ANXIETY SCALE FOR PREGNANCY: DEVELOPMENT AND VALIDATION

by

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ABSTRACT

Women encounter physical, emotional, and psychological changes during pregnancy. The literature indicates that some women find these changes to be stressful. They may respond to this stress by feeling anxious. The frequency and intensity of the anxiety reaction depends on how women perceive these stressors and on their ability to cope with the anxiety. The studies that have investigated pregnancy and anxiety have used general measures of state anxiety. A search for a measure of anxiety that pertains to pregnancy produced a number of measures that were specific to one or several dimensions of pregnancy. There are no measures available that look at anxiety and the multidimensional components of pregnancy. Therefore the intent of this research project was to develop and validate such a measure.

Spielberger's theory and measure of state and trait anxiety was examined in detail. The development of The Anxiety Scale For Pregnancy (ASP) was based on his research of state anxiety. An extensive review of the literature on pregnancy led to the construction of the items for this measure. The initial 82 items were pretested by a group of experts in the field of pregnancy and a sample of 40 women. The revised items comprised ten dimensions of pregnancy and 73 items relating to those dimensions. This version of ASP was field tested on a group of 270 pregnant women.

Validation of ASP was through confirmatory factor analysis, group differentiation, and concurrent validity. Confirmatory factor analysis of the ten dimensions and 73 items did not produce a good fit of the model. The model was respecified and resulted in a hypothesized model of 14 observed variables and five latent constructs, baby, labour, marital, attractive, and support. The overall goodness-of-fit for this model is excellent. Group differentiation was assesses throught the variables, trimester, gravidity, age, and health during pregnancy. The mean differences between the group variables and the subscales of ASP supported previous research in the domain of pregnancy and anxiety. Concurrent validity was demonstrated through the strong

correlations between the scores of ASP and the State and Trait Anxiety Inventory, as well as ASP and the State Self-Esteem Scale which produced, as expected, a strong negative correlation. The results from this study indicate that the ASP is a valid measure of five different dimensions relating to pregnancy and those dimensions are based on an extensive review of the literature.

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Chapter 1

INTRODUCTION

A woman encounters physical and psychological changes during pregnancy that are typical of this time period. Pregnancy is also an individual experience that elicits a range of responses from very positive to very negative. The wide range of responses are due to the complexity of the process: the physical, emotional, psychological, and social changes that occur; the woman's personality; the life experiences of the individual; and the cultural expectations of one's society.

In light of the many factors involved during the pregnancy period, some women find certain aspects of their pregnancy very stressful. They respond to this stress by feeling anxious. The frequency and intensity of the anxiety reaction will depend on a woman's perception of the stressors and her ability to cope with the anxiety. These factors will affect the woman's pregnancy experience.

To date, the majority of research on anxiety and pregnancy has relied upon measures of trait or state anxiety. These measures assess a person's general level of anxiety. They do not indicate stressors that pertain to the prenatal period. The intent of this study is to develop a measure of anxiety that is specific to pregnancy.

Pregnancy and Anxiety

There are many different theories concerning pregnancy and its psychological processes. It has been viewed as a developmental process, a time of crises, where growth is through crisis resolution (Grossman, Eichler, & Winickoff, 1980). Others see the

developmental process requiring adaptation and integration on the part of the woman and her family (Lederman, 1984). This process depends on the physical changes, the psychological state of the woman, her social situation and her support system. All of these factors help determine her ability to adapt readily or with some difficulty to her state of pregnancy. Lederman (1984) sees pregnancy as a paradigm shift from woman without child to woman with child. This shift involves a reassessment of one's self regarding self-image, beliefs, values, priorities, relationships with others, and problem solving skills. These issues must all be examined before the emergence of the new paradigm involving the child.

The variety of theoretical views may be due to the strong influence of the personal aspect of the experience. The experience is influenced by the woman herself, her personality and her ability to cope with life changes. The reactions and support of family and friends also may colour her view toward pregnancy. Her social situation and age may play a part in whether this will be a positive or negative experience. This is further influenced by the physical aspects of the pregnancy, whether the changes are minimal and not affecting her lifestyle to any great extent, or drastic changes in her lifestyle in order to carry the pregnancy to term. Pregnancy is a very complex process where the woman's experience may be influenced by many different factors.

The literature indicates that there are specific issues that a woman must process, assimilate, and integrate during the course of her pregnancy. Women appear to deal with different issues during each trimester, and other issues are constant throughout the nine months. Each trimester will be examined to provide a general understanding of pregnancy and the possible stressors that may cause anxiety for some women.

During the first trimester there are several issues that a woman must evaluate in order to prepare for the eventual birth of her child. She must initially deal with her own reaction to the discovery of her pregnancy. This reaction will be influenced by whether this was planned or unplanned; her personality and coping skills for new situations; her perception of her support system and her partner; her health, age, body image, and self-concept; and finally her present life circumstances.

Women often experience a certain degree of ambivalence toward being pregnant when it is first confirmed (Hassid, 1978). They are concerned about how this will affect their lifestyle, their relationship with their spouse or partner, and the timeliness of having a baby. According to Lederman (1984) the woman must assess the pros and cons of having a child or not having a child, decide how to manage a career or school as well as care for a child, and look at her financial situation. Time is spent working through the idea of being pregnant. Accepting this will be influenced by the amount of stress in her life and her life circumstances (Lederman, 1984).

Some women start to experience the physical signs of pregnancy during the first trimester. Nausea, vomiting, increase in urination and fatigue are common physical symptoms that may be experienced during this time frame (Brown, 1979; Drake, Verhulst, & Fawcett, 1988; Hassid, 1978). Emotionally the woman may experience some moodiness and a feeling of detachment (Brown, 1979).

Quickening occurs during the second trimester, when the woman begins to feel movement in her womb (Brown, 1979; Hassid, 1978). The woman now starts to focus on her unborn child (Brown, 1979). She may develop a bond and an identification with the

fetus, and her emotional attachment increases as the child grows within her (Rubin, 1975; Selby, Calhoun, Vogel, & King, 1980).

Several authors discuss the identification of a motherhood role for *primigravidas*, women who are pregnant for the first time. Leifer (1980) indicates that the woman increasingly visualizes herself as a mother and by the end of the pregnancy she will have developed a sense of relatedness to her baby at which time she is ready to give birth.

The identification of a motherhood role also suggests a time for exploring the relationship with her own mother. This is seen to be important in affecting the woman's attitude to her own pregnancy according to Wolkind and Zajicek (1981). The motherhood role involves developing a philosophy of motherhood. This may occur before or during the pregnancy. Her acceptance of the pregnancy and her relationship with her mother play an important part in developing a philosophy of pregnancy (Lederman, 1984).

During the second trimester the physical changes to the woman's body become more noticeable as she finds it more difficult to wear her regular clothes. At this point she must deal with her views of her body image (Waleko, 1974), her self image (Selby et al., 1984) and her ideal image. Also how she and her partner perceive and respond to these physiological changes will influence how she accepts the pregnancy (Selby et al., 1984; Shereshefsky & Yarrow, 1973). Her mood becomes introspective in an effort to adapt and there is a sense of dependency and a need to be nurtured (Hassid, 1978).

The marital relationship is re-evaluated throughout the pregnancy. Initially the woman must deal with her partner's response to the news of her pregnancy. The woman is concerned about how her partner will take on his new role as parent and the amount of

support he will give her throughout the pregnancy. His response and ability to adapt to this new situation will influence her response to her pregnancy experience (Shereshefsky & Yarrow, 1973).

Achievement of each milestone in the pregnancy will make demands on the couple and their relationship. The stress of this will be influenced by the risk that is involved in the pregnancy. The medical risk involved in a pregnancy may be minimal or very high. A pregnancy that is classified as high risk requiring constant medical supervision and intervention, may place great demands on the couple. How couples cope in such situations depends on their relationship.

By the third trimester pregnant women are very aware of their changing body image. They may wonder whether their body will ever be normal again. Physical activities become much more difficult due to their large abdomen. Eventually many women feel that they have had enough and want the experience to be over, but do not want labour and the delivery (Brown, 1978; Rubin, 1975).

During this period the woman still experiences anxiety around thoughts of herself as a mother and how she will deal with this new baby (Hassid, 1978). By the end of the third trimester, she should be able to visualize herself as a mother (Lederman, 1984). She also has concerns about how her partner will respond to his new role and how this baby will affect their relationship (Hassid, 1978).

The mother begins to focus on labour and delivery. Many women wonder how they will cope with this experience. They may have fears regarding loss of control, helplessness, pain, and loss of self-esteem (Lederman, 1984a). Labour and birth are definitely the focus during this trimester.

The previous discussion has generally focused on primigravidas but consideration should also be given to *multigravidas,* women who have been pregnant more than once. Their process through the pregnancy period is similar to that of primigravidas, though some issues may not be accentuated as they were in the first experience. Accommodating this new child into the family requires that the woman ensure acceptance by the baby's other sibling(s). She may also wonder: how she will be able to love this child as much as her first child; how her other child(ren) will react to this new little person; and will she be able to cope with the demands of another child in her present family. Unfortunately, the mother's needs and concerns may not be addressed, because this is not a new experience for her. Others, including her partner, may gloss over the pregnancy, thus leaving her to deal with these issues alone.

The literature indicates that anxiety does affect various aspects of pregnancy and that this is most likely different for each woman. Every milestone in the process of pregnancy from finding out that one is pregnant to birth of the baby can be anxiety provoking for some women. For certain milestones in pregnancy the majority of women experience some degree of anxiety, for instance, labour. Not only is there a difference in those who experience anxiety, there are also differences among women in the intensity of their anxiety.

Problem and Purpose

A review of the literature indicates that there is no specific measure of anxiety during pregnancy that looks at the possible internal and external events that may provoke pregnancy specific anxiety. Yet the anxiety that women experience will probably have some connection to their pregnancy considering that this new baby will effect many

aspects of their lives. Therefore, general measures of anxiety may not be appropriate for pregnant women as these measures do not assess anxiety in relation to pregnancy. An instrument is needed that specifically examines the multidimensional aspects of anxiety during pregnancy. This instrument should be multidimensional because pregnancy affects the physiological, psychological, emotional, and sociological aspects of a woman's life. The purpose of this research is to develop an instrument that will measure anxiety in relation to pregnancy.

This instrument should indicate what aspects of pregnancy cause anxiety for the general population of pregnant women. It should also show differences in anxiety between select populations, and the scale should measure the intensity of the anxiety. This is very important as a certain amount of anxiety is expected and assumed to be healthy when new experiences are encountered. Concern arises when a situation provokes a very high degree of anxiety and then when considering how a person copes with that anxiety.

Significance of the Study

Research on the psychological changes in pregnancy indicates that this life change event may provoke anxiety. Many women experience anxiety during their pregnancy and the intensity of the anxiety is different for each woman, depending on her pregnancy experience. Research also suggests that anxiety during pregnancy may have an adverse effect on the fetus, increase labour complications and affect pregnancy outcome (Beck et al., 1980; Burstein, Kinch, & Stern, 1974; Crowe & Baeyer, 1989; Molfese et al., 1987; Reading, 1983; Rizzardo et al., 1985; Standley, Soule, & Copans, 1979). Professionals who work with pregnant women need to have an understanding of the possible stressors

that may cause anxiety during the prenatal period, because they are in a position to provide appropriate means of support to their patients and present options to alleviate the anxiety.

A multidimensional anxiety scale specific to pregnancy would be helpful to the medical professionals who attend to pregnant women and who are trying to ensure that their patients have a safe and healthy pregnancy. Such a scale would help to provide an understanding of the patient's anxiety level throughout pregnancy. Mothers and their medical consultants would then be able to assess the level of anxiety and work toward reducing the anxiety so that the mother could cope with the stressors in the best possible manner. Instructors of prenatal classes may find such a measure useful in assessing the concerns of women in their classes, thereby enabling them to focus on issues that are important to specific groups of women. A more precise measure of anxiety in pregnancy would be beneficial to current research that is trying to find a connection between anxiety during pregnancy, labour, and pregnancy outcome. A refined measure may provide more conclusive evidence, thereby furthering research in this area.

This study may also indicate what areas of pregnancy are stressful to women and more specifically to certain types of women, in particular areas of concern with high risk and select populations. This will enable further research to focus on more specific areas of anxiety during pregnancy, thus providing knowledge that will help professionals to develop information on how women can cope with their anxiety during pregnancy. It will also provide more information to women, thereby increasing their knowledge of the process of pregnancy.

Chapter 2

REVIEW OF THE LITERATURE

This chapter is a review of the literature that has led to the development of an anxiety scale for pregnancy. Theories are presented from the domain of anxiety, with particular attention given to Spielberger's theory and measure of anxiety. Research in anxiety and pregnancy is also examined to ascertain what measures of anxiety are being used in these studies. The final section describes the dimensions in pregnancy that may create stressors for pregnant women. All this information was instrumental in constructing the items for the Anxiety Scale for Pregnancy.

General Anxiety Theory

Research in the area of anxiety is diversified and has led to numerous theories. A brief historical overview will provide a perspective of research in this area.

Freud (1923) first saw anxiety as a part of human personality when he stated that it is "a specific state of unpleasure" (p. 70). He felt anxiety first occurred during birth. He described three types of anxiety: realistic anxiety is the reaction to a perceived external fear, moral anxiety and neurotic anxiety are both based on Freud's theory of personality.

Neo-Freudianism appeared during the 1930s and focused more on the external world. Neo-Freudians stated that anxiety could not occur "before the organism has some awareness of its environment" (Levitt, 1980, p. 21). They introduced the creation of

secondary anxiety which is related to forgotten childhood incidence of parental disapproval and feelings of anger that are now triggering anxiety (Levitt, 1980).

Dollard and Miller (1950) explored anxiety from a learning theory approach. They considered anxiety to be a secondary learned drive reinforced by pain. The fear of pain may be generalized to similar situations or objects. Anxiety may also occur when experiencing two competing drives as in approach and avoidance.

The study of anxiety really had not made many advances by 1950. Spielberger (1972) considered this was due to the fact that "the complexity of the anxiety phenomenon, the lack of appropriate instruments for assessing anxiety, the ethical problems associated with inducing anxiety in the lab have all contributed to the paucity of research" (p. 5).

After 1950 research in the area of anxiety increased dramatically, as did the development of several psychometric instruments: the Manifest Anxiety Scale (MAS) (Taylor, 1953), the Test Anxiety Questionnaire (Mandler & Sarason, 1952), and the Affect Adjective Checklist (AACL) (Zuckerman, 1960). The MAS became the most widely used instrument in relation to instruments available at that time.

The factor analytic studies of Cattell and Scheier (1958, 1961) led to the identification of "trait" anxiety and "state" anxiety constructs. By their definition,

> The trait anxiety factor was interpreted as measuring stable individual differences in a unitary relatively permanent personality characteristic. The state anxiety factor was based on a pattern of variables that covaried over

occasions of measurement defining a transitory state or condition of the organism which fluctuated over time. (Speilberger, 1972, p. 13)

In 1964 well known scientists in the field of anxiety presented papers on the subject, which were later published under the title "Anxiety and Behavior." The editor stated "Each of the contributors had approached the problem of anxiety with his own theoretical orientation and research methods and concluded that a meaningful integration or synthesis of their diverse views was not yet possible"(Spielberger, 1972, p. 7).

Since 1966, Spielberger's research has advanced the study of anxiety. He has developed a Trait-State Theory of Anxiety (1966) as well as a measure of Trait and State Anxiety (1967). His scale was revised and has been used extensively in different disciplines. The Anxiety Scale for Pregnancy developed in the present study is based on his research. Spielberger's measure was chosen because the words that he used to describe state anxiety could be coupled with a stressor relating to pregnancy. Also his measure has been standardized and used extensively in research studies. Therefore, the following discussion will briefly describe his theory.

a) Spielberger's Theory of State and Trait Anxiety

Anxiety is a personality characteristic that may be considered as either a personality *trait* or a personality *state*. Traits tend to be viewed as "enduring individual differences" in one's perception and reaction to the environment around one's self. States pertain to the level of intensity of a characteristic at any time period.

Spielberger (1972) described anxiety in the following manner:

> State anxiety (A-State) may be conceptualized as, a transitory emotional state or condition of the human organism that varies in intensity and fluctuates over time. . . . Trait anxiety (A-Trait) refers to relatively stable individual differences in anxiety proneness, that is, differences in the disposition to perceive a wide range of stimulus situations as dangerous or threatening, and in the tendency to respond to such threats with A-State reactions. (p. 39)

Spielberger's Trait-State Anxiety Theory implies that the personality states of anxiety are aroused when a person perceives external or internal stimuli to be dangerous or threatening. For example, experiencing a situation where sudden death may occur would likely cause an anxiety reaction. This anxiety reaction may range from unpleasant to painful. The person may rectify the situation by means of several options. A behaviour sequence may be evoked to avoid or to reduce the perceived danger, or defensive mechanisms may come into play that will change the cognitive view of the situation (Spielberger, 1966a). The intensity and duration of the reaction will depend on the person's perception of the danger, and the length of time the danger is considered to be a threat. Differences in A-Trait or previous similar circumstances will influence the extent to which the event is seen as threatening, and the approach of the response to decrease the anxiety (see Figure 1). There is some research to suggest that people who possess a high degree of the anxiety trait are afraid of failure, so they may respond with

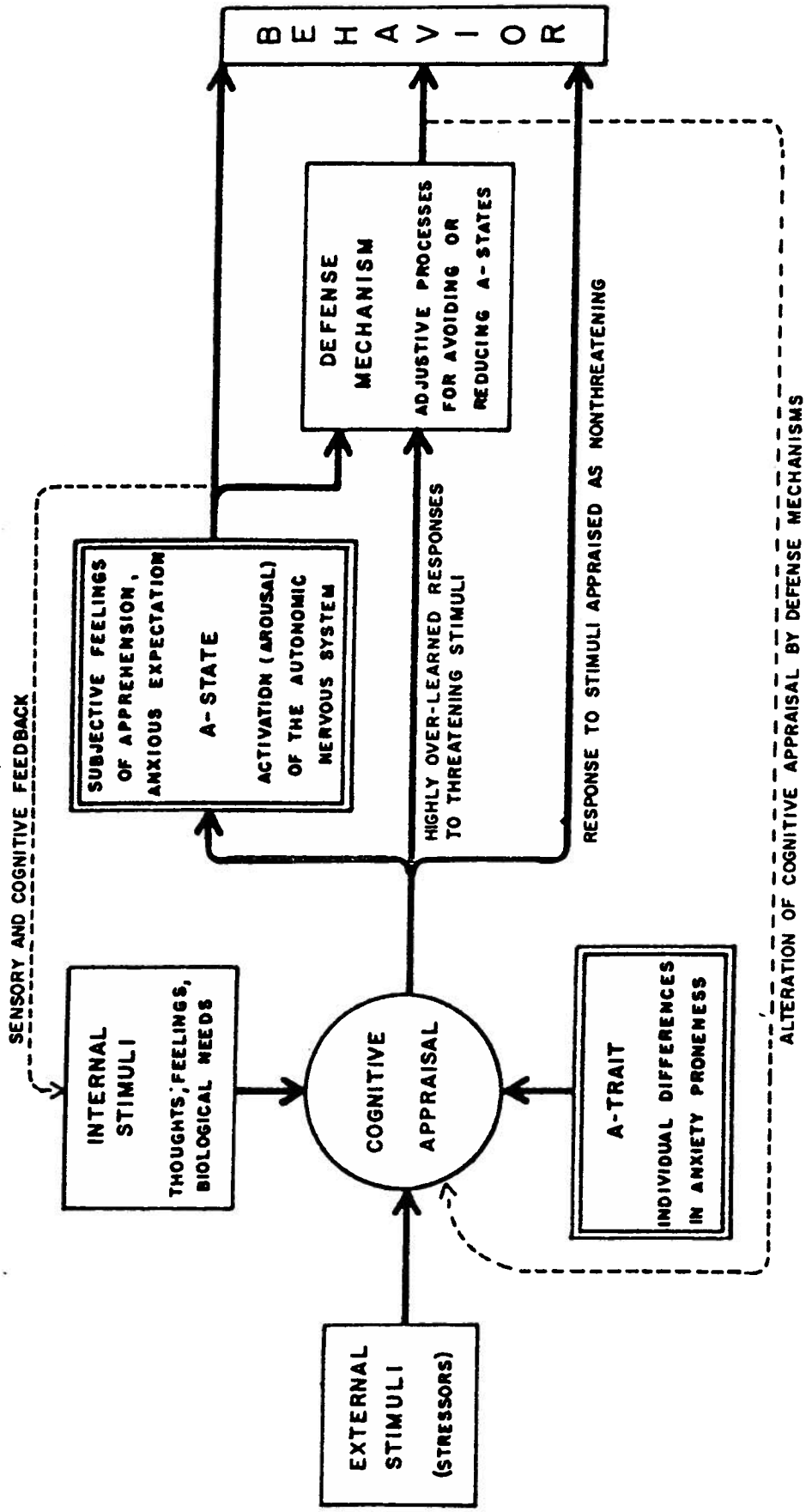

Fig. 1. Schematic diagram of trait–state anxiety theory. Reprinted with permission from C. D. Spielberger (ed) (1966). "Anxiety and Behavior", 17. Academic Press, London and New York.

greater levels of state anxiety in situations which threaten their self esteem (Basowitz, Persky, Korchin, & Grinker, 1955).

Spielberger (1970) then developed a measure of both trait and state anxiety, the State-Trait Anxiety Inventory (STAI). It is a self report scale made up of twenty statements relating to general feelings (trait anxiety), and another twenty statements about present feelings (state anxiety). Spielberger (1983) reported that over 2000 studies had used his inventory since it was first published.

Current research in anxiety is still diversified. Fischer (1988) described the present stage of the study of anxiety in his comment, "There is little agreement among theoreticians as to the nature of the phenomenon" (p. ix). This implies further research is still necessary in order to consolidate findings in this domain of study.

Development of the STAI

The initial intent of the STAI was to develop a set of items that could be used to measure state or trait anxiety through the use of different directions. Items from other measures of trait anxiety were rewritten for this new measure, known as Form A.

The validity studies of Form A suggested several problems: some of the key words were not appropriate for both state and trait anxiety, and important key words had been excluded because they did not apply to both state and trait anxiety. Due to the results of the validity studies, the focus of the test was modified to select items that were specific to either state or trait anxiety. Several large samples were administered Form X to standardize and validate the measure which resulted in the test manual for Form X

(1970). The Eighth Mental Measurements Yearbook (1978) stated that "the STAI has been used more extensively in psychological research than any other anxiety measure" (cited by Spielberger, 1970, p. 12).

Several studies questioned the unidimensionality of the test due to its factor structure (Barker, Barker, & Wadsworth, 1977; Endler & Magnussen, 1976; Endler, Magnussen, & Ekehammar, 1976). The factor structure was examined after six state anxiety items and six trait anxiety items were replaced (Spielberger, Vagg, Barker, Donham, & Westberry, 1980). The new key words "gave greater emphases to the cognitive or 'worry' aspects of anxiety" (p. 12). This revision produced Form Y which was standardized on 5000 subjects. Spielberger (1980) reported a four factor solution for Form Y. These factors emphasized: items of state anxiety, items absent of state anxiety, items absent of trait anxiety, and items of trait anxiety.

The reliability of Form Y was found with two groups of high school students using the test-retest method. The test-retest correlations were .75 and .65 for trait anxiety and .34 and .36 for state anxiety. The coefficients are low for state anxiety due to fluctuation in anxiety states. The internal consistency of both state and trait anxiety were high alpha coefficients being generally over .9.

Concurrent, convergent, and construct validity were undertaken to establish validity of Form Y of the STAI. Construct validity was determined by comparing the means and standard deviations of contrasting groups indicating marked differences in levels of anxiety.

Form X was correlated with the IPAT anxiety scale (Cattell & Scheier, 1963), the MAS (Taylor, 1953), and the AACL (Zuckerman, 1960) for evidence of concurrent validity. Correlations between the T-Anxiety of the STAI, the IPAT, and the MAS were .75 and .8, suggesting similar measures of trait anxiety.

The STAI manual reports numerous examples that indicate the STAI was correlated with other measures of personality for evidence of convergent and divergent validity.

The STAI has been given very positive reviews in The Eighth Mental Measurements Yearbook (Buros, 1978). Dreger stated "The revised STAI is one of the best standardized of anxiety measures, if not the best" (p. 1095). Katkin mentioned:

> Research with the State-Trait Anxiety Inventory has been proliferating to the point where there is probably more published research on the STAI, and more ongoing research now on the STAI, than on any other commercially available anxiety inventory. (p. 1096)

Measures Used in Pregnancy and Anxiety Studies

A literature review indicated that anxiety in pregnancy has been researched since the 1940s. However, the term "anxiety" was not widely used until the 1970s when there were quite a few studies that examined the process of pregnancy and the issues leading to anxiety during the prenatal period. After this period, the literature contains a varied assortment of books and journal articles. They discuss many issues of pregnancy current

to the experiences of that particular time period and that specifically deal with the stressors that lead to anxiety.

This review led to the following questions. What tests are being used to measure anxiety in these studies? Is there a measure of anxiety that pertains specifically to pregnancy?

An extensive review of the literature on pregnancy and anxiety revealed that a variety of tests were used to measure anxiety during this period. The majority of journal articles used Spielberger's STAI (Albrecht & Rankin, 1989; Barnett & Parker, 1986; Beck, Siegel, & Davidson, 1980; Cox & Wittmann, 1987; Crowe & Baeyer, 1989; Edwards & Jones, 1970; Gorsuch & Key, 1974; Keenan, Basso, & Goldkrand, 1991; Molfese et al., 1987; Rizzardo et al., 1988). Taylor's (1953) MAS was the measure of choice for a small selection of the studies (Glazer, 1980; Lederman, 1984a; Yamamoto, 1976). Even fewer studies used Cattell and Scheier's (1963) Anxiety Scale Questionnaire, IPAT (Zax, Sameroff, & Farnum, 1974). These instruments are measures of general anxiety.

Five other measures were used to assess anxiety during pregnancy. Schaefer and Manheimer (1960) developed a Pregnancy Research Questionnaire (PRQ). This measure was used in one study (Lightfoot, Keeling, & Wilton, 1982) for the purpose of classifying women as experiencing low, medium, or high anxiety. No information was given about the development or testing of the measure.

Blau, Welkowitz, and Cohen (1964) designed the Maternal Attitude Toward Pregnancy Instrument (MAPI). It was constructed as a possible measure for predicting

complications in pregnancy. The 48 items relate to many issues in pregnancy. The statements are written from a general point of view, for instance, "Some women want to be awake during labour" (p. 328). The response given may be based on knowledge of women and not individual feelings. This measure was used in one study (Zak et al., 1975).

The Pregnancy Anxiety Scale (PAS) is a "true or false" test containing 25 statements. The authors of the test distributed it with the MAS to 61 pregnant women. The correlation between the two measures was .549. No other psychometric information was provided in the article (Burstein et al., 1974).

Glazer (1980) adapted a Concerns Questionnaire from a tool by Light and Fenster (1974) in order to include more specific concerns of pregnancy. The 29 items presented in the article were concerns for at least 50 per cent of his sample. These concerns support research in the literature and apply to many issues women face in the 90s.

Barnett, Hanna, and Parker (1983) developed a Life Event Scale for Pregnant Women. The respondents were asked to rank the distress of the events. This scale provides a holistic approach to the possible distressing factors in a pregnant woman's life.

Levin (1991) used 10 of the 25 items from the PAS. The other 15 items pertained more to clinical aspects of pregnancy. He used factor analysis to test his model of three factors: anxiety about being pregnant, anxiety about childbirth, and anxiety about hospitalization.

These five measures appeared to be the only instruments mentioned in the literature that pertained to anxiety women may experience during pregnancy. Only one of

these measures was used in another study and one instrument was revised by another author. Very little, if any, information was given on the psychometric properties of the majority of these instruments. The literature indicates that researchers have not chosen these instruments when conducting studies pertaining to anxiety and pregnancy. Instead they have tended to use the well-established general measures of state and trait anxiety. Perhaps this is due to the inadequacy of the measures and lack of reliability and validity studies. Several of these tests are dated and therefore do not reflect current issues in pregnancy. Others tend to select possible stressors from one or only several dimensions of the pregnancy experience. The majority of the tests do not specifically elicit the feelings of pregnant women in regard to their pregnancy concerns and fears. At this time there does not appear to be a valid and reliable measure of state anxiety during pregnancy.

Developing a Measure of Anxiety for Pregnancy

The anxious reactions of pregnant women to different stressors is a topic of interest for many researchers. Because there is no comprehensive measure of anxiety during pregnancy, the development of such an instrument seems to be the appropriate next step. In order to develop this measure, a review of the literature is necessary to ascertain possible stressors that may occur throughout the pregnancy experience. The process of pregnancy will be examined next to ensure the identification of the majority of the stressful events that are discussed in the literature.

Factors Affecting Pregnancy

Pregnancy is a very complex process that is influenced by a variety of factors in a woman's life. These factors include her genetic make-up, cultural background, life experiences before pregnancy, and her stage of personal development at the time of conception and during pregnancy (see Figure 2). Most aspects of her life may be influenced or affected in some way. Pregnancy is complicated by the interaction of all the components, thus creating a very individualized experience for each woman each time she becomes pregnant. Admittedly, certain components of the pregnancy experience are crucial so that a woman is ready and prepared for childbirth and for the role of parenting. But one must not negate other factors which may appear to be of minimal importance, because they may be a critical factor for some women.

a) Background Factors

Personality characteristics are a driving force in how human beings approach and respond to life in general. The personality characteristic of anxiety is an influencing factor in pregnancy (Shereshefsky & Yarrow, 1973). For instance, a woman who experiences a very difficult pregnancy and is genetically prone to anxiety (trait-anxiety) will probably respond very differently to the experience than if she were not prone to anxiety.

Past circumstances and life experiences may also increase the likelihood of an anxious response during pregnancy. The types of relationships she experienced growing up with her family, friends, and significant others affect how she interacts with people in

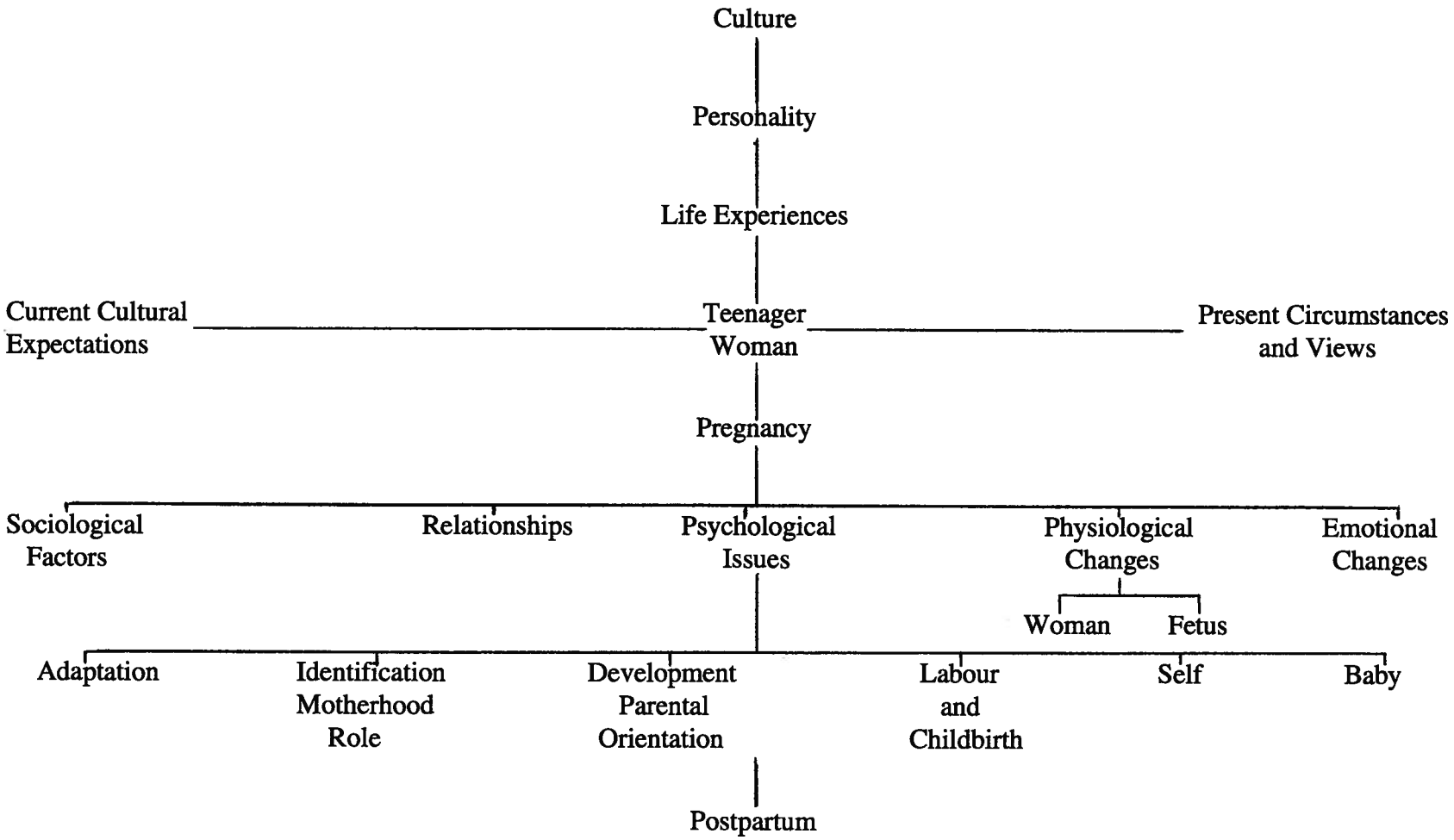

Figure 2 - The Multidimensional Process of Pregnancy

her current life. Her personal and family history may influence her relationships and her views on family. How she previously dealt with developmental milestones is critical, as it influences her approaches to current life changes and the skills she uses to adapt and cope in these situations (Shereshefsky & Yarrow, 1973) (see Appendix 1-1).

Her previous health history, whether she was sick or healthy, and the manner in which sickness was handled may also colour her view of how she sees her health and what importance it plays in her life. Her experiences with the medical profession or hospitals and whether she sees these experiences as positive or negative may also be an important factor.

b) Adaptation to Pregnancy

The decision to become pregnant and the way in which a woman experiences and perceives the pregnancy is influenced by her present circumstances, age, education, health, relationships with others, current levels of stress, social setting and various other factors. The initial reactions of women to the knowledge of their pregnancy are varied, even for planned pregnancies. Reactions may be positive, mixed or negative. But the feelings of ambivalence or rejection are common among many women during the first trimester as they attempt to assimilate this new information (Lederman, 1984; Oakley; 1979; Selby et al., 1980; Wolkind & Zajicek, 1981). This process leads to acceptance or rejection of the pregnancy, which may occur by the end of the first trimester or much later. This depends on the development and changes in the woman's attitudes.

Past circumstances in a woman's life may have a strong influence on how and to what extent a woman adapts to pregnancy. The woman's style of coping with new situations and conflict will affect how she approaches the process of adapting to pregnancy (Grossman, Eichler & Winickoff, 1980; Shereshefsky & Yarrow, 1973; Wolkind, 1981). The woman's knowledge of pregnancy and childbirth may be another influencing factor. Williams and Booth (1974) implied that a crucial factor is how the woman recalls her parents' experiences around pregnancy and whether her knowledge on the subject is based on facts or myths (see Appendix 1-2).

The way in which the woman views a previous pregnancy may influence adaptation to the current pregnancy. A woman who experienced a previous high risk pregnancy, or had one or more miscarriages, or an abortion, stillbirth, or handicapped child may be affected by these past events throughout the whole pregnancy or at various milestones pertaining to the incidents.

Adaptation depends on the response and support of the significant others in the woman's life (Leifer, 1980). Certainly having family and friends who are enthusiastic, positive, and supportive help the woman to make an easier adjustment as she reaches each milestone. When there are few or no support people available it may be difficult for many women who are trying to cope with this new experience of being pregnant.

c) Identification of a Motherhood Role

The identification of a motherhood role is a process that primigravidas and multigravidas both experience, but from different perspectives. The primigravida is

wondering what kind of mother should she be as well as struggling to formulate a motherhood role (Lederman, 1984). The multigravida will have developed a mothering role with her first child, but with each additional child she may re-examine her role and how it will encompass her new baby and her previous child or children (see Appendix 1-3). Lederman (1984) implied that interference in the formation of and identification of the motherhood role will result in extreme anxiety, which makes it difficult for the pregnant woman to prepare for motherhood (see Appendix 1-4).

d) Physiological Changes

The physiological process of pregnancy occurs throughout the nine months of gestation. The physical symptoms encountered by pregnant women may vary in the number of symptoms experienced, their frequency, and their intensity. How this is manifested depends on the individual woman. The physical symptoms appear to be a source of anxiety for many women (Arizmendi & Affonso, 1987; Brown, 1979; Reading, 1983; Shereshefsky & Yarrow, 1973). The literature indicates that the following symptoms were experienced by a significant percentage of women: nausea and vomiting (Drake, Verhulst, & Fawcett, 1988; Hofmeyr, Marcos, & Butchart, 1990; Leifer, 1980; Oakley, 1979; Selby et al., 1980); fatigue (Drake et al., 1988; Lederman, 1984; Leifer, 1980; Oakley, 1979); increased frequency of urination (Drake et al., 1988; Oakley, 1979); and cravings and aversions (Drake et al., 1988; Selby et al., 1980). Many other physical symptoms have also been reported to have occurred throughout pregnancy (Benedek,

1970; Drake et al., 1988; Oakley, 1979; Shereshefsky & Yarrow, 1979; Wolkind & Zajicek, 1981).

Some of the physical symptoms appear to be specific to or occur more frequently in certain trimesters. During the first trimester the initial physical symptoms may include a missed or light period, nausea, sore breasts, and increased frequency in urination (Oakley, 1979). Other symptoms reported are fatigue, loss of appetite and headaches (Leifer, 1980). Arizmendi and Affonso (1987) reported 106 physical symptoms listed by their sample as the most frequent stressors in the first trimester (see Appendix 1-5).

During the second trimester physiological changes become evident to the pregnant woman. Quickening occurs when the movements of the fetus can be felt by the mother. She also will notice the changing size of her abdomen. Most women start to feel physically better in this trimester than during the first trimester, yet Lips (1985) reported that feeling sick was still a problem for some women. Leifer (1980) also reported that leg cramps, backaches, swelling, shortness of breath, weight gain, and increase in the frequency to urinate were experienced during this trimester. Therefore, physical stressors may continue to be a source of anxiety for some women during the second trimester.

The woman's large abdomen is an influencing factor during the third trimester. Mobility is compromised due to the added weight and extension of the abdomen. Other symptoms reported are: nausea (Hofmeyer et al., 1990), increased frequency and urgency of urination (Benedek, 1970), hypertension and toxemia (Wolkind & Zajicek, 1981), and difficulty in sleeping and varying levels of energy (Leifer, 1980). Shereshefsky and Yarrow (1973) described the stressors of this period as follows:

> With labour and delivery looming near and physical awkwardness and discomfort more marked most patients become more open with the obstetrician in showing anxiety and expressing eagerness to have the pregnancy over. (p.88)

e) Fetal Development

The physiological process of pregnancy involves changes to the woman's body so that the fetus may grow and develop. Throughout each trimester the fetus experiences certain developmental milestones as it prepares to become self-sustaining after birth. A woman can increase her baby's chances of well being by leading a healthy lifestyle herself, but she cannot control every aspect of her baby's health. Research indicates that many women have fears concerning their baby's welfare, in particular, concerns about fetal abnormality, deformity, as well as fear that the baby will die and whether their baby will be born healthy (Arizmendi & Affonso, 1987; Brown, 1979; Glazer, 1980; Lederman, 1984b; Leifer, 1980; Oakley, 1979; Stearn, 1986; Williams & Booth, 1974). The development of the fetus is medically monitored throughout pregnancy. The manner in which the monitoring occurs, the results of the monitoring, and how this information is presented may be a source of stress for some women. A pregnant woman may also experience anxiety if her baby develops a medical problem (see Appendix 1-6). That information will affect the woman and how she responds to her pregnancy from that point on in the prenatal period and it may affect how the medical profession treats the pregnancy. How women cope with this type of experience depends on the magnitude of

the situation, how the woman perceives it, her support from the medical profession and significant others, as well as how she has coped with stressful situations in the past.

f) Emotional Changes

A woman experiences many emotional changes during her pregnancy as a result of the increase in hormonal levels and a reaction to her change in status from woman to mother. The literature indicates the occurrence of varying emotions from depression, crying, irritability, insomnia, difficulty in concentrating as well as having a positive sense of well being (Leifer, 1980; Selby et al., 1980). The emotional changes tend to mirror the physical changes and psychological issues a woman experiences during the three trimesters.

Initial emotional reactions are varied during the first trimester. Women often have a sense of pride that they were able to conceive. The physical changes lead many women to react in the following ways: eagerness to appear pregnant, mixed feelings and bewilderment at the internal changes, a need to be taken care of, and, for some women, a heightened sense of well being (Leifer, 1980; Shereshefsky & Yarrow, 1973). Arizmendi and Affonso (1987) stated that depressed feelings were the ninth most stressful event in relation to all the other stressors reported by the women in their study. Emotional attachment to the fetus maybe withheld due to fear of miscarriage and difficulty imaging the fetus. Emotional changes during a first pregnancy are probably intensified, depending on a woman's social situation and her support network, especially because this is a new experience.

With the event of quickening in the second trimester the fetus becomes real, and an emotional bond starts to develop. This experience also seems to create various emotions from feelings of bliss to worrying about the baby's movements (Benedek, 1970; Shereshefsky & Yarrow, 1973). At this point the woman starts to focus on herself, the child, the well being of the fetus, and her husband or partner (Leifer, 1980).

Emotional reactions in the third trimester center around the ability and appearance of her body and the knowledge that labour will occur soon. A feeling of well being is less evident in this trimester. The increased size of the woman's body makes it difficult to partake in many activities. There are feelings of being overweight, and less attractive, a decrease in interest in sex, lower tolerance levels, and wanting the pregnancy over (Hofmeyr et al., 1990; Leifer, 1980; Lips, 1985) (see Appendix 1-7). Increase in emotional liability were experienced by three-quarters of the women in Leifer's (1980) sample: they experienced major mood swings, a decrease in coping abilities and displays of tension and irritability when confronted with the usual day to day issues that they had not experienced before pregnancy.

Many emotional reactions and a wide range of emotional liability seem to be a common theme throughout the pregnancy period. These reactions may increase to the point of being classified as emotional disturbance when there is marital tension, stresses in one's life circumstances, difficulties in the pregnancy, and conflicts around the pregnancy.

g) Self

Grossman et al. (1980) described the task of pregnancy as accepting the baby and adjusting to significant changes in the woman's view of herself, her marriage, and connections to the outside world. Therefore, it seems essential for women to focus some of their energy on issues related to self during pregnancy so that they are prepared to take on the role of parent. Body image, independence versus dependence, and self-esteem are three important areas relating to self that affect the pregnancy experience.

Body image is the mental picture a person has of his or her body, and this picture is affected by current experiences and perceptions (Selby et al., 1980). The physiological appearance of a woman's body changes drastically during pregnancy; therefore, body image must also be affected by this change. Western culture tends to promote thinness and so it is not surprising that pregnant women tend not to view their bodily changes as being positive (Leifer, 1980; Wolkind & Zajicek, 1981). The initial physical changes may be positively anticipated as they provide confirmation that one is actually pregnant. Yet Arizmendi and Affonso (1987) found that clothes not fitting was the seventh most stressful event in relation to the other stressors cited in the first trimester for the women in their study. The second most frequent stressor in the first trimester was related to body and self image conflicts. By the third trimester the drastic physical changes to the body affected most aspects of the pregnant woman's life. This may result in negative feelings about her appearance, concerns as to her attractiveness to men, regaining her appearance and fears of damaging her body (Arizmendi & Affonso, 1987; Leifer, 1980; Shereshefsky & Yarrow, 1973) (see Appendix 1-8).

Wolkind and Zajicek (1981) stated that during pregnancy a woman's self-esteem is related to the way in which she copes with the pregnancy. Women with lower self-esteem tend to have more problems during pregnancy than women with higher self-esteem.. Lederman (1984) found that women with a strong sense of self were able to set reasonable expectations for labour as they knew how they would handle crises due to their handling of such situations previously.

Studies also indicate that women become more dependent during the pregnancy period than prior to pregnancy (Bailey & Hailey, 1986-1987; Grossman et al., 1980; Selby et al., 1980). Whether those dependency needs are met depends on the woman's ability to communicate her feelings and the response of her partner. A woman with a positive body image, high self-esteem, and one who is generally an independent person will adapt more easily to her pregnancy and cope more effectively with the changes and stresses of the experience than someone who has low self-esteem and a negative body image.

h) Relationships

A woman may have a variety of personal relationships in her life at the time of conception, including her husband or partner, family, friends, work or school associates, her doctor and perhaps other significant people. She may view some of these relationships as more important than others. For those significant relationships, how the people involved reacted to the information that she is pregnant and how supportive they are to her throughout the pregnancy will affect the woman's response toward her pregnancy.

The most significant relationship is most likely to be that of the woman and her husband or partner. The literature indicates that couples with an egalitarian lifestyle were able to adapt to the pregnancy and adjust their relationship to include a new family member (Grossman et al., 1980; Lederman, 1984). For couples to emerge as a family they must re-evaluate their marital relationship, their roles as husband and wife, and adjust and incorporate their new roles as mother and father into their relationship (see Appendix 1-9). Lederman (1984) stated several points which indicate the openness of the marital bond to accept change, namely, the husband's concerns for his wife's needs as an expectant mother concerning empathy, communication, sharing, co-operativeness and trustworthiness; the wife's concern for her husband's needs as an expectant father; the degree of closeness and conflict in their relationship which occurs due to the pregnancy; and the husband's adjustment to his new role as father. The first point is important in influencing the woman's adaptation to the pregnancy and crucial to helping the couple redefine their relationship. The wife's concern for her husband is also connected to his reaction to the new role of father and what that entails for him. Most aspects of the marital relationship require some adjustment at some point with the pregnancy and birth of the baby. This may not be an easy task to accomplish. Problems with a partner or a spouse was the eighth most stressful event in the first trimester for the women in Arizmendi and Affonso's (1987) study. By the third trimester disruptions in the partner-spouse relationship was classified as the first most stressful event. Some of these disruptions may be related to problems in the couples sexual relationship (see Appendix 1-10). How well adjustments are made to the marital relationship depends on the couple,

their ability to create change in their relationship, and the general level of stress already in their lives.

The relationship the woman has with her physician and the other health professionals she encounters is an important factor that contributes to a positive or negative pregnancy experience. In Leifer's study (1980), all the women felt that the relationship which they had with their physician was crucial and stressed the importance of trust and confidence in that physician. The response of health care professionals to the woman during physical examinations, ultra sounds and other tests, the stay in hospital and labour may influence the psychological outcome of the birth experience for the woman (Hassid, 1978; Leifer, 1980; Oakley, 1979; Shereshefsky & Yarrow, 1973) (see Appendix 1-11).

There are other significant relationships that may also have an influence on the pregnant woman's experience, for instance: family members, specific friends, and other people whom the woman views as important to her. How these people react to the initial news of the pregnancy, and how caring and supportive they are throughout the nine months, may affect the mother's attitude and perception of the pregnancy (see Appendix 1-12). This is evident in the Arizmendi and Affonso study (1987), where the fourth most stressful event in the third trimester was the reactions of others (see Appendix 1-13).

i) Sociological Factors

There are other dimensions that may be of importance to women during pregnancy and whether they are significant or crucial depends on the woman and her

specific situation. These factors may be influenced by a woman's age, education, marital status or other variables. Housing, career decisions, and finances are three areas that may create some concerns.

The economic situation may be an important issue for some women and their families. A family may already be experiencing monetary difficulties and a child would increase the financial hardships. In a marital situation, the husband may be experiencing job dissatisfaction, and a new member to the family would add pressure to the situation. For most couples it is certainly a topic that is discussed due to the initial financial cost and then the continuation of expenses for many years. Concerns about financial security were reported by many women (Arizmendi & Affonso, 1987; Glazer, 1980; Grossman et al., 1980; Shereshefsky & Yarrow, 1973) (see Appendix 1-14). Also, a woman may not want to give up her income which leads into another issue of deciding whether to quit school or work and remain at home with her child. This was a source of anxiety for some women (Arizmendi & Affonso, 1987; Grossman et al., 1980; Oakley, 1979). This decision may be more difficult to make if a woman does not have an appropriate caregiver for her child (see Appendix 1-15).

Most couples must also consider housing and whether their present situation is adequate, or they need to move to larger premises, or to a place that will accept children. Moving may affect other aspects of their lives: their financial situation may change due to increases in expenses for accommodation and proximity to one's job, getting to know a new neighbourhood may result in changes to social and family connections (see Appendix 1-16).

Shereshefsky and Yarrow (1973) cite other events which may be issues that the woman must deal with during her pregnancy: the illness of the husband or wife, illness or death in the extended family, isolation from family supports due to geographical distance, relationship problems with parents. Most pregnant women will be faced with some of these external factors and perhaps others not mentioned here.

j) Labour

Labour is the physiological and psychological process of separating the mother and the fetus. It is the critical topic for pregnant women, because it is a time of uncertainty as to how the actual event will unfold, and a time of excitement in seeing the child for the first time. Yet, Leifer (1980) found that women were apprehensive about labour and delivery from the very beginning of their pregnancy. Many women continue to have fears around childbirth throughout their pregnancy. These fears focus on pain, helplessness, loss of control, loss of self-esteem, and death (Affonso & Mayberry 1989; Lederman, 1984; Leifer, 1980; Oakley, 1979) (see Appendix 1-17). Areskog, Uddenberg & Kjessler, (1981) observed that the most severe fears were reported by multigravidas with a previous traumatic delivery.

Women appear to cope with their fears by learning about labour through various approaches. According to Lederman (1984), women reach a state of readiness for labour by the concrete actions of engaging in nesting behaviours, taking prenatal classes, reading relevant information on pregnancy and labour, as well as engaging in imaginary rehearsal of labour and confronting one's fears. The degree of involvement in such activities, and

how prepared a woman feels at the time of labour, is also influenced by personality, how the woman views and feels about herself, and the approach she uses to cope with stress. Every childbirth experience is unique, because it depends on the physiological response of the woman's body and her psychological state at the time of labour, both of which are related and influenced by the events during the past forty weeks.

k) Postpartum

Pregnant women may also have concerns about issues that will affect them after the birth of their child. They may have anxieties or fears about: caring for and feeding their newborn (Shereshefsky & Yarrow, 1973), their ability to nurse (Leifer, 1980), postpartum depression, not being able to cope when their baby is born (Glazer, 1980), types of birth control to use and subsequent pregnancies (Shereshefsky & Yarrow, 1973). Some women may find postpartum issues to be sources of stress leading to anxiety (see Appendix 1-18).

The previous discussion clearly indicates that some women experience varying degrees of anxiety as they proceed through the major milestones in pregnancy. What is also evident is that an anxiety reaction may occur due to many different factors relating to the woman herself, the pregnancy, or life circumstances. Pregnancy and anxiety appear to be very complex topics and even more so when they are combined together. Grossman et al. (1980) noted that "researchers have not been able to plot the course of anxiety throughout pregnancy" (p.15). Further research is definitely needed in this area in order to obtain a better understanding of the extent of anxiety in pregnancy and its effect on the

pregnancy experience. For the benefit of such research, a sound measure of pregnancy anxiety is imperative.

Limitations in the Literature

The studies presented in this review were chosen for their description of the pregnancy process and their discussion of anxiety and how it related to this experience. Unfortunately, most of the studies tend to be quite dated. Studies done in the 70s most likely encountered different issues for pregnancy as opposed to the studies of the 1990s. This is due to changes and advances in medicine and technology directly affecting the pregnant woman, women's changing views on pregnancy, changes in the medical profession's approach to pregnancy, and changes in western cultural values and norms. Due to the fast pace of the changing world current topics may not be in the literature. Thus, there is the concern that important issues relating to pregnancy and anxiety are not discussed here.

The methodological approaches used in many of the studies contain flaws. Considering the lack of agreement in the field of anxiety, definition of terms in studies dealing with pregnancy and anxiety should be discussed. Unfortunately the term "anxiety" is rarely defined. The studies usually used convenience samples and are not, therefore, representative of the general population. Another issue is small sample size. Most studies had samples which ranged in size from 19 to 100 women. The women who made up the samples were usually of middle or upper socio-economic status and tended to be Caucasian. The studies were done in the United States, the United Kingdom, and

Canada. There are many different variables that were not included in these studies, for instance: culture and ethnicity, socio-economic status, and teenage pregnancy.

One must be aware that the credibility of the studies is somewhat reduced due to the flaws in methodological procedures. Nevertheless, the literature certainly has contributed to the knowledge of anxiety and pregnancy. It has also provided a theoretical structure for the process of pregnancy and what types of stressors may occur during gestation. This information from the literature provided the theoretical framework for the development of an instrument that was designed to assess various dimensions of anxiety during pregnancy.

Summary

This chapter presented an overview of research on the psychological construct of anxiety, indicating that there is little agreement between theorists in this field. Spielberger's theory and measure of Trait and State Anxiety (STAI) is discussed in detail. The literature suggests that his measure is the preferred choice among researchers in many disciplines.

A review of the measures used in pregnancy and anxiety research indicates that the STAI is the most commonly used instrument in this area of research. There does not appear to be any well developed and valid measure of anxiety that pertains specifically to pregnancy. Yet research suggests that a multidimensional scale of anxiety during pregnancy is the appropriate type of measure.

The literature was reexamined to indicate possible stressors during the pregnancy period that may cause anxiety for some women. Information about these stressors helped to develop items for the Anxiety Scale for Pregnancy. The methodology for construction of this measure is presented in the next chapter.

Chapter 3

METHODOLOGY

This chapter presents the methodology used to develop the Anxiety Scale for Pregnancy (ASP). The following topics are discussed in detail: the process that led to the construction of the measure, the different approaches used for data collection, sample selection, the other measures used in this study, and data analyses.

Crocker and Algina (1986) suggest ten steps in the process of test or scale construction. The Anxiety Scale for Pregnancy was developed using these guidelines. Each step is presented in order to demonstrate the procedures followed in the construction of ASP.

Primary Purpose of ASP

The primary purpose of ASP scores is to provide a specific measure of the intensity level of state anxiety during pregnancy for each dimension that is represented in the scale. This pertains to how a woman is feeling at a certain stage of her pregnancy. The scale scores from the total sample will provide information concerning the frequency and intensity of state anxiety that women may experience throughout the pregnancy period. This measure will also provide researchers with a tool that may help to provide more precise results when studying anxiety and pregnancy.

Identifying Behaviours to Represent the Construct

To identify the behaviors that represent the construct of pregnancy anxiety, the literature was reviewed to determine the definitions, theories, and measures that make up this construct. The literature on pregnancy was examined to obtain an understanding of the process of this experience. Studies that looked at anxiety during pregnancy provided a framework for the subject matter relating to anxiety during pregnancy.

Scale Specifications

As a woman approaches each milestone in pregnancy, there are various issues that may cause anxiety. Therefore, the construction of the items for ASP was based on the different milestone in pregnancy identified from the literature. The number of pertinent issues for each milestone dictated how many items would be appropriate to that milestone. The criteria for inclusion of each milestone and their related items was based on the importance of these topics in regard to date of the research, methodological approaches, and sample size. Therefore, milestones are considered to be critical if they are mentioned in current research studies, these studies are methodologically sound, and these milestones are also mentioned in a variety of other older studies. Eighteen dimensions resulted from the different milestones. These include: coping, acceptance, motherhood, physical, emotional, self, marital relationship, sex, baby, siblings, parents, medical, social, accomodation, finances, career, labour, and postpartum. Each dimension contained a number of concerns ranging from one to thirteen.

Item Construction

Anxiety during pregnancy was initially measured through a total of 82 self-report items. The item format for ASP presents a Likert scale. Each item contains two parts: the first part denotes a feeling that is associated with anxiety, and the second part is a possible concern that women may have in pregnancy, for example, "I feel uncertain about having a baby". Most of the words used to describe anxiety or an absence of anxiety are based on Spielberger's (1970) general measure of State Anxiety (STAI). The second part of the item reflects the possible stressors that women may encounter during pregnancy. These stressors were developed based on research of the literature on pregnancy and anxiety. An effort has been made to have the same number of positive and negative statements in ASP.

Respondents are asked to read each statement and then select the appropriate answer that best describes how they feel right now. The response they select is from a four point continuum on the Likert scale. The scores for the responses range from one to four where 1 corresponds to "Not At All" and 4 corresponds to "Very Much So". Four implies the highest level of anxiety for negatively worded statements. The positive statements are scored in the reverse order. The scores are then added to indicate the total score for each dimension.

Item Review

The initial pool of 82 items were given to a group of experts in the field of pregnancy. Seven people were asked to review the initial set of items. Their expertise is

due to their positions as: a family practitioner whose practice includes obstetric cases, a coordinator for instructors of prenatal classes, a prenatal instructor, and five people who teach obstetrics at the college level.

The experts were given a covering page that stated the purpose of the study and a request for their feedback concerning the items. Appendix B contains the directions for the test and the initial set of items, listed under their dimension labels. They checked for face validity and content validity of the items. Because a few of the statements present issues that some women may not have thought about before responding to this inventory, experts were asked whether reading such statements may induce anxiety, and whether these women would need support after completing the measure.

Results of Item Review

The experts signaled items that were unclear, indicating their understanding of the wording, and made suggestions to improve clarity. The majority of the experts presented possible concerns that had not been mentioned in ASP. One person felt the "feeling" at the beginning of the item may not match what many women actually feel. When the experts were asked if women would find the scale upsetting, this did not appear to be a major concern. A covering letter explaining the types of questions in the scale was suggested as a means of ensuring that women would not become anxious just from reading the items. Overall the comments of the experts were helpful in refining ASP.

Preliminary Item Tryouts

In scale construction, the initial pool of items should be given to a small sample of respondents. This will enable further revisions to be made to the preliminary draft of the scale. The initial tryouts of the Anxiety Scale for Pregnancy were given to approximately forty women who had previously been pregnant within the last four years. These women were selected because, either, they were known by the researcher or friends of the researcher contacted their friends. The researcher gave each woman a brief verbal explaination of the project. The questionnaire was given to the subjects who expressed interest in the research. The women in this pretest were from various cultural backgrounds. These women were living in either Victoria or Vancouver at the time they were asked to participate in the pretest. Non pregnant women were chosen because the issue that the test may evoke anxiety did not have to be addressed with this sample of women.

These women were given the initial 82 items with a covering page that stated the purpose of their involvement and directions on how to rate each item (see Appendix C). The items were presented in random order with no dimension labels.

The responses from this group of women were examined through statistical analyses. The *frequencies of endorsement*, that is the proportions of people who choose each response alternative was determined for each item (Allen & Yen, 1979). Items classified by the majority of the women as not important were reexamined to determine whether clarity was a problem or the item should be deleted.

This scale was developed to measure the personality construct of state anxiety; therefore, the items should pertain to different aspects of anxiety during pregnancy. The items should be moderately correlated with each other, and each item should also correlate with the total scale score (Streiner & Norman, 1989). This is examined through *Tests of Homogeneity* or *Internal Consistency of the Scale*. The internal consistency of ASP was checked by *Cronbach's Alpha* (Cronbach, 1951). Each time the test was performed, a different item was deleted. If alpha increased significantly, that item was considered for deletion, thereby increasing the homogeneity of the scale. This test was extended to find the correlation between this and the totals of all the other subscales. This was done because this is a multidimensional inventory.

The information from this analysis and the responses of the experts were used to revise and eliminate items. This produced a new version of ASP containing 73 items This version was field tested on a sample of pregnant women.

Field Test of ASP

Field testing involves the testing of the revised pool of items on a large sample of respondents who are representative of the *target population*. The target population for this measure is all pregnant women. To obtain a representative sample of all pregnant women would be quite difficult. Borg and Gall (1983) suggest drawing a sample from an *Experimentally Accessible Population*, for instance, a sample from all the pregnant women in Vancouver. The results are generalizable to the *Accessible Population*, and subsequently generalizable to the target population. In order to generalize, all members

of the population must have an equal chance of being selected, that is, a *random sample* is necessary. If it is not possible to obtain a random sample, the researcher must gather comparative information on critical characteristics between the sample and the population in order to demonstrate whether the sample is biased or unbiased (Borg & Gall, 1983). To generalize from the accessible population to the target population, data must be collected to show the degree of similarity between the two populations. If they are similar, this will help to establish *Population Validity*, which means that the accessible population is reasonably representative of the target population (Borg & Gall, 1983).

It is important to be able to generalize the result of the field test of ASP to the target population of pregnant women, because the intent of this research is to develop a measure of anxiety during pregnancy that is applicable to all pregnant women. However, it is not feasible to obtain a representative sample of pregnant women. Therefore, a sample of the experimentally accessible population, pregnant women in Vancouver, will be used for this project. It is also not possible to obtain a random sample. Therefore, another sampling technique will be used. Lederman (1984) states that "studies of anxiety will form a better basis for intervention if demographic, sociologic, developmental and physiologic variables are incorporated into research designs" (p.34). One way of ensuring this is through the use of a *Stratified Sample*, which ensures that certain subgroups of the population are represented in the sample in their proportion to the population (Borg & Gall, 1983). According to Lederman:

> It appears that anxiety and the measurement of anxiety in pregnancy is influenced by a number of factors and these include: age, education, parity,

> gravidity, socioeconomic status, previous obstetrical experience, health and health history, marital status and relationship, trimester of pregnancy, prospective or retrospective data collection, the measurement instrument utilized, the gravida's personal strength and history of coping with critical experiences, and social desirability in relation to prevalent cultural norms. (p.33)

A stratified sample was to ensure that many of these variables were represented in the experimentally accessible population. The subgroups in this research comprised pregnant women who were attending prenatal classes, referred to an obstetrician, attending prenatal fitness classes, or living on a University campus. Women who were admitted to a hospital, booked for ultra sound or fetal monitoring, attending a program for advanced maternal age, and attending an outpatient clinic were also intended to be included in this study. It was not possible to sample these subgroups because permission to access these programmes had not been obtained at the time of data collection.

a) Stratified Sample

Prenatal Classes

Prenatal classes were chosen as a subset because they provided access to primigravidas. Women usually take prenatal classes during their first pregnancy, whereas multigravidas may or may not attend refresher courses. Kwantlan College, The Fraser Valley Prenatal Classes, and Douglas College provide prenatal classes for habitants of the Lower Mainland and the Fraser Valley. In Victoria Camosun College and the Victoria

Prepared Childbirth Association provide the Greater Victoria Area with prenatal classes. Due to the wide geographical area, a range of the following variables are represented in the present sample: age, education, socioeconomic status, health, and marital status.

Women Admitted to Hospital

Admission to hospital during pregnancy is generally due to complications affecting the mother, the fetus or both of them. B. C. Women's Hospital admits women with high risk pregnancies from all over the province of British Columbia. This would have provided access to a sample that varies on the previously mentioned variables as well as gravidity, trimester, and previous obstetrical experience.

Ultra Sound Testing

An *Ultra sound* scan uses sound waves to create a picture of the fetus. It is a common procedure often used to estimate date of birth, or growth and position of the fetus. This test may be administered throughout pregnancy. B.C.'s Women's Hospital is one of several places where pregnant women may obtain this test in Vancouver. Women being tested at B.C.'s Women's Hospital would vary on many of the variables previously mentioned by Lederman (1984b).

Fetal Monitoring

Fetal Monitoring is used to check the health of the fetus by evaluating the heart rate response during sleep and awake periods. This test is usually given after the 24th

week of pregnancy. B.C.'s Women's Hospital provides fetal monitoring to outpatients from Vancouver. This subset would have provided access to women in their third trimester and potential high risk women.

Advanced Maternal Age (AMA) Program

This program at B.C.'s Women's Hospital provides genetic diagnostic procedures to women 35 years of age and over. Access to this group would have ensured representation of older pregnant women.

Outpatient Clinic

B.C.'s Women's Hospital provides an Outpatient Clinic for specialized health concerns in a variety of areas for pregnant women. These women need specialized care due to the nature of their health problems, for instance, diabetes. This subgroup was also not included in the sample.

Women Seeing Obstetricians

Women are referred to obstetricians for a variety of reasons: their doctor does not do deliveries or they have a history of obstetric problems, and current complications or multiple births. The patients of several obstetricians were included in this sample in order to contribute to the heterogeneity of the sample.

Women Living on a University Campus

The population living in housing provided by a university tends to include people from outside the immediate area as well as international students, thus providing cultural diversity. The University of British Columbia provides housing for single students, couples, and families on the university campus. Family housing is comprised of a fairly large community with a constant turnover in population each year. Access to this community provided representation for some factors not encountered in the other subgroups, for instance, ethnic diversity.

b) Selection of Respondents

The stratified sampling technique described above was intended to ensure that critical variables were represented in the sample. Selection of respondents from each subset should be by means of a random selection, but this was not possible in the present study. The only option available was dependent on a volunteer sample. Volunteer subjects may form a biased sample of the target population as they tend to differ from non volunteers (Borg & Gall, 1983). Therefore, generalizing the results to the target population may be difficult. The characteristics of the volunteer sample were reviewed to see whether they differ from non volunteers.

c) Sample size

Determination of the size of the sample for the field test of ASP is based on several factors. The larger the sample, the closer it comes to being representative of the

population in regards to its mean and variance. In statistical hypothesis testing, a large sample assures a good chance of rejecting the null hypothesis (Borg & Gall, 1983). Another issue is the type of population. The target population, pregnant women, are very heterogeneous because they differ on many variables which induce anxiety during pregnancy. This study needs a large sample size to ensure representation of the various variables. When developing an instrument, the rule for sample size, according to Nunnally (1967), "is to have 5 to 10 times as many subjects as items" (p.322). Therefore, this field test requires between 400 to 800 subjects for the eighty-item ASP. The anticipated sample size was approximately 500 respondents. This sample size was in the middle range and would be an adequate number for psychometric and statistical analyses required for instrument validation.

d) Criteria for Sample Selection

The criteria for inclusion in the field test sample was the following: a woman must be pregnant, over nineteen years of age, and be competent in written and spoken English. Respondents should also be emotionally stable. This is difficult to ascertain and, therefore, it was at the discretion of the researcher to decide if a woman met the criteria for inclusion in the sample.

e) The Test Package

Each subject received the nine page questionnaire package. The test package contains five different sections. The first section is overall directions and information

concerning the different sections. The second section, page 2 and 3, is comprised of questions relating to demographic information. The first page looks at personal characteristics of the woman and the second page is health characteristics. This provided information about the characteristics of the sample and its representativeness in relation to the population.

The next section in ASP contains the revised version of 73 items relating to ten dimensions of anxiety during pregnancy. It is on pages 4, 5, 6. This instrument should indicate the level of anxiety relevant to pregnancy. The fourth section is Spielberger's State and Trait Anxiety Inventory (STAI). On page 7 are the 20 items on state anxiety and page 8 contains the other 20 items from the trait section of the measure. These general measures of anxiety should have a moderate correlation with ASP, since they are measuring the construct anxiety. The last page is Heatherton and Polivy's (1991) State Self-Esteem Scale and it also contains 20 items. Self-esteem is a related construct; therefore, it should also correlate with ASP. The complete test package is in Appendix D.

f) Procedures for Administering the Test Package

Prenatal Classes

The prenatal coordinators were given the test packages, which were then given to the prenatal instructors. These packages also contained: an explanation of the study and their participation as instructors, directions for administering the test package, and the description of the study for the women in their classes (see Appendix E).

B.C.'s Women's Hospital and Obstetric Offices

For B.C.'s Women's Hospital, initial contact would have involved the researcher approaching the subjects and providing them with a description of the study. If they choose to be a part of the study the researcher would provide them with the test package and then collect it when they had completed the package (see Appendix F). The doctors' office staff gave out the questionnaire package. The researcher was available at the office to oversee the project.

University of British Columbia Campus

An advertisement was put in the "Resident", the U.B.C. Housing newsletter, which was distributed all over campus (see Appendix G). Women who phoned the researcher were given a brief description of the study. If they were interested, the test package and the description of the study was given to them or dropped off at their residence and then picked up at a later date.

Statistical Properties of Item Scores

Descriptive statistics provided information on the representation of the variables that were related to anxiety and pregnancy. Frequency of endorsement and homogeneity of the items was inspected and items were deleted when they did not perform as expected: (a) correlation within dimension is stronger than correlation across dimensions, (b) discrimination between high and low pregnancy anxiety groups.

Reliability and Validity Studies

a) Reliability

Reliability was assessed in order to determine whether ASP was measuring anxiety in a consistent manner. The scale was administered only once to the subjects in the sample. Therefore, Cronbach's Alpha was used to estimate the internal consistency of subscales. The test-retest approach to estimating the reliability of this scale was inappropriate in this study due to the fluctuation of state anxiety.

b) Validity

According to Streiner and Norman (1991), validating a scale is really a process whereby we determine the degree of confidence we can place on inferences we make about people based on their scores from that scale (p. 108). To begin the process of validating ASP, different forms of validity were examined.

Concurrent Validity

In *concurrent validity*, the new measure is correlated with a previously well established measure of that trait. In this study, Spielberger's State-Trait Anxiety Inventory was used as the established measure of anxiety. The items on ASP were developed in a similar manner to the STAI. The Pearson Correlation Coefficient was used to examine the relationship between ASP and the STAI.

A new measure should also correlate with measures of related traits. Therefore Heatherton and Polivy's (1991) measure of self-esteem, the State Self-Esteem Scale

(SSES) was added to the questionnaire package as this provided more evidence of concurrent validity.

Construct Validity

Construct Validity assesses both the theory behind the scale as well as the scale. Two procedures were used to gather evidence for the construct validity of ASP.

Group Differentiation

The literature concerning pregnancy and anxiety indicated that anxiety in pregnancy is influenced by certain variables (Lederman, 1984). Trimester, gravidity, health and age are several of these variables which are represented in ASP. The sample scores on the subscales for ASP were statistically analyzed to determine group differences in regard to these variables. Differentiation between groups provided evidence towards the inferences that can be made about various variables that affect anxiety and pregnancy.

Factorial Composition

Factor Analysis was another statistical approach that was used to establish construct validity. By means of *factor analysis,* the researcher examines the relationships between a set of observed variables and the underlying constructs. Confirmatory factor analysis was used in this study because knowledge of the underlying construct structure already existed in this area of study. This knowledge was based on a review of the literature that indicated that anxiety during pregnancy may be caused by various stressors

in a woman's life. These stressors are either internal or external events that a pregnant woman perceives as stressors. Consequently, the following hypothesis was tested using confirmatory factor analysis. Anxiety during pregnancy is a multidimensional construct consisting of ten latent constructs: adaptation, physical, emotional, self, baby, marital, supports, medical, socioeconomic, and labour. An item that loads on one construct will not be related to the other nine factors. This hypothesis was tested using the LISREL confirmatory measurement model. It is a ten-factor model measured by 73 observed variables from ASP. The object of this model-testing procedure was to examine the goodness of fit between the hypothesized latent structure and the sample data (Byrne, 1989).

Convergent Validity

Convergent validity looks at how closely a new measure relates to other measures of the same construct. One method for evaluating convergent validity is the multitrait-monomethod matrix (MTMM) (Campbell & Fiske, 1959). It is a correlation matrix of the scores from the subscales of ASP, STAI, and SSES.

Summary

This chapter discussed the steps that were used in the construction of the Anxiety Scale for Pregnancy. The development of the initial pool of items was presented along with the revision of these items through expert opinion and a preliminary tryout. The proposal to field test was described in detail, in particular, the method of sample selection

and the variables that induce anxiety during pregnancy. Attention was also given to data analyses and the initial steps that were taken to validate the scale.

Chapter Four

Results

This chapter presents the data analyses from the field test of The Anxiety Scale for Pregnancy. The characteristics of the sample are examined through the demographic information collected from the sample of respondents. Item analyses are reported on the 73 statements in ASP. The results of the reliability and validity tests are also presented. A discussion of the findings of this study conclude the chapter.

Distribution of the Questionnaires

The characteristics of the sample provide information about the degree to which the sample is representative of the accessible population, all pregnant women in Vancouver. From this, population validity may be established if the accessible population and the target population, all pregnant women, are similar. The intent of this study was to select a sample that would enable generalizability to the target population. Establishing the strength of ASP with a representative sample will indicate the stability of the instrument and how well it might hold its structure under other sampling conditions.

The sample is composed of 270 pregnant women who volunteered to complete the questionnaire. The analyses in this chapter were based on the 270 cases but due to missing data for individual items or demographic questions the total number may vary within each analysis.

The questionnaire was available through a variety of community groups in Vancouver and Victoria. These included The University of British Columbia, fitness classes, prenatal classes, doctors' offices, and the community at large. Distribution of the questionnaire was also anticipated to occur at B.C.'s Womens' Hospital. The research committee from the hospital requested changes to the questionnaire package. Due to time constraints, distribution of the questionnaire was not possible at this hospital. Table 1 indicates the number of questionnaires given out and the returned responses from each area.

Table 1

Distribution of Questionnaires

Area	Given Out	Returned	Percent of Total Returned
Doctors' offices	85	59	21.9
Community	60	49	18.2
U.B.C.	38	38	14.1
Victoria Prepared Childbirth Association	100	37	13.7
Victoria - Camosun College	120	28	10.4
Fitness Classes	35	22	8.2
Kwantlan College	240	18	6.6
Fraser Valley Prenatal	100	11	4.1
Midwifery Groups	60	5	1.9
Douglas College	3	3	1.1
Total	845	270	100.0

Approximately 845 questionnaires were distributed to the various sample groups. Distribution of the questionnaires occurred during April to June 1994. The completed questionnaires were collected during the months of May and June, plus the first two weeks of July 1994.

Sample Characteristics

The characteristics of the sample provide information about the degree to which the sample is representative of the accessible population, all pregnant women in Vancouver. From this, population validity may be established if the accessible population and the target population, all pregnant women, are similar. The intent of this study was to select a sample that would enable generalizability to the target population. Establishing the strength of ASP with a representative sample would indicate the stability of the instrument and how well it will hold its structure under other sampling conditions.

The first page of the questionnaire inquires about general demographic information concerning the respondents. Information pertaining to the women's age, number of pregnancies, and births is requested. There are also questions relating to marital status, education, occupation, and ethnic origin. One other question focuses on the type of support people that are important to women during pregnancy.

The mean age of the respondents is 30.8 years with the youngest being 19 and the oldest 44. The sample is comprised of 126 women aged 30 and younger, 139 women between the ages of 31 and 40 years, and 5 women aged 41 or older.

This is the first pregnancy for 123 (45.6%) and second for 80 (29.6%) of the women. The mean number of pregnancies for the group was two. Table 2 summarizes the number of pregnancies for each gravida (pregnant woman) in the study.

Table 2

Pregnancies Experienced by the Gravidas

Number of Pregnancies	Frequency	Percent
First Pregnancy	123	45.6
Second Pregnancy	80	29.6
Third Pregnancy	34	12.6
Fourth Pregnancy	20	7.4
Sixth Pregnancy	6	2.2
Fifth Pregnancy	4	1.5
Ninth Pregnancy	1	0.4
Tenth Pregnancy	1	0.4
Missing Data	1	0.4
Total	270	100.0

Respondents were asked their due date and the gestational age of the baby. Gestational age was tabulated by subtracting backwards from the 40 week due date, thereby indicating the number of gestational weeks at the time of completing the questionnaire. This number was compared with the respondents' answer to number of weeks pregnant. When discrepancies arose, subtracting from the due date was used to find out gestational age. The minimum number of weeks was 4 and the maximum was 41, with the mean number of gestational weeks being 28.6. The three trimesters are represented disproportionately in the sample, 16 women (5.9%) were in the first trimester,

75 (27.8%) in the second trimester, 177 (65.6%) in the third, and 1 (.4%) person was overdue.

The number of live births indicate that 152 (56.3%) women do not presently have children. 84 (31.1%) women currently have one child, and 21 (7.8%) have two children. The highest number of live births in the sample is 8.

Table 3 presents the number of perinatal losses in the sample. These losses may be due to miscarriage, abortion, or perinatal death. There were 49 (18.1%) women who have experienced at least one such loss. Eight women had previously had a live birth but did not answer the 3 questions pertaining to children on ASP.

Table 3

Miscarriages, Abortions, or Perinatal Deaths

Perinatal Losses	Frequency	Percent
0	200	74.3
1	49	18.2
2	11	4.1
3	7	2.6
4	2	0.7
Missing Data	1	0.4
Total	270	100.0

The variables which look at socio-economic status are marital status, years married or living common law, level of education, and employment situation. The majority of the sample, 230 (85.2%) are married, 24 (8.9%) are living common law, and

12 (4.4%) are single. The length of time living together, either married or common law, ranges from less than a year to 21 years. The mean length of time together is 6.1 years.

The level of education ranges from less than grade 10 to the completion of a graduate degree. The number of respondents that hold undergraduate or graduate degrees was 116 (42.9%). Table 4 indicates the level of education. At the time of completing the questionnaire 194 (71.9%) women were employed, 59 (21.9%) were either full-time caregivers or not in the work force, and 16 (5.9%) were attending either a university, college, or vocational programme.

Table 4

Education Level of the Respondents

Level of Education	Frequency	Percent
College or Vocational	105	38.9
Undergraduate Degree	63	23.3
Graduate Degree	53	19.6
Grade 12	42	15.6
Grade 10	4	1.5
Up to Grade 10	2	0.7
Missing Data	1	0.4
Total	270	100.0

Respondents who stated that they were employed were also asked to state their occupation. From their responses 97 occupations were recorded. The completed list may be found in Appendix H. These occupations were subdivided into categories according to The National Occupational Classification (N.O.C.) from Employment and Immigration Canada. N.O.C. is a systematic taxonomy of occupations in the Canadian labour market.

Only the major group structure that applies to the occupations recorded in the questionnaires are presented in the following table.

Table 5

Occupational Classifications of the Respondents

N.O.C. Major Group Classification	Frequency	Percent
Skilled Administrative and Business Occupations	29	10.7
Clerical Occupations	28	10.4
Professional Occupations in Social Science, Education, and Government Services	28	10.4
Intermediate Sales and Service Occupations	28	10.4
Professional Occupations in Health	25	9.3
Middle and Other Management Occupations	13	3.0
Skilled Sales and Service Occupations	8	3.0
Other Occupations not listed in the N.O.C.	8	3.0
Professional Occupations in Business and Finance	5	1.9
Technical and Skilled Occupations in Health	5	1.9
Professional Occupations in Natural and Applied Sciences	4	1.5
Professional Occupations in Art and Culture	4	1.5
Elemental Sales and Service Occupations	4	1.5
Technical and Skilled Occupations in Art, Culture, Recreation, and Sport	3	1.1
Paraprofessional Occupations in Law, Social Services, and Education	2	0.7
Assisting Occupations in Support of Health Services	1	0.4
Total	270	100.0

The subjects in this study were asked to describe their ethnic background. Several examples were attached to the question, for instance: British, East Indian, and First

Nations. The subjects in the sample responded with 69 different ethnic origins or combinations of countries of origin. This list is found in Appendix I. The responses were subdivided into 26 categories that indicate a variety of ethnic backgrounds in the sample. Table 6 displays these categories. Forty-one people did not state their ethnic origin, but said that they were Canadian.

Table 6

Respondents' Ethnic Origin

Ethnic Origin	Frequency	Percent
The British Isles	95	35.2
European	66	24.4
Canadian	41	15.2
Chinese	21	7.8
French-Canadian	10	3.7
Filipino	4	1.5
East Indian	3	1.1
American	2	0.7
Australian	2	0.7
Indonesian	2	0.7
Japanese	2	0.7
Jewish	2	0.7
British East Indian	1	0.4
Chinese Indonesian	1	0.4
Chinese Malaysian	1	0.4
Chinese Vietnamese	1	0.4
Chinese Yugoslavian	1	0.4
Egyptian	1	0.4
First Nations	1	0.4
French-Canadian Scottish	1	0.4
German Soviet Georgian	1	0.4
Latin-American	1	0.4
Lebanese	1	0.4
Native French Scottish German	1	0.4
Russian	1	0.4
West Indian - Caribbean	1	0.4
Missing	6	2.3
Total	263	100.0

Respondents were asked to select the most important people in their lives who lived in Vancouver or the Lower Mainland. The majority of the respondents from Victoria crossed out the words Lower Mainland and Vancouver and wrote Victoria. Their responses were tabulated with the total group since they were answering the question in a similar manner to the respondents from Vancouver. If women from Victoria did not complete the question it was coded as missing. The spouse or partner is the most frequently selected person. This is followed by friends and then siblings. Respondents had the opportunity to select a person not on the list. Twenty-five women added their children as an important form of support. Table 7 denotes the type of supports for this group of women.

Table 7

Perceived Support People

Support People	Count	Pct. of Responses	Pct. of Cases
Spouse or Partner	236	32.5	90.8
Friends	124	17.1	47.7
Brothers or Sisters	113	15.5	43.5
Parents	113	15.5	43.5
In Laws	60	8.3	23.1
Other Support Persons	31	4.3	11.9
Other Relatives	30	4.1	11.5
Grandparents	20	2.8	7.7
Total	727	100.0	279.6

Table 8 gives the total number of people that women in the sample considered to be important. The number of supports ranged from 1 to 7 persons. Close to 50% of the

sample listed 1 or 2 people as being important for them. Except for the missing data, everyone listed at least one important person.

Table 8

Total Number of Perceived Support People

Support Persons	Frequency	Percent
Two Persons	71	26.3
One Person	60	22.2
Four Persons	48	17.8
Three Persons	47	17.4
Five Persons	20	7.4
Six Persons	7	2.6
Seven Persons	6	2.2
Eight Persons	1	0.4
Missing	10	3.7
Total	263	100.0

Health Characteristics

On the second page of the questionnaire, respondents were asked questions that related to their health. Information was requested about: health prior to this pregnancy, health during this pregnancy, possible complicating factors in the pregnancy, and the delivery. The women were also asked about attending prenatal classes.

For this sample, the majority of the women appear to have been quite healthy before they became pregnant. Only 20 (7.6%) women considered themselves to have health problems prior to their pregnancy. The health conditions of these women are listed

in Table 9. The most frequent health condition appears to be asthma, and this was a concern for 6 women. The other conditions generally pertain to each individual woman.

Table 9

Health Conditions Prior to this Pregnancy

Previous Health Conditions	Frequency	Percent
No Complications	246	91.1
Asthma	5	1.9
Back Injury, Back Problems	2	0.7
Endometriosis	2	0.7
Thyroid	2	0.7
Back And Neck Injury	1	0.4
Chronic Fatigue Syndrome	1	0.4
Depression	1	0.4
Herpes and Asthma	1	0.4
Injured Knee Ligaments	1	0.4
Intestinal Problems	1	0.4
Kidney Stones and Hypo-Thyroid Condition	1	0.4
Pre-Eclampsia	1	0.4
Renal Calcium and Cardiac Arrhythmia	1	0.4
S.L.E. - Lupus	1	0.4
Spherecytosis	1	0.4
Ulcer	1	0.4
Missing	1	0.4
Total	270	100.0

The number of respondents'who considered themselves to be healthy before pregnancy decreased by 30% when they were asked if they considered themselves to be healthy during pregnancy. During this pregnancy only 168 (62.2%) women envisioned themselves to be very healthy, 82 (30.4%) women felt they were moderately healthy, and 19 (7.0%) women saw themselves as somewhat healthy. The women were provided with a list of possible pregnancy-related conditions, and they were asked to indicate whether any applied to their pregnancy. The most common condition was RH negative and this was experienced by 28 women in the sample. Vaginal bleeding and premature labour are also common among the women with complications in their pregnancies. Table 10 displays the number of pregnancy conditions. Of the women who experienced such problems: 59 (22.4%) have one condition, 39 (14.8%) women have 2 of the conditions, and 8 (3.0%) women have 3 of the conditions.

Table 10

Conditions Specific to Pregnancy

Conditions in Pregnancy	Count	Percent of Total Sample
Other complications	41	15.2
Rh Negative	28	10.4
Infections In Pregnancy	27	10.4
Vaginal Bleeding	22	8.1
Premature Labour	13	4.8
Gestational Diabetes	12	4.4
Pregnancy Induced Hypertension	8	3.0
Multiple Pregnancy	4	1.5
Total	155	

In the list of possible conditions during pregnancy, women were given the opportunity to list other health conditions that are effecting their pregnancy. The women indicated 41 other health problems that they felt are important to their pregnancy. Some of these problems relate to pregnancy. The most common problem is *hyperemsis gravidarum* which is nausea or vomiting, and 9 women cited this condition. Two women indicated genetic abnormalities that are a concern to them. Table 11 comprises the complete list of the responses that the women recorded when asked to list other health problems.

The majority of infections encountered by the women were either yeast or urinary tract infections. Three women stated that they have herpes and that this may dictate whether they have a caesarean or vaginal birth. The types of infections are listed in Table 12.

The women were also asked whether they planned to attend a prenatal or refresher class during their pregnancy. There are 187 (69.3%) women that did attend or are attending prenatal classes, and 82 (30.4%) who will not be attending classes for this pregnancy. This sample contains a higher proportion of primigravidas which may account for the high number of women attending prenatal classes.

Table 11

Responses to Other Conditions During Pregnancy

Other Health Conditions during Pregnancy	Frequency	Percent
No Other Conditions	228	84.4
Hyperemesis Gravidarum	9	3.3
Breech Position	3	1.1
Depression	2	0.7
Kidney Stones	2	0.7
Lupus Anticoagulant	2	0.7
Bad Headaches	1	0.4
Breech Position and Low Amniotic Fluid	1	0.4
Carpal Tunnel Syndrome	1	0.4
Cholestasis Of Pregnancy	1	0.4
Family History of Haemophilia	1	0.4
Family History of Hydrocephalus	1	0.4
Fibroids	1	0.4
Flu Severe Bronchitis	1	0.4
Hernia	1	0.4
Hip Back Pain requiring Physiotherapy	1	0.4
Incompetent Cervix	1	0.4
Large Uterine Fibroids	1	0.4
Leg Pains	1	0.4
Low Amniotic Fluid	1	0.4
Low Blood Pressure	1	0.4
Low Haemoglobin	1	0.4
Low Iron	1	0.4
Modules On the Thyroid	1	0.4
Pancreatitis	1	0.4
Placenta Previa	1	0.4
Retroverted Uterus	1	0.4
Swelling and Protein in the Urine	1	0.4
Venous Thrombosis	1	0.4
Missing	1	0.4
Total	270	100.0

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Table 12

Infections Experienced by the Sample

Infections During Pregnancy	Frequency	Percent
No Infections	240	88.9
Urinary Tract Infections	8	3.0
Yeast Infection	8	3.0
Group B Strep	3	1.1
Herpes	3	1.1
Kidney Infection	2	0.7
Bladder and Kidney Infection	1	0.4
Infected Face Rash	1	0.4
Total	270	100.0

When the women were asked whether they expected their delivery to be by vaginal birth or caesarean birth, some women were not sure about their delivery. Therefore, a third option was tabulated in the results to indicate the responses from women who expressed uncertainty on this issue. Other women may also have been uncertain but chose one of the two options because a third option was not written in the questionnaire. The results suggest that 248 (91.9%) women are anticipating a vaginal birth, and 13 (4.8%) women are expecting a caesarean birth. Eight (3.0%) women were either not sure or expected one type of birth depending on certain conditions.

The last two questions on the second page of the questionnaire are scenarios pertaining to possible risk situations that may arise during any pregnancy. Three options are presented for each scenario. The first scenario focuses on drinking champagne at a New Year's party during the first two months of pregnancy. The majority of the women

202 (74.8%) stated that they would not drink the champagne, 28 (10.4%) said maybe, and 29 (10.7%) would have a glass. Ten (3.7%) women did not select any of the previously mentioned options but wrote that they would have one or two sips from the glass and that would be all they would drink. The second scenario involves flying to another city because of a family crisis, when your baby is due in several weeks. The responses to this scenario were less defined than in the first scenario. Fifty (18.5%) women said they would not make such a trip. Ninety-two (34.1%) women said they might travel and some mentioned that it would depend on the type of crisis. One hundred and twenty-seven (47.0%) women would definitely travel under such circumstances. This sample of women has responded differently to each risk suggesting that the type of risk influences how they respond to the scenario.

Sample Characteristics of ASP

After completing the two pages of demographic information, the respondents were asked to answer the 73 items that made up ASP. The majority of women appeared to have few problems answering the items and the ASP was completed on every questionnaire. A few respondents had difficulty deciding which option to pick on the likert scale for several items. They solved this problem by choosing two responses instead of one. These items were coded conservatively with the response that had the lower level of anxiety. Some items on the ASP do not apply to all pregnant women. Respondents did not have any difficulty in assessing an item that did not apply to them, and wrote N/A beside the item. Three items pertained to concerns around other children

and one question related to feeling the baby's movements. These items were removed because they applied only to a select subgroup of the sample. Items pertaining to the partner or spouse did not apply to some single women. Also, some women indicated that their mother or their parents were dead and, therefore, could not answer these three questions (ASP7, ASP18, ASP23). Such incidents were few and, therefore, coded as missing data. Occasionally an item was left blank and these items were also coded as missing data. Statistical analyses were computed using 69 items as four were inappropriate for analyses at this time.

Statistical Analyses of ASP

Statistical analyses of ASP is intended to refine the measure and produce a tool that is a reliable and valid measure of anxiety during pregnancy. This is accomplished through validation tests. Construct validity is assessed through confirmatory factor analysis, group differentiation, and concurrent validity. The internal consistency of the measure is determined by Cronbach's Alpha.

The Validity of ASP

a) Latent Structure

Construct validity of the ASP was assessed through Confirmatory Factor Analysis, using covariance-structural-modelling that involves analyses of linear structural relations, (LISREL) (Jöreskog and Sörbom, 1989). A LISREL model represents a path model of individual latent constructs that are modelled by means of a set of simultaneous

regression equations (Levin, 1991). The goodness-of-fit as well as the individual parameters are then examined between the hypothesised model and the model emerging from the sample data.

The LISREL model is comprised of the measurement model, which looks at relationships between the observed and the latent variables, and the structural model which looks at the relationships between the latent variables. LISREL requires the specification of the latent variables. They are either exogenous latent variables which cause fluctuations in the values of other latent variables or endogenous variables which are caused by the exogenous variables in the model (Byrne, 1989). In this study only the measurement model was applicable.

The theoretical constructs underlying the 69 items in ASP, which are based on previous research in the area of pregnancy and anxiety, suggested 10 latent dimensions. The dimensions and their respective items are listed in Appendix J. The hypothesized confirmatory factor analysis of ASP was a 10 factor model measured by 69 observed variables. The latent variables (ksi) are adaptation, physical, emotional, self, marital, sex, baby, medical, support, and labour. When this model was run using LISREL it resulted in a poor fit with the observed covariance in the data. The process of respecification and reestimation were repeated until a model with a good fit was found for ASP. A detailed discussion concerning this model is presented below.

Model Specifications

The new measurement model of ASP is made up of five factors and 14 variables. The factors and items are listed below in Table 13. The complete model is described in figure

3. The five latent constructs (ksi) are baby, labour, marital, attractive, and support. They are numbered ξ_1 to ξ_5. The observed variables are the ASP items, X_1 to X_{14}, which are connected to the latent variables. The regression paths between the latent and observed variables are represented by the arrows. Their coefficients lambda - X, (λ_{11} to$\lambda_{15,5}$) are the same as factor loadings. Theta delta (δ_1 to δ_{14}) is the error variances in the observed variables. The error variances are not correlated between the variables. The correlations between the latent variables are represented as Phi ϕ.

Examples of the regression equations that represent the two latent constructs, attractive and support, are shown in the following figures. Figure 4 shows the regression equations. The equation of vectors for attractive and support are in Figure 5. Figure 6 shows the variance-covariance matrix (ϕ) between the latent constructs attractive and support, and the error variance-covariance matrix.

Table 13

Variables in the Confirmatory Factor Analysis Model

Constructs	Variables	ASP Items and their related numbers	
ξ_1 - Baby			
	X1	38.	I feel relaxed about the health of my baby.
	X2	49.	I feel confident that my baby will be born healthy.
	X3	14.	I feel nervous that my baby will have a deformity or a disease.
ξ_2 - Labour			
	X4	25.	I feel concerned about losing control during labour.
	X5	11.	I feel nervous thinking about the pain of childbirth.
	X6	63.	I feel scared about feeling helpless during labour.
ξ_3 - Marital			
	X7	4.	I feel secure knowing that my partner finds me sexually desirable.
	X8	52.	I feel secure knowing my partner is supportive of me.
	X9	41.	I feel satisfied with my partners' involvement in my pregnancy.
ξ_4 - Attractive			
	X10	59.	I feel worried that I won't get my figure back after my baby is born.
	X11	64.	I feel uncertain about the physical changes occurring to my body.
ξ_5 - Support			
	X12	73.	I feel worried that I don't have enough support people living near me.
	X13	15.	I feel confident that the doctors and nurses will take good care of me.
	X14	32.	I feel secure that the people I know, care about me and will help me.

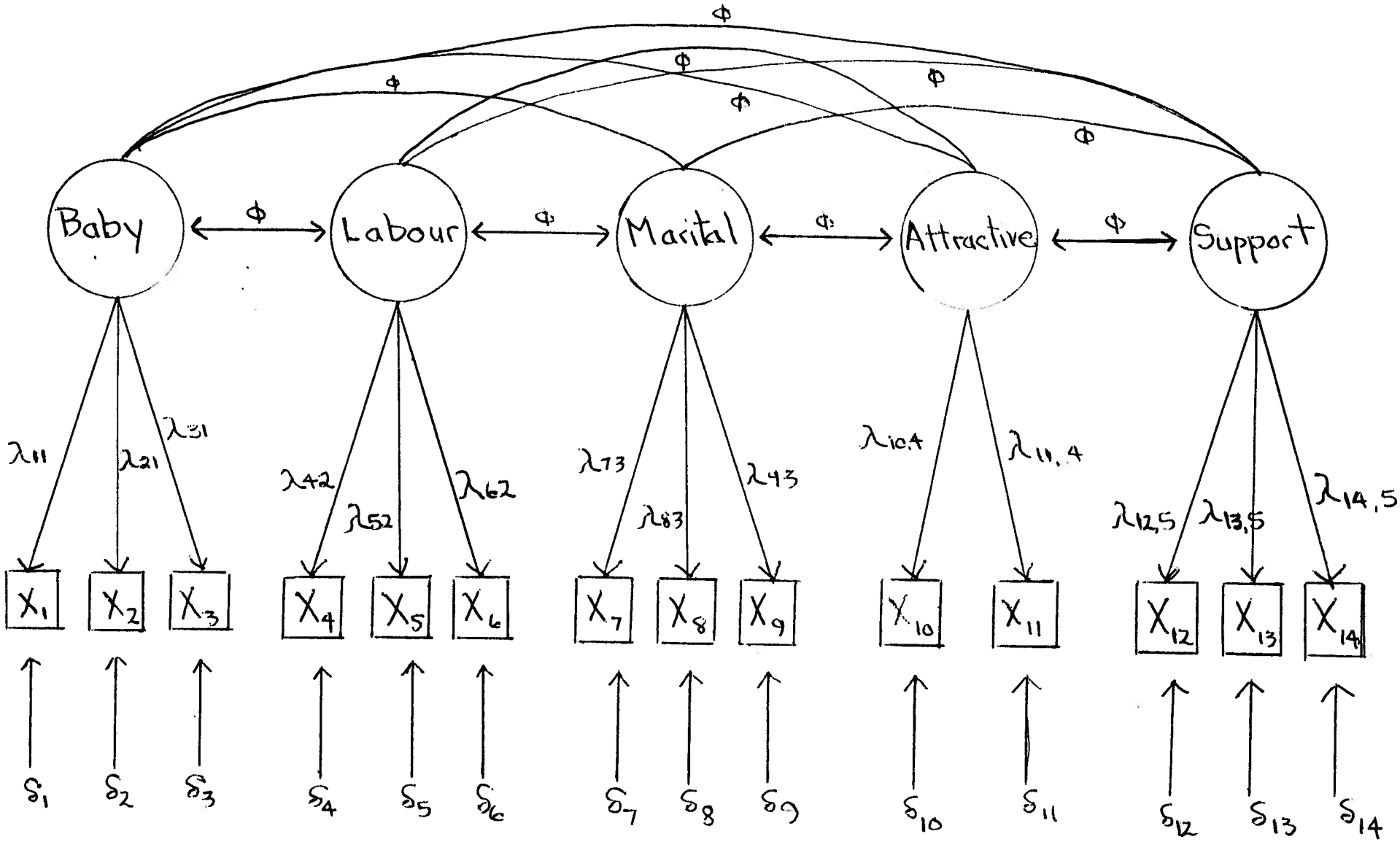

Figure 3 - Hypothesized Model of Five Latent Constructs

$$
\begin{array}{lllllll}
\text{Attractive} & X_{10} & = & \lambda_{11} & \xi_1 & + & \delta_{10} \\
 & X_{11} & = & \lambda_{21} & \xi_1 & + & \delta_{11} \\
\text{Support} & X_{12} & = & \lambda_{32} & \xi_2 & + & \delta_{12} \\
 & X_{13} & = & \lambda_{42} & \xi_2 & + & \delta_{13} \\
 & X_{14} & = & \lambda_{52} & \xi_2 & + & \delta_{14}
\end{array}
$$

Figure 4 - Example of the Regression Equations for the Latent Variables Attractive and Support.

$$X = \Lambda x \quad \xi + \delta$$

$$
\begin{bmatrix} X_{10} \\ X_{11} \\ X_{12} \\ X_{13} \\ X_{14} \end{bmatrix} = \begin{bmatrix} \lambda_{11} & 0 \\ \lambda_{21} & 0 \\ 0 & \lambda_{32} \\ 0 & \lambda_{42} \\ 0 & \lambda_{52} \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \end{bmatrix} + \begin{bmatrix} \delta_{10} \\ \delta_{11} \\ \delta_{12} \\ \delta_{13} \\ \delta_{14} \end{bmatrix}
$$

Figure 5 - An Example of The Equation of Vectors for Attractive and Support

$$X = \Lambda x \quad \phi + \theta\delta$$

$$
\begin{bmatrix} X_{10} \\ X_{11} \\ X_{12} \\ X_{13} \\ X_{14} \end{bmatrix} = \begin{bmatrix} \lambda_{11} & 0 \\ \lambda_{21} & 0 \\ 0 & \lambda_{32} \\ 0 & \lambda_{42} \\ 0 & \lambda_{52} \end{bmatrix} \begin{bmatrix} \phi_{11} & \\ \phi_{21} & \phi_{22} \end{bmatrix} + \begin{bmatrix} \theta_{11} & & & & \\ 0 & \theta_{22} & & & \\ 0 & 0 & \theta_{33} & & \\ 0 & 0 & 0 & \theta_{44} & \\ 0 & 0 & 0 & 0 & \theta_{55} \end{bmatrix}
$$

Figure 6 - Example of the Equation of Variance Covariance Matrices for Attractive and Support

The total number of parameters in the model is 105 [(14 × 15)÷2] and of those, 38 parameters were estimated. Two hundred and sixty-three respondents were available for use in this analysis. This sample size satisfied the minimum number of cases required for computation of this analysis. The parameter estimation method was maximum likelihood.

Assessment of the Model Fit

The assessment of fit between the hypothesized model and the sample data is crucial to the evaluation of the LISREL model. The adequacy of the hypothesized model is assessed by examining: the feasibility of the parameter estimates, the adequacy of the measurement model, the goodness-of-fit and the subjective goodness-of-fit of the overall model, and the goodness-of-fit of the individual model parameters (Byrne, 1989). These aspects of the model will be discussed below.

Feasibility of the Parameter Estimates

Table 14 contains the standardized maximum likelihood estimates of the model showing the variances and covariances between the latent variables. The covariances are all positive, statistically significant, and indicate a moderate degree of inter-relationship between the latent constructs. The lowest degree of inter-relationship is between the latent constructs labour and marital, but it is statistically significant. Overall the estimates are reasonable and indicative of a good model.

Table 14

Standardized ML Estimates of the Inter-Relations Between the Latent Constructs

	Baby	Labour	Marital	Attractive	Support
Baby	1.00				
Labour	0.32	1.00			
	4.71*				
Marital	0.23	0.19	1.00		
	3.02*	2.51*			
Attractive	0.40	0.59	0.28	1.00	
	4.94*	8.12*	3.14*		
Support	0.36	0.48	0.51	0.53	1.00
	4.30*	5.98*	6.23*	5.46*	

* t values > 2.0 - $p < .05$

In Table 15 are the factor loadings (λ) of the observed variables on their latent constructs. The factor loadings are strong, positive, and statistically significant. The indicator X13 has the lowest factor loading, but it is still statistically significant. The estimates show a good fit of the model.

Table 15

Standardized ML Estimates of the Factor Loadings

Constructs	Item Indicators	Factor Loadings - λ	t Values	R Squared
Baby				
	X1	0.64	14.17*	.64
	X2	0.62	14.08*	.66
	X3	0.60	11.67*	.48
Labour				
	X4	0.72	12.45*	.54
	X5	0.66	10.73*	.42
	X6	0.83	14.86*	.73
Marital				
	X7	0.44	7.87*	.27
	X8	0.58	12.10*	.67
	X9	0.57	10.36*	.47
Attractive				
	X10	0.57	8.31*	.39
	X11	0.47	8.60*	.42
Support				
	X12	0.49	7.17*	.28
	X13	0.22	4.30*	.10
	X14	0.40	8.76*	.46

* t values > 2.0 - $p < .05$

Theta delta ($\theta\delta$)shows the error variances, and this is illustrated in Table 16. All the variances are reasonable estimates, positive, and statistically significant. Overall, the standandized maximum likelihood estimates indicate a good model.

Table 16

Standardized ML Estimates of the ErrorVariances (θδ)

Item Numbers	Error Variances (θδ)	t Values
X1	0.21	6.28*
X2	0.20	6.41*
X3	0.40	9.22*
X4	0.44	8.14*
X5	0.60	9.59*
X6	0.25	4.75*
X7	0.52	10.08*
X8	0.17	4.17*
X9	0.36	7.47*
X10	0.52	7.50*
X11	0.30	6.77*
X12	0.62	9.09*
X13	0.44	10.79*
X14	0.18	5.99*

* t values > 2.0 - $p < .05$

Adequacy of the Measurement Model

The LISREL output gives the squared multiple correlation (R^2) for each observed variable (see Table 15). The squared multiple correlation is an indication of the reliability of each observed variable with its underlying latent construct (Byrne, 1989). The most reliable observed variable with its latent construct was X6, $R^2 = .72$. The 3 indicators of support produced somewhat lower indices of reliability as is the case with X7. LISREL also gives the coefficient of determination, which is an indicator of reliability for the total

measurement model. The coefficient of determination for the 14 variables is .997, indicating that the observed variables function very well together as a measuring instrument for the latent variables.

Goodness-of-Fit of the Overall Model

The chi square (χ^2) overall fit of the final model was 70.41 with 67 degrees of freedom ($p = .364$) thus indicating a very good fit. The goodness-of-fit index (GFI) examines the amount of variance and covariance that is explained by the model (Byrne, 1989). The GFI is supposed to be independent of sample size according to Jöreskog and Sörbom (1985). For this model the index also suggests a good fit because .96 is close to 1.00. The root mean square residual indicates the average discrepancy between the sample and the hypothesised covariance matrices (Byrne, 1989). This value is small, 0.03, thereby supporting a good fit of the model.

Goodness-of-Fit of the Individual Model Estimates

Misfits in the model may be found by examining each estimate. T-values indicate whether an estimate is significantly different from zero (Byrne, 1989). The t-values for the standardized ML estimates of the inter-relations between the latent constructs, the factor loadings, and the error variances are all greater than 2.00. They are all statistically significant. This indicates that all the estimates are important to the model. The t-values can be found in the tables of the ML estimates.

In summary, the five latent constructs and the fourteen observed variables produced a model that has a strong statistical fit. Also, the latent structure is theoretically supported by previous research on anxiety and pregnancy.

Sample Characteristics of the Revised ASP

Descriptive statistics were tabulated for ASP using 14 items to indicate level of anxiety. On ASP the minimum possible score is 14 and the maximum 56. The range of scores for the sample were from 14 to 48. The mean of the group was 25.13, the standard deviation 6.20, and the median 24.50 The difference between the mean and the median is very small indicating a normal distribution. The following table show the frequency of the sample scores for ASP.

Table 17

Sample Scores from ASP

Score Values on ASP	Frequency	Percent	Cum. Percent
10-14	5	1.9	1.9
15-19	43	15.9	17.8
20-24	87	32.2	50.0
25-29	82	30.4	80.4
30-34	28	10.4	90.7
35-39	20	7.4	98.1
40-44	4	1.5	99.6
45-49	1	.4	100.0
Total	270	100.0	100.0

The five subscales of ASP provide information about how women feel in regard to aspects of their lives that are being effected by their pregnancy. The subscales Baby, Labour, Marital, and Support contain three items, thereby creating a minimum score of three and a maximum score of 12. The subscale Attractive has two items, with a score

range of two to eight. The reliability of each subscale was computed using Cronbach's Alpha.

The sample scores on Baby range from three to 12. The mean was 5.87 with the median at 6.00, and the standard deviation was 2.07. Fifty percent of the scores have a value of six or below suggesting that issues relating to the baby are somewhat of a concern. 31.5% of the scores fall into the moderately concerned category. The frequency of the sample scores are presented below in Table 18. The reliability of the subscale Baby was .81.

Table 18

Sample Scores for the Subscale Baby

Score Values on Subscale Baby	Frequency	Percent	Cum. Percent
3	50	18.5	18.5
4	27	10.0	28.5
5	35	13.0	41.5
6	61	22.6	64.1
7	35	13.0	77.0
8	37	13.7	90.7
9	13	4.8	95.6
10	7	2.6	98.1
11	3	1.1	99.3
12	2	0.7	100.0
Total	270	100.0	

In the subscale labour the range of scores was from three to 12. The mean was 6.63, the standard deviation 2.49, and the median was 6.00. Fifty percent of the scores

have a value of six or less, 31.80% have score values of seven to nine, and 16.80% have score values greater than nine. These scores suggest that 48.60% of this sample of women are moderately to very concerned about issues relating to labour (see Table 19). The reliability of the subscale Labour was .80.

Table 19

Sample Scores for Subscale Labour

Score Values on Subscale Labour	Frequency	Percent	Cum. Percent
3	31	11.5	11.5
4	31	11.5	23.0
5	32	11.9	34.8
6	50	18.5	53.3
7	33	12.2	65.6
8	30	11.1	76.7
9	23	8.5	85.2
10	17	6.3	91.5
11	11	4.1	95.6
12	12	4.4	100.0
Total	270	100.0	

The sample scores on the subscale Marital are much lower than the subscale Labour. The mean was 4.46, the median 4.0, and the standard deviation 1.82. Seventy-five percent of the scores have a value of five or below suggesting that for a large portion of this group they were not very concerned about issues relating to their spouse or common-law. Table 20 displays the subscale scores. The reliability of the subscale Marital was .70.

Table 20

Sample Scores for Subscale Marital

Score Values on Subscale Marital	Frequency	Percent	Cum. Percent
3	105	38.9	39.3
4	69	25.6	65.2
5	36	13.3	78.7
6	21	7.8	86.5
7	18	6.7	93.3
8	6	2.2	95.5
9	6	2.2	97.8
10	1	.4	98.1
11	4	1.5	99.6
12	1	.4	100.0
Missing	3	1.1	
Total	270	100.0	

The subscale Attractive has a mean of 3.75, the median is 4.00, and the standard deviation is 1.37. Ninety percent of the scores have a value of five or below. These women appear to be not very concerned about their physical appearance. Their scores are listed in Table 21. The reliability of the subscale Attractive was .59.

The subscale Support also suggests that this group of women are feeling comfortable with the people they perceive as supportive to them. The mean was 4.47, the median 4.00, and the standard deviation was 1.57. Seventy-eight percent of the scores had a value of five or less. The reliability of the subscale was .47. Table 22 shows the scores for this subscale.

Table 21

Sample Scores for Subscale Attractive

Score Values On Subscale Attractive	Frequency	Percent	Cum. Percent
2	62	23.0	23.0
3	58	21.5	44.4
4	74	27.4	71.9
5	48	17.8	89.6
6	21	7.8	97.4
7	4	1.5	98.9
8	3	1.1	100.0
Total	270	100.0	

Table 22

Sample Scores for Subscale Support

Score Values on Subscale Support	Frequency	Percent	Cum. Percent
3	95	35.2	35.2
4	64	23.7	58.9
5	51	18.9	77.8
6	30	11.1	88.9
7	16	5.9	94.8
8	7	2.6	97.4
9	5	1.9	99.3
10	2	.7	100.0
Total	270	100.0	

Sample Characteristics of STAI and SSES

Spielberger's measure of state anxiety is on the page following ASP in the questionnaire. Respondents generally did not have any difficulties completing the items on the scale. One woman did not complete the scale. It appears that she accidentally missed it when she turned the page since the rest of the test package was completed. Several people left items blank and these were coded as missing. The item "I feel steady." seems to be difficult for some people to answer. Spielberger's measure of trait anxiety and the SSES were on the following two pages. Both these measures were completed by the whole sample. Occasionally one or two items were left blank and these were coded as missing data.

Spielberger's measure of State Anxiety contains 20 items which gives a minimum score of 20 and a maximum score of 100. In this sample the mean was 34.14, the standard deviation was 12.0, and the median 31.0. The large difference between the mean and the median suggest that this distribution is not normally distributed. It is positively skewed (1.11). Seventy-five percent of the scores have a value of 40 or less, and 21.90% of the scores are between 41 and 60. This indicates that three quarters of the sample were feeling somewhat anxious at the time they answered the questions, and 22.0% were feeling moderately anxious. The results from Spielberger's measure of state anxiety indicate that the majority of this sample of women did not have high levels of state anxiety at the time they wrote the test, but there was a small group of women who did score high on state anxiety.

The scores from the measure of Trait Anxiety represent a normal distribution. The mean was 35.68, the standard deviation 9.83, and the median 35.0. Fifty percent of the scores have a value of 35 or less, and 75.0% of the scores are under 43. This measure of trait anxiety indicated that for the majority of these women their level of trait anxiety was not exceptionally high. The distribution is positively skewed (.74), but this was less than the skewness of the state anxiety distribution (1.11).

The State Self-Esteem Scale is made up of 20 items that are positively and negatively worded. The items are scored on a 5 point Likert scale and positively tabulated. The score range is from 25 to 100. With this sample the minimum score is 45. The mean was 80.89, the median 82.00, and the standard deviation 11.32. Fifty-eight percent of this sample had scores that were 80 or above and 94.0 % had scores higher than 60. The scores are negatively skewed (-0.82). This group of women have very high self-esteem scores.

b) Group Differentiation

Construct validity was also assessed through group differentiation. Lederman (1984) stated that anxiety and the measurement of anxiety in pregnancy is influenced by a number of variables. Age, trimester, gravidity and health during pregnancy are a few of these variables which are represented in ASP. A finding of significant group differences on one or more of these variables provides evidence of construct validity for ASP.

Group differentiation for the four variables age, trimester, gravidity, and health, were assessed through multivariate analysis of variance. For each analysis the dependent

variables were the five subscales of ASP: Baby, Labour, Marital, Attractive, and Support. Each analysis indicated overall significant group differences between the subscales on ASP and the variables related to pregnancy. The four group variables and how they differ will be discussed below.

The independent variable trimester was examined to ascertain whether there were significant differences between the groups of women for each trimester on ASP. The trimesters were divided in the following manner: 13 weeks and under for the first trimester, 14 through 27 weeks for the second trimester, and 28 weeks or more for the third trimester. SPSS MANOVA indicated that the combined subscales were statistically significant for the three trimesters. Wilks multivariate test of significance produced a F value of 2.29 that was significant at .01. Univariate F tests suggested that there were group differences in the subscale Labour. A Oneway ANOVA using Scheffe to test for differences between the group means supported significant mean differences for the subscale Labour. Women from the third trimester had higher anxiety scores on ASP subscale Labour than women from the first trimester. The summary results are in the following table.

Table 23

Group Differences for Trimester

Summary MANOVA Results for Group Differences on Trimester

Subscale	Univariate F-tests	Group Means		
		First Trimester	Second Trimester	Third Trimester
Baby	F(2,263)=1.28, MSe=4.20, p=.28	5.13	5.74	5.94
Labour	F(2,263)=4.29, MSe=6.02, p=.02	5.13	6.13	**6.86***
Marital	F(2,263)=0.59, MSe=3.31, p=.56	4.38	4.27	4.54
Attractive	F(2,263)=0.71, MSe=1.90, p=.49	3.63	3.91	3.69
Support	F(2,263)=1.26, MSe=2.46, p=.29	5.06	4.49	4.42

* - $p < .05$

Wilks=.92, F(10,518)=2.29, p = 0.01

A line graph of the mean group differences for the three trimesters is shown in Figure 7. In the first trimester the subscale Attractive has the lowest anxiety scores in relation to the other subscales. Anxiety increases somewhat for the subscale Marital. The subscales Support, Baby, and Labour all have similar higher levels of anxiety. During the first trimester women are not that concerned about their physical appearance since the physical changes may not be that noticeable. The subscale Marital has a somewhat higher level of anxiety because women may be wondering how a baby will affect their marital relationship. The three subscales Support, labour, and Baby have the

highest scores as they focus on issues that relate to pregnancy and adapting to the experience. Glazer (1980) stated, "In all three trimesters women are most concerned about the baby and childbirth" (p. 109).

Anxiety levels for Baby and Labour increase with each trimester since these issues become more pertinent as the pregnancy progresses. Anxiety concerning Support decreases as time goes by because the woman is now more aware of who is supportive of her decision to have a baby. The subscale Attractive increases during the second trimester and then decreases somewhat in the third trimester. In the second trimester the physical signs of pregnancy start to become more evident; adapting to these changes may result in higher levels of stress for some women.

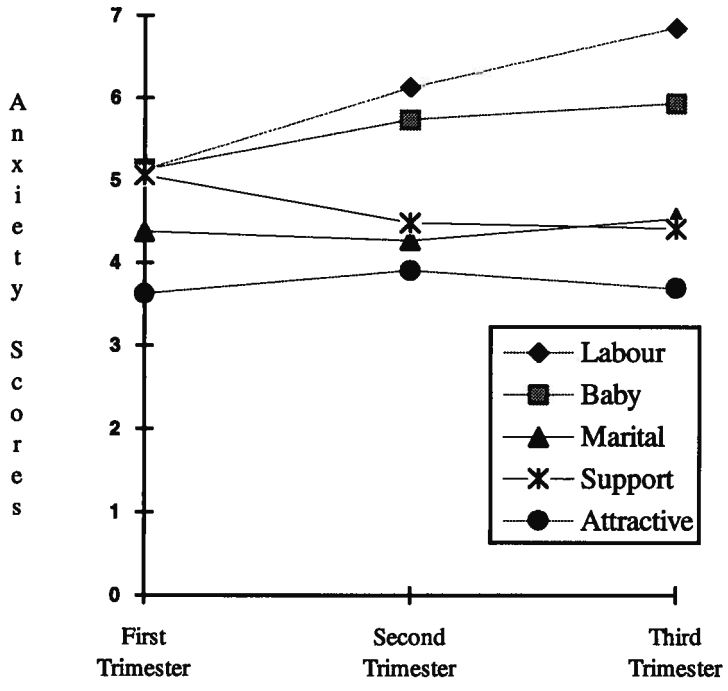

Figure 7 - Mean Group Differences on the Three Trimesters

The group variable health contained three groups of women who considered themselves to be: very healthy, moderately healthy, and somewhat healthy during their pregnancy. MANOVA indicated that there were signifcant differences between the combined subscales and the three groups on health. Wilks multivariate test of significance produced a F value of 4.48 with a significance level of .00. Significant differences between the groups were found for the subscales Baby and Marital. Oneway ANOVA using Scheffe suggested that women who felt somewhat healthy during pregnancy had significantly higher anxiety scores in regard to the subscale Baby than the other two groups of women. Differences were also found with women who felt moderately healthy to have higher scores than women who felt healthy. In regard to the subscale Marital, women who felt somewhat healthy had significantly higher scores on ASP than women who considered themselves to be very healthy. These results are shown in Table 24.

Table 24

Group Differences for Health

Summary MANOVA Results for Group Differences on Health

Subscale	Univariate F-tests	Group Means		
		Very Healthy	Moderately Healthy	Somewhat Healthy
Baby	F(2,263)=19.87, MSe=3.68, p=.00	5.39	**6.26***	**8.17***
Labour	F(2,263)=1.81, MSe=6.13, p=.17	6.38	7.00	6.83
Marital	F(2,263)=5.10, MSe=3.20, p=.01	4.26	4.61	**5.61***
Attractive	F(2,263)=2.32, MSe=1.88, p=.10	3.61	3.96	4.06
Support	F(2,263)=1.73, MSe=2.45, p=.18	4.39	4.50	5.11

* - $p < .05$

Wilks=.85, F(10,518)=4.48, p = 0.00

Figure 8 shows the mean group differences on the women's views of their health during pregnancy. The mean anxiety scores for each subscale increases as women's view of their health decreases except the subscale Labour which decreases in the somewhat healthy group. The scores on the subscale Baby were much higher for this group that had the most negative view of their health. Their greatest concern has shifted from labour to their baby. These women may feel that their health is affecting the well-being of their child. Health appears to be an important variable, because, as veiw of health decreases anxiety increases.

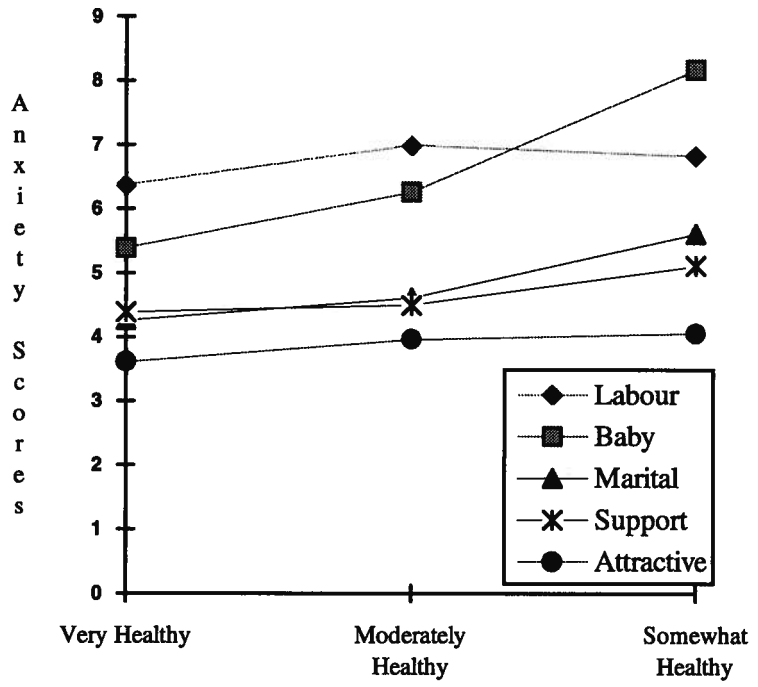

Figure 8 - Mean Group Differences on Views of Health during Pregnancy

MANOVA indicated that there were signifcant differences between the combined subscales and the two groups on Gravidity. Hotellings multivariate test of significance produced a F value of 2.91 with a significance level of .01. Differences between group means suggest that primigravidas had significantly higher levels of anxiety than multigravidas for three different subscales, Baby, Labour, and Attractive. The MANOVA results are displayed in Table 25.

Table 25

Group Differences on Gravidity

Summary MANOVA Results for Group Differences on Gravidity

Subscale	Univariate F-tests	Group Means	
		Primigravidas	Multigravidas
Baby	F(1,265)=4.72, MSe=4.132, p=.03	**6.13***	5.59
Labour	F(1,265)=8.18, MSe=6.01, p=.01	**7.07***	6.21
Marital	F(1,265)=0.74, MSe=3.30, p=.39	4.56	4.37
Attractive	F(1,265)=5.18, MSe=1.86, p=.02	**3.95***	3.57
Support	F1,265)=0.60, MSe=2.46, p=.81	4.45	4.49

* - $p < .05$

Hotellings=.05, F(5,261)=2.86, p = 0.02

The mean group differences between the primigravidas and the multigravidas is displayed in Figure 9. All the subscales except Support indicate that primigravidas are more anxious than multigravidas in relation to these five subscales. Labour has the highest scores for both groups and this is followed by Baby. Primigravidas would be expected to have higher group scores in regard to the subscale Labour because pregnancy is a new experience, therefore, these women do not know how they will cope with labour. Naturally they may be concerned or have fears around the health of their baby. In regard to the subscale Attractive primigravidas may wonder if their boby will return to its pre-pregnancy shape. The subscales Labour and Baby have the highest anxiety scores out of the five subscales for multigravidas. This would also be expected even though these

women have previously been pregnant because each pregnancy and labour experience are different. These women may have some concerns around their baby and labour.

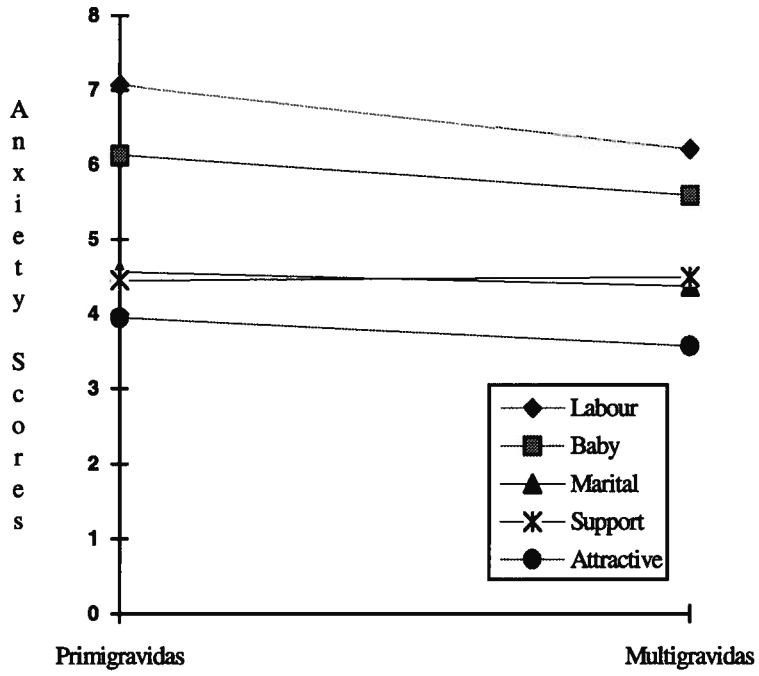

Figure 9 - Mean Group Differences Between Primigravidas and Multigravidas

MANOVA also indicated that there were signifcant differences between the combined subscales and the two age groups. Hotellings multivariate test of significance produced a F value of 2.86 with a significance level of .02. Differences between the group means indicated that women 30 years of age and older were more anxious about the people who provide them with support during pregnancy than pregnant women under the age of 30, in this sample. The results from this analysis are in Table 26.

Table 26

Group Differences on Age

Summary MANOVA Results for Group Differences on Age

Subscale	Univariate F-tests	Group Means	
		Under 30 Years	Over 30 Years
Baby	F(1,265)=3.21, MSe=4.16, p=.75	5.60	6.04
Labour	F(1,265)=0.15, MSe=6.19, p=.70	6.67	6.55
Marital	F(1,265)=0.92, MSe=3.30, p=.34	4.34	4.56
Attractive	F(1,265)=2.54, MSe=1.88, p=.11	3.87	3.62
Support	F1,265)=4.90, MSe=2.41, p=.03	4.24	**4.67***

* - $p < .05$

Hotellings=.05, F(5,261)=2.86, p = 0.02

The significant differences between the variable age and the subscale Support may be related to the women in this particular sample. The respondents in this sample are well educated and many are in professional occupations. Over 50% of these women are currently childless and therefore may be very involved in their work. They may have concerns about their colleagues and whether they will support them in their decision to have a child.

The line gragh in Figure 10 indicates that older women have higher levels of anxiety for the subscales Baby, Marital, and Support. Concerns about the baby would be anticipated with women over 30 as the risk of genetic anomilies increases. The scores for the subscales Marital and Support are very close for each group. This may reflect the

sample characteristics of these women. The majority of them are married or living common-law. They are in stable relationships which may be indicated by the length of time together. Also these women consider their partner or spouse to be an important support person, therefore, the scores on these subscales would be expected to be similar.

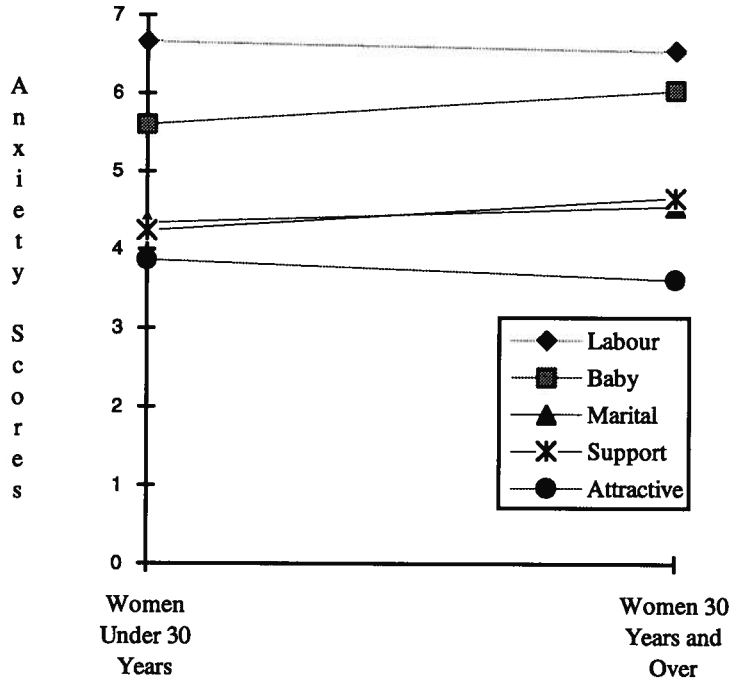

Figure 10 - -Mean Group Differences of Women Under and Over 30 Years of Age

In summary, with this sample group differences on ASP scores were found for each variable. . Each subscale was sensitive to one or more of the variables. Such group differences were anticipated due to the expectations of previous research and sample characteristics. This certainly lends supports to the construct validity of the ASP.

c) Convergent Validity

Convergent validity was assessed through the multitrait-monomethod matrix (MTMM). The different subscale scores from the ASP, STAI, and SSES were all intercorrelated. The correlation coefficients are listed in Table 27 The first 5 subscales: Baby, Labour, Marital, Attractive, and Support contain the 14 variables that were used in the Confirmatory Factor Analysis. The STAI is divided into 2 subscales, one containing the 20 items pertaining to state anxiety and the other one the items from trait anxiety. The SSES is divided into 3 subscales, appearance, social, and performance. The subscales from the STAI and the SSES are from previous studies that analysed the factor structure of both these instruments (Sarason & Spielberger, 1980; Heatherton & Polivy, 1991).

Examination of the correlation matrix indicates that the strongest correlation is between the subscales of the STAI, r = .80. All 5 subscales of ASP are significantly and positively correlated with state anxiety. The correlations range from r = .33 to r = .45. The ASP subscales also correlate with trait anxiety. These correlation coefficients are higher than those with state anxiety. They range from r = .37 to r = .45. The subscale Baby has the highest correlation with both the State and Trait Anxiety Inventory.

The three subscales of the SSES are negatively correlated with the 5 subscales of ASP. These correlations are statistically significant and they range from r = -.27 to r = -.53. The strongest negative correlation is between ASP Attractive subscale and the Appearance subscale of the SSES. The Attractive subscale also has a strong negative correlation with the Social subscale of the SSES, r = -.46. Another strong negative

correlation, r = -.40 is between Appearance and Baby. STAI also correlates negatively with the 3 subscales of the SSES. This group of correlations are the strongest between all the groups of subscales. They range from r = -.58 to r = -.72. Overall ASP subscales demonstrate fairly strong statistically significant relationships with the STAI and SSES subscales in the expected direction, implying its convergent validity.

The ASP, SAI, TAI, and SSES were also correlated to see the relationship between each measure as a whole. The analysis indicated very strong relationships between the 4 measures. ASP's strongest correlation r = -.62 was with SSES. ASP had a higher correlation with trait anxiety r = .61 than with state anxiety r = .57. These correlations are presented in Table 28.

Table 27

Correlation Matrix of the Subscales

Correlation Matrix of the Subscales from - ASP, STAI, and SSES

		Baby	Labour	Marital	Attractive	Support	State	Trait	Performance	Social	Appearance
ASP	Baby	1.00									
	Labour	0.26*	1.00								
	Marital	0.28*	0.19*	1.00							
	Attractive	0.28*	0.39*	0.24*	1.00						
	Support	0.27*	0.29*	0.28*	0.29*	1.00					
STAI	State	**0.45***	**0.39***	**0.34***	**0.37***	**0.33***	1.00				
	Trait	**0.45***	**0.42***	**0.37***	**0.40***	**0.38***	0.80*	1.00			
SSES	Performance	**-0.35***	**-0.36***	**-0.27***	**-0.30***	**-0.30***	-0.63*	-0.72*	1.00		
	Social	**-0.37***	**-0.36***	**-0.36***	**-0.46***	**-0.35***	-0.58*	-0.66*	0.66*	1.00	
	Appearance	**-0.40***	**-0.26***	**-0.32***	**-0.53***	**-0.33***	-0.58*	-0.62*	0.57*	0.66*	1.00

* - $p < .01$ (2 - tailed)

Table 28

Correlation Matrix of the Four Instruments

Correlation Matrix for the Instruments: ASP, SAI, TAI, and SSES

	ASP	STATE	TRAIT	SSES
ASP	1.00			
STATE	0.58*	1.00		
TRAIT	0.61*	0.80*	1.00	
SSES	-0.62*	-0.69*	-0.77*	1.00

* - $p < .01$ (2 - tailed)

Summary

This chapter reports the results from the field test of ASP. The demographic and health characteristics of the sample are discussed in detail. The processes for validating ASP through Confirmatory Factor Analysis, group differentiation, and the Multitrait-Monomethed Matrix were presented. Through LISREL the items in ASP were refined to create a measure of anxiety during pregnancy that encompassed 5 important dimensions of pregnancy, baby, marital, support, attractiveness, and labour. The refined measure of ASP was able to distinguish women's level of anxiety on the group variables health during pregnancy, age, gravidity, and trimester. This indicates that ASP is a sensitive measure of anxiety that pertains to pregnancy. The test scores of ASP were compared with the State and Trait Anxiety Inventory, and the State Self-Esteem Scale to indicate whether there is a relationship between the measures. ASP correlates quite strongly with

the State and Trait measures of Anxiety. It also has a strong negative relationship with the State Self-Esteem Scale. The test scores of the measures were also compared through descriptive statistics to determine the types of distributions and their similarities. The scores on the State and Trait Anxiety Inventory are positively skewed, and the SSES scores are negatively skewed , whereas ASP is close to approaching a normal distribution. Overall, the results of the tests on construct validity suggest that ASP is capable of differentiating between women's levels of anxiety during pregnancy.

Chapter 5

Discussion

The following discussion examines the outcome of this instrument development and validation study. The validation of ASP and the limitations of the study are put into perspective in relation to the sample characteristics. Finally, what directions future research should consider are reviewed in an attempt to ensure further refinement of ASP.

The Qualities of ASP

The intent of this study was to develop and validate a measure of state anxiety that is specific to the antenatal period. The initial hypothesized measure contained 73 items that were related to 10 latent constructs derived from an analysis of the literature. These items were field tested on a sample of 270 pregnant women. The majority of this study then focused on establishing the validity of ASP. According to Landy (1986), validation processes are directed toward the inferences that can be made about the attributes of the people who produced the test scores. Therefore, establishing the validity of ASP is vital to the development of this measure. It is necessary to demonstrate that ASP is sensitive to the different levels of anxiety that pregnant women experience when confronted with stressors from the dimensions that the scale intends to measure. Due to the importance of validating this measure, three methods were used to validate ASP, Confirmatory Factor Analysis, group differentiation, and concurrent validity.

Seventy-three items and ten latent constructs were assessed through confirmatory factor analysis using model testing. In the model testing procedure, a goodness-of-fit was not obtained between the 73 items and the 10 latent constructs. Therefore, the model was respecified which resulted in a revised model of 14 observed variables and 5 latent constructs: baby, marital, support, attractive, and labour. The over all goodness-of-fit for this revised model is excellent and is well supported by the chi square overall fit of the model, the goodness-of-fit index, and examination of the root mean square residuals. The coefficient of determination shows that the observed variables function well together as measuring instruments of their latent variables. The goodness-of-fit of the individual model parameters is satisfactory, because the factor loadings are large and they are all statistically significant. Therefore, a measure has been developed that successfully differentiates five dimensions of anxiety during pregnancy.

Reliability was assessed through Confirmatory Factor Analysis and Cronbach's alpha. In model testing the R squared indicates the reliability of each observed variable to measure its latent construct. The reliability indices ranged from .11 to .72, suggesting a low to high level of reliability. Overall the values indicate that the observed variables are a reliable measure of their latent constructs. The internal consistency of ASP was measured by Cronbach's alpha. The reliability of the five subscales ranged from .47 for Support to .81 for Baby. Cronbach's alpha is a function of the number of items in the subscale. The ASP subscales have either 2 or 3 items. Therefore, the reliability of the subscales are strong indicators of reliability due to the small number of items and high index of reliability. Both the reliability of the individual items and the subscales verify

that ASP has strong reliability. Test/retest reliability may provide the best indicator of a measure's reliability, but it is not appropriate in this situation because a woman's level of state anxiety during pregnancy will flucuate. This flucuation in state anxiety is due to the constant development of pregnancy and the impact it has on a woman's life. Therefore, a woman's anxiety score will reflect those changes and indicate a different score for anxiety each time the test is administered.. The ASP taps five dimensions throughout pregnancy. Due to the constant changes in the process of pregnancy, test/retest would not provide a correct estimate of reliability.

Validity was also assessed through group differentiation. The five subscales individually provide a measure of anxiety for each dimension, thereby indicating specific areas of concern. The power of the individual subscales is evident when they are examined in relation to the variables connected to pregnancy and anxiety. In regard to the variable trimester, women in the third trimester were significantly more anxious than other pregnant women on issues concerning labour. The literature supports this premise since women in the third trimester are drawing close to the end of their pregnancy. They are starting to prepare for the birth of their child so it is natural that they would be focusing on labour. The variable gravidity showed significant differences between primigravidas and multigravidas. Primigravidas are much more anxious about their baby, labour, and their body image than multigravidas. This is also supported by the literature. Pregnancy is a new experience for primigravidas who, do not know what to expect during labour, wonder whether their body will ever be the same again, and wonder about the

well being of their baby. This is also connected to the characteristics of the sample because the majority of the respondents are pregnant for the first time.

Women who seem to view themselves as moderately healthy had more concerns about their baby than "healthier women". Women who thought they were somewhat healthy were anxious about their baby and their marital relationship. It is natural for women to be concerned about their baby when they do not view their health positively as they may feel that their health will affect the fetus. Women who view their health as poor may also be people who tend to "see" stressors in their life and are, therefore, more anxious. This is reflected in the relationship with the decrease in health and at the same time the increase in the number of subgroups where anxiety is significant.

The line graphs show group contrasts between the subscales from a different perspective and they provide evidence that supports the sensitivity of ASP. The mean scores on each group show the two subscales Baby and Labour as having the highest scores. This suggests that these issues are of greatest concern to pregnant women. One would expect scores to be high on these subscales as they deal with issues that are central to pregnancy.

The distributions of ASP and Trait Anxiety are very similar and when they are compared to see the relationship between them, they have a strong correlation ($r = .61$). Trait anxiety could be viewed as a baseline for the sample's level of anxiety. The ASP distribution of scores which are low in regard to anxiety do not appear to differ drastically from the trait scores. Perhaps ASP scores are a reflection of their trait scores.

The third form of validation was by concurrent validity which was assessed by MTMM. MTMM is a correlation matrix of all the measures and subscales that were used in the questionnaire package. One would expect that pregnant women would score higher on ASP than on the general measure of state anxiety. The correlation between ASP and the measure of state anxiety was quite strong (r =.58). One might expect a stronger correlation. Several explanations may account for these differences. First of all there may be stressors in the lives of these women that are not related to pregnancy. For instance, one woman wrote on her measure of state anxiety that she was more focused on the stresses of her job at this moment than her pregnancy. Her responses on the measure of state anxiety would certainly pick up that difference. Another explanation may be that ASP is tapping only five dimensions of pregnancy. If a woman has high anxiety in some other area of pregnancy it would not be evident in ASP but perhaps it is being reflected in the increase in the score on general state anxiety.

The SSES has a strong negative correlation with ASP (r = -.62). This is to be expected since self-esteem reflects how people feel about themselves. If a woman is feeling positive about herself and the various aspects of her life, she probably does not perceive or envision many stressors in her life, whereas someone with a negative view of herself in regard to appearance, performance, and social aspects will naturally encounter stresses that may lead to anxiety. For the majority of women in this sample they are healthy, highly educated with skilled employment, involved in a stable relationship with someone who they consider is important to them, and have support people close to them.

These positive factors would suggest that they have fairly high self-esteem and low anxiety and this isindicated in the results.

The SSES and ASP also tap similar dimensions which could account for their strong correlation. The subscales of the SSES are Performance, Appearance, and Social. Two of ASP's dimensions consider the pregnant woman's body image and her support system. This may account for some overlap in variance.

ASP was sensitive to the different levels of anxiety in this sample of pregnant women. This instrument was able to demonstrate and differentiate the respondents concerns around the dimensions of labour, baby, marital relationship, attractiveness, and support persons. Together the combined items of ASP illustrated their ability to detect anxiety by their high correlation with the State and Trait Anxiety Inventory. ASP also correlated strongly and in the expected negative direction with the SSES confirming its relationship with another related measure. Completion of the initial steps to validate ASP suggests that the items are sensitive to the constructs they are intended to measure and the 14 items are sufficient to assess the five constructs in ASP.

Limitations of this Study

The intent of this research project was to develop a measure of anxiety that pertains specifically to pregnancy. This instrument would then be field tested on a stratified sample of approximately 500 pregnant women from Vancouver. A stratified sample would ensure the representation of certain variables that were pertinent to pregnancy and anxiety. Unfortunately, a sample of 500 pregnant women in Vancouver

was difficult to attain due to the time constraints of this project and lack of access to the programmes offered at B.C.'s Women's Hospital. Data collection was generally limited to a few select groups and was expanded to include women from prenatal classes in the Greater Victoria Area. Nevertheless, considering the number of respondents in the sample, adequate representation is present for some variables. Several socio-economic variables, such as single women, women with children, women with lower levels of education, and women who are unemployed or in unskilled occupations are not well represented in this sample. There are a variety of ethnic origins present in this study which certainly is indicative of Vancouver. One group that needs greater representation is the First Nations people. Therefore, in regard to demographic variables some subgroups are not well represented in this sample.

In this sample few of the respondents have health or pregnancy complications. For instance, women who have been admitted to hospital or women with specialized health concerns are not in the sample at all. Therefore, the findings in this study may not apply to women who experience complications during their pregnancy.

Consideration should also be given to the number of women who chose not to complete the questionnaire as these women tend to differ from women who volunteer. The criteria for sample selection excluded young pregnant women, women not proficient in the English language, and women with psychiatric problems. All the previously mentioned subgroups may differ from the present sample on various characteristics. Therefore, due to sample size, and the under representation of certain variables, it is not possible to generalize the results of this study to any definable population. The results

apply only to the group of women who are in the sample. However the information from the results of this study do provide valuable information about this specific group of women, which is still informative about various aspects of women and pregnancy.

Several other issues need consideration concerning ASP. The readability of the items have not been determined. The present sample had only six women whose education level was under grade 12; therefore, problems with readability of the items were not apparent. This should be examined before further testing of ASP. This measure may have a cultural bias that needs to be investigated. The sample in this study is very heterogeneous in regard to ethnic origin, but the size of the subsample was insufficient to indicate any discrepancies or trends.

Future Research and Benefits

The results of this validation study indicate that the ASP may be used to assess anxiety during pregnancy with confidence. ASP would be beneficial to researchers who are studying pregnancy and need to measure anxiety during the gestational period. For instance, the literature indicates that a current topic of interest is anxiety during pregnancy and its affect on the fetus, labour, and pregnancy outcome (Crowe & Baeyer, 1989; Molfese et al., 1987; Rizzardo & Magni, 1985). These studies all used a general measure of state anxiety. ASP is a multidimensional scale intended to assess anxiety in these specific areas, therefore, it should provide more conclusive evidence than general measures of state anxiety, thereby furthering research on this topic. Prenatal instructors may find this measure useful in assessing the concerns of women in their classes, thus

enabling them to focus on issues that are important to specific groups of women. They may also consider using this tool with couples, as a means of helping them to explore issues in their pregnancy. As the validation process of ASP continues this measure will be a valuable tool in a variety of clinical settings.

Through this research the initial steps have been completed in the construction of an instrument that measures anxiety during pregnancy. Further research is necessary to continue the validation process and refinement of the instrument. ASP should be tested on a large heterogeneous sample of pregnant women. Including the STAI again would add to the concurrent validity of this measure. Discriminant validity has not been established, therefore, a measure that would provide evidence toward such validation would enhance the psychometric properties of this instrument.

A longitudinal study may also be a powerful way to continue validation on this instrument. If ASP was administered during each trimester to the same group of pregnant women, the sensitivity of the measure would become very evident by the changes it detects throughout the gestational period.

ASP is presently designed to measure the level of anxiety during pregnancy on five different dimensions. There are other dimensions in pregnancy that may be important sources of stress, thereby causing anxiety for pregnant women. Future research may involve the inclusion of other items that fit the model.

ASP is able to discriminate anxiety on five different dimensions that are related to pregnancy. This measure of anxiety is theoretically sound as it is based on an extensive review of the literature. The constructs in this measure are also derived from the

literature. ASP has demonstrated factorial, concurrent and experimental validity. Future research will attest to the strength of this instrument.

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APPENDIX A

LITERATURE REFERENCES FOR ASP ITEMS

Table 1

References and Items from the Anxiety Scale for Pregnancy

Coping Skills	
1. I feel confident in my ability to cope with my pregnancy and childbirth.	Shereshefsky & Yarrow, (1973) "Each woman brings into her pregnancy. experience and the labour and delivery experience certain emotional characteristics, a certain personality style with which she tends to deal with new experiences." (p.87) Grossman et al., (1980) "Past adaptive coping patterns affect how a woman deals with her pregnancy. adaptation." (p.39)
2. I feel confused by all the changes in my life since I became pregnant.	Wolkind & Zajicek, (1981) The effect pregnancy has on a woman will vary according to her own phenomenal perception of her experiences and views of herself at that time. (p.38) Shereshefsky & Yarrow, (1973) "The women in his study entered upon, confronted and dealt with their pregnancy experience according to the strengths and weaknesses possessed prior to the experience." (p.47)

3. I feel relaxed even though I have some fears and worries about my pregnancy.	Shereshefsky & Yarrow, (1973) "Conflicts, anxieties, the impact of earlier relationships and characteristic ways of coping and of expressing feeling enter into her way of reacting and adapting to the pregnancy experience particularly so at the time of its culmination in the delivery experience." (p.87) Shereshefsky & Yarrow, (1973) "The woman's personality gave clear indication of her capacity to accept and adapt to the pregnancy experience."(at 3 months) (p.62)

Table 2

References and Items from the Anxiety Scale for Pregnancy

Acceptance	
1. I feel content being pregnant.	Lederman, (1984) (Caplan 1959) "85% of his group revealed some initial rejection and anxiety in his study . . . by the end of the first trimester 85-90% had accepted it" (p.34). Wolkind and Zajicek, (1981) (Cobliner 1965) "May feel a certain degree of negativity during the first 3 months. . . . The negativity decreases after quickening" (p.33).
2. I feel uncertain about having a baby.	Lederman, (1984) "Many women experience doubts and conflicting emotions when they become pregnant" (p.33).
3. I feel nervous telling people that I am pregnant.	Arizmendi and Affonso, (1987) Parents reactions were the tenth most stressful event in the first trimester (p.750).

Table 3

References and Items from the Anxiety Scale for Pregnancy

Siblings	
1. I am worried about how I am going to care for my other child/ren.	Affonso & Mayberry, (1989) Care of other children was the third most stressful event in the third trimester. (p.50)
2. I feel concerned that my other child(ren) might feel I* won't have as much love for them.	Grossman, Eichler, & Winickoff, (1980) Third trimester - ..."This coincided with other changes in the family,....and dealing with the feelings of other children. Lots of stressors." (p.32)
3. I feel content with my other child(ren's) reactions to the news about the new baby.	Affonso and Mayberry, (1989) "Women perceived reactions to the pregnancy by other children as highly stress provoking." (p.50)

Table 4

References and Items from the Anxiety Scale for Pregnancy

Motherhood	
1. I feel confident imagining myself as a mother.	Lederman, (1984) "Inhibition or interference in formation of and identification of a motherhood role . . . extreme anxiety or conflict that makes it difficult for her to prepare for motherhood. If she has severs doubts about the role then it is difficult to contemplate the new role."(p.60) Shereshefsky and Yarrow (1973) "Women who visualize themselves with confidence and clarity as mothers were likely to make a good adaptation throughout pregnancy." (p.70)
2. I feel nervous about being a mother.	Hassid (1978) In the third trimester - "Anxiety regarding herself as a mother".

Table 5

References and Items from the Anxiety Scale for Pregnancy

Physical	
1. I feel worried because there are many changes to my body which are bothering me.	Brown, (1979) "Women vary widely in their reactions to the physical symptoms from none to severe. Some find the nausea or vomiting a distressing and disabling ordeal in which they experience anxiety conflict or personal crisis." (p.37) Shereshefsky and Yarrow (1973) A large number of medical symptoms related to poor adaptation in overall reaction to pregnancy (at 3 and 7 months).
2. I feel tense because of nausea and tiredness.	Affonso and Mayberry, (1989) "Fatigue, nausea, vomiting, sleep disturbances, and physical restrictions were reported as the most frequent stressors." (p.46)
3. I feel relaxed even though my physical activities are limited.	Leifer, (1980) "Dissatisfaction at having to limit activities due to lack of energy." (p.29) Affonso & Mayberry, (1989) The third and fourth most frequently reported stressors were restrictions in physical activities (p.49).

4. I feel strained because I want this pregnancy to be over.	Shereshefsky & Yarrow, (1973) "With labour and delivery looming near and physical awkwardness and discomfort more marked most patients became more open with the obstetrician in showing anxiety and expressing eagerness to have the pregnancy over." (p.88)

Table 6

References and Items from the Anxiety Scale for Pregnancy

Baby	
1. I feel secure that my baby will not be born premature.	Leifer, (1980),p.45. "Others also had intense concern for the well-being of the fetus." (p.45) Glazer, (1980) In all three trimesters women are most concerned about the baby and childbirth. (p.109) Arizmendi & Affonso, (1987) across the three groups the most intense stressors reported were: concerns related to the baby's welfare, (p.750)
2. I feel satisfied that I am doing the right things to help my baby be healthy.	Leifer, (1980) "- increased attention to diet and harmful substances - anxious review of things done in early weeks of the pregnancy - reviewed health of family and husband." Affonso & Mayberry, (1989) Some women have additional stressors due to cognitive distortions. . . .Am I doing everything right to protect my baby?" (p.49)

3. I feel frightened that my baby will not be normal.	Lederman, (1984) (Leifer 1980) Subjects showed anxiety about the fetus and deformity. (p.29) Stearn, (1986) 39% had fears of fetal abnormality. (p.17)
4. I feel relaxed about the health of my baby.	Leaderman, (1984b) "Mother's concern focused on fetal well being." (p.31) Glazer, (1980) Whether your baby will be healthy and normal was a major concern for 94 of the 100 pregnant women. (p.110)
5. I feel anxious about the sex of my baby.	Glazer, (1980) Whether your a baby will be a boy or girl was a major concern for 70 of the 100 pregnant women. (p.110)
6. I feel frightened that something I have done might harm my baby.	Glazer, (1980) Not previously discussed in depth in the literature - effects on the fetus due to: - medication, smoking worrying and alcohol. (p.112)
7. I am worried that my baby may die.	Benedek, (1970) Fear of death of her baby. (p.224) Stearn, (1986) "Thus many pregnant women will already have experienced a miscarriage, and some a stillbirth, and the fear that it may happen again is especially acute." (p.17)

8. I am worried that I will have a miscarriage.	Leifer, (1980) "15/19 women were anxious about the possibility of miscarriage. Marked decrease in fears concerning miscarriage, as a result of completing the first trimester and the feeling of fetal movement." (p.47) Grossman, Kaplan, & Winickoff, (1980) Illegal abortion - relived the event. History of miscarriage - restrained excitement until after the first trimester. (p.23)
9. I am reassured by my baby's movements.	Leifer, (1980) "Marked decrease in fears concerning miscarriage as a result of completing first trimester and the feeling of fetal movements." (p.48)
10. I feel relaxed thinking about my baby.	Arizmendi & Affonso, (1987) The most frequently reported source of anxiety across the three groups - concern/expectations regarding the baby. (p.748)
11. I feel nervous that my baby will have a deformity or disease that is in our family.	Leaderman, (1984b) "Primigravidas were more concerned about . . . and birth defects." (p.

Table 7

References and Items from the Anxiety Scale for Pregnancy

Emotional	
1. I feel confused because of my changing feelings.	Selby et al., (1980) "Many studies note: emotional changes occur throughout pregnancy. The most frequent being depression, lability of mood, increased emotional responsiveness" (p.17). Arizmendi & Affonso, (1987) "The events that were perceived to trigger the most anxiety were internal events." (p.752)
2. I feel tense due to lack of sleep and difficulty concentrating.	Arizmendi and Affonso (1987) "Internal events were the most intense stress.- most frequent - depression, lability of mood, increased emotional responsiveness. - crying, irritability, insomnia, lethargy, difficulty in concentration also noted" (p.752). Leifer, (1980) "Most of the women experienced considerable stress when confronted with the emotional changes evoked by pregnancy. What kind of changes?- increased anxiety - increased self preoccupation - a corresponding decline of emotional investment in the external world" (p.43).

3. I feel worried that I am depressed.	Arizmendi and Affonso (1987) In the first trimester the third most frequent stressor were emotional stressors and the ninth most stressful event (intensity) was depressed feelings (p.749). Glazer, (1980) Being depressed was a major concern expressed 65 of the 100 pregnant women. (p.110)

Table 8

References and Items from the Anxiety Scale for Pregnancy

Self	
1. I feel satisfied that I am taking good care of myself.	Arizmendi & Affonso, (1987) The second most frequently reported source of stress in the third trimester was body/self image. (p.750) Leifer, (1980) "Some women experienced high anxiety that was focused on the self." (p.45)
2. I feel confident that I look attractive.	Hofmeyr, Marcos, & Butchart (1990) at 36 weeks - 431/809 53% were feeling less attractive Glazer, (1980),p.109-110. At least 50% of the women were concerned primarily about self. - 91% - How you look Leifer, (1980) "Some women experienced high anxiety that was focused on the self. They were fearful of the effects of pregnancy on their: - appearance." (p.45)

3. I feel comfortable taking medication if necessary.	Glazer, (1980) 77% were concerned about what drugs are safe to take during pregnancy. (p.110) Shereshefsky & Yarrow, (1973) Anxieties and fears: - physical aspects (p.265)
4. I feel concerned about my use of alcohol and drugs.	Leifer, (1980) "- increased attention to diet and harmful substances - anxious review of things done in early weeks of the pregnancy - reviewed health of family and husband."
5. I feel confident that my partner finds me attractive.	Affonso & Mayberry, (1989) Third trimester women identified increased problems and arguments in the relationship. 1. The male' reaction/comments about the woman's changing body or her emotional behaviour. (p.51) Leifer, (1980) "Some women experienced high anxiety that was focused on the self. They were fearful of the effects of pregnancy on their: - relationship with their husband." (p.45)
6.I feel frightened that I may die.	Leifer (1980) "Fear of death became salient for over half of the group." (p.49) Benedek, (1970) "Fear of death of herself." (p.224)

7. I feel scared that something awful is going to happen to me.	Leifer, (1980) "Women commonly began to view the outside world as being potentially threatening. They became more cautious in their activities, feared they might be harmed or attached." (p.49) Leaderman, (1984b) "Period of increased awareness of maternal-fetal vulnerability and danger as delivery approaches." (p.31)
8. I feel comfortable with the weight I have gained.	Arizmendi & Affonso, (1987) The seventh most stressful event in the third trimester was weight gain (p.750). Glazer, (1980) "70% of the women were concerned about gaining too much weight." (p.109)
9. I feel concerned about my health.	Glazer, (1980) "80% of the women were concerned about their own health."(p.109). Leifer, (1980) "There was an increase in anxiety in regard to both the self and the fetus in the third trimester." (p.49)
10. I feel worried about complications in my pregnancy.	Arizmendi & Affonso, (1987) Fear of pregnancy complications was the sixth of the most stressful events . . . "A woman's greatest stress is typically generated by anticipatory fears of complications involving herself or her baby" (p.752).

11. I feel upset because a family member being sick.	Shereshefsky & Yarrow, (1973) "External events aggravate the stresses associated with the pregnancy experience. - illness of the husband or wife." (p.9)
12. I feel concerned about how I will look after my baby is born.	Leifer, (1980) "They were fearful of the effects of pregnancy on their: - appearance." (p.45)
13. I feel concerned about my age and what effect it will have on my pregnancy.	

Table 9

References and Items from the Anxiety Scale for Pregnancy

Marital Relationship	
1. I feel content with my partner's reaction to my pregnancy.	Leifer, (1980) "They were fearful of the effects of pregnancy on their - relationship with their husband." (p.45)
2. I feel satisfied with my partner's involvement in my pregnancy.	Arizemendi & Affonso, (1987) Most stressful event in third trimester, disruptions in mate/spouse relationship. (p.750)
	Lederman, (1984) "Marital status and quality of the marital relationship may influence anxiety states." (p.32)
3. I feel secure that my partner is supportive of me.	- Heymans, Winter, (1975) 50% of the subjects told their fears to their husbands and 31% received reassurance by him.
	Affonso & Mayberry, (1989) Arguments in the relationship due to:- not receiving adequate emotional support. (p.51)

4. I feel confident that my partner will be a good parent.	Hassid, (1978) Concern: how will my mate respond to his new role.
5. I feel tense because my partner and I argue a lot.	Affonso & Mayberry, (1989) Arguments in the relationship due to: - money problems - long hours away at work - frequent travels (p.51)
6. I feel scared that my partner will die.	Leifer, (1980) "Anxiety about losing one's husband to accidental death." (p.49)
7. I feel worried that my partner is attracted to someone else.	Leifer, (1980) third trimester - "Most had stopped sexual intercourse by the end of the pregnancy. Some women found themselves fantasizing about their husbands becoming attracted to other women." (p.36)
8. I feel strained talking to my partner.	Affonso & Mayberry, (1989) p.51. Third trimester women identified increased problems and arguments in the relationship 2. Increased frequency of arguments in the relationship since the pregnancy. (p.51)

Table 10

References and Items from the Anxiety Scale for Pregnancy

Sex	
1. I feel comfortable talking to my partner about our sexual relationship.	Aufricht, Peggy. Family Health, Spring 1993. "If a couple does not talk about sex, problems could develop if one partner feels rejected by the other." Affonso & Mayberry, (1989) Arguments in the relationship due to: - increased disruption in sexual activities (p.51)
2. I feel secure that my partner finds me sexually desirable.	Affonso & Mayberry, (1989) "Women is this study focused on their perceptions of their own attractiveness as seen by the baby's father as a primary stressor in the sexual relationship: - fears of not being as attractive anymore - losing sex appeal (p.51) Shereshefsky & Yarrow, (1973) Anxieties and fears:- sexual role with husband. (p.265)

3. I feel nervous having sex because it might harm my baby.	Leifer, (1980) "Many expressed concern that sexual intercourse might either harm the fetus or provoke a miscarriage. - For some this fear decreased their readiness to initiate lovemaking or to respond to their husband's initiations." (p.48) Aufricht, Peggy. Family Health, Spring 1993. "A woman who feels good may want sex yet her partner may fear it will harm the baby or cause miscarriage and want to avoid sex."
5. I feel worried that I have lost interest in sex.	Hofmeyr, Marcos, & Butchart, (1990) "60% reported being less interested in sex than usual" (p.205) Leifer (1980),p.45. Some women experienced high anxiety that was focused on the self. They were fearful of the effects of pregnancy on their: - sexual responsiveness

Table 11

References and Items from the Anxiety Scale for Pregnancy

Medical	
1. I feel comfortable talking to my doctor.	Glazer, (1980) 58% of the women were concerned about whether the doctors will give you good care. (p.110)
2. I feel secure knowing my doctor will take good care of me.	Glazer, (1980) 57% were concerned whether the doctors are able to help you. (p.110)
3. I feel satisfied that my questions will be answered by the medical staff.	Oakley, (1979) Complaints re; hospital treatment - not being able to ask questions or not having questions answered satisfactorily. - seeing to many doctors.(p.281)
4. I feel nervous being examined by the doctors.	Glazer, (1980) concern about pelvic examinations (p.112) Stearn, (1986) Fears re; social context of birth - meeting strangers and exposing intimate parts of one's body to them. (p.18)

5. I feel nervous waiting for the results of tests.	Stearn, (1986) "Fears re: social context of birth - Having one's body boundaries penetrated and probed by machines and body functions taken over by them." (p.18)
6. I feel frightened(comfortable) going into a hospital.	Shereshefsky & Yarrow, (1973) Women who had a (serious) illness or accident - pregnancy and especially labour and delivery often reactivated concern about body image and anxieties about doctors, medical procedures and hospitalization. (p.36) Oakley, (1979) Complaints re; hospital treatment - seeing to many doctors. - being computerized, nameless faces. (p.281)

Table 12

References and Items from the Anxiety Scale for Pregnancy

Parents	
1. I feel reassured by my mother's support.	Shereshefsky & Yarrow, (1973) "Unrealistic expectations and demands made of the young couple on the part of the parents." (p.58)
2. I feel secure that my baby will have loving grandparents.	Shereshefsky & Yarrow, (1973) 14% - Crises of her own parents and acute relationship problems between couple and their parents. (p.56)
3. I feel relaxed with my parents' reaction to my pregnancy.	Arizmendi & Affonso, (1989) The tenth most stressful event in the first trimester was the parents' reactions to the pregnancy. (p.750)

Table 13

References and Items from the Anxiety Scale for Pregnancy

Social	
1. I feel secure that the people I know care about me and will help me.	Grossman et al., (1980) Need closeness with husband and communication with women who are or have been pregnant. (p.13) Arizemendi & Affonso, (1987) The ninth most frequent stressor in the third trimester - social stressors. (p.749)

Table 14

References and Items from the Anxiety Scale for Pregnancy

Finances	
1. I feel confident that I will be able to financially support my new baby.	Grossman et al., (1980) Pregnancy is likely to be associated with other significant stresses, increased financial strain." (p.18) Glazer, (1980) 66% of the women were concerned about managing the added cost of having a baby. (p.110)
2. I feel at ease knowing that I can buy the things I need for my family and myself.	Shereshefsky & Yarrow, (1973) "External Stress: - income form an unsatisfactory job - not enough - intermittent employment - not enough - reluctance to become a one-income instead of two income family." (p.58) Leaderman, (1984b) "Concerns about finances may also be substantial in some expectant families." (p.32)

Table 15

References and Items from the Anxiety Scale for Pregnancy

Career/Job/School	
1. I feel uncertain about going back to work or school after my baby is born.	Grossman et al., (1980) Pregnancy is likely to be associated with other significant stresses . . . a change in work status. (p.18)
2. I feel satisfied that if I need to I will be able to find the right person to look after my baby.	Oakley, (1979) She is bothered by the thought of financial dependence on her husband. - I don't want to stop work, but how can I manage? - Who will look after the baby?
3. I feel relaxed about coping with the added responsibilities after my baby is born.	Arizmendi & Affonso, (1987) The tenth most frequent stressor in the third trimester is job/career/school.

Table 16

References and Items from the Anxiety Scale for Pregnancy

Accommodation	
1. I feel comfortable having my baby live at my present home.	Grossman et al., (1980) Pregnancy is likely to be associated with other significant stresses, increased financial strain, a change in work status, change in residence, unusually to larger and more expensive quarters. (p.18) Arizmendi & Affonso, (1987) The fifth most frequently reported stressor in the third trimester was change in living pattern. (p.749)

Table 17

References and Items from the Anxiety Scale for Pregnancy

Labour	
1. I feel confident that my baby will be born healthy.	Glazer, (1980) 93% of the women were concerned about the baby's condition at birth. (p.110)
2. I feel secure that my support person will be with me during labour.	Shereshefsky & Yarrow, (1973) "Fears of will my husband be there for the delivery." (p.130)
3. I feel concerned that something will happen to my baby during the delivery.	Oakley, (1979) "Afraid I'll give birth to a dead baby." (p.81) Glazer, (1980) 89% of the women were concerned about any unexpected things that might happen during childbirth. (p.110)

4. I feel frightened when I think of labour and delivery.	Arizemendi & Affonso, (1987) The firth most stressful event in first trimester, fear of labour and delivery. (p.750) Glazer, (1980) "In all 3 trimesters women are most concerned about the baby and childbirth." (p.109) Leifer, (1980) - Third trimester "More irrational fears related to deliver." (p.46)
5. I feel concerned about losing control during labour.	Hassid (1978) Third trimester, anxiety about her ability to cope with labour and birth. Glazer, (1980) "- Concerns about appearing foolish - or screaming uncontrollably - fears of losing control and needing to be anesthetized." (p.109)
6. I feel scared about being helpless during labour.	Leifer, (1980) "Fears about labour: - helplessness -loss of control." (p.11) Shereshefsky & Yarrow, (1973) Anxieties and fears: - delivery." (p.265)
7. I feel comfortable with the medication that might be given during childbirth.	Glazer, (1980) 77% of the women were concerned about the medication they might receive during childbirth. (p.110)

8. I feel nervous thinking about the pain of childbirth.	Leaderman, (1984a) "Fears about labour: pain." (p.11) Glazer, (1980) 83% of the women were concerned about the pain of childbirth. (p.110)
9. I feel confident that I will not die during childbirth.	Leifer, (1980) "Most women are highly anxious about childbirth. Fear of death , concerns about the normalcy of the unborn child are widespread" (p.119)
10.I feel concerned that I may need a c-section.	
11. I feel nervous about getting a tear or being cut when my baby is born.	Oakley, (1979) "Worried about being cut and stitched." (p.80) Glazer, (1980) 58% of the women were concerned about being torn when the baby was born. (p.110)

Table 18

References and Items from the Anxiety Scale for Pregnancy

Post Partum	
1. I feel comfortable with the type of birth control I will use after my baby is born.	Glazer, (1980) 54% of the women were concerned about the type of birth control they would use after their baby was born. (p.110) Shereshefsky & Yarrow, (1973) Anxieties and fears: Subsequent pregnancies - 54% type of birth control you will use after this baby is born. (p.265)

APPENDIX B

REVIEW OF ITEMS BY THE EXPERTS

To Whom it May Concern,

I am creating an anxiety scale for pregnancy. The following statements are possible items for my scale. I would appreciate feedback from you in regard to:

1. Whether there are statements here which are not a concern to pregnant women.
2. Statements which are not clear.
3. Would some women find this questionnaire upsetting and need to be supported after completing this.

   __ yes __ no

4. Areas of pregnancy that are a concern to women which I have not mentioned.

I have left the statements in categories but normally they would be in random order.

Thank you for taking the time to look over my scale as I realize you are very busy. Your expert opinion is greatly appreciated.

PREGNANCY QUESTIONNAIRE

(A sample of the directions I may use for the statements)

DIRECTIONS

The following statements have been used by pregnant women to describe themselves. Read each statement and then __ the appropriate answer to the right of the statement which indicates how you feel **right** now, that is, **at this moment**. There are no right or wrong answers.

NOT AT ALL __
SOMEWHAT __
MODERATELY __
VERY MUCH SO __

B. COPING ABILITY

1. I feel confident in my ability to cope with my pregnancy and childbirth.
2. I feel confused by all the changes in my life since I became pregnant.
3. I feel relaxed even though I have fears and worries about my pregnancy.

C. ACCEPTANCE

1. I feel content being pregnant.
2. I feel uncertain about having a baby.
3. I feel nervous telling people that I am pregnant.

D. MOTHERHOOD

1. I feel confident imagining myself as a mother.
2. I feel nervous about being a mother.

E. PHYSICAL

1. I feel worried because there are many changes to my body which are bothering me.
2. I feel tense because of nausea and tiredness.
3. I feel relaxed even though my physical activities are limited.
4. I feel strained because I want this pregnancy to be over.

F. EMOTIONAL

1. I feel confused because of my changing feelings.
2. I feel tense due to lack of sleep and difficulty concentrating.

3. I feel worried that I am depressed.

G.SELF

1. I feel satisfied that I am taking good care of myself.
2. I feel confident that I look attractive.
3. I feel comfortable taking medication if necessary.
4. I feel concerned about my use of alcohol and drugs.
5. I feel confident that my partner finds me attractive.
6. I feel frightened that I may die.
7. I feel scared that something awful is going to happen to me.
8. I feel comfortable with the weight I have gained.
9. I feel concerned about my health.
10. I feel worried about complications in my pregnancy.
11. I feel upset because a family member is sick.
12. I feel concerned about how I will look after my baby is born.
13. I feel concerned about my age and what effect it will have on my pregnancy.

H. MARITAL RELATIONSHIP

1. I feel content with my partner's reaction to my pregnancy.
2. I feel satisfied with my partner's involvement in my pregnancy.
3. I feel secure that my partner is supportive of me.
4. I feel confident that my partner will be a good parent.
5. I feel tense because my partner and I argue a lot.
6. I feel scared that my partner will die.
7. I feel worried that my partner is attracted to someone else.
8. I feel strained talking to my partner.

I. SEX

1. I feel comfortable talking to my partner about our sexual relationship.
2. I feel secure that my partner finds me sexually desirable.
3. I feel nervous having sex because it might harm my baby.
4. I feel worried that I have lost interest in sex.

J. BABY

1. I feel secure that my baby will not be born premature.
2. I feel satisfied that I am doing the right things to help my baby be healthy.

3. I feel frightened that my baby will not be normal.
4. I feel relaxed about the health of my baby.
5. I feel anxious about the sex of my baby.
6. I feel frightened that something I have done might harm my baby.
7. I feel worried that my baby may die.
8. I feel worried that I will have a miscarriage.
9. I feel reassured by my baby's movements.
10. I feel relaxed thinking about my baby.
11. I feel nervous that my baby will have a deformity or disease that is in our family.

K. SIBLINGS

1. I feel worried about how I am going to care for my other child(children).
2. I feel concerned that my other child(children) might feel I won't have as much love for them.
3. I feel content with my other child's(children's) reactions to the news about the new baby.

L. PARENTS

1. I feel reassured by my mother's support.
2. I feel secure that my baby will have loving grandparents.
3. I feel relaxed with my parents' reaction to my pregnancy.

M. MEDICAL

1. I feel comfortable talking to my doctor.
2. I feel secure knowing my doctor will take good care of me.
3. I feel satisfied that my questions will be answered by the medical staff.
4. I feel nervous being examined by the doctors.
5. I feel nervous waiting for the results of tests.
6. I feel frightened going into a hospital.

N. SOCIAL

1. I feel secure that the people I know care about me and will help me.

O. ACCOMMODATION

1. I feel comfortable having my baby live at my present home.

P. FINANCES

1. I feel confident that I will be able to financially support my new baby.
2. I feel at ease knowing that I can buy the things I need for my family and myself.

Q. CAREER/JOB/SCHOOL

1. I feel uncertain about going back to work or school after my baby is born.
2. I feel satisfied that if I need to I will be able to find the right person to look after my baby.
3. I feel relaxed about coping with the added responsibilities after my baby is born.

R. LABOUR

1. I feel confident that my baby will be born healthy.
2. I feel secure that my support person will be with me during labour.
3. I feel concerned that something will happen to my baby during the delivery.
4. I feel frightened when I think of labour and delivery.
5. I feel concerned about losing control during labour.
6. I feel scared about being helpless during labour.
7. I feel comfortable with the medication that might be given during childbirth.
8. I feel nervous thinking about the pain of childbirth.
9. I feel confident that I will not die during childbirth.
10. I feel concerned that I may need a c-section.
11. I feel nervous about getting a tear or being cut when my baby is born.

S. POST PARTUM

1. I feel comfortable with the type of birth control I will use after my baby is born.

APPENDIX C

PRELIMINARY ITEMS GIVEN TO PRETEST GROUP

I am creating an anxiety scale for pregnancy. The following statements are possible items for my scale. I need help in deciding which statements should be removed or need to be clarified. So I am asking 30 women I know who are knowledgeable about pregnancy to help me rank each statement in regard to it's importance in pregnancy.

If you decide to do this, put the completed form in the envelope and seal it. Please do not put your name on it. I will not know which is your form as the envelopes will not be opened until they have all been returned to me. No one will be looking at the responses except myself. My thesis advisor will probably only look at the group ratings.

If you have any questions please phone me at 222-4781.

Thank you for your help, it is very much appreciated.

INSTRUCTIONS

Read each statement. Then on the left hand side of the statement write the appropriate rank number.

Rank the statements between 1 and 4 as to the level of importance for pregnant women.

1 This is **not an important issue** that women are concerned about during pregnancy.

2 This is **somewhat of an important issue** that women are concerned about during pregnancy.

3 This is **a moderately important issue** that women are concerned about during pregnancy.

4 This is **an extremely important issue** that women are concerned about during pregnancy.

Pregnancy Questionnaire

____ I feel worried about complications in my pregnancy.
____ I feel nervous thinking about the pain of childbirth.
____ I feel satisfied with my partner's involvement in my pregnancy.
____ I feel tense because my partner and I argue a lot.
____ I feel concerned that my other child(children) might feel I won't have as much love for them.
____ I feel uncertain about having a baby.
____ I feel confused because of my changing feelings.
____ I feel concerned about how I will look after my baby is born.
____ I feel confident that I look attractive.
____ I feel nervous being examined by the doctors.
____ I feel concerned about losing control during labour.
____ I feel content being pregnant.
____ I feel satisfied that I am taking good care of myself.
____ I feel relaxed thinking about my baby.
____ I feel worried because there are many changes to my body which are bothering me.
____ I feel anxious about the sex of my baby.
____ I feel frightened that I may die.
____ I feel nervous waiting for the results of tests.
____ I feel reassured by my mother's support.
____ I feel nervous about being a mother.
____ I feel nervous telling people that I am pregnant.
____ I feel relaxed even though I have fears and worries about my pregnancy.
____ I feel relaxed about the health of my baby.
____ I feel uncertain about going back to work or school after my baby is born.
____ I feel strained talking to my partner.
____ I feel worried about how I am going to care for my other child(children).
____ I feel comfortable with the weight I have gained.
____ I feel secure that my baby will not be born premature.
____ I feel confident that my partner finds me attractive.
____ I feel at ease knowing that I can buy the things I need for my family and myself.
____ I feel secure that my partner is supportive of me.

____ I feel secure that the people I know care about me and will help me.
____ I feel worried that my partner is attracted to someone else.
____ I feel relaxed even though my physical activities are limited.
____ I feel scared about being helpless during labour.
____ I feel comfortable with the medication that might be given during childbirth.
____ I feel strained because I want this pregnancy to be over.
____ I feel relaxed about coping with the added responsibilities after my baby is born.
____ I feel satisfied that if I need to I will be able to find the right person to look after my baby.
____ I feel worried that my baby may die.
____ I feel confident that I will not die during childbirth.
____ I feel concerned about my age and what effect it will have on my pregnancy.
____ I feel comfortable having my baby live at my present home.
____ I feel tense due to lack of sleep and difficulty concentrating.
____ I feel confident that my baby will be born healthy.
____ I feel worried that I am depressed.
____ I feel concerned that something will happen to my baby during the delivery.
____ I feel nervous about getting a tear or being cut when my baby is born.
____ I feel confident in my ability to cope with my pregnancy and childbirth.
____ I feel secure knowing my doctor will take good care of me.
____ I feel secure that my support person will be with me during labour.
____ I feel comfortable talking to my partner about our sexual relationship.
____ I feel relaxed with my parents' reaction to my pregnancy.
____ I feel concerned about my health.
____ I feel scared that something awful is going to happen to me.
____ I feel secure that my partner finds me sexually desirable.
____ I feel satisfied that my questions will be answered by the medical staff.
____ I feel comfortable talking to my doctor.
____ I feel content with my other child's(children's) reactions to the news about the new baby.
____ I feel concerned that I may need a c-section.
____ I feel content with my partner's reaction to my pregnancy.
____ I feel frightened that something I have done might harm my baby.
____ I feel confident that I will be able to financially support my new baby.
____ I feel frightened when I think of labour and delivery.
____ I feel concerned about my use of alcohol and drugs.

____ I feel tense because of nausea and tiredness.
____ I feel nervous having sex because it might harm my baby.
____ I feel satisfied that I am doing the right things to help my baby be healthy.
____ I feel confident that my partner will be a good parent.
____ I feel frightened going into a hospital.
____ I feel confused by all the changes in my life since I became pregnant.
____ I feel upset because a family member is sick.
____ I feel nervous that my baby will have a deformity or disease that is in our family.
____ I feel secure that my baby will have loving grandparents.
____ I feel confident imagining myself as a mother.
____ I feel reassured by my baby's movements.
____ I feel scared that my partner will die.
____ I feel worried that I have lost interest in sex.
____ I feel comfortable taking medication if necessary.
____ I feel worried that I will have a miscarriage.
____ I feel comfortable with the type of birth control I will use after my baby is born.
____ I feel frightened that my baby will not be normal.

APPENDIX D

TEST PACKAGE

DIRECTIONS FOR THE QUESTIONNAIRE

The following questionnaire contains 4 separate sections.

Section 1 - General Information
Section 2 - -Pregnancy Questionnaire
Section 3 - Self-Evaluation Questionnaire
Section 4 - Current Thoughts

Each section has it's own set of directions. Please read the directions carefully.

Sections 2, 3, and 4 are questionnaires that have been designed by different people, so some of the questions may be similar. It is important that you answer **every** question in **each** section.

The questionnaire is on **both sides** of the paper.

Try to complete all parts of the questionnaire at the same time. It will require a maximum of 35 minutes to complete. Start the questionnaire when you are sure that you will have enough time to complete it.

When you have answered every question put the completed questionnaire in the envelope provided and seal it.

If you would like to enter the draw, complete the entry form attached to this page, put it in the small envelope and seal it. Return the 2 sealed envelopes.

If you decide after you have started the questionnaire that you do not want to continue, please put the unfinished questionnaire in the envelope seal it and return it.

Thank you very much for taking the time to complete this questionnaire. Your responses will help health care workers and women in general to better understand the feelings of women during pregnancy.

Section 1

Please answer the following general questions

1. Today's date is? _____
2. What is your age? _____
3. How many pregnancies have you had including this pregnancy? _____
4. How many live births have you had? _____
5. How many weeks pregnant are you? _____
6. When is your expected due date (date of delivery)? _____

Please check √ the appropriate boxes

7. Marital status
   - ☐ single
   - ☐ married
   - ☐ divorced
   - ☐ common-law
   - ☐ widowed
   - ☐ separated

8. Education level
   - ☐ up to grade 10
   - ☐ grade 10
   - ☐ grade 12
   - ☐ college or vocational training
   - ☐ undergraduate degree
   - ☐ graduate degree

9. Employment status
   - ☐ currently employed:please state occupation _____
   - ☐ currently unemployed
   - ☐ attending school, training, college, or university

10. Who are the most important people in your life, that are living in Vancouver or the lower mainland?
    - ☐ parents
    - ☐ spouse/partner
    - ☐ grandparents
    - ☐ friends
    - ☐ brothers or sisters
    - ☐ other relatives
    - ☐ In Laws
    - ☐ other _____

11. If you are living with a spouse/partner how long have you been living together? _____

12. What is your ethnic origin? (for example: British, East Indian, First Nations, Japanese)

    _____

13. My general health prior to this pregnancy was?
    - ☐ good, no known health problems
    - ☐ complicated by _____
    (for example: diabetes, high blood pressure, kidney disease, etc.)

14. Do you consider yourself to be healthy during this pregnancy?
    - ☐ very healthy ☐ somewhat healthy
    - ☐ moderately healthy ☐ not healthy

15. Is your pregnancy affected by any of the following conditions?
    - ☐ multiple pregnancy (for example twins)
    - ☐ pregnancy induced hypertension (high blood pressure)
    - ☐ pregnancy induced diabetes (gestational diabetes)
    - ☐ premature labour contractions
    - ☐ Rh negative blood group
    - ☐ vaginal bleeding
    - ☐ other, please specify _____
    - ☐ Infections in pregnancy, please specify _____

16. Will you attend pre-natal classes or refresher classes during this pregnancy?
    - ☐ yes ☐ no

17. Do you expect your delivery to be a:
    - ☐ vaginal birth ☐ caesarean birth

18. If you were 2 months pregnant and at a New Year's Eve party where your friends offered you a glass of champagne to toast the New Year, would you drink the glass of champagne?
    - ☐ no ☐ maybe ☐yes

19. If your baby was due to be born in 3 weeks and there was a family crisis that required you to fly to Calgary for several days, and your doctor plus the airline said you could go, would you?
    - ☐ no ☐ maybe ☐yes

PREGNANCY QUESTIONNAIRE

DIRECTIONS:

The following statements have been used by pregnant women to describe themselves. Read each statement and then **circle** the appropriate number to the right of the statement to indicate how you feel **right** now, that is, **at this moment**. There are no right or wrong answers. Pick the answer which best describes your present feelings.

		NOT AT ALL	SOMEWHAT	MODERATELY	VERY MUCH
1.	I feel confident in my ability to cope with my pregnancy	1	2	3	4
2.	I feel concerned about my health	1	2	3	4
3.	I feel satisfied that if I need to I will be able to find the right person to look after my baby	1	2	3	4
4.	I feel secure knowing that my partner finds me sexually desirable	1	2	3	4
5.	I feel nervous about my skin tearing or being cut during the birth of my baby	1	2	3	4
6.	I feel concerned that my baby will be born premature	1	2	3	4
7.	I feel relaxed with my parents' reaction to my pregnancy	1	2	3	4
8.	I feel uncertain about having a baby	1	2	3	4
9.	I feel worried that something might happen to my baby during the delivery	1	2	3	4
10.	I feel comfortable talking to my partner about our sexual relationship	1	2	3	4
11.	I feel nervous thinking about the pain of childbirth	1	2	3	4
12.	I feel satisfied that I am doing the right things for a healthy baby	1	2	3	4
13.	I feel concerned about the effect my age will have on my pregnancy	1	2	3	4
14.	I feel nervous that my baby will have a deformity or a disease	1	2	3	4
15.	I feel confident that the doctors and nurses will take good care of me	1	2	3	4
16.	I feel comfortable talking to my doctor	1	2	3	4
17.	I feel confident that my partner will be a good parent	1	2	3	4
18.	I feel reassured by my own mother's support	1	2	3	4
19.	I feel comfortable using medication that might help me during childbirth	1	2	3	4
20.	I feel nervous about being a mother	1	2	3	4
21.	I feel satisfied with my level of physical activities	1	2	3	4
22.	I feel concerned that my labour may need to be induced if I am overdue	1	2	3	4
23.	I feel secure that my baby will have loving grandparents	1	2	3	4
24.	I feel confident that I will be able to manage the added cost of a new baby	1	2	3	4
25.	I feel concerned about losing control during labour	1	2	3	4
26.	I feel worried that my baby may die	1	2	3	4

PREGNANCY QUESTIONNAIRE

Page 2

	NOT AT ALL	SOMEWHAT	MODERATELY	VERY MUCH
27. I feel tense because my partner and I argue a lot	1	2	3	4
28. I feel confident that I will be able to take care of my newborn	1	2	3	4
29. I feel uncertain about whether I will go back to work or school after my baby is born	1	2	3	4
30. I feel content with my partner's reaction to my pregnancy	1	2	3	4
31. I feel frightened about going into a hospital	1	2	3	4
32. I feel secure that the people I know, care about me and will help me	1	2	3	4
33. I feel comfortable taking medication ordered by my doctor	1	2	3	4
34. I feel frightened that I may die	1	2	3	4
35. I feel worried about complications in my pregnancy	1	2	3	4
36. I feel comfortable having my baby live at my present home	1	2	3	4
37. I feel nervous having sex because it might harm my baby or start labour	1	2	3	4
38. I feel relaxed about the health of my baby	1	2	3	4
39. I feel worried that I will have difficulty feeding my baby	1	2	3	4
40. I feel worried that I might have a miscarriage	1	2	3	4
41. I feel satisfied with my partner's involvement in my pregnancy	1	2	3	4
42. I feel satisfied that I am taking good care of myself	1	2	3	4
43. I feel frightened that something I have done might harm my baby	1	2	3	4
44. I feel confused because of my changing moods	1	2	3	4
45. I feel worried waiting for the results of tests	1	2	3	4
46. I feel worried that my partner is attracted to someone else	1	2	3	4
47. I feel tense because I want this pregnancy to be over	1	2	3	4
48. I feel confident that I look attractive	1	2	3	4
49. I feel confident that my baby will be born healthy	1	2	3	4
50. I feel satisfied being pregnant	1	2	3	4
51. I feel scared that something awful is going to happen to me	1	2	3	4
52. I feel secure knowing my partner is supportive of me	1	2	3	4
53. I feel worried about having a caesarean birth	1	2	3	4
54. I feel concerned about nausea, vomiting, or tiredness	1	2	3	4
55. I feel tense due to lack of sleep, difficulty concentrating, or irritability	1	2	3	4

PREGNANCY QUESTIONNAIRE

Page 3

	NOT AT ALL	SOMEWHAT	MODERATELY	VERY MUCH
56. I feel confident imagining myself as a mother	1	2	3	4
57. I feel confident that I will love this child as much as my other child(children)	1	2	3	4
58. I feel secure that my support person(s) will be with me and help me during labour	1	2	3	4
59. I feel worried that I won't get my figure back after my baby is born	1	2	3	4
60. I feel anxious about the sex of my baby	1	2	3	4
61. I feel nervous being examined by the doctors	1	2	3	4
62. I feel reassured by my baby's movements	1	2	3	4
63. I feel scared about feeling helpless during labour	1	2	3	4
64. I feel uncertain about the physical changes occurring to my body	1	2	3	4
65. I feel satisfied with my level of desire for sexual intimacy	1	2	3	4
66. I feel depressed	1	2	3	4
67. I feel comfortable with the weight I have gained	1	2	3	4
68. I feel content about my other child's(children's) reactions to the new baby	1	2	3	4
69 I feel concerned about how I am going to care for my other child(children)	1	2	3	4
70. I feel scared that I might die during childbirth	1	2	3	4
71. I feel relaxed about coping with the added responsibilities after my baby is born	1	2	3	4
72. I feel worried about postpartum depression	1	2	3	4
73. I feel worried that I don't have enough support people living near me	1	2	3	4

SELF-EVALUATION QUESTIONNAIRE

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Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I feel strained	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel satisfied	①	②	③	④
9. I feel frightened	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel indecisive	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel confused	①	②	③	④
19. I feel steady	①	②	③	④
20. I feel pleasant	①	②	③	④

Consulting Psychologists Press, Inc.
3803 E. Bayshore Road • Palo Alto, CA 94303

SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I feel nervous and restless	①	②	③	④
23. I feel satisfied with myself	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I feel like a failure	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I have disturbing thoughts	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I make decisions easily	①	②	③	④
35. I feel inadequate	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

CURRENT THOUGHTS

DIRECTIONS:

This is a questionnaire designed to measure what you are thinking at this moment. There is, of course, no right answer for any statement. The best answer is what you feel is true of yourself at this moment. Be sure to answer all of the items, even if you are not certain of the best answer. Circle the appropriate number to the right of the statement. Again, answer these questions as they are true for you ***RIGHT NOW.***

	NOT AT ALL	A LITTLE BIT	SOMEWHAT	VERY MUCH	EXTREMELY
1. I feel confident about my abilities	1	2	3	4	5
2. I am worried about whether I am regarded as a success or failure	1	2	3	4	5
3. I feel satisfied with the way my body looks right now	1	2	3	4	5
4. I feel frustrated or rattled about my performance	1	2	3	4	5
5. I feel that I am having trouble understanding things that I read	1	2	3	4	5
6. I feel that others respect and admire me	1	2	3	4	5
7. I am dissatisfied with my weight	1	2	3	4	5
8. I feel self-conscious	1	2	3	4	5
9. I feel as smart as others	1	2	3	4	5
10. I feel displeased with myself	1	2	3	4	5
11. I feel good about myself	1	2	3	4	5
12. I am pleased with my appearance right now	1	2	3	4	5
13. I am worried about what other people think of me	1	2	3	4	5
14. I feel confident that I understand things	1	2	3	4	5
15. I feel inferior to others at this moment	1	2	3	4	5
16. I feel unattractive	1	2	3	4	5
17. I feel concerned about the impression I am making	1	2	3	4	5
18. I feel that I have less scholastic ability right now than others	1	2	3	4	5
19. I feel like I am not doing well	1	2	3	4	5
20. I am worried about looking foolish	1	2	3	4	5

APPENDIX E

INSTRUCTIONS FOR PRENATAL CLASSES

Dear Pre-Natal Instructor,

DESCRIPTION OF PROJECT

Issues Women Encounter During Pregnancy

My name is Mimi Doyle-Waters. I am a graduate student in the Department of Educational Psychology. I would like your assistance in distributing a questionnaire to the pregnant women in your pre-natal classes. This questionnaire is part of a research project which is being conducted by myself as partial requirement for my M.A. degree.

The intent of this project is to develop a scale which measures the level of anxiety women encounter during pregnancy. The statements in the scale reflect the different milestones in pregnancy as well as other factors outside of pregnancy all of which may induce stress.

The women who participate in this project will be asked to respond to a questionnaire which contains 4 sections. The sections pertain to: general demographic questions; a general measure of state and trait anxiety; my measure of anxiety during pregnancy; and a measure of locus of control. It will take 35 minutes or less to complete the questionnaire.

Some of the statements on anxiety and pregnancy may suggest concerns which some women may not have previously considered. Therefore you may want to examine the scale in preparation for possible questions from the women in your classes.

The questionnaire does not ask for any information which will identify the respondents. A blank envelope is provided for the completed form so that their answers are confidential. The responses from all the questionnaires will be combined and analyzed as a group. The women also have the right to refuse to participate as well as to withdraw from this study at anytime.

At the end of the project there will be a draw for a $100.00 gift certificate at The Bay. Respondents who wish to participate need to complete the entry form. A draw will take place at the end of the project which will be no later than June 30th 1994.

I am enclosing the directions for distributing and collecting the questionnaires.

Thank you for your assistance. If you have any further questions about this project, please contact either one of us.

Mimi Doyle-Waters B.S.W.
Graduate Student
Dept. of Educational Psychology
Telephone:222-4781

Nand Kishor Ph.D.
Assistant Professor
Dept. of Educational Psychology
Telephone:822-5086

Possible Directions for Distributing the Questionnaire

1. Distribute the description of the research project to the pregnant women in your class.

2. Inform the women that they are not required to participate in this project but if they would like to volunteer they may ask you for the questionnaire. They may take it home to complete.

3. Ask them to return it to you at the next pre-natal class. Also if they decide not to complete the questionnaire would they still return the questionnaire to you.

4. When the completed questionnaires are returned to you, please put the entry forms in the marked envelope and seal it. I will transfer these to the locked box as soon as I receive them.

4. When all the questionnaires have been returned to you please return them at your convenience to Maureen Lister, the Pre-natal Facilitator. Maureen will pass them on to me.

Please note that the women who volunteer for this project must be 20 years of age or older, fluent in the English language and appear stable.

Thank you very much for your help with this questionnaire. I would not be able to obtain my sample of 500 women without your assistance. When this study is completed I will submit a summary report on the project to Maureen Lister. Also I would be prepared to present my findings at one of your meetings.

DESCRIPTION OF PROJECT

Issues Women Encounter During Pregnancy

Western society has changed many of it's views toward pregnancy in the last 30 to 40 years. Women are now more knowledgeable about the process of pregnancy and labour. They are also in a position to make decisions concerning how and when they experience pregnancy and labour. The intent of this project is to determine how women in the 90's feel about pregnancy.

The women who participate in this project will be asked to respond to a questionnaire pertaining to their feelings about their pregnancy. It will take 35 minutes or less to complete the questionnaire.

The questionnaire is part of a M.A. research project which is being carried out by Mimi Doyle-Waters, a graduate student in the Faculty of Education. This graduate student will distribute the questionnaires. Every effort will be made to answer questions concerning directions and the research project.

The questionnaire does not ask for any information which will identify you. A blank envelope is provided for the completed form so that your answers are confidential. The responses from all the questionnaires will be combined and analyzed as a group. By completing the questionnaire it is assumed that you consent to participating in this study.

At the end of the project there will be a draw for a $100.00 gift certificate at The Bay. If you participate, you may put your first name and phone number in a locked box. A draw will take place at the end of the project which will be no later than June 30th 1994. The box will be opened at this time and a name will be drawn for the gift certificate.

You have the right to refuse to participate as well as to withdraw from this study at anytime. If you refuse or withdraw it will not jeopardize your medical care or participation in prenatal classes.

Thank you for your assistance. If you have any further questions about this project, please contact either one of us.

Mimi Doyle-Waters B.S.W.
Graduate Student
Faculty of Education
Telephone:222-4781

Nand Kishor Ph.D.
Assistant Professor,
Faculty of Education
Telephone:822-5086

APPENDIX F

INSTRUCTIONS FOR B.C.'S WOMEN'S HOSPITAL

DESCRIPTION OF PROJECT

Issues Women Encounter During Pregnancy

My name is Mimi Doyle-Waters. I am a graduate student in the Department of Educational Psychology. I would like your assistance in distributing a questionnaire to the pregnant women in your department at the B.C.'s Womens's Hospital. This questionnaire is part of a research project which is being conducted by myself as partial requirement for my M.A. degree.

The intent of this project is to develop a scale which measures the level of anxiety women encounter during pregnancy. The statements in the scale reflect the different milestones in pregnancy as well as other factors outside of pregnancy all of which may induce stress.

The women who participate in this project will be asked to respond to a questionnaire which contains 4 sections. The sections pertain to: general demographic questions; a general measure of state and trait anxiety; my measure of anxiety during pregnancy; and a measure of locus of control. It will take 35 minutes or less to complete the questionnaire.

Some of the statements on anxiety and pregnancy may suggest concerns which some women may not have previously considered. Therefore I will discuss the questionnaire with each participant after they have completed it in order to address any questions or concerns.

The questionnaire does not ask for any information which will identify the respondents. A blank envelope is provided for the completed form so that their answers are confidential. The responses from all the questionnaires will be combined and analyzed as a group. The women also have the right to refuse to participate as well as to withdraw from this study at anytime.

At the end of the project there will be a draw for a $100.00 gift certificate at The Bay. Respondents who wish to participate need to complete the entry form. A draw will take place at the end of the project which will be no later than June 30th 1994.

Thank you for your assistance. If you have any further questions about this project, please contact either one of us.

Mimi Doyle-Waters B.S.W.
Graduate Student
Dept. of Educational Psychology
Telephone:222-4781

Nand Kishor Ph.D.
Assistant Professor
Dept. of Educational Psychology
Telephone:822-5086

DESCRIPTION OF PROJECT

Issues Women Encounter During Pregnancy

Western society has changed many of it's views toward pregnancy in the last 30 to 40 years. Women are now more knowledgeable about the process of pregnancy and labour. They are also in a position to make decisions concerning how and when they experience pregnancy and labour. The intent of this project is to determine how women in the 90's feel about pregnancy.

The women who participate in this project will be asked to respond to a questionnaire pertaining to their feelings about their pregnancy. It will take 35 minutes or less to complete the questionnaire.

The questionnaire is part of a M.A. research project which is being carried out by Mimi Doyle-Waters, a graduate student in the Faculty of Education. This graduate student will distribute the questionnaires. Every effort will be made to answer questions concerning directions and the research project.

The questionnaire does not ask for any information which will identify you. A blank envelope is provided for the completed form so that your answers are confidential. The responses from all the questionnaires will be combined and analyzed as a group. By completing the questionnaire it is assumed that you consent to participating in this study.

At the end of the project there will be a draw for a $100.00 gift certificate at The Bay. If you participate, you may put your first name and phone number in a locked box. A draw will take place at the end of the project which will be no later than June 30th 1994. The box will be opened at this time and a name will be drawn for the gift certificate.

You have the right to refuse to participate as well as to withdraw from this study at anytime. If you refuse or withdraw it will not jeopardize your medical care or participation in prenatal classes.

Thank you for your assistance. If you have any further questions about this project, please contact either one of us.

Mimi Doyle-Waters B.S.W.
Graduate Student
Faculty of Education
Telephone:222-4781

Nand Kishor Ph.D.
Assistant Professor,
Faculty of Education
Telephone:822-5086

APPENDIX G

INSTRUCTIONS FOR U.B.C.

Advertisement for volunteers on Campus who live in Family Housing

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The Resident

A UBC Department of Housing and Conferences Publication
Acadia Park & University Apartments

Pregnant women, 20 years of age and older are needed for a research project concerning the feelings of pregnant women. Volunteers are asked to complete a questionnaire pertaining to their feelings during pregnancy. Participants are eligible for a draw of a gift certificate for $100.00. For more information please contact Mimi Doyle-Waters, graduate student, Department of Educational Psychology, UBC, 222-4781.

DESCRIPTION OF PROJECT

Issues Women Encounter During Pregnancy

Western society has changed many of it's views toward pregnancy in the last 30 to 40 years. Women are now more knowledgeable about the process of pregnancy and labour. They are also in a position to make decisions concerning how and when they experience pregnancy and labour. The intent of this project is to determine how women in the 90's feel about pregnancy.

The women who participate in this project will be asked to respond to a questionnaire pertaining to their feelings about their pregnancy. It will take 35 minutes or less to complete the questionnaire.

The questionnaire is part of a M.A. research project which is being carried out by Mimi Doyle-Waters, a graduate student in the Faculty of Education. This graduate student will distribute the questionnaires. Every effort will be made to answer questions concerning directions and the research project.

The questionnaire does not ask for any information which will identify you. A blank envelope is provided for the completed form so that your answers are confidential. The responses from all the questionnaires will be combined and analyzed as a group. By completing the questionnaire it is assumed that you consent to participating in this study.

At the end of the project there will be a draw for a $100.00 gift certificate at The Bay. If you participate, you may put your first name and phone number in a locked box. A draw will take place at the end of the project which will be no later than June 30th 1994. The box will be opened at this time and a name will be drawn for the gift certificate.

You have the right to refuse to participate as well as to withdraw from this study at anytime. If you refuse or withdraw it will not jeopardize your medical care or participation in prenatal classes.

Thank you for your assistance. If you have any further questions about this project, please contact either one of us.

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APPENDIX H

COMPLETE LIST OF OCCUPATIONS

Table I

Respondents Current Occupation

Occupation	Frequency	Percent
Caregiver or Unemployed	73	27.1
Registered. Nurse	14	5.2
Teacher	13	4.8
Sales, Sales Clerk, Sales Associate	7	2.6
Nanny	5	1.9
Office Clerk	5	1.9
Secretary	5	1.9
Administrator, Administrative Co-ordinator	4	1.5
Bank Teller, Bank Representative, Banker	4	1.5
Bookkeeper	4	1.5
Business Owner	4	1.5
Customer Accounts. Representative, Accounts Clerk	4	1.5
Physician	4	1.5
Researcher, Research Assistant	4	1.5
Accountant	3	1.1
Family Therapist, Family Counsellor	3	1.2
General Worker	3	1.1
Investment Banking - Management	3	1.1
Merchandiser - Retail	3	1.1
Professor	3	1.1
Retail Manager, Manager	3	1.1
Author, Writer	2	.8
Cashier	2	.8
College Instructor	2	.8
Computer Programs Operator	2	.7
Early Childhood Educator	2	.8
Executive Assistant	2	.8
Faculty Associate	2	.8
Food Services Technician	2	.8
Hairstylist	2	.8
Infant Development Consultant	2	.8
Loans Officer	2	.8
Management, Province of British Columbia	2	.8
Marketing Representative	2	.8
Medical Sales Representative	2	.8
Office Administrator	2	.7

Respondents Current Occupation

Occupation Continued	Frequency	Percent
Office Manager	2	.8
Optician	2	.8
Programmer, Analyst	2	.7
Receptionist	2	.8
Ticket Agent	2	.8
Travel Agent	2	.8
Actress, Acting Teacher	1	.4
Administrative Assistant	1	.4
Agribusiness Consultant - (CMPTRS)	1	.4
Animal Health Technologist - Sales	1	.4
Assistant Importer	1	.4
Assistant Manager	1	.4
Audiologist	1	.4
Baby-sitter	1	.4
Civil Servant	1	.4
Clerical Supervisor	1	.4
Co-Ordinator - Adult Drop In Centre	1	.4
Counsellor	1	.4
Dentist	1	.4
Desktop Publishing	1	.4
Dietary Aide	1	.4
Enquires Officer	1	.4
Farm Owner	1	.4
Financial Analyst	1	.4
Financial Consultant	1	.4
Fitness Instructor	1	.4
Fund Raiser	1	.4
Home Support Worker	1	.4
Hospital Admitting Clerk	1	.4
Interior Designer	1	.4
Lawyer	1	.4
Lead Hand Assembly Line	1	.4
Library Aide	1	.4
Locations Manager - Film Industry	1	.4
Logistic Officer - Canadian Armed Forces	1	.4
Manager, Faculty Of Medicine	1	.4
Marketing Manager	1	.4
Maternity Leave	1	.4
Natural Gas Marketing	1	.4
Nursing Aide	1	.4

Respondents Current Occupation

Occupation Contined	Frequency	Percent
Office Exam Officer	1	.4
Para Legal	1	.4
Photographer	1	.4
Post Doctoral Fellowship	1	.4
Pre Press Operator	1	.4
Programmer	1	.4
Psychiatric Nurse	1	.4
Realtor	1	.4
Recovery Officer	1	.4
Registered Dietician Nutritionist	1	.4
Restaurant Manager	1	.4
Sales Manager	1	.4
Shipper and Receiver	1	.4
Social Worker	1	.4
Spanish Teacher and Administrative Assistant	1	.4
Special Needs Teacher	1	.4
Staffing Clerk	1	.4
Supervisor - Special Needs Home	1	.4
Systems Developer	1	.4
University Admissions	1	.4
Waitress	1	.4
Waste Reduction and. Recycling Officer - GVRD	1	.4
Missing	1	.4
Total	270	100.0

APPENDIX I

COMPLETE LIST OF ETHNIC ORIGINS

Table 2

Respondents' Ethnic Origin

Ethnic Origin	Frequency	Percent
English	62	23.0
Canadian	41	15.2
Chinese	21	7.8
French-Canadian	10	3.7
German	8	3.0
Scottish	8	3.0
English Irish	6	2.2
Dutch	5	1.9
European	5	1.9
Italian	5	1.5
Filipino	4	1.5
Irish	4	1.5
Irish French	4	1.5
Scotch Irish	4	1.5
East Indian	3	1.1
Greek	3	1.1
Polish	3	1.1
Scottish English	3	1.1
American	2	.8
Australian	2	.8
British Swedish	2	.8
British Welsh	2	.8
English Scottish	2	.8
Hungarian	2	.8
Indonesian	2	.8
Japanese	2	.8
Jewish	2	.8
Polish German	2	.8
Spanish	2	.8
Ukrainian - Canadian	2	.8
Welsh Irish	2	.8
Austrian Greek	1	.4
British Czech	1	.4
British Dutch	1	.4
British East Indian	1	.4
British European	1	.4
British Italian	1	.4
British Polish	1	.4

Table 2 - Continued

Respondents' Ethnic Origin

Ethnic Origin Continued	Frequency	Percent
Chinese Vietnamese	1	.4
Chinese Yugoslavian	1	.4
Danish	1	.4
Dutch Norwegian	1	.4
Egyptian	1	.4
First Nations	1	.4
French-Canadian Scottish	1	.4
German Austrian	1	.4
German British	1	.4
German Irish	1	.4
German Soviet Georgian	1	.4
Greek Ukrainian	1	.4
Hungarian Irish	1	.4
Indonesian Chinese	1	.4
Irish Italian	1	.4
Irish Norwegian	1	.4
Irish Swedish	1	.4
Latin-American	1	.4
Lebanese	1	.4
Malaysian Chinese	1	.4
Native French Scottish German	1	.4
Russian	1	.4
Scandinavian	1	.4
Scottish Irish English	1	.4
Scottish Swedish	1	.4
Slovenian	1	.4
Swiss	1	.4
Ukrainian British	1	.4
Ukrainian Scottish	1	.4
West Indian - Caribbean	1	.4
Missing	6	2.3
Total	270	100.0

APPENDIX J

10 LATENT DIMENSIONS OF ASP

10 LATENT CONSTRUCTS OF ASP AND 69 OBSERVABLE VARIABLES

1. ADAPTATION

1. I feel confident in my ability to cope with my pregnancy.
2. I feel satisfied being pregnant.
3. I feel uncertain about having a baby.
4. I feel confident imagining myself as a mother.
5. I feel nervous about being a mother.
6. I feel confident that I will be able to manage the added cost of a new baby.
7. I feel relaxed about coping with the added responsibilities after my baby is born.
8. I feel confident that I will be able to take care of my newborn.
9. I feel worried that I will have difficulty feeding my baby.

2. PHYSICAL

1. I feel uncertain about the physical changes occuring to my body.
2. I feel concerned about nausea, vomiting or tiredness.
3. I feel satisfied with my level of physical activities.

3. EMOTIONAL

1. I feel confused because of my changing moods.
2. I feel tense due to lack of sleep, difficulty concentrating, or irritability.
3. I feel depressed.
4. I feel tense because I want this pregnancy to be over.
5. I feel worried about postpartum depression.

4. SELF

1. I feel satisfied that I am taking good care of myself.
2. I feel confident that I look attractive.
3. I feel concerned about the effect my age will have on my pregnancy.
4. I feel frightened that I may die.
5. I feel scared that something awful is going to happen to me.
6. I feel comfortable with the weight I have gained.
7. I feel concerned about my health.
8. I feel worried about complications in my pregnancy.
9. I feel worried that I won't get my figure back after my baby is born.

5. MARITAL RELATIONSHIP

1. I feel content with my partner's reaction to my pregnancy.
2. I feel satisfied with my partner's involvement in my pregnancy.
3. I feel secure knowing my partner is supportive of me.
4. I feel confident that my partner will be a good parent.
5. I feel tense because my partner and I argue a lot.
6. I feel worried that my partner is attracted to someone else.
7. I feel comfortable talking to my partner about our sexual relationship.
8. I feel secure knowing that my partner finds me sexually desirable.
9. I feel nervous having sex because it might harm my baby or start labour.
10. I feel satisfied with my level of desire for sexual intimacy.
11. I feel secure that my support person(s) will be with me and help me during labour.

6. BABY

1. I feel concerned that my baby will be born premature.
2. I feel satisfied that I am doing the right things for a healthy baby.
3. I feel relaxed about the health of my baby.
4. I feel anxious about the sex of my baby.
5. I feel frightened that something I have done might harm my baby.
6. I feel worried that my baby may die.
7. I feel worried that I might have a miscarriage.
8. I feel nervous that my baby will have a deformity or a disease.

7. SUPPORT

1. I feel reassured by my own mother's support.
2. I feel secure that my baby will have loving grandparents.
3. I feel relaxed with my parents' reaction to my pregnancy.
4. I feel secure that the people I know, care about me and will help me.
5. I feel worried that I don't have enough support people living near me.

8. MEDICAL

1. I feel comfortable talking to my doctor.
2. I feel confident that the doctors and nurses will take good care of me.
3. I feel nervous being examined by the doctors.
4. I feel worried waiting for the results of tests.
5. I feel frightened about going into a hospital.
6. I feel comfortable taking medication ordered by my doctor.

9. SES

1. I feel comfortable having my baby live at my present home.
2. I feel uncertain about whether I will go back to work or school after my baby is born.
3. I feel satisfied that if I need to I will be able to find the right person to look after my baby.

10. LABOUR

1. I feel confident that my baby will be born healthy.
2. I feel nervous about my skin tearing or being cut during the birth of my baby.
3. I feel worried that something might happen to my baby during the delivery.
4. I feel concerned about losing control during labour.
5. I feel scared about feeling helpless during labour.
6. I feel comfortable using medication that might help me during childbirth.
7. I feel nervous thinking about the pain of childbirth.
8. I feel scared that I might die during childbirth.
9. I feel worried about having a caesarean birth.
10. I feel concerned that my labour may need to be induced if I am overdue.

APPENDIX K

5 LATENT DIMENSIONS OF THE VALIDATED ASP

5 DIMENSIONS OF THE VALIDATED ASP

1. BABY

1. I feel relaxed about the health of my baby.
2. I feel confident that my baby will be born healthy.
3. I feel nervous that my baby will have a deformity or a disease.

2. LABOUR

1. I feel concerned about losing control during labour.
2. I feel nervous thinking about the pain of childbirth.
3. I feel scared about feeling helpless during labour.

3. MARITAL

1. I feel secure knowing that my partner finds me sexually desirable.
2. I feel secure knowing my partner is supportive of me.
3. I feel satisfied with my partners' involvement in my pregnancy.

4. ATTRACTIVE

1. I feel worried that I won't get my figure back after my baby is born.
2. I feel uncertain about the physical changes occurring to my body.

5. SUPPORT

1. I feel worried that I don't have enough support people living near me.

2. I feel confident that the doctors and nurses will take good care of me.

3. I feel secure that the people I know, care about me and will help me.