**Highlights from the Literature:**

- The HBM was developed to understand why people may not participate in disease detection, but is also used to explore the factors that underline patient compliance with treatment (Daniel & Messer, 2002).
- The Theory of Planned Behaviour was “intended to explain all behaviours over which people have the ability to exert self-control” (Boston University School of Public Health, 2013, p.1).
- According to Hyman & Grunge (2002) “there was not a great deal of consistency in the literature about which theoretical models worked best for different health behaviours or for different population groups (p.184).
- “Most of the theoretical models used in health promotion today are grounded in majority culture-based research and may not be appropriate for diverse sub-groups in the population, such as new immigrant women” (Hyman & Guruge, 2002, p.183).
- Individuals that come from countries outside of North America such as Asia or the Middle East, have different concepts about health and health care behavior than individuals in North America (Hyman & Guruge, 2002).
- Rural populations are less likely to engage in preventive health behaviours (Thomlinson et al., 2004).
- Perceived and structural “barriers to health-related activity must be addressed by clinical and community initiatives to predispose, enable, and reinforce health related behaviours” (Daniel & Messer, 2002, p.134).

**Introduction**

To inform the adult education and health literacy component of the Chronic Disease Prevention and Management (CDPM) Corridor © for Nova Scotia Health Authority – Central Zone, a literature review was conducted to review the use of the various health behaviour models (Health Belief Model, Theory of Planned Behaviour) and its use among diverse populations.

Adult education and Health Literacy is one component of the CDPM Corridor © in Nova Scotia Health Authority - Central Zone. The CDPM corridor common elements includes community resources, self-management supports, functional health management supports, clinical information systems, decision supports, delivery system design, CDPM competencies, adult education and health literacy, and care pathways.

This literature review is intended to provide information that can aid CDPM programs in developing health interventions that focus on diverse populations and enable providers to understand different health behaviour theories of the patient/client populations that they are serving within the Corridor.

Through synthesis of the literature, this literature review aims to:

- Define Health Beliefs
- Describe the Health Belief Model
- Describe the various components of the Health Belief Model
- Theory of Planned Behaviour
- Diverse Populations & Health Belief Model
- Ethnic Populations
- Aboriginal Populations
- Rural & remote Populations
This review includes peer review articles and grey literature. A literature search was performed using the following databases: Google, Google Scholar, CHINAL, ProQuest, and Pub Med. A combination of the following terms was used: health belief model, cues to action, self-efficacy, diverse populations, ethnic populations, and ethnicity.

**Health Beliefs**

Health beliefs are related to preventive health behaviours (McAllister & Farquhar, 1992). “A person’s beliefs about health are influenced by his or her culture, social background, experience of health/illness and exposure to health promotion” (McAllister & Farquhar, 1992, p.1447). Demographic, social and psychological factors can modify the health beliefs of individuals in certain situations (McAllister & Farquhar, 1992). An individual’s beliefs play an important role in determining the health behavior (McAllister & Farquhar, 1992 “It is possible for health beliefs to be culture bound and play a dominant role in health related decisions and behaviours” (Thomlinson et al., 2004, p.259).

**Health Belief Model**

The HBM was developed to understand why people may not participate in disease detection, but is also used to explore the factors that underline patient compliance with treatment (Daniel & Messer, 2002). This model is used to explain “an individual’s process for engaging in a certain behaviour or not, based on the individual’s personal beliefs or perceptions” (Davis, Buchanan, & Green, 2013, p.384). This theory has been documented as a theory “for explaining an individual’s health behaviour based on his or her beliefs or perceptions regarding the particular behavior” (Davis et al., 2013, p.387).

This model theorizes that “people’s beliefs about whether or not they are at risk for disease or health problem, and their perceptions of the benefits of taking action to avoid it, influence their readiness to take action” (Office of Behavioural & Social Science Research, 2015, p. 8). “The HBM posits that individuals will be more likely to take healthful behaviours action if they desire to stay healthy and believe such action will effectively protect their health” (Daniel & Messer, 2002, p.130).

The HBM has an underlying assumption on the value someone places on health will influence their health seeking behavior (Daniel & Messer, 2002; Rawlett, 2011). “The HBM deems health behavior as being established by a person’s appreciation of a potentially harmful health concern and understanding that adverse affects can be avoided or minimized (Rawlett, 2011). This model has been tested and found to be a good measurement of health behaviours in various cultural groups (Verde & Li, 2003). There has been four meta analysis conducted over the past three decades that has documented the effectiveness of the HBM to predict and explain behaviour( Jones, Smith & Llewellyn, 2014).

**Health Belief Model Components**

HBM provides a framework that describes four factors that influence health related decision-making (Thomlinson et al., 2004). The four core constructs of the HBM are perceived susceptibility and perceived severity, perceived benefits and perceived barriers, and cues to action(Hayden, 2008; Jones, Smith, & Llewellyn, 2014; Office of Behavioural and
Social Science Research, 2015; Rawlett, 2011). Please see Appendix A for the diagram of the constructs of the HBM.

A central concept to this model is the concept of readiness (Esperat et al., 2008).

The main assumption in the HBM is that individuals will act if they feel their personal health is threatened and they perceive the benefit of the health promoting activity outweighs the determinant of following through with the behavior (Rawlett, 2011, p.16).

According to Burke (2013) in order for an individual to change behaviour, these three ideas must occur at the same time:
1. An individual has enough reason to make the health concern relevant
2. The individual realizes they may be vulnerable to the disease or negative health outcome
3. Individual realizes that the behaviour change may be beneficial and benefits of the change will outweigh the costs.

In the HBM, individuals are more likely to act in healthy ways if they believe that they susceptibility to negative health outcome (Carpenter, 2010). People will not act to prevent a negative health outcome if is unlikely to affect them (Carpenter, 2010). If the individual has strong perception of the severity of the negative health outcome, they are more motivated to avoid the outcome (Carpenter, 2010). If the outcome will have an impact on the individual’s life, they are strongly motivated to take action to avoid it (Carpenter, 2010).

Individual Perceptions
Individual perceptions focus on the individual's knowledge and beliefs that they have about their behaviours (Burke, 2013). Individual perceptions involve perceived susceptibility and perceived severity. Susceptibility and severity focus in the individual’s perception of the negative health outcome (Carpenter, 2010). Both perceived susceptibility and severity have been found to be correlated with health seeking behavior (Verde & Li, 2003).

Perceived Susceptibility
Perceived susceptibility is the risk a individual will have a certain disease or health outcome (Burke, 2013; Jones et al., 2014; Orji, Vasileva, & Mandryk, 2012; Rawlett, 2011; Taylor et al., 2007; Verde & Li, 2003). “Perceived susceptibility is one of the most powerful perceptions in prompting people to adopt healthier behaviours” (Hayden, 2008, p.32). In the HBM, perceived susceptibility focuses on the individual’s opinions on how likely the behaviours that they participate in will lead to a negative health outcome (Burke, 2013). A goal of the HBM is to change the perceptions of susceptibility in order for the individual to move towards behavior change (Burke, 2013). If individuals believe that they are at risk for the disease, then they are more likely to do something to prevent it (Hayden, 2008). However, if individuals do not believe that they are at risk, then unhealthy behaviours can result (Hayden, 2008).

Perceived Severity
In the HBM, perceived severity focuses on how serious the disease can be (Burke, 2013; Jones et al., 2014; Rawlett, 2011; Taylor et al., 2007; Verde & Li, 2003). Daniel & Messer (2002) indicate that perceived severity is strongly related to behavioural compliance (Daniel & Messer, 2002). However, some studies have
found that perceived severity its only weakly predictive (Carpenter, 2010; Jones et al., 2014). Perceived severity, perceived susceptibility, and cues to action all contribute to the individual’s perception of threat (Jones et al., 2014).

Modifying Factors
This examines outside factors that can affect how “threatened a person feels by the outcomes of continuing the same behaviours that put him at risk” (Burke, 2013, p.2). The major constructs of perception are modified by other variables such as culture, education level, past experience, skill and motivation (Hayden, 2008).

Perceived Threat
Perceived threat focuses on the likelihood of the disease developing (Burke, 2013; Orji et al., 2012). “Threat perception is based on two health beliefs: the perceived susceptibility of the individual to the disease and the perceived severity of the consequences of the disease for the individual” (Orji et al., 2012, p.5).

Environmental factors can add to the threat of the disease. Demographic background can cause one to be more at risk such as race, ethnicity, and socioeconomic status. Someone living in poverty would be more threatened by a disease if they could not afford health care (Burke, 2013, pp.2-3).

In studies that have analyzed socio economic status using the HBM found “impacts of comparable significance to, or greater significance than, its cognitive components” (Taylor et al., 2007, p.4). “SES influences engagement with health behaviours because it captures aspects of the roles, status, and expectations associated with membership of particular social categories as well as the resources and opportunities that accrue from such membership” (Conner et al., 2013, p.19).

If the perceived threat is a serious disease for where there is a risk, then the behavior will often change (Hayden, 2008). Peers also have an influence on the individual’s behaviour (Burke, 2013).

Cues to Action
Behaviour can be influenced by cues to action (Hayden, 2008). Cues to action are things that trigger an individual to change behaviour (Burke, 2013; Carpenter, 2010; Hayden, 2008; Orji et al., 2012; Taylor et al., 2007). “Cues to action are events, people, or things that move people to change their behavior” (Hayden, 2008, p.33). Cues to action can include internal and external cues (Carpenter, 2010; Jones et al., 2014; Verde & Li, 2003). A cue to action will service as a mean for individual to make a decision (Rawlett, 2011). Cues to action can include illness of family member, media reports, mass media campaigns, advice from others, reminder postcards from health care providers, or a health warning on a product (Hayden, 2008).

Likelihood of Action
Likelihood of action involves perceived benefits and perceived barriers. Perceived benefits and perceived barriers are the strongest predictors of behavior (Carpenter, 2010; Jones et al., 2014). Benefits and barriers provide the means to motivate health behaviours (Daniel & Messer, 2010).

Perceived Benefits
“Perceived benefits are the beliefs about the effectiveness of the recommended action to reduce the risk or impairment” (Rawlett, 2011). Perceived benefits would improve the
individual’s quality of life (Burke, 2013; Orji et al., 2012; Verde & Li, 2003). “Individuals will adapt health behaviours when an individual believes that their new behavior will decrease their chances of developing the new disease” (Hayden, 2008, p.32). Perceived benefits play a role in adapting secondary prevention behaviours (Hayden, 2008).

**Perceived Barriers**

Perceived barriers focus on reasons that individuals cannot change their behavior (Burke, 2013; Carpenter, 2010; Hayden, 2008; Hyman & Guruge, 2002; Verde & Li, 2003). Perceived barriers are very significant in determining the behavior change (Hayden, 2008; Hyman & Guruge, 2002). Perceived barriers are considered the negative aspects of the health action (Rawlett, 2011). If the individual faces strong barriers, this will prevent the individual from adapting the preventive behaviour (Carpenter, 2010). For an individual to change their behaviour, the benefits must be stronger than the barriers (Burke, 2013).

Was access medical care or the cost of behavior are unlikely to change over time. If barriers change very little, measures of the subjects’ beliefs about barriers would remain a good predictor of behavior regardless of how long the period of time between measures is extended (Carpenter, 2010, p.667).

“When positive health beliefs are linked to patient compliance for chronic disease, including diabetes, barrier perception are most strongly, and severity perceptions are most weakly, related to positive health behaviours” (Daniel & Messer, 2002, p.130). In order for the individual to move towards the target behaviour, the target behaviour must have strong benefits to the individual (Carpenter, 2010). The onset of symptoms, illness of a family member, screening, and health education may be the desired stimuli that are needed to produce a desired action by the individual (McAllister & Farquhar, 1992).

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<th>Health Belief Model Constructs Chart</th>
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<tr>
<td><strong>Perceived Susceptibility</strong></td>
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**Theory of Planned Behaviour**

The Theory of Planned Behaviour was “intended to explain all behaviours over which people have the ability to exert self-control” (Boston University School of Public Health, 2013, p.1). “The theory focuses on volitional behaviour, that is, behaviour that the individual can decide to carry out, or not, at will” (McDougall, 2001, p.302). The main component of this model is behavioural intent (Boston University School of Public Health, 2013, Conner et al., 2013; Rasinska, Nowakowska, & Dolachinska-Sroda, 2014; Taylor et al., 2007). Behavioural intentions are “influenced by the attitude about the likelihood that the behaviour will have the expected outcome and the subjective evaluation of the risks and benefits of that outcome” (Boston University of School of Public Health, 2013, p.1). In order for there to be behaviour achievement, there needs to be motivation (intention) and ability (behavioural control) (Boston School of Public Health, 2013). “Biological, social, environmental, economic, medical, and cultural influences is hypothesized to be mediated by the theory of planned behaviour” (Sniehotta, Presseau, & Araujo-Soares, 2014, p.1). “There is systematic and meta-analytical evidence that in relation to changes in health behaviour the predictive performance of both the theory of reasoned action and theory of planned behaviour is in most superiors to that of the HBM” (Taylor et al., 2007, p.12). Please see Appendix B for the diagram of the theory of planned behaviour.

**Theory of Planned Behaviour Constructs**

The Theory of Planned Behaviour has six constructs. The six constructs represent the individual’s actual control over the behaviour (Boston School of Public Health, 2013). The six constructs are: attitudes, behaviour intentions, subjective norms, social norms, perceived power, and perceived behavioural control (Boston School of Public Health, 2013). Intentions and perceived behavioural control are perceived predictors of behaviour (Sniehotta et al., 2014).

The two determinants influence behaviour intentions. The first determinant is the individual’s attitude toward performing the behaviour, which can either be positive or negative (McDougall, 2001). The second determinant is subjective norm. This refers to “individuals perception of what significant others will think of them if they behave in a certain way and beliefs about how people are important to them expect them to behave” (McDougall, 2001, p.302). According to this theory “attitudes towards behaviour are determined by beliefs about that behaviour, and each behavioural belief links that behaviour to an outcome” (McDougall, 2001, p.302).

“Attitudes, subjective norms and perceived behavioural control are assumed to be based on the strength and evaluation of accessible behavioural, normative, and control beliefs” (Sniehotta et al., 2014, p.1). Perceived behaviour control is mediated by the intention (Sniehotta et al., 2014, p.1).

Individuals who believe they do not have the opportunities or resources to perform a certain behaviour are unlikely to form strong behavioural intentions to engage in the behaviour, even if they have favorable attitudes towards it and believe that significant others would approve (McDougall, 2001, p.304).
Theory Limitations

There are limitations with the Theory of Planned Behaviour. One limitation with this theory is that it does not take into account environmental or economic factors that may influence a person’s intentions to perform a behaviour (Boston School of Public Health, 2013). A second limitation with this theory is that the person has the acquired opportunities and resources to be successful in performing the desired behaviour, regardless of the intention (Boston School of Public Health, 2013). This theory does not take into consideration fear, threat, mood, or past experience (Boston School of Public Health, 2013). A criticism with the theory is that “most studies supporting the theory have involved relatively simple behaviours that do not require much in the way of skills or resources” (McDougal, 2001, p.303). There have only been two studies that have reported “how social structural variables such as SES might moderate the impact of health cognitions on health behaviour” (Conner et al., 2013, p. 20).

Diverse Populations & HBM

Much of the literature found focuses on addressing specific health behaviours with the health belief model as an overarching framework to understand cervical cancer screening, breast cancer screening, safer sexual practices, and various other health topics. According to Hyman & Grunge (2002) “there was not a great deal of consistency in the literature about which theoretical models worked best for different health behaviours or for different population groups” (p.184). “Many of the theoretical constructs that may potentially influence the health behavior of new immigrants have not been identified” (Hyman & Guruge, 2002, p.185). Immigrants health behaviour is largely influenced by the new environment and the culture of the host country (Joshi, Jatana, Paradies, & Priest, 2014, p.2). When new immigrants adapt the behaviours of their host country, this may results in changes to the health behaviour of the immigrants over a period of time (Joshi et al., 2014). “Most of the theoretical models used in health promotion today are grounded in majority culture-based research and may not be appropriate for diverse sub-groups in the population, such as new immigrant women” (Hyman & Grunge, 2002, p.183).

Despite the role of health behaviours in changing the health [either improving or worsening] of the population including immigrants, no previous review [either general or systematic] has examined differences in key health behaviours between immigrants and now immigrant groups.

Immigrant Population

In the Nova Scotia Health Authority – Central Zone, 8.1% of individuals identify themselves as immigrants (Capital Health, 2014). Most of the immigrants in Central Zone report coming from Asia, Central America, Africa and the Middle East (Capital Health, 2014).

Ethnic and minority populations differ from other populations in their engagement in preventive health behaviours (Davis, Buchanan & Green, 2013).

In a study that examined racial/ethnic differences in beliefs about cancer and cancer prevention found that there was no statistical significance between the ethnic groups for perceived severity, perceived barriers and cues
to action (Davis et al., 2013). There were associations found between perceived susceptibility, perceived benefits, and self-efficacy with race/ethnicity (Davis et al., 2013). This study found that cancer prevention health education/promotion interventions should be designed “that empower Hispanics to prevent cancer and that educate racial/ethnic minorities about their susceptibility and risk perception for cancer” (Davis et al., 2013, p.388).

New immigrant women are not a homogenous group and differ by their country of origin, socio economic status, visibility, and language ability (Hyman & Guruge, 2002). Individuals that come from countries outside of North America such as Asia or the Middle East, have different conceptual views about health and health care behaviors than individuals born in North America (Hyman & Guruge, 2002).

Individuals who face burdens to change unhealthy behaviours may have little control over the environmental factors (Esperat et al., 2008). This can be particularly true among populations with health disparities (Esperat et al., 2008). Immigrant women often face multiple barriers to maintain or change health behaviors compared to women in the general population (Hyman & Guruge, 2002). Some of these barriers include poverty, marginalization, and gender gaps (Hyman & Guruge, 2002).

Hyman & Guruge (2002) identified recommendations for working with immigrant women:

- Use behavioural focused strategies, recognizing that many cultural concepts with potential evidence to health practices
- Focus on reducing informational, cultural, linguistic, economic and systematic barriers to care
- Use an empowerment philosophy
- Use community “link leaders” leadership and the media
- Involve the community in planning, design, and delivery of interventions
- Be dynamic, as immigrants’ attitudes, beliefs, and behavior change as part of an acculturation (p.185).

“According to theories of health behavior change, the perceived barriers to and benefits of preventive health screening likely influence patients’ screening involvement” (Redwood-Campbell et al., 2011).

**Rural/Remote Populations**

Individuals living in rural or remote communities may have difficulties in accessing health care services, which can lead to ill health (Esperat et al., 2008). Individuals who live in rural areas have increased levels of poverty, higher unemployment, and shorter life expectancy (Thomlinson et al., 2004). Individuals that live in rural areas view health from a role performance perspective that the individual can meet work and family obligations (Thomlinson et al., 2004). Rural populations are less likely to engage in preventive health behaviours (Thomlinson et al., 2004).

The study conducted by Thomlinson et al. (2004) found that “making choices and accepting the consequences regarding one’s health included taking control and not letting others decide what was essential to their lives” (p.261). A major source of support for individual in rural and remote areas is family,
friends, and neighbors (Thomlinson et al., 2004).

**Aboriginal Population**

In the Nova Scotia Health Authority - Central Zone, there are over 10,000 individuals that identify as Aboriginal (Capital Health, 2014). Over 60% identify as First Nations, 32% as Metis and 3% as Inuit (Capital Health, 2014). The most prominent Aboriginal group in the province is Mi’kmaq (Capital Health, 2014). There is a growing Aboriginal population living in urban Halifax (Capital Health, 2014).

Aboriginal people face educational, economic obstacles and power disparities to improve their health (Daniel & Messer, 2002). Perceived and structural “barriers to health-related activity must be addressed by clinical and community initiatives to predispose, enable, and reinforce health related behaviours” (Daniel & Messer, 2002, p.134). The health beliefs of Aboriginals play a role in providing meaning to events and helping individuals to cope with health events (Maher, 1999).

Aboriginal women have more cues to action; due to many aboriginal women have contact with health professionals and health information (Verde & Li, 2003). “Native women’s health care seeking behavior would be predicted primarily by perceived barriers and health knowledge” (Verde & Li, 2003, p.117). However, with Aboriginal males, “the internalized cultural norms on male strength may have led to low perceived susceptibility to illness and/or diseases, as well has low perceived severity when Native men experienced physical symptoms (Verde & Li, 2003, p. 117). Aboriginal females that experiences more external cues, such as exposure to educational materials were more likely to access the local health centre (Verde & Li, 2003).

In one study conducted with Aboriginal population on type-2 diabetes using the HBM found “individual beliefs about barriers related to control and severity of complications are important factors influencing the ability of Aboriginal people with diabetes to achieve control of blood glucose” (Daniel & Messer, 2002, p.134). This study also found that baseline perceived barriers were related to insulin concentration (Daniel & Messer, 2002). There needs to be an understanding of the barriers facing Aboriginal people in order to be able address health behavior (Daniel & Messer, 2002).

In the study with Aboriginal population found that perceived susceptibility and external cues to action were found to be associated with increase in health care usage (Maher, 1999). Aboriginal health beliefs continue to play a role in providing meaning to events and helping people to cope with serious illness and death (Maher, 1999).

**Conclusion**

Based on this review, these health behaviour models have been used to examine various health behaviours among a variety of populations. The health behaviour model constructs can be used with some diverse populations, such as Aboriginals, remote/rural populations, and immigrants.
PRIMARY HEALTH CARE LITERATURE REVIEW
HEALTH BEHAVIOUR MODELS AND
DIVERSE POPULATIONS
Appendix A: Health Belief Model

(Office of Behavioural & Social Science Research, 2015, p.8).
Appendix B: Theory of Planned Behaviour

References


