CHAPTER 2

LITERATURE REVIEW

Introduction

To develop an empowerment scale related to women's health, a literature review was carried out on four important topics: (1) philosophies and theories related to the empowerment concept and to women, (2) a concept of empowerment, (3) women's health, and (4) measurement theory and psychometric properties. The approach used for the literature review included a complete electronic search of several databases; such as: CINAHL, Science Direct, Proquest, Wilson Omnifile, Excite, Ei Compendex, Medline, PubMed, and CAB Abstracts without date restriction. Furthermore, searching with manual and non-English sources (Thai) were modified.

Philosophies and Theories Related to the Empowerment Concept and to Women

Since 1970, when Paolo Freire, author of Pedagogy of the Oppressed, wrote about a humanist social revolution (Freire, 1970, 1997), feminists in society and in all academic and practice disciplines have been advancing a critique of the status quo. Feminism began between 1970-1986 or the moment of blurred genres (Campbell & Bunting, 1991). In nursing, feminism is one of many philosophical approaches that share a common goal of addressing power imbalances inherent in existing social structures that shape the conduct and goals of science as well as human communication. In recent years, feminist paradigms have been presented as ways of organizing and understanding knowledge rising from women and their life. For

instance, black women have different viewpoints related to their history and position in society that warrant separate consideration (Shambley-Ebron & Boyle, 2004). Feminist theory is a useful and usable guide for research and theory development (Walker & Avant, 1995) especially related to the empowerment concept and to women. Feminism and feminist theory encompass a broad body of knowledge and ideas (Kirkley, 2000). Joan and Kenny (2002) emphasized two points critical to feminism including: (1) the theoretical and methodological framework for research must lay the groundwork for the analysis of gender, race, and class relations as contextualized, simultaneous, and historicized, and (2) research is aimed at producing transformative knowledge. Moreover, the inclusion of women in published nursing research from 1995 to 2001 suggested that continuing efforts must be made to include sufficient numbers of women (Crane et al., 2004). Generally, the broad goal of feminist activity is the transformation of all relations of domination and subordination (Morell, 2003), and to communicate revision theory and to ensure that new knowledge is used to address and correct past injustices and inequities (Joan & Kenny, 2002). As a whole, feminism is dedicated to the elimination of patriarchal social systems in which power, benefits, and burdens are unequally distributed (Kirkley, 2000). Before discussing the empowerment concept and women, the researcher must understand the basic ontological, epistemological and methodological assumptions of feminism.

1. Ontology

The empowerment philosophy is based on the premise that human beings have the capacity to make choices and are responsible for the consequences of their choices. Its philosophy is based on the assumption that to be healthy, people must be

able to bring about change, not only in their personal behavior, but also in their social situations and the organizations that influence their lives (Feste & Anderson, 1995). Whereas, feminist philosophies espouse the importance of gender equity and try to raise the social consciousness of women and men in recognizing sexist inequities in the society (Barnum, 1998). It is one of the four major interpretive paradigm structured qualitative researches. The full spectrum of feminist theory takes into account ontological issues that go beyond the issue of oppression of women (Campbell & Bunting, 1991). Denzin and Lincoln (1994) focus it on materialist-realist ontology; that is, the real world makes a material difference in terms of race, class, and gender. Criteria from gender and racial communities may be applied, such as emotion, feeling, dialogue, caring, and personal accountability. Poststructural feminist theories emphasize problems within the social context, its logic, and its inability to ever represent fully, the real life world experiences. The current mood among many feminist groups is one of expanding the definition of reproductive rights to include issues such as the protection of women against sexual exploitation, protection of women in the work place, and especially against involuntary sexual practices that violate women's basic individual rights. Since, in many parts of the world, fertility trends are declining, the current interest is to write into population or reproductive health law, articles that define and establish these rights in a way that ensures they are respected (Mundigo, 1997).

Hanson (2001) proposed the idea of equality and sexuality as the spirit of feminism in the sense that they represent dominant ideas that most feminists deal with. Equality refers to the question of social differentiation, encompassing both accesses to scarce resources and the varying forms of meaning that are attached to

people in a social context. Sexuality includes sexual attraction, sexual activity, reproduction and childcare. Another view argues that feminists need to develop a more body-sensitive model of empowerment (Morell, 2003). Rather than power and powerlessness being understood as polar opposites, they could be seen as coexistent and interpenetrating. Any coaction between power and vulnerability would be adverse for the aging body, and therefore would be a defeat of the independent ethic of "successful aging." As empowerment theory becomes "embodied" disability and death lose their stigma and become acceptable and respectable human experiences. Finally, achieving health is not just a matter of enabling people to take more responsibility for their health; it is also about naming injustice, and taking action to address social and economic inequity. This will be the challenge for the 21st century (Anderson, 1996).

Meleis (1997) preferred the term gender-sensitive for its broader meaning. Gender-sensitive theories are based on similar principles that have been discussed in conjunction with gender-sensitive research. Therefore, gender-sensitive theories are theories that: (1) consider gender as a basic feature and the central agenda in a theory, (2) provide guidelines for raising consciousness about the experiences described within the theory, heighten understanding of the role of a social system or organization in relationship to these experiences, (3) enhance empowerment for options for understanding, for decision making, or for self-care, (4) enhance advocacy and provide guidelines for advocacy (5) decrease any potential of exploitation, (6) challenge any norms of objectivity that create distances between participants or between theory subject matter and participants in the theory development, (7) provide

guidelines for change, including institutional and organizational change, (8) provide a critique of situations and circumstances that may interfere with healthful living.

To recapitulate, feminism is an important philosophy that has been used to raise the social consciousness and voice of women in various issues such as gender equity, social and economic equity, and women's rights. While the philosophical and theoretical foundations of empowerment approach are designed to help women develop the knowledge, skills, attitudes, and degree of self-awareness necessary to effectively assume responsibility for their health-related decisions.

2. Epistemology

Subjectivist epistemologies are employed in feminist theory. Empirical materials and theoretical arguments are evaluated in terms of their emancipator implications. In feminism it might open up pan-disciplinary dialogue among the natural, physical and medical sciences to expand interdisciplinary discussions that have primarily focused on the social sciences and humanities (Hanson, 2001).

Mithaug (2000) showed in the equal opportunity theory and empowerment evaluation that the discrepancy between the right and the experience of self-determination is due to the lack of capacity and lack of opportunity among individuals whose personal, social, and economic circumstances are beyond their control. Thus, it is necessary to remove barriers at the ontological agency level. For example, the status and roles of Thai women have not been fully recognized. There are recommendations for equal opportunity of Thai women into future development plans: (1) to expand non-formal and informal education for women who lack opportunities to develop their skills, especially women living in rural areas, (2) to provide further support for women in single-parent families and female supported

households, (3) to continue improving laws concerning women's employment and wages, (4) to attempt to stem the outflow of female migrants from rural areas by involving women in community development, (5) to change the attitudes regarding women's rights and equality, (6) to allow women to take part in policy making by appointing women to posts such as on the National Development Board, (7) to promote women's abilities to be self-reliant and recognize their crucial roles in Thailand's development (Sethaput, 1992).

The status of girls and women in society, and how they are treated or mistreated, is a crucial determinant of their reproductive health. Educational opportunities for girls and women powerfully affect their status and the control they have over there own lives and their health and fertility. The empowerment of women is therefore an essential element for health (World Health Organization, 1996). For instance, Harvey, Bird, Galavotti, Duncan and Greenberg (2002) studied the associations among; relationship power, sexual decision-making dominance, and condom use, within a sample of women at risk from HIV/STDs. They found that condom use was significantly higher among women who reported that they make a solitary decision or a joint decision with their partner as compared to those who reported that their partner makes the decisions.

To sum up, feminists use a variety of qualitative styles, but share the assumptions held generally by qualitative or interpretive researchers that interpret human actions, whether found in women's reports of experience or in the cultural products of reports of experience such as films. Its similarity to empowerment philosophy is its emphasis on subjectivist epistemologies such as the attitude, values and feelings of women.

3. Methodology

Naturalistic methodologies (usually ethnographies) are engaged in feminist theory. Type of narration of feminist paradigm has been used in it is different from other theories such as positivist and postpositivist paradigms. Feminist theorists may do interviews, essays, stories, and experimental writing (Denzin & Lincoln, 1994). When nursing scientists respond to research questions raised by the needs of cultural subgroups or related to more particular health phenomena, such as women's health issues in factory, Seng (1998: 38) stated

> *"Especially those research questions defined through a feminist or multiculturalist lens, the nurse-researchers are more likely to have a direct relationship with a more immediate need to be accountable to the group they are studying…………The standards of research quality that have been applied to large quantitative studies do not translate well to small, more particular, often qualitative, participatory studies"*

The value of studying phenomena from the perspective of the lives of particular groups, in this case woman, is well argued in feminist literature. For instance, Currie and Wiesenberg (2003) provided a distinctly feminist approach to women's health promotion. They attempted to show how feminist approach augments a growing body of work on women's health and on health promotion in general. Feminist approach brings an ability to conceptualize gender relations as a system of power, operating through women's bodies as they are positioned in both the material and ideological realms of social life. In this study, many methods apply, such as focus groups and personal interviews, depending upon the specific research context. As well as an approach in empowerment theory, Cox and Parsons (1994) proposed the life

review process as a useful strategy for helping clients to gain consciousness of their strengths and then bring them to bear on current challenges. In the life review process, an individual or group discussion of questions regarding: (1) attitudes and beliefs about being in the dependent role and (2) perceptions of historical approaches to dealing with dependency and independence can serve to heighten awareness of the life cycle. From this approach, clients can promote consciousness regarding the status of health care in their society. In addition, Fleury (1991) conducted "Empowering potential: A theory of wellness motivation". Its purpose was to identify, describe, and provide an analysis of the psychological and social processes used by individuals to initiate and sustain cardiovascular health behavior over time. In this study, data collection procedures involved the use of increasingly structured interviews with individuals who were attempting to initiate and sustain cardiovascular health behaviors, in addition to a progressive literature review. Data collection took place over seven months. Throughout data collection and analysis, the investigator attended risk factor modification seminars and exercises with potential informants for eight hours per week. Regular interaction with potential informants allowed the investigator to become familiar with the process of lifestyle change and individuals at different stages in the change process. Finally, Perkins (1995) recommended the value of a dialectical analysis for helping researchers to make more effective use of empowerment theory and research. Ideally, the dialectic dialogue, the reflection and action, the theorizing and practicing, all take place in collaboration with "the people" or "the oppressed" (Seng, 1998).

To conclude, feminism is a theory that has the potential to transform inequality, injustice, oppression, domination, subordination and lack of opportunity

among women whose personal, social, and economic circumstances are beyond their control. Feminist approaches also manifest when a discipline is concerned with women's issues and experiences. As per Morell's suggestions (2003), feminists need to "embody" empowerment. A dialectical approach to empowerment integrates power and powerlessness, strength and weakness, life energy and death. Therefore, the main goal of feminist activity is to help women increase their power in order to control their lives, particularly to solve women's health problems.

A Concept of Empowerment

Empowerment is a complex, dynamic, multidimensional or multilevel and multifaceted concept (McQuiston, 2000; Zimmerman, 1995). It can be used at individual, organizational, and at community levels as a process of engagement and an outcome of such engagement (Clarke & Mass, 1998; Cox & Parsons, 1994; Zimmerman & Warschausky, 1998). Some researchers used the term theory for empowerment. They stated "Empowerment theory is still developing and does not yet have a set of specific relationships among all relevant constructs. It does, however, include interrelated constructs, definitions, and propositions, all of which are necessary building blocks for more formal theories (Zimmerman & Warschausky, 1998). A review of the concept of empowerment is one main aspect of the development of scale in this study, which is divided into three parts: definitions of empowerment, components of empowerment, and an empowerment scale.

1. Definitions of Empowerment

Different dictionaries quote differing forms of application for the term empowerment. For instance, empowerment as a noun means, "The enabling process by

which individuals gain power and control over decisions that affect their lives. It may occur when individuals with learning disabilities acquire the ability to live independently in the community or when a group of professionals who share the same goals are able to take collective control or responsibility for the decisions, which affect their practice. The concept of empowerment and enabling activities can be applied to any situation" (Churchill, 2002: 144). The dictionary of Human Resources and Personnel Management (Ivanovic & Collin, 1997: 84) defines empowerment as, "giving someone (such as an employee) the power to make decisions". Another view from The World Book Dictionary (Barnhart, & Barnhart, 1979: 692) and The Oxford Universal Dictionary Illustrated (Onions, 1968: 602) state empowerment as the same meaning as, "the act of empowering or state of being empowered". In addition, The International Encyclopedia of Business and Management (IEBM) Dictionary of Business and Management (Witzel, 2000: 98) states empowerment as, "the granting to employees and subordinates greater discretionary freedom to make decisions and take responsibility for their own work". On the other hand, in the verb form, empower means "(1) to give power or authority to, and (2) to enable or permit" (The American College Dictionary, 1969: 394). As a result, to empower someone means to delegate legal power to or authorize to enable (The Grolier International Dictionary, 1992: 309). This definition suggests that patient empowerment as the patient's decisions and responsibilities about their own lives.

In addition, based on a review and synthesis of selected expository and empirical literature, Bolton & Brookings (1996) developed a multifaceted definition of empowerment (Table 1). They presented 20 characteristics of empowered persons with disabilities.

Table 1
A Multifaceted Definition of Empowerment

Facet	Definition
Assertive	To stand up for one's convictions, values, and feelings.
Autonomous	To be self-sufficient, unconstrained, and self-regulating.
Collaborative	To work cooperatively with others to solve problems or to achieve a common goal.
Committed	To be completely engaged in whatever one is doing.
Community-oriented	To engage in direct interaction with a unified group of individuals.
Competent	To be well-qualified, capable, and fully adequate.
Creative	To think originally, ingeniously, or inventively.
Disability-oriented	To recognize that having a disability is a normal characteristics of a human being.
Goal-directed	To strive to meet one's own standards or expectations.
Independent	To be free from the influence or domination of others.
Interdependent	To acknowledge one's dependence on others and the reciprocal responsibility for others.
Internal controlled	To perceive that one has authority or power over self and over environment.
Personally responsible	To be accountable for one's actions and their consequences.
Pride	To feel delight or elation as a result of some act, possession, or relationship.
Self-advocating	To stand up for one's rights and draw on internal strength and support for actions.
Self-discovering	To analyze and understand one's own feelings, values, and aspirations.
Self-efficacious	To believe that one is able through one's own efforts, to bring about desired outcomes.
Self-mastering	To develop and maintain and intrinsic link between feelings of worth and positive outcomes.
Self-reliant	To generate one's own opportunities and resources.
Socially responsible	To understand and be committed to the collective well-being of the larger group to which one belongs.

Note. From "Development of a multifaceted definition of empowerment," by B. Bolton & J. Brookings, 1996, *Rehabilitation Counseling Bulletin,39, p. 263-264*.

In short, there are many authors in several professions; psychology, rehabilitation, education and nursing, who try to analyze the concept of empowerment. Their studies, and definitions of empowerment, are similar to various dictionaries in terms of the ability to have control over thinking, feeling, and actions (Bolton & Brookings, 1996; Chamberlin, 1997; Fulton, 1997; Gibson, 1991; Rodwell, 1996).

2. Components of Empowerment

The components of the empowerment concept are necessary for researchers developing an empowerment scale. Generally, several investigators have developed the empowerment scale into two main aspects: process and outcome (Anderson, Funnell, Fitzgerald & Marrero, 2000; Bolton & Brookings, 1998; Faulkner, 2001; Shiu et al., 2003). Thus, the process and outcome of empowerment are important factors to present.

According to Gibson (1991), empowerment is a process of helping people to assert control over the factors that affect their lives. The process encompasses both the individual responsibility in health care and the broader institutional, organizational or societal responsibilities, in enabling people to assume responsibility for their own health. Similar to Feste and Anderson (1995), empowerment is defined as an educational process designed to help patients develop the knowledge, skills, attitudes, and degree of self-awareness necessary to effectively assume responsibility for their health-related decisions. From Rodwell's point of view (1996), empowerment is a helping process; a partnership, valuing self and others; mutual decision-making; and freedom to make choices and accept responsibility. Moreover, Airhihenbuwa (1994) proposed that the definition of empowerment needs to be expanded to include an

understanding of all forces necessary for transformation of reality. Thus the objective changes resulting from empowerment are different in different situations because they reflect the varied needs of individuals, groups, organizations, schools, and communities and the contexts where empowerment occurs.

Hawks (1992) analyzed the concept of empowerment in nursing as the interpersonal process of providing the proper tools, resources and environment to build, develop and increase the ability and effectiveness of others to set and reach goals for individual and socials ends. Empowerment occurs between two or more people: the person who empowers and the person(s) who is (are) empowered. To clarify the concept of empowerment in nursing, Kuokkanen and Leino-Kilpi (2000) referred to a framework for nurses' professional growth and development. They described empowerment in terms of qualities and as a process associated with the individual and the environment. The articles reviewed were classified into three theoretical approaches: (1) critical social theory that starts out from the premise that certain groups is in a subordinated position. In the nursing context this means primarily nurses and patients. Empowerment connotes influence rather than striving to enhance one's power by taking it from others, (2) organization theory that provides well-being at both the individual and organizational level, which ultimately reinforces staff, self-images and cooperation networks. It may be assumed that management influenced by this idea of empowerment will serve to strengthen staff nurses' professional self-esteem, which in turn will contribute to professional growth and development. Staff cannot, however, be empowered merely by delegation, by transferring tasks downward in the organizational hierarchy, (3) social psychological theory, its emphasis on the individual and environmental factors. As the authoritarian

type of leadership assumes less arbitrary forms, the individual's personal qualities and ways of acting assume increasing importance. In addition, Fulton (1997) described British nurses' view on the concept of empowerment. They conceptualized empowerment in terms of freedom; freedom to make decisions with authority, and have choices. Table 2 shows other authors definitions of empowerment as a process.

Table 2

A Dimension of Empowerment as a Process

Authors and year	Empowerment as a process
Clay (1992)	A process of enabling people to increase control over and to improve their own health (p. 16).
Clifford (1992)	A process, which grows from the grass roots up. It is a way of thinking and behaving which, at best, can be enabled by nursing management (p.1).
Gibson (1995)	A social process of recognizing, promoting and enhancing people's abilities to meet their own needs, solve their own problems, and mobilize the necessary resources in order to feel in control of their own lives (p. 1201).
Zimmerman & Warschausky (1998)	(1) Helping others gain control over their lives, (2) receiving help from others to gain control, and (3) mutual help (p. 7).
Ekpe (2001)	Empowerment is synonymous with choice. It involves changing the power base and sharing some of the power health professionals have with patients, encouraging them to be more independent (p. 41).

Table 2 *(continued)*

Authors and year	Empowerment as a process
Burkhardt & Nathaniel (2002)	Empowerment involves taking ownership of our inner life and recognizing that we have full control over our thoughts, feelings, and actions (p. 367).

On the other hand, the dimension of empowerment as an outcome is concerned with the consequences or results of the empowerment process. Zimmerman and Warschausky (1998) proposed empowerment as an outcome or as a dependent variable (or intervening variable) in research studies. This is an interesting view of the empowerment concept because it provides a basis for studying the consequences of citizens' attempts to gain greater control in their lives. Outcomes of empowerment generally refer to (1) sense of control or sense of self, (2) critical awareness and thinking, and (3) participatory behaviors (Table 3) (Chamberlin, 1997; Cox & Parsons, 1994; Israel et al., 1994; Zimmerman & Warschausky, 1998; Potter & Perry, 2003).

Table 3

A Dimension of Empowerment as an Outcome

Outcomes of empowerment	Definition and character
Sense of control/ sense of self/ a belief in self-worth	This includes a sense of and motivation to control, and perceived competence. It is used to promote action on one's behalf.

Table 3 *(continued)*

Outcomes of empowerment	Definition and character
	Its emphasis is on the development of a positive self-concept or personal competence. When a person brings about actual change, he or she increases feelings of mastery and control. This, in turn, leads to further and more effective change. Understanding that people have rights, this increase their sense of strength and self-confidence.
Critical awareness and thinking	This refers to an understanding of the resources needed to achieve a desired goal, knowledge of how to acquire those resources, and skill for managing resources. Through consciousness raising, individuals come to view their problems as similar to those of many others and begin to recognize common experiences that help them collectively to understand and take action. Decision

Table 3 *(continued)*

Outcomes of empowerment	Definition and character
	making is an end point of critical thinking. Critical thinking includes knowledge, experience, critical thinking competencies, attitudes, and standards. Attitudes provide guides for how to approach a problem or decision making situation.
Participatory behaviors	This includes the ability and willingness to act with others for the attainment of common goals and social change. It is the specific actions that the individual take to exercise influence on the social and political environment through participation in community organizations and activities. Individuals are able to develop action strategies and cultivate the resources, knowledge, and skills necessary to influence internal and external structures. It is necessary to recognize that empowerment does not

Table 3 *(continued)*

Outcomes of empowerment	Definition and character
	occur to the individual alone, but has to do with experiencing a sense of connectedness with other people.

Empowerment can be concerned with other different views, such as the individual level, the organizational level, and the community level. However, in this study, it only focused on the individual level. At this level, the three common components of empowerment are as following:

2.1 Intrapersonal component refers to how people think about themselves, and includes domain-specific perceived control and self-efficacy, motivation to control, and perceived competence (Israel et al., 1994; Robbins & Fredendall, 2002; Zimmerman, 1995; Zimmerman & Warschausky, 1998). In the health arena, the individual community member is often dependent on others for health and health care, possesses limited expertise, is not contractually obliged to anyone, and is relatively autonomous in thought and action. Therefore, three facets of empowerment need to be modified to accommodate changes in the context: (1) Perceived control; an individual will experience perceived control if he or she can control the factors associated with maintaining good health, such as food and nutrition, exercise and living conditions. Individuals will experience perceived control to the extent that they feel they are protected and their health is safeguarded. For example, many governments have mandated that patients in emergency situations cannot be turned away regardless of their ability to pay. Another regulation could be that women can not be discharged

until a minimum of 48 hours after childbirth. Individual awareness of such safeguards and protections enhance the experience of perceived control, (2) Perceived competence; this is not the performance of specialized tasks, but rather the management of various activities associated with health and health care such as maintaining one's health on a daily basis and seeking health services when needed. Robbins and Fredendall (2002) stated that knowledge, skills, and abilities will affect perceptions of competence, (3) Goal internalization; in the health context, the corresponding behaviors would be health related behaviors such as maintaining good health or seeking medical assistance. The goal associated with these behaviors is the individual's good health and well-being. It may be recalled that goal internalization captures the energizing power of valued goals. At the individual level, internalization of health ideals will energize the individual to lead a healthy lifestyle and seek proper care when needed. At a community level, internalization of individual and collective goals will energize him or her to be proactive with regard to community health and health conditions including availability of health care. At the level of the larger collective, the individual might engage in political actions to achieve collective health goals (Menon, 2002).

In concordance with conceptual analyses, qualitative findings suggest that selective intrapersonal factors are necessary for empowerment to occur. They are self-confidence, self-efficacy, cognitive abilities, and willingness to assume personal responsibility (Finfgeld, 2004).

Peled, Eisikovits, Enosh and Winstok (2000) stated empowerment consists of "needs" and "right" dimension. This refers to a person being empowered to the extent to which her or his needs are translated into rights. Implementation of

this translation is a function of the extent of responsibility taken by both empowering agents and potentially empowered people. Similar to Copp (1989) who mentioned those who empower are persons with insight to see what needs to be done. Moreover, Somruck (2002) studied "Empowering experiences of family caregivers in caring for AIDS patients at home". The results from this study indicated that empowerment occurs when: (1) There is successful self-management to maintain balance of mind and action using internal resources and/or seeking for external resources (2) Support is perceived and received when there are needs and when the critical resources are not enough. In addition, intrapersonal is one of factor for empowerment in caring for AIDS patients at home. It includes (1) Acceptance of caregiver tasks, (2) Perception of curable and incurable death from AIDS, (3) Perceived no risk of infection from caring, (4) A dark sore indicating that the condition has improved, (5) Denial of infection, (6) Value of herbal treatment in addition to medical treatment and self-esteem.

2.2 Interactional component. This means how people think about and relate to their social environment (Zimmerman & Warschausky, 1998). Individuals must learn about their options in a given context in order to be able to exert control in their environment. This suggests that they need to understand the norms and values of a particular context (Zimmerman, 1995). Finfgeld (2004) proposed the fundamental interpersonal elements that consist of an organizational commitment to empowerment, power sharing, and empowerment enhancing within and outside of settings. Janejob (1999) studied "Empowerment in patients with rheumatoid arthritis," one main strategy of empowerment process included the creation of an appropriate environment and atmosphere. Similarly in the study of caring for AIDS patients, positive

relationships between caregiver and the AIDS patient, family and community is one of the empowerment factors (Somruck, 2002).

Chamberlin (1997) stated that people with psychiatric diagnoses are widely assumed to be unable to know their own needs or to act on them. As one becomes better able to take control of one's life, demonstrating one's essential similarity to so called "normal" people, this perception should begin to change. Moreover, the client who recognizes that he or she is earning the respect of others increases in self-confidence, thus further changing outsiders' perceptions.

2.3 Behavioral component refers to the specific actions the individual takes to exercise influence on the social and political environment through participation in community organizations and activities (Zimmerman & Warschausky, 1998). Robbins and Fredendall (2002) stated that activity is important given increased authority over decision-making in one's job. Similarly Stein (1997) and Cox and Parsons (1994), participation or action is a major component of empowerment. Participation in empowering activities can come about purposively or accidentally. It is impelled by a crisis or an accumulated sense of need. Through the empowerment process, individuals are able to develop action strategies and cultivate the resources, knowledge, and skills necessary to influence internal and external structures. Baum et al. (2000) found that people of low income and low education levels have low levels of involvement in social and civic activities. They concluded that the levels of participation in social and civic community life in an urban setting are significantly influenced by individual socioeconomic status, health and other demographic characteristics. An understanding of the pattern of participation is important to inform social and health policymaking. Increasing levels of participation will reduce social

exclusion and is likely to improve the overall quality of community life. In another view from nursing education, Espeland and Shanta (2001) proposed students who participate are more likely to feel personally empowered. As students share their experiences with one another, an enhanced sense of empowerment may result. Nursing faculty and nursing staff members benefit from having a shared vision toward the future of nursing. Nurse administrators from both institutions recognize the accomplishment of improving the profession and the clients they serve. Empowerment truly is a shared experience (Campbell, Prater, Schwartz & Ridenour, 2001). Finally, Chamberlin (1997) believed that it is necessary to recognize that empowerment does not occur to the individual alone, but has to do with experiencing a sense of connectedness with other people.

In conclusion, to develop an empowerment scale, it is important that the components of empowerment be considered appropriately within the context of the population. Suominen, Leino-Kilpi, Merja, Doran and Puukka (2001) studied "Staff empowerment in Finnish intensive care units." They divided the concept of empowerment into three components: verbal, outcome and behavioral empowerment. First, verbal empowerment refers to the ability to express views and opinions and to defend them in the workplace. Second, outcome empowerment refers to the sense of how far one can influence the outcomes of his/her job. Finally, behavioral empowerment refers to the sense of control that one has gained through his/her own actions over the work environment and specific job tasks and to job autonomy. Without components of empowerment concept, a process in which people become engaged and an outcome of such engagement will not happen. Zimmerman and Warschausky (1998) stated that individuals who score high on all three components;

intrapersonal, interactional, behavioral, are considered the most highly empowered. Those who score high on the intrapersonal component but low on interactonal and behavioral components may be considered to have limited empowerment.

3. An Empowerment Scale

Few investigators have conducted research on an empowerment scale. Zimmerman and Warschausky (1998) stated that the shortage of research on empowerment may be mostly due to empowerment theory is not yet fully developed. However, this theory provides a useful framework for guiding various professions.

In recent years a composite index for measuring human development was devised by United Nations Development Programme (UNDP) and is being increasingly used to monitor national progress as well as for inter and intra-country comparisons. The human development index (HDI), a measure of empowerment, is a composite of three indicators which reflect important dimensions of human development; (1) life expectancy, (2) educational attainment, and (3) real gross domestic product (GDP). The HDI indicates that, if people had the three opportunities for a long life, for education, and for a descent standard of living, they would be able to gain access to other opportunities as well. The HDI is based on a country's position in relation to defined targets, expressed as a value between 0 and 1, with targets being average life span of 85 years, access to education for all, and a descent level of income. The closer a country's HDI is to 1, the less the remaining distance the country has to go to reach the goal. From the South-East Asia Region (SEAR), Thailand is one of only a few countries, has an HDI above 0.8, putting it in the "high human development" category. While DPR Korea, Indonesia, Maldives, and Sri Lanka have HDIs between 0.5 and 0.8, considered the "medium human development"

category. The remaining SEAR countries, India, Myanmar, Bangladesh, Nepal, and Bhutan have HDIs below 0.5 and are therefore placed in the "low human development" category (World Health Organization, 1996).

Moreover, gender empowerment measure (GEM) is developed from UNDP. The GEM is an index that focuses on three variables that reflect women's participation in political decision making, their access to professional opportunities, and their earning power. In terms of GEM values, UNDP reported SEAR countries including Thailand are all low (World Health Organization, 1996). Finally, a measure of intrapersonal empowerment (Bolton & Brookings, 1998), the diabetes empowerment scale (DES) (Anderson et al., 2000), the Chinese diabetes empowerment scale (C-DES) (Shiu et al., 2003), and a patient empowerment scale (PES) (Faulkner, 2001) are developed in different contexts (Table 4). They are different instruments that measure different purposes and components.

First, a measure of intrapersonal empowerment has four components with 64 items for people with disabilities. Subscales and examples of items are: (1) Personal Competence; sample item: "I can depend on myself to get things done," (2) Group orientation; sample item: "I like to work with others to get a job done," (3) Self-Determination; sample item: "I am comfortable speaking to strangers," and (4) Positive Identity as a Person with a Disability; sample item: "I don't think of myself as a disabled person" (Bolton & Brookings, 1998). Second, the diabetes empowerment scale (DES) has three components with 28 items for diabetes patients. Subscales and examples of items are: (1) Managing the Psychosocial Aspects of Diabetes; sample item: "In general, I believe that I can ask for support for having and caring for my diabetes when I need it," (2) Assessing Dissatisfaction and Readiness to

Table 4

A Comparison of the Empowerment Scales: IES, DES, C-DES, and PES.

Scale	IES	DES	C-DES	PES
Authors/Year	Bolton & Brookings/1998.	Anderson et al/2000.	Shiu et al/2003	Faulkner/2001
Objective	To develop an instrument that measures the intra-personal component of psychological empowerment for people with disabilities.	To assess the validity, reliability, and utility of the Diabetes Empowerment Scale (DES), which is a measure of diabetes-related psychosocial self-efficacy.	To translate the Diabetes Empowerment Scale (DES) into Chinese and establish its Psychometric properties among Hong Kong Chinese people.	To develop a valid and reliable measure of patient empowerment and disempowerment in hospital environments catering for older people.
Conceptual basis	Capacity of disenfranchised people to understand and become active participants in matters that affect their lives.	Decision making, make informed choice, self-efficacy, and psychosocial issues.	Responsibility and decision making, psychosocial well-being.	Gain control over his/her life, learned mastery theory, learned helplessness theory, and environments catering.
Instrumentation	Review literature and quantitative approach	Qualitative and quantitative approach	Qualitative and quantitative approach	Qualitative and quantitative approach
Sample	Disabled people	Diabetes patients	Diabetes patient	Older people
Components	(1) Personal competence, (2) group orientation, (3) self-determination and (4) positive identity as a person with a disability.	(1) Managing the psychosocial aspects of diabetes, (2) assessing dissatisfaction and readiness to change, (3) and setting and achieving diabetes.	(1) Overcoming barriers, (2) determining suitable methods, (3) achieving goals, (4) obtaining support, and (5) coping.	Act frequency questionnaires
Validity	Construct validity,	Construct validity, concurrent validity, content validity.	Construct validity, criterion validity, content validity	Construct validity, consensual validity, content validity
Reliability	Alpha coefficient	Test-retest reliability.	Alpha coefficient test-retest reliability	Alpha coefficient

IES: Intrapersonal Empowerment Scale; DES: Diabetes Empowerment Scale; C-DES: Chinese Diabetes Empowerment Scale; PES: Patient Empowerment Scale

Change; sample item: “In general, I believe that I know what part(s) of taking care of my diabetes that I am dissatisfied with,” and (3) Setting and Achieving Diabetes Goals; sample item: “In general, I believe that I can choose realistic diabetes goals” (Anderson et al., 2000). Third, the Chinese diabetes empowerment scale (C-DES) has five subscales with 20 items for diabetes patients. Subscales and examples of items are: (1) Overcoming Barriers; sample item: “In general, I believe that I know which barriers make reaching my diabetes goals more difficult,” (2) Determining Suitable Methods; sample item: “In general, I believe that I know how to get the facts I need to make diabetes care choices that are right for me,” (3) Achieving Goals; sample item: “In general, I believe that I know which of my diabetes goals are most important to me,” (4) Obtaining Support; sample item: “In general, I believe that I know what things support me in caring for my diabetes,” and (5) Coping; sample item: “In general, I believe that I can cope with feeling down about having diabetes” (Shiu et al., 2003). Finally, a Patient Empowerment Scale (PES) with act frequency questionnaires (40 items) for older people was developed. The sample item was “Do staff make sure that your nurse call bell is within reach?”(Faulkner, 2001).

To sum up, an empowerment scale can be developed for individual, organization or community levels. At the individual level, the empowerment scale in a specific setting for a particular sample of individuals is possible, however it must be connected to the experience of the research participants as they state it, and contextually grounded in their life experiences (Zimmerman, 1995).

Women's Health

To help clarify the development of an instrument for assessing empowerment related to women's health in this study, a literature review of women's health was conducted on three main aspects; global perspectives of women's health, dimensions of women's health, and women's health issues in factories.

1. Global Perspectives of Women's Health

Defining health is difficult because each person has a personal concept of health. People define it in relation to their own values, personality, and lifestyle. Generally, health is defined as a state of complete physical, psychological, spiritual, and social well-being, not merely the absence of disease and infirmity (World Health Organization, 1996). In the past, a global perspective of women's health focused on treatment of diseases, especially reproductive health issues such as sexually transmitted diseases, and unsafe motherhood. Compared to the present, it has changed over time with an initial emphasis on equity, and human rights. More recently, the notion of women's health around the world has expanded to include an emphasis on empowerment so that women are able to gain greater control over their lives (McElmurry et al., 1993). In achieving that goal, health promotion, health education, and illness prevention are three important ways that health care providers can assist women worldwide. First, health promotion activities such as routine exercise and good nutrition help women maintain or enhance their present levels of health and reduce the risks of developing certain diseases. This motivates women to act positively to reach more stable levels of health. Second, health education such as physical awareness, stress management, and self-responsibility help women to care

for themselves in a healthy way. Health education strategies are designed to help women achieve new understanding and take control of their lives. Finally, illness prevention activities such as HIV programs protect women from potential threats to health. These activities motivate women to prevent increases in health problems.

Around the world, inequalities and injustices remain in women's health care, particularly in low education and low-income groups of women. For instance, in developing countries, demographic, epidemiological and socio-economic trends are creating new mortality and morbidity patterns for women. Women's health needs will increasingly include problems beyond reproduction issues, such as heart disease, Alzheimer's disease, cancer, osteoporosis, respiratory illness, and diabetes (Crane et al., 2004; Phyllis, 2002; Rebecca, 2000), and health interventions must take into consideration the important characteristics of women's lives that affect their ability to address these problems. Paolisso and Leslie (1995) mentioned women's health issues in developing countries consisting of chronic disease, nutritional deficiencies, sexually transmitted disease, mental illness, substance abuse, and work related health risks. Moreover, the results from the daily living experiences of a group of employed, low-income Mexican women in their maternal and spousal roles show that the employed mothers experienced many stressful aspects of functioning in multiple roles, including lack of resources, being absent from their children, self-doubt about their maternal role function, role overload, and spousal absences (Meleis, Douglas, Eribes, Shih & Messias, 1996).

In Asia, women are traditionally expected to be timid, and passive (Aburdene & Naisbitt, 1992). For instance, many Japanese and Chinese families assign decision-making duties to the eldest son, and women in China are subordinate

to men (McLaughlin & Braun, 1998). Moreover, women's social and domestic roles are not isolated from religious institutions. Religious attitudes and law may affect women's rights within marriage, their reproductive freedom, and even the domestic duties they perform (Esterik, 1982). Similarly in Thailand, in the past, women had little control over their lives. For example, they had no control over their virginity or sexual continence, in other words men's sexual access to their bodies, and the condition under which sexual encounters take place. Social inequalities between the sexes serves as one of the most important bases for power differentials in the sexual lives of women and men (Somawasdi & Theobald, 1997; Upayokin, 1997). Moreover, the influence of Buddhist teachings, which view the status of men and women as unequal, was evident from as early as the Sukhothai period. However, data on contemporary social structure indicates that in rural Thailand, patriarchy is not very prevalent (Pongsapich, 1997). Furthermore, through modernization and reform, there has been an increasing social awareness and appreciation that women are not sexual objects, but are equal to men (Upayokin, 1997). As the country became more modernized, women in Thailand had to strive more and more to be recognized. Every woman has a right to control her body and she must be awarded the right to make her own decision regarding health. Before the modern period, inequality and exploitation was seen within both the family and social context. After adopting market economy and capitalistic forms of development concept, forms of inequality and exploitation became more commercialized and transnationalized. Women's activities of later periods are connected globally. For example, the study of "Midlife experiences of Thai women" concluded that most women's life patterns changed because their free

time increased. They had an opportunity to socialize with friends and to get involved with volunteer activities (Arpanantikul, 2004).

To summarize global perspectives of women's health once focused on the treatment of problems, but now emphasizes strategies to maintain and promote health through education and support. The objective of which is to empower each woman to re-establish her body and its health. Complete physical, psychological, spiritual and social health is the expected outcome of this approach. In a study by Morell (2003) titled "Empowerment and long-living women: return to the rejected body", the results showed that older women told the researcher "We are bodies and consciousness and spirit. To see only one aspect is to violate our completeness." Therefore, global perspectives of women's health must cover four dimensions including physical, psychological, spiritual, and social aspect.

2. Dimensions of Women's Health

Women's health must move beyond a focus on reproductive health and meet the needs of women throughout their lifespan and in all aspects of their lives. These include lifestyle-related health conditions; the impact of HIV/AIDS; women's health at work, especially in unorganized sectors; health consequences of violence against women; and the health needs of aging women (World Health Organization, 1996; Stewart & Robinson, 1998). Moreover, women have certain health needs in common and sometimes different from men. They have extremely varied experiences, interests, needs, and desires. Any policy designed to meet the needs of all women will therefore need to consider the differences between them as seriously as the similarities. Overall, when women's health is considered, there are the following four dimensions:

2.1 Physical health. Differences of social status, biology, and culture, mean women are more vulnerable to diseases than men. For example, only a woman will need screening for cervical cancer. McKee, Caban, Burton and Mulvihill (2002) sought to describe knowledge, understanding, and follow-up after atypical cervical cytology among low-income, urban women. They found that many women were dissatisfied with the information they received regarding their cytology. Cancer fear was quite high, as were misconceptions regarding cause. Moreover, Wingood, DiClemente and Raj (2000) studied "Identifying the Prevalence and Correlations of STDs among Women Residing in Rural Domestic Violence Shelters" in Alabama. They found that 99% of women reported being physically abused in the prior 2 months, 55% reported being sexually abused and 43% reported being raped. A further 33% of women reported acquiring an STD during their abusive relationship, 13.3% reported acquiring multiple STDs and 9.2% reported acquiring a STD in the 2 months prior to entering the shelter. In this sample, a history of rape, having an unfaithful partner and fear negotiating condom use, were all associated with having a STD history. Finally, Brown-Peterside, Ren, Chiasson and Koblin (2002) studied "Double Trouble: Violent and Non-Violent Traumas among Women at Sexual Risk of HIV Infection." They examined the association between trauma and HIV risk behaviors among women at sexual risk from HIV infection. The results showed that the women reported a substantial prevalence of sexual risk behaviors associated with contracting HIV. Almost two-thirds (64%) reported unprotected vaginal sex in the previous six months, and in the previous year, 52% reported sex-for-money-or-drug exchanges, and 47% had five or more male sex partners. The lifetime prevalence of trauma was

high: 81% had experienced one or more violent trauma and 97% had experienced one or more non-violent trauma.

2.2 Psychological health. Women are more likely than men to be treated both in hospital and in the community for psychiatric illness, particularly for depression, and anxiety (Payne, 1998). Women constitute 60-70% of the people seeking mental health care in most countries and many of them are deeply dissatisfied with the mental health policy and services they experience (Stewart, Rondon, Damiani & Honikman, 2001). Most mental disorders are caused by a combination of biological, psychosocial, and environmental factors. For instance, domestic violence may give rise to both physical and mental health sequels. Mental health consequences include depression, anxiety, post-traumatic stress disorder, borderline personality disorder, dissociate disorder, somatization, and self-harm behaviors (Stewart & Robinson, 1998). Psychosocial and environmental factors change throughout a woman's lifetime and influences the way a woman views herself, how she responds to stress, and interacts with others. Women who work outside the home have their problems both physically and psychologically. Rijk, Schreurs and Bensing (2000) examined "Patients Factors related to the Presentation of Fatigue Complaints: Results from a Women's General Health Care Practice." Patients were asked to complete two questionnaires: one before and one after consultation. The patient related factors included social demographic characteristics; fatigue characteristics; absence of cognitive representations of fatigue; nature of the requests for consultation; and other complaints. Some 74% of the 155 respondents reported fatigue. Compared to the patients that were not fatigued, the fatigued patients were more frequently employed outside the home, had higher levels of general fatigue and a higher need for emotional

support from their doctor. Dulyapach (1995) displayed a similar view in stating, work pressure and stress are occurring increasingly among women, since most must now assume even greater family responsibilities as either permanent or temporary heads of households. Bearing such family burdens, both economic and domestic duties, coupled with having less free time for relaxation is becoming a serious cause of women's mental health problems in the near future.

2.3 Spiritual health. Spiritual beliefs can offer a means for reconciliation and an understanding of life (Brooke, 1987). The term spirituality is a very broad concept. It is a term more often found in theories arising in New Age paradigms (Barnum, 1998) and often associated with religion and religious beliefs and practices. Kociszewski (2004), in her study of the meaning of spirituality regarding critical care nurses with experience providing spiritual care to critically ill patients or their families, discovered that spirituality is believing in a higher positive being that helps to guide a person in times of stress. Moreover, spirituality has been related to the joyous experiences of the growth of the soul and connection with a higher good. Brooke stated (1987) that there are cultural components to spiritual beliefs and practices, but that which is spiritual transcends the cultural. Cultures and religions have unique ways of dealing with the same spiritual concerns: worth and dignity of the human being, suffering, reconciliation, love and acceptance, and freedom. In addition, venturing beyond the boundaries of science and medicine, life of the spirit is directed toward devotional belief in the influences of the ethereal, incorporeal, and immaterial aspects of beings, as distinguished from the influences of one's physical, concrete, and evidential existence (Karasu, 1999).

Chiu (2000) explored spirituality as a lived experience in Taiwanese women with breast cancer. Four themes and 12 sub themes were revealed: Theme 1: living reality, sub theme: (1) living with encounter, (2) taking full responsibility, (3) appreciation of life, people, and beloved things; Theme 2: creating meaning, sub theme: (1) purpose and meaning in life, (2) finding an alternative way of life/restructuring-life perspective, (3) religion; Theme 3: Connectedness, sub theme: (1) relationship with self, others, God, (2) power; Theme 4: Transcendence, sub theme (1) suffering, (2) liberation, (3) opening up the mind to life and death, (4) healing experience. In addition, Callister, Semenic and Foster (1999) studied "Cultural and spiritual meanings of childbirth". They found that participants in the study, having codified belief systems, expressed the primary importance of bearing children in obedience to religious law. Birth was articulated as a bittersweet paradox, often accompanied by a sense of empowerment. Women described the importance of personal connectedness with others and with God, the importance of childbearing, and the spiritual and emotional dimensions of their childbirth experiences. Religious beliefs help women define the meaning of childbirth and may provide coping mechanisms for the intensity of giving birth.

Fernsler, Kiemm and Miller (1999) "Spiritual well-being and demands of illness in people with colorectal cancer." They found that higher levels of spiritual well-being were found in women. In addition, subjects who reported higher levels of spiritual well-being indicated significantly lower demands from illnesses related to physical symptoms, monitoring symptoms, and treatment issues.

2.4 Social health. Women have been traditionally devalued and placed in an inferior role in society (Stewart & Robinson, 1998). Although there is legislation in

most countries against discrimination, this hasn't translated into effective equal access for women regarding work, healthcare and safety. Women's participation in government, business, and the professions still trails far behind that of men (Stewart et al., 2001). Besides this, Gjerdingen, McGovern, Bekker, Lundberg and Willemsen (2000) studied "Women's Work Roles and Their Impact on Health, Well-Being, and Career: Comparisons between the United States, Sweden, and The Netherlands." Their findings showed that women from each of the three countries contribute more effort to household chores and childcare and less to the workplace than men do. As a result, their total workloads appear to be somewhat greater and more diffusely distributed than those of men. Heavy workloads may adversely affect women's health. Heavy work responsibilities may also undermine marital happiness, particularly if there is perceived inequality in the way partners share household work. Finally, women's total work responsibilities often impact on their careers due to compensatory reductions in work commitment and job status. Stuart and Garrison (2002) indicated that role balance had a buffering effect on the relationship between daily hassles and health status.

Today numerous women have joined the work force. Therefore, the increase of women in the work force has produced many new workplace issues, namely less pay than men, lack of power in the workplace, absence from senior positions, and balancing work and family. Attention is also being drawn to gender-related factors, such as women's position in society, the many kinds of discrimination they face, and their lack of involvement in decision-making, all of which adversely affect their health and access to health services (World Health Organization, 1996). The goal of the Women's Economic and Leadership Development (WELD) Program

is to strengthen the efficiency of existing women's groups, including government and non-governmental organizations, that are involved in women's development. Its purpose is to facilitate women's participation in national development both as contributors to and beneficiaries of the development process. The major WELD objectives are: (1) increasing women's involvement in development as income generators, business managers, political and public leaders; (2) promoting the organization of women's groups and strengthening the efficiency of existing ones; (3) increasing the capacity of public and private organizations to contribute to women in development; and (4) strengthening the roles and increasing the participation of women in economic and political decision-making at local and regional levels (Women's Economic and Leadership Development in Thailand, 1995).

In brief, women still continue to face different health problems including physical, psychological, spiritual, and social aspects between developing and developed countries. The poorer the country, the fewer resources there are to be devoted to women's health. The most pressing women's health needs in developing countries are those associated with a relatively young population, a moderate to high birth rate and a declining death rate, safe motherhood, and infectious diseases. In more industrialized countries, they have lower birth and death rates and more problems related to chronic and degenerative conditions (McElmurry et al., 1993).

3. Thai Women's Health Issues in Factories

Over the past few decades, Thailand has undergone significant structural changes. The country's rapid shift from an agricultural and rural society to an urbanized industrial economy has led it to become one of the fastest growing new economies in the world. A woman's ability to mediate between her occupational role

and that of other roles (parental, conjugal, community) depends partly on the context, flexibility, and formality of the occupation. The increasing number of women entering Thailand's manufacturing, service and commerce sectors will undoubtedly increase over the next five to ten years. Consequently, there exists a need for appropriate family planning and welfare programs on the part of the government and manufacturing sector. In some factories in Bangkok, this has begun through the establishment of in-factory day care centers. Moreover, occupational safety has received little attention from government and private enterprise alike, which places women at great peril. The road to improving women's reproductive and productive health in Thailand will continue to be a long one despite the advances made thus far. Many underlying causes obstructing the development process are ingrained in parts of the Thai socio-cultural system, its families and members (Yoddumnern-Attig, 1995).

Regarding the health status of female industrial workers in Thailand, they are at risk from several health threats depending upon the industry involved, such as acute and chronic lead poisoning, back pain and ergonomic problems, pterygium and pingecular, deaths from unclear causes and injuries. Female industrial workers not only face difficulties during working hours, they also experience other problems which are job-related and/or sex-specific and lead to poor physical and mental health, including childbirth, childrearing, and providing for parents and other family members who may live in rural areas. Moreover, a lack of serious attention to the plight of female industrial workers also exists. Workers need to know and recognize illegal practices related to unsafe acts and unsafe conditions and be willing to inform authorities to do their jobs and follow them up properly. Action should be taken to ensure that government agencies also abide by the law so that a healthy environment

is maintained, not only within a work place but also its surrounding areas (Metadilogkul, 1995). Theobald (2002) explored workers' experiences and understandings of occupational health hazards in the electronics industries of northern Thailand. Women form the bulk of the lower-level workforce as operators responsible for assembling the parts that make up microchip components. Musculoskeletal pains, eyestrain, chemical exposure, stress, improper use of safety equipment and accidents all impact upon women's health. Additionally, risk behaviors such as amphetamine and alcohol use, and unprotected sex, are associated with the social context of factory work.

To recapitulate, there has been greater recognition of the many factors that contribute to the quality of Thai women's health in factories. Recognizing the heterogeneity of women, such as difference in age, education, socioeconomic status, and sexual orientation, helps both researchers and health care providers to understand the factors that may influence causes, diagnoses, progression, and treatment of disease.

Measurement Theory and Psychometric Properties

Measurement theory and psychometric properties were important aspects to consider in the literature review during the development of the WHES. The following measurement theory and psychometric properties were used in this study: (1) classical measurement theory, (2) construct validity, (3) measuring reliability, and (4) discrimination index.

1. Classical measurement theory

In 1905, Spearman published his model for test scores that laid the foundations of classical theory. This theory, with its concept of true score, measurement error and the index of test reliability, controlled the field of psychological measurement for approximately 50 years (Keeves & Masters, 1999). Classical measurement theory views measurement as the determination of the quantity of an attribute present in an object (Nunnally & Bernstein, 1994). It is a model for assessing random measurement framework. The basic principle of this theory evolved from the assumption that random error is an element that must be considered in all measurement. Random error is never completely eliminated. However, the investigator should seek to minimize it as much as possible. Moreover, this theory has the formulation that every observed score is composed of a true score and an error score. If it were possible to have a measuring procedure that was perfectly reliable, the observed score and the true score would be the same. The more reliable a measuring procedure is, the smaller the standard error of measurement will be. The size of the standard error of measurement is an indicator of the amount of error involved in using a particular measuring procedure (Nunnally & Bernstein, 1994; Waltz et al., 1991). Keeves and Masters (1999) referred to classical theory as a "weak true score" theory since it involves two assumptions including: (1) the observed raw scores can be decomposed into two components, namely, true score and error, and (2) repeated estimate of true scores for a person are not linearly correlated with the error scores for that person. In classical measurement theory, item analysis procedures are employed, and a reliability index is calculated in order to support the meaningfulness of a total test score. Furthermore, it is necessary to undertake a principle component

analysis to examine the factor structure of the set of scale items, prior to combining scores on these items to obtain one or more total scores.

2. Construct validity

Construct validity came to be recognized as the fundamental and all-inclusive validity concept, insofar as it specifies what the scale measures. The construct validity of a scale is the extent to which the scale may be said to measure a theoretical construct or trait. It requires the gradual accumulation of information from a variety of sources. Any data throwing light on the nature of the trait under consideration and the conditions affecting its development and manifestations represent appropriate evidence for this validation (Anastasi & Urbina, 1997). Factor analysis and hypothesis testing are techniques that contribute to construct identification in the following sections.

2.1 Factor analysis

Developed as a means of identifying psychological traits such as the extent of empowerment, factor analysis is relevant to construct-validation procedure. It is a refined statistical technique to analyze the interrelationships of behavior data (Anastasi & Urbina, 1997). In the process of factor analysis, the number of items in terms of how each individual's performance can be described is reduced from the original scale to a relatively small number of factors or common traits. All techniques of factor analysis begin with a complete table of intercorrelations among a set scale, namely a correlation matrix. Every factor analysis ends with a factor matrix, that is, a table showing the loading of each of the factors in each scale.

2.2 Hypothesis testing approach

The researcher can test hypothesis if there are conceptual or theoretical frameworks underpinning the study, a representative sample, and an appropriate study design (Munro, 2001). In previous studies of the development of empowerment scale, the investigators proposed a relationship between the personal background variables such as education, income, and social support with the empowerment level (Edwards et al., 2002). If results show statistically significant correlation between these variables, it is the foundation of the statistical test. On the contrary, if the conceptual framework fails to account for the data, the investigators need to revise the measure, reformulate the rationale, or reject the rationale altogether (Waltz et al., 1991).

3. Measuring reliability

The reliability of a scale may be expressed in terms of the standard error of measurement (SEM) or standard error of a score. This measure is particularly well suited to the interpretation of individual scores; therefore for many measurement purposes it is more useful than the reliability coefficient. SEM can be easily computed from the reliability coefficient of the scale (Anastasi & Urbina, 1997). There are different types of reliability and different procedures for estimating it. For instance, Cronbach alpha is commonly used for estimating internal consistency reliability and a form of equivalence reliability is required, while test-retest is used to test for stability. There are a number of factors that affect reliability, for example longer scales tend to be more reliable than shorter scales and items of similar content enhance reliability (Wiersma & Jurs, 1990).

3.1 Cronbach alpha

Cronbach alpha or alpha is based on parts of a scale (Wiersma & Jurs, 1990). This is a method for finding reliability by utilizing a single administration of a single form with a Likert scale format. It is based on the consistency of responses to all items in the scale. This inter-item consistency is influenced by two sources of error of variance, namely: content sampling and heterogeneity of the behavior domain sampled.

3.2 Test-retest technique

Using test-retest is one technique for testing internal consistency of the developing scale (Nunnally & Buenstein, 1994). The reliability coefficient (r_{tt}) in this case is the correlation between the scores obtained by the same person on the two administrations of the scale. The error variance corresponds to the random fluctuations of performance from one scale session to the other. These variations may result in part from uncontrolled scale conditions, such as fatigue, stress, background noise, workload, or climate. Retest reliability shows the extent to which scores on a scale can be generalized over different occasions. The higher the reliability, the less susceptible the scores are to the random daily changes in the condition of the scale takers or of the scale environment (Anastasi & Urbina, 1997). Kline (1993) proposed that test-retest should be separated by at least a three-month gap. For a sample size, there should be at least 100 subjects. However, for empowerment concept, if the results of the second retest are dissimilar to the results of the first test, measurement error may have occurred. As a result of previous studies investigators suggested a 2-week interval when applying the test-retest technique of developing an empowerment scale (Shiu et al., 2003; Ven et al, 2003).

4. Discrimination index

In the norm-referenced framework, discrimination index is a procedure that can be used to increase the reliability and validity of a scale by assessing an item's ability to discriminate. Item discrimination for norm-referenced measurement means that the scale item is effective in separating those with high scores on the total scale from those with low scores. If performance on a given item is a good predictor of performance on the overall measure, the item is a good discriminator (Waltz et al., 1991; Wiersma & Jurs, 1990). This technique is conducted on a preliminary scale form. Methods to determine the discrimination index depend on the scale of measurement. For example, rating scale is often calculated by using t-test of two groups: those with high scores and those with low scores on the total scale (Edwards, 1957; Srisaard, 1989). Edwards (1957) stated that the value of t is a measure of the extent to which a given statement differentiates between the high and low groups. These statements can be selected by finding the t value for each statement and then arranging the statements in rank order according to t value. Next the 20 to 25 statements with the largest t value are selected for the attitude scale.

To reiterate, measurement theory and psychometric properties, including classical measurement theory, construct validity, measuring reliability, and discrimination index, are vital aspects for investigators who are interested in developing a scale. They involve designing the study and the techniques to increase reliability and validity of the scale so that researchers can develop them into useful and valuable tools. Without measurement theory and psychometric properties, the investigators study may be confusing, ambiguous, and offer poor information for the construction of items for scale development.

Summary

No empowerment scale relating to women's health for female factory workers in Thailand or any other country has been identified. Studies by Bolton and Brookings (1998), Brookings & Bolton (2000), and Faulkner (2001), focused on people with disabilities, and older people, but were not related to women's health issues or female factory workers. Although the empowerment concept is promoted through education and support for women's health both in Thailand and some western countries, a scale to assess scores of empowerment has yet to be developed. Therefore, to develop a scale of empowerment regarding women's health for female workers in factories, the investigators should carry out extensive literature reviews including: philosophies and theories related to the empowerment concept and to women, a concept of empowerment, women's health, and measurement theory and psychometric properties.