Nigeria, low level of participation in screening was attributed to educational status (Ezem, 2007). Women from Australian-Chinese community believe that the Pap smear is not a prevention method and is only a means of providing peace of mind. One of the respondent also believed that as she had only one husband and man in her life she had a low risk of contracting this disease (Kwok *et al.*, 2011).



Accessibility

Women in the rural areas pointed to the difficulty of accessing clinics due to lack and cost of transportation (Oon *et al.*, 2011) compared to those living in urban areas. Health centre that provide this service in areas inaccessible to public transport creates barriers to the attendance of vital screening. This barrier was also evident in a Zimbabwean study where rural women have limited access to health centres providing cervical cancer screening, where many stated that it was too far to walk (Mupepi *et al.*, 2011). Poverty, besides low education level happens to be one of the reason why the health seeking behaviour is different between urban and rural areas (Holroyd *et al.*, 2004).

Lack of Support

Lack of support and encouragement from close family and friends may play a role in women attending cervical cancer screening. One respondent stated that the husband did not care or support about the outcome of his wife's health condition post Pap smear testing (Al-Naggar *et al.*, 2010; Oon *et al.*, 2011). The role of healthcare provider is also important in terms of providing support and knowledge that will help increase the uptake of cervical cancer screening. However, previous research reported that some respondents stated that their doctor did not inform or advise them on cervical cancer and the Pap smear (Hewitt *et al.*, 2004; Wong *et al.*, 2009; Al-Naggar *et al.*, 2010). Other women stated that medical practitioners (Othman and Rebolj, 2009) did not advice Pap smear to them after giving birth especially to the first child. Research also shows that there medical providers are under-staffed to cater for routine Pap smear screening (Mupepi *et al.*, 2011).

Time and Cost

The cost of attending clinics in terms of travel and lost time were also noted by some women in previous studies (Oon *et al.*, 2011). Other participants mentioned that the fee for screening prevented them from attending (Hewitt *et al.*, 2004). Government intervention by way of provision of subsidies impacted positively on cervical screening uptake (Abotchie and Shokar, 2009; Al-Naggar *et al.*, 2010). Absence of affordable health insurance among many women affected them attending clinics (Mupepi *et al.*, 2011). Previous research conducted in Mexico and Ecuador also reported that the costs and time incurred from transportation prevented women from attending clinics (Agurto *et al.*, 2004),(Ogedegbe *et al.*, 2005). Other findings by Ross *et al.* (2008) stated cost in undertaking Pap smear is higher in Asian countries compared to western countries Ross *et al.* (2008). Decreasing the number of medical practitioners providing the Pap smear screen in Malaysia will contribute to long waiting time for the patients (Othman and Rebolj, 2009). The cost of prevention is insignificant compared to the considerable financial burden of treating cervical cancer patients.

Table-1. Summary of previously published perceived barriers influencing Pap screening uptake.

Barriers	Research title	Authors	Conclusion/ Recommendation
<ul style="list-style-type: none"> • Embarrassment • Fear of Pain • Knowledge and Awareness • Attitudes • Accessibility • Lack of Support • Time and Cost 	Practice and barriers towards pap smear test from a public hospital in Malaysia (Al-Naggar, 2012)	Al-Naggar RA (2012)	<ul style="list-style-type: none"> - Well-designed health education programme on cervical cancer and benefits of a screening can increase awareness among women - Multimedia approach utilizing pictorials, audio-visual and personal communication on cervical cancer could yield beneficial results. - Better communication with health professionals - Improvement of access to health care to increase the rate of cervical cancer screening - It is important to provide information about the value of cervical smear test and to contradict barriers - Providing information through leaflets and giving clear explanation about the test procedure can help in reducing anticipated psychological distress and embarrassment - It is important to examine ways of increasing women's satisfaction with the provided cervical cancer screening service
	Breast and cervical cancer screening in Hispanic women: a literature review using the health belief model (Austin <i>et al.</i> , 2002)	Austin L, et.al. (2002)	<ul style="list-style-type: none"> - Perceived barriers (e.g., fear of cancer, embarrassment, fatalistic view of cancer, and language) as well as perceived susceptibility (e.g., belief that screening tests are not necessary/needed) impede screening - Physician recommendations and community outreach

		<p>programs are effective strategies to increase breast and cervical cancer screening uptake among Hispanic women</p> <ul style="list-style-type: none"> - Cancer-screening programmes should use multi-sectorial approaches to address culture-specific issues and provide culturally sensitive and competent services
Factors affecting health seeking behaviour among Kelantanese women on pap smear screening (Oon <i>et al.</i> , 2011)	Oon SW, <i>et. al.</i> (2011)	<ul style="list-style-type: none"> - Whether embarrassment of doing Pap test is a social norm, cultural bound and therefore socially constructed or the nature of women themselves
Practice and barriers towards cervical cancer screening among university staff at a Malaysian University (Redhwan Ahmed, 2012)	Redhwan, Chen R (2012)	<ul style="list-style-type: none"> - Educate the university staff about the importance of Pap smear test by holding regular campaign - Information on where the pap test can be obtained, how to access it need to be addressed clearly - Preferably, have female medical personnel to perform the Pap smear test - The practitioner should be culturally sensitive, and avoid unnecessary exposure and ensuring adequate coverage of the women's body during the examination - Practitioner needs to be educated on how to address the patient's fear of pain as well as to be trained in relaxation techniques that can be used to help relax the patient and thus reduce the discomfort - Health practitioners, including nurses and doctors need to be more proactive in both asking their female clients if they have had their annual pap

		smear test done, and if not, to proactively schedule them into their practices
Predictors of cervical cancer screening: an application of health belief model (Tavafian, 2012)	Tavafian SS (2012)	<ul style="list-style-type: none"> - Cervical cancer screening beliefs and attitudes of Hispanic women using the Health Belief Model. Perceived barriers (e.g., fear of cancer, embarrassment, fatalistic views of cancer, and language), as well as perceived susceptibility (e.g., belief that screening tests are not necessary/ needed impede screening - Physician recommendations and community outreach programs are effective strategies to increase breast and cervical cancer screening uptake among Hispanic women. The specific findings of this literature review indicate that cancer-screening programs should use multi sectorial approaches to address culture-specific issues and provide culturally sensitive and competent services
Challenges to cervical cancer screening in a developing country: the case of Malaysia (Othman and Rebolj, 2009)	Othman H & Rebolj (2009)	<ul style="list-style-type: none"> - HPV Vaccination has not been widely implemented within the Malaysian childhood vaccination program - In a country where the rates of premarital sexual intercourse seem to be increasing , improving the screening coverage will therefore remain a crucial strategy of combating cervical cancer - Malaysia should focus on the policy-making context, improving awareness, screening infrastructure, e.g. the availability of the

			necessary number of smear-readers, and making the service more woman-friendly by cutting down the waiting times
	Knowledge, attitudes, and demographic factors influencing cervical cancer screening behaviour of Zimbabwe women (Mupepi <i>et al.</i> , 2011)	Mupepi SC, et. al. (2011)	<ul style="list-style-type: none"> - Government should acknowledge and recognize that cervical cancer is a major public health concern and accord its prevention and treatment priority in resource allocation.
	Awareness and uptake of cervical cancer screening in Owerri, South-Eastern Nigeria (Ezem, 2007)	Ezem B. (2007)	<ul style="list-style-type: none"> - Better public enlightenment highlighting the fact that a premalignant lesion can be completely cured - Greater public awareness should be created and greater use should be made by physicians of opportunistic cervical screening as presently even amongst Nigerian gynaecologists only 15% request for cervical screening of their patients 28 while 76.9% of those who did a cervical smear did so because a health worker asked them to do it
	Knowledge, Barriers, and Motivators Related to Cervical Cancer Screening Among Korean-American Women: A FOCUS GROUP APPROACH (Lee, 2000)	MC Lee (2000)	<ul style="list-style-type: none"> - Korean-American women should be given accurate, easy-to-understand materials that inform them about cervical cancer risk factors and early detection. - The information should be culturally sensitive to the needs of Korean-American women, and the materials should be written in both Korean and English. - The structural barriers of cost should be minimized or eliminated by providing free or low-cost screening group insurance plans to the Korean-American

			<p>women in the community.</p> <ul style="list-style-type: none"> - The health care facility in which screening occurs should be comfortable for the women in every way. - Transportation should be provided for women who have difficulty getting to the facility or who cannot afford transportation. - Flexible and convenient clinic hours, including evenings and weekends, will be desirable for women who work long hours and are unable to get time off from their examination facilities will be a great asset in this regard. - Periodic information seminars should be offered at the centres where Korean-American women can assemble easily, along with informal sessions in which the women can converse with experts on cervical cancer, prevention, treatment and related matters.
	Barriers to cervical cancer screening attendance in England: a population-based survey (Waller <i>et al.</i> , 2009)	Waller, J., et. al (2009)	<ul style="list-style-type: none"> - Running evening or weekend clinics to allow women with work or childcare commitments to attend at times that are convenient for them, and trying to address public concerns about the screening programme to build public trust.
	Cervical cancer screening policies and coverage in Europe (Anttila <i>et al.</i> , 2009)	Anttila, A., et. al. (2009)	<ul style="list-style-type: none"> - Collaboration between member states, along with coordination and planning of capacity-building, education, training and communication among women, medical professionals and authorities. - Priorities across potential screening and prevention

			<p>programmes for various cancer sites, taking into account adequately evaluated cost-effectiveness and decision-making analyses.</p> <ul style="list-style-type: none"> - Assess whether screening efficacy can be improved by applying new technologies.
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CONCLUSION

This study highlighted perceived barriers that must be considered in preventing cervical cancer screening (Table 1). Many of these barriers were previously studied using the Health Belief Model. These perceived barriers influenced attendance rates at cervical cancer screenings globally, which has commensurate impact on mortality, morbidity and fiscal spending. Previous use of the perceived barriers construct of Health Belief Model expects respondents to tell the negative side of screening where they won't attend for screening unless they believe that the perceived benefits outweigh the barriers. Most women studied acted negatively towards engaging with or learning more about the Pap smear test, which was attributed to perceived barriers. Addressing perceived barriers will help reconcile negative attitudes towards attending cervical screening (Burak and Meyer, 1997). Reasons provided are based on participants' own judgment, rumours, readings and assumptions often from unreliable resources. Many of the respondents in these studies admitted that embarrassment is the most significant reason for not attending screening as they will be examined by a male doctor. However, it is likely that a combination of these behavioural barriers play a significant role in women preventing for cervical cancer screening. Health providers should take cognisance of these barriers in designing effective prevention strategies to address cervical cancer. Addressing perceived barriers to Pap cervical cancer screening will impact positively on women's health and wellbeing.

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