

## The Health Belief Model - Is it relevant to Korea?

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### ABSTRACT

With rapid economic development, the emphasis of the public health movement in Korea has shifted towards addressing the burden of chronic disease. With this shift in direction comes a greater focus on health behaviour and the need for planning models to assist in lifestyle modification programs. The Health Belief Model (HBM), which originated in the US, has generated more research than any other theoretical approach to describe and predict the health behaviour of individuals. In recent years it has been applied in many different cultures and modifications have been suggested to accommodate different cultures. Given the centrality of language and culture, any attempts to use models of health behaviour developed in a different culture, must be studied and tested for local applicability. This paper reviews the applicability and suitability of the HBM in Korea, in the context of the Korean language and culture.

The HBM has been used in Korea for almost three decades. The predictability of the HBM

has varied in Korean studies as in other cultures. Overall, this literature review indicates that the HBM has been found applicable in predicting health and illness behaviours by Korean people. However if the HBM is used in a Korean context, the acquisition of health knowledge is an important consideration. Most new knowledge in the health sciences is originally published in English and less frequently in another foreign language. Most health knowledge in Korea is acquired through the media or from health professionals and its acquisition often involves translation from the original. Thus selection of articles for translation and the accuracy of translation into language acceptable in the Korean culture become important determinants of health knowledge. As such translation becomes an important part of the context of the HBM. In this paper modifications to the HBM are suggested to accommodate the issues of language and knowledge in Korea.

*Key words* : Health Belief Model (HBM), health knowledge, translation, Korean language and culture

## Introduction

Improvements in health care, lifestyle and economic development have to dramatic improvements in life expectancy in Korea. If further health gains are to be achieved the emphasis of the health system will have to shift more to chronic disease and to "health as a quality of life". Understanding of lifestyle factors and health behaviours has become increasingly important in modern public health practice. To plan and implement successful health promotion programs, models of health behaviour, which accurately predict outcomes are required. In this article we

review the most commonly used model, the Health Belief Model, and discuss its relevance for modern Korea.

One of the first major actions of the newly formed World Health Organisation in 1948 was to develop its well-known definition of health. Since that time our understanding of the concept of health has continued to evolve. With this change in our understanding of health, and Korea's rapid progression through the epidemiological transition, the emphasis of preventive health practice has also changed. First there was an emphasis on health education, then more recently the broader concept of health promotion has been embraced and even more recently the new public health movement, all adding to our

understanding of health and health gains in our communities. Health has come to be viewed as a personal and community asset and the promotion of health has become important nationally and indeed, internationally. Public health planning has become inseparable from the principles of health promotion.

The concept of personal and community ownership of health has evolved. The International Health Promotion Conference in Jakarta in 1997 resolved that;

"the emphasis in the 21<sup>st</sup> Century is that health promotion activities are carried out *by* and *with* people, not *on* or *to* people. It is about giving people resources to increase control over, and to improve and to be responsible for their own health. Consequently social, cultural and spiritual resources need to be better utilised in innovative ways to support this process".

(WHO/Ministry of Health, July 21-25, 1997).

Three general approaches to health education and health promotion have been described: the medical approach, the behavioural approach and the socio-environmental approach(O'Connor & Parker, 1995). Modern health promotion may include aspects of all three, but we are particularly interested in changing behaviours to minimise health risks and maximise health gain. Many

different models have been developed to describe and predict health behaviour but the Health Belief Model (HBM) originally developed in the USA, has generated more research than any other theoretical approach(Clarke, 2000 ; Rosenstock, Strecher, & Becker, 1988). In this paper we will review the HBM, and its applicability and suitability for use in modern Korea, in the context of the Korean language and culture.

### The Changing Health Context in Korea

The rapid economic development, which has characterised Korea since the end of the Korean War, has been accompanied by considerable improvements in health and nutritional status, putting Korea at the forefront of health gains. The average life expectancy has increased by 20 years from 52.4 years in 1955 to 73.0 years in 1998. At the same time the infant mortality rate has decreased by a factor of ten, from 89.2/1000 in 1962 to 9/1000 in 1998(Korea Institute for Health and Social Affairs (KIHASA, 1998). Having passed through the demographic transition, Korea is now facing many of the challenges of chronic diseases associated with changing diets, exercise patterns, and social structure and the increasing impact of smoking; a process described as the

epidemiological transition. Instead of food shortages; affluence and a changing food consumption patterns, have brought increasing levels of obesity. High infant mortality rates and undernutrition have been supplanted by obesity and overweight as major public health problems. Ten percent of primary and high school students were reported to be overweight in 1997. As an example of the community's concern for their health, children's weight problems were discussed in 142 issues of just one newspaper between 1993-1997 (Digital Chosun, 1997). The emphasis of public health in Korea has thus shifted towards addressing the burden of chronic disease, just as it did in western countries just a few decades earlier. With it comes a greater focus on health behaviour and the need for planning models.

### Culture and Health

Each distinct culture uses words and explanations differently according to the understandings shared by its members. Language has a "filtering effect" on perceptions and concepts, supplying different verbal interpretations of reality and thoughts in different cultures (Barnes, 1996, p 432). What we include in our understanding of certain concepts (such as 'health'), and how

we communicate our understanding, largely depends on language and culture. Inevitably understanding varies from country to country (or ethnic group to ethnic group) and what we can learn about others' understanding depends on the limitations of the languages and the translation skills we have available. Currently 20% of the new publications in Korea are translated books from foreign countries (Chosun Daily Newspaper, 25/5/99) (<http://www.chosun.com>). In some academic fields, including medicine and public health, the percentage is likely to be even higher. Many academic books have been translated into Korean and scholars often have access to both the original and the translated versions. However, most Korean people read only the translated versions, in preference to the originals, for the obvious reasons of ease of understanding, the cost (original texts are often more expensive) and the time factor. A study of assessing the usage of translated books versus the original texts in three major university libraries (both versions were available in the same library) found that the translated ones were more utilised than the original texts. The use of original texts depended on the users field of study: English texts were mostly used in the science and engineering areas (Lee, 1998c). Given the centrality of language and culture, any attempts to use models of health behaviour

developed in a different culture, must be studied and tested for applicability

## The Origin of the Health Belief Model

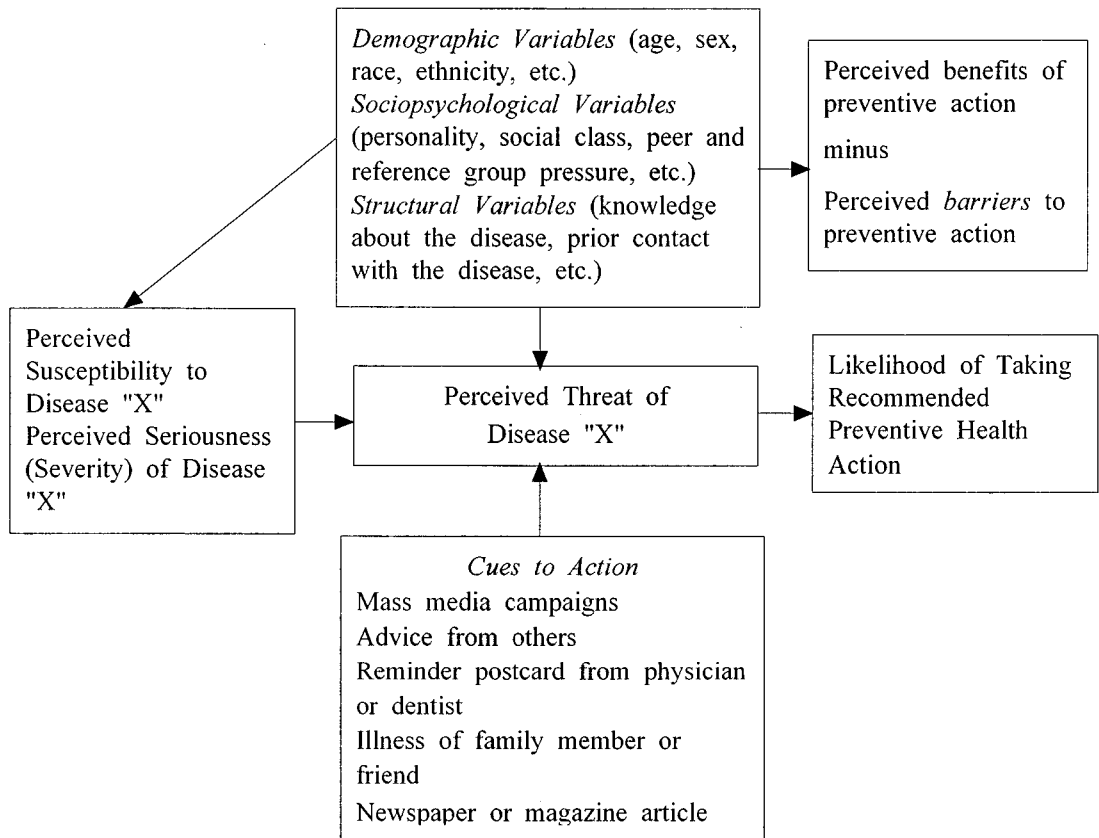
The Health Belief Model is a theoretical model in which health behaviour is a function of knowledge, beliefs and attitudes. This model has been widely used to predict, describe and explain health behaviours based on a person's perceptions and belief patterns. It was developed in the US by a group of psychologists (Hochbaum, Leventhal, Kegeles and Rosenstock) in the 1950s to explain why people did or did not use health services. The components of the HBM were influenced by the social-psychological theory of Kurt Lewin, who hypothesised that behaviour depends mainly on two variables: (1) the value placed by an individual on a particular outcome and (2) the individual's estimate of the likelihood that a given action will result in that outcome (Maiman & Becker, 1974, p 9). In the HBM there are three assumptions for an individual to take action to avoid a disease. He/she would need to believe that (1) he/she is *susceptible* to a disease (2) the disease has some *severity* (or *seriousness*) on his/her life (3) taking a particular action is *beneficial* and does not entail *barriers*. The four main components of the HBM thus include:

perceived susceptibility to a disease, perceived seriousness (severity) of a disease, perceived benefits of taking preventive action and perceived barriers to preventive action. In addition, 'cues to action', a variable that serves as a cue or a trigger to initiate action has been added to the model. Examples of cues to action would include mass media campaigns, advice from peers, illness of family member, or newspaper article relating to the perceived health problem. Other variables include the concept of motivation (incorporated later into the model), demographic, socio-psychological and structural variables that affect to condition both individual perceptions and the perceived benefits of preventive actions as seen in Figure 1. (Rosenstock, 1974)

While the HBM has been used in many thousands of publications, it has also been subjected to some criticisms, which have included the following examples:

1. There are other factors that also influence health behaviour practices apart from the health beliefs. The HBM has its emphasis on the individual. Therefore cultural, social, economic and environmental factors that have influence on individual health behaviour are often overlooked e.g. for socio-cultural factors (Ashing-Giwa, 1999) and a lack of environmental influences (Choi, Yep & Kumekawa, 1998);

INDIVIDUAL PERCEPTIONS      MODIFYING FACTORS      LIKELIHOOD OF ACTION



<Figure 1> Original Health Belief Model (Source: *Becker et al.* - in Rosenstock, 1974, p 7)

2. The question of health behaviour being rational: Is health behaviour really determined by the benefit-cost analysis? Will people always evaluate chances of contracting illness or assess its severity? (Jayanti & Burns, 1998);
3. The complexity of measuring each component of the HBM;
4. Absence of emotional factors (Jayanti & Burns, 1998);
5. Exclusion of the habitual behaviours and previous experiences of individuals ;
6. Overlooking the effect of attitudes on health behaviours (Moore & Halford, 1999);
7. Lack of consideration of the way in which people interpret their symptoms (Prohaska, Leventhal, Leventhal, & Keller, 1985); and
8. Lack of direct references to 'behaviour

maintenance'(Rothaman, 2000).

To overcome these criticisms and limitations many modifications of the HBM have been proposed.

### Modifications from the Original Health Belief Model

One of the earliest modifications to the HBM involved the concept of 'health motivation' (ie. different degrees of readiness to undertake actions) that was seen as "a necessary condition for action" and motives were seen to "selectively determine an individual's perceptions of the environment" (Maiman & Becker, 1974, p 22).

Rosenstock, Strecher and Becker(1988) realised that were deficiencies in the original model when applied to the modification of lifestyle habits and the additional component of 'self efficacy' was added. The self-efficacy component was based on the social learning (or cognitive) theory (Bandura, 1977) and was incorporated as a separate independent variable. According to this revised HBM, for health behaviour to succeed, people must

- (1) have an incentive to take action (health motivation or concern);
- (2) feel threatened by their current behaviour patterns (perceived threats);
- (3) believe that change of a specific kind

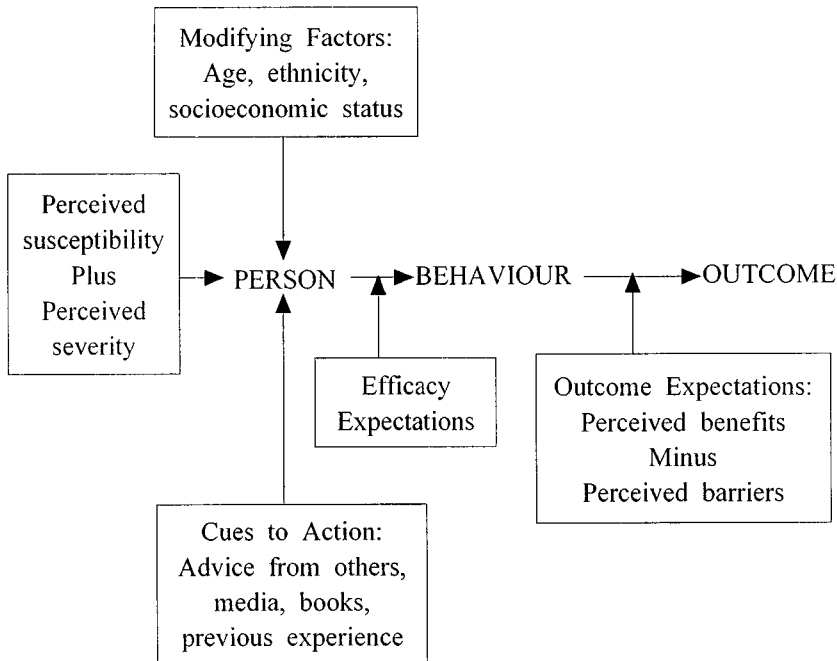
would be beneficial to the individual by resulting in a valued outcome at acceptable cost; and

- (4) feel themselves competent (self-efficacious) to implement that change (p.179).

Since then several studies have modified the HBM to include the social cognitive theory as seen in the below Figure 2.

In 1998 Jayanti and Burns described an Expanded Health Belief Model based on the shortcomings of the HBM in preventive health behaviour. For example, 'cues to action' was not very applicable to a healthy lifestyle in healthy subjects, but 'health knowledge' and 'health motivation' were. Similarly, 'health consciousness' was an antecedent variable that subsumed 'threat of illness' (health threats). In the Expanded HBM health-related behaviours are considered to be a product of these constructs:

- Health values (individual's assessment of benefits relative to costs in taking preventive health care behaviour)
- Self-efficacy (belief that the target behaviour will be successfully implemented)
- Response efficacy (belief that preventive health actions mitigate health threats)
- Health motivation (individual's goal directed arousal to engage in preventive health behaviours - internal characteristic of a person ie. desirability or confidence to lead a healthy lifestyle)



<Figure 2> Health Belief Model with the Social Cognitive Theory (Maltby, 1996)

- Health knowledge (individual's stored information about preventive health behaviours) and
- Health consciousness (the degree to which health concerns are integrated into a person's lifestyle - external characteristics of how a person's health is taken care of)

### Applications of the Health Belief Model

The HBM has been applied in many ways since the initial studies of the prediction of health behaviour assessing the utilisation of the health services (eg. medical examinations, detection tests, immunisations and vaccinations,

medical, dental and hospital services, etc.). Health behaviours can be classified into health behaviour (aimed at preventing disease), illness behaviour (aimed at seeking a remedy) and sick-role behaviour (aimed at getting well) (Kasl & Cobb, 1966). The HBM has been applied to predict all of these behaviours (Becker, 1974; Kasl, 1974; Kirscht, 1974).

As would be expected from a model that has been used in so many different situations, the usefulness (and predictability) of the HBM (and its components) has shown some variability. An earlier review by Janz and Becker (1984) of 46 studies on the HBM found that the best predictors of preventive



health behaviour were perceived barriers (89%) and perceived susceptibility (81%) to illness, while perceived benefits and perceived severity were strong contributors to understanding of sick-role behaviour. On the other hand, the best predictors of compliance were the costs and benefits and the perceived seriousness in a review of 19 studies (Becker & Rosenstock, 1984).

A search of the recent literature (1998-2000) has shown that the use of the HBM is still being widely reported. One of the original uses of the HBM was to predict preventive health behaviour and this is still one of the most commonly reported uses in the current literature. Recent literature reports have documented the continuing use of the HBM in a variety of health situations and in many different cultures:

- Breast self-examination among Chinese women in Hong Kong (Fung, 1998)
- Breast cancer detection practices of Indian women living in Canada (Choudhry, Sirvastava, & Fitch, 1998)
- Mammography utilisation in Korean-American women (Maxwell, Bastani, & Warda, 1998)
- Breast cancer screening in African-American women (Ashing-Giwa, 1999)
- Breast cancer screening in Australian women and prostate cancer screening in Australian men (Clarke, 2000)

- Cervical cancer screening among Korean-American women (Lee, 2000)
- Analysis of HIV risk behaviours among Anglos, African-Americans and Mexican-Americans (Neff & Crawford, 1998)
- HIV prevention among Asian and Pacific Islander American men (Choi et al., 1998)
- HIV prevention needs among Asian and Pacific Islander women (Jermott, Maula, & Bush, 1999)
- Determinants of condom use among adolescents in Ghana (Adih & Alexander, 1999)
- To quit smoking among low-SES African American women (Manfredi, Lacey, Warnecke, & Petraitis, 1998)
- Prostate cancer education in African American men (Weinrich et al., 1998)
- Tuberculosis screening in Mexican farmworkers (Poss, 2000)
- Health care seeking behavior in Morocco related to the STD (Manhart, Dialmy, Ryan, & Mahjour, 2000)
- Testing for Huntington's disease in Belgium (Evers-Kiebooms & Decruyenaere, 1998)
- Health education programme for elderly with age-related macular degeneration in Sweden (Dahlin-Ivanoff, Klepp, & Sjostrand, 1998)
- Patient participation in clinical studies (decision making) in the Netherlands

(Verheggen, Nieman, & Jonkers, 1998)

### The HBM in Different Cultures and in Multicultural Societies

As can be seen from the above list current usage of the HBM covers a wide range of health problems across many different cultures. It has been a feature of the use of the HBM since its early days. The predictability of the HBM is varied in different cultures or in multicultural societies. When the HBM was used with three ethnic groups in Singapore, the predictability of the HBM varied between different ethnic groups, but it was still predictive (Quah, 1985). By way of contrast, in a study exploring the effects of the HBM on screening mammography utilisation in 1011 multi-ethnic older women in the US, ethnicity had no direct effect on utilisation nor was it a confounding factor in the relation between health beliefs, concerns and utilisation. (Thomas, Fox, Leake, & Roetzheim, 1996). Similarly, in assessing HIV risk behaviours in 1,390 adults from three different ethnic groups (Anglos, African-Americans and Mexican-Americans) ethnicity was not a strong predictor for risk behaviours in all groups but there was a strong gender difference in minority populations (Neff &

Crawford, 1998). In Saudi Arabian women, health and illness-related beliefs had strong influence on their health behaviour. There was a lack of understanding of specific causes of various illnesses or of the preventive measures which were in turn related to the low education levels and/or deeply ingrained cultural and religious beliefs (eg. fatalism involving God's will) (Ide & Sanli, 1992).

The HBM has now been used in many different cultures, further modifications have been suggested to make it more useful outside of English speaking cultures. After studying the health beliefs of Vietnamese women living in Australia, Maltby (1996) proposed modifications to incorporate social cognitive theory (Bandura, 1977) and to make the HBM more applicable to a non-Anglo (Vietnamese) culture. Similarly, the social learning theory was applied together with the HBM to suit the study in Ghanaian context (Adih & Alexander, 1999).

### The Use of the HBM in Korea

The HBM has been used in Korea for almost three decades and appears to have grown in usage in recent years, particularly in nursing studies. Choi and Shin (1983) reviewed a number of models of health

behaviour used in nursing studies and translated a description of the components of the HBM into Korean. In the Korean language health literature, the translated HBM (the name and the main variables) is often followed by the English terms in brackets, reflecting the difficulty of precision in translation (Choi, 1987; Kang, 1989; Kim, 1997). In other publications the authors have chosen to use the translated terms in Korean [eg. (Baek, 1996; Hong, 1984; Nam, Kam, & Park, 1995; Nam, Kim, & Oh, 1997)]. As in other cultures, the predictability of the HBM (and its main components) has varied in Korean studies.

A review of nursing studies between 1979 and 1988 reported that the HBM had been mainly used for predicting health and sick-role behaviour: 15 studies for predicting preventive health behaviour and the other 15 for sick-role behaviour (Moon, 1990 - cited in Oh, 1994). In this review, 'perceived benefits' was the most useful variable in predicting preventive health behaviours. In another review by Bae (1993) of the use of theoretical models related to health behaviours/practices between 1980 and 1992, five studies were reported using the HBM; three studies dealing with immunisation and two assessing regular physical examinations.

A review of the 33 studies from 1975 to 1990 showed the usefulness of each

component of the HBM in predicting sick-role behaviour. The usefulness of the perceived benefits and perceived barriers components were high (66% and 50% respectively), but the usefulness of perceived susceptibility and severity were lower (both around 30%) (Ku & Lee, 1990). The study did not postulate the reasons for these discrepancies between variables. The percentages of usefulness are much lower than the values reported in the review of Janz and Becker (1984). A possible explanation for this discrepancy is that the most research in the review investigated sick-role behaviour of chronically ill patients and therefore the predictability of sick-role behaviour among patients are much lower than the predictability of preventive health behaviour among healthy subjects (Kim, Cho, & Yoo, 1996). Also in an earlier study evaluating the effect of the HBM on sick-role behaviour in diabetic patients, Hong (1984) reported that the components of the HBM (mainly perceived susceptibility to disease, the severity and perceive benefits) had no effect on the compliance of sick-role behaviour, contrary to the expectations.

In a study using the HBM to predict health promoting behaviour, the variable 'perceived barriers' was associated with self-efficacy, which had most influence on health promoting behaviour and both factors

indirectly affected the quality of life among 169 people with stomach cancer (Oh, 1994). When the preventive health behaviour of senior high school girls was studied (Choi, 1987), the 'susceptibility' and 'barriers' were closely related to outcome. A study of the HBM found that the model was useful in predicting the use of antenatal care by young women. A motivational variable 'antenatal support' was included but not all of the HBM variables were included in this study (Lee 1985). Another study reviewing theoretical models of health behaviour confirmed the relationship between the components of the HBM and health behaviours in Korea, but Kim et al. (1996) concluded that further research was still required.

The HBM has also been used in health education programs in Korea. In an education program for breast self-examination 'perceived seriousness (or severity)' was the only useful variable related to the actual practice (Yang, 1997). In contrast, it was the only variable that was not supported in a study of osteoporosis prevention program among women with rheumatoid arthritis (Lee 1998a). In a study of AIDS education among single males, scores of 'perceived benefit' of taking preventive action against AIDS marked the highest score, while the 'perceived susceptibility' was the lowest (Kim, 1997).

In this review of the literature, the authors have not found any studies in Korea where the HBM has been modified to accommodate specific Korean conditions. The one exception found was a study using the HBM to identify factors influencing worker's perceptions and attitudes toward periodic health screening where Nam et al. (1995) suggested minor modifications. Voluntary participation and perceived necessity for health screening, knowledge about the screening and support from the company were added variables. Although the authors identified shortcomings of the HBM and its main components, most of these variables were not real modifications but additional components of the HBM. For example, 'knowledge about the screening' is a part of a structural variable, 'support of the company', a socio-psychological variable within the modifying factors; and 'perceived necessity for a health screening' and 'voluntary participation' within the likelihood of action.

A search of the recent literature of the application of the HBM in Korea (1997-2000) yields the following examples (<http://www.dlibrary.go.kr>):

- Dental health practice (Song, 1998) and utilisation of dental care facilities (Lee, 1998b)
- Osteoporosis prevention behaviour in women with rheumatoid arthritis (Lee, 1998a); and in healthy women (Byun & Kim, 1998)

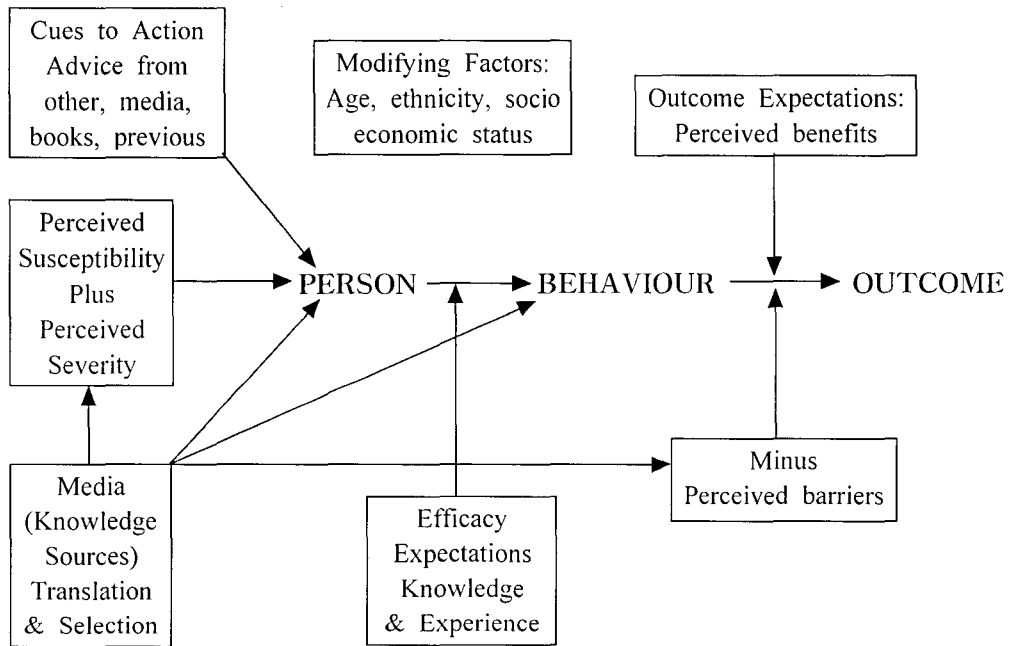


Figure 3: The modified HBM in the Korean cultural context (HBM with the Social Cognitive Theory Modified to include effects of translation)

- AIDS prevention (Kim, 1997)
- Exercise and diet compliance in coronary heart disease patients (Nam et al., 1997)
- Weight control practice in high school students (Park & Han, 1997)
- In addition, a total of 37 theses (both master and the doctorate) were found on the search of studies on the HBM since 1985 (19 since 1990) including the most recent ones on:
  - Medication compliance in hypertensive patients (Kim, 1998)
  - Health behaviour practice in the elderly (Yang, 1998)
  - Breast self-examination practice in the

middle aged women (Yang, 1997).

Overall, the studies found for this literature review indicate that the HBM is in general used in Korea and has been found to be applicable in predicting health and illness behaviours by Korean people. While further studies are required, it provides a useful tool for health planning. However if the HBM is used in a Korean context, the acquisition of 'health knowledge' is an important consideration. Perceived susceptibility, perceived benefits and cues to action all have health knowledge as an important antecedent. Most new knowledge in the health sciences is originally published

in English or less frequently in another foreign language. Most health knowledge in Korea is acquired through the media (print, radio or television) or from health professionals. Whatever the proximal source of knowledge, its acquisition in most cases involves translation from the original. Thus selection of articles for translation and the accuracy of translation into language acceptable in the Korean culture become important determinants of health knowledge. As such translation becomes an important part of the context of the HBM. We suggest that to place the Health Belief Model in the Korean cultural context the model should be as shown in Figure 3.

Any study or program that uses the HBM would be advised to consider the issue of acquisition of health knowledge. Investigators need to be mindful that health knowledge may be incomplete or even incorrect due to selective or incorrect translation. Greater emphasis will need to be placed on accuracy in translation, both the literal meaning and the context. We believe that in the future this will become an important issue for health promotion studies in Korea.

### Conclusion

The Health Belief Model has been used in many Korean Studies. It has proved a useful

tool in the planning of health promotion programs and in increasing understanding of individual health behaviours. After reviewing published studies in the Korean literature it is recommended that further quantified studies be undertaken. In addition further studies need to be undertaken on specific cultural adaptations of the model to modern Korea. The issues surrounding translation as it influences the acquisition of health knowledge is worthy of further study.

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