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Quantification of Childbirth Comfort: Instrumentation

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### Quantification of Childbirth Comfort: Instrumentation

A theory of holistic comfort was first promulgated by Katharine Kolcaba, PhD, RN in an article entitled *The Theory of Holistic Comfort* (Kolcaba, 1994). Because of the contemporary publication date, it would seem that the idea of considering patient comfort was either relatively new or had been relegated to invisible status due to the lack of explicit documentation or inclusion in hospital policies. This invisible status was unfortunate and sometimes misleading, however, because comfort as a concept has long been included as a goal of nursing and midwifery care and is described by patients as a fundamental priority. The midwifery model of care includes providing comfort and encouraging women to use self-identified comfort measures. Midwifery interventions that are comfort-promoting support a laboring woman's ability to be an active participant in her birth, and to be connected to her body, her emotions, and the experience (Schuiling & Sampsel, 1999). The significance of comfort in labor is arguably foundational in midwifery practice. Until recently, there were no instruments available to measure comfort. The lack of instrumentation made assessing patient comfort outcomes difficult at best. This paper describes the development of an instrument that enables quantification of a women's level of comfort during childbirth. The Childbirth Comfort Questionnaire (CCQ) is based on and tested in accordance with Kolcaba's theory of holistic comfort.

#### *Kolcaba's Definition of Holistic Comfort*

Kolcaba defines holistic comfort as 'as the immediate experience of being strengthened through having the needs for relief (the experience of having met immediate needs for comfort), ease (a state of calm or contentment), and transcendence (a state in which one rises above problems or pain) met in four contexts of experience; physical, psychospiritual, sociocultural, and environmental (Kolcaba, 2003). Comfort, as conceptualized by Kolcaba, is a "holistic outcome that accounts for whole person responses" Kolcaba (1994, p. 1178). Childbirth is a (usually) normal event that requires whole person responses. Comfort during childbirth is considered by many women a priority.

Kolcaba’s Theory of Comfort (1994) directs nurses to assess comfort needs of patients, design holistic interventions to meet those needs, and measure the effectiveness of interventions to enhance comfort compared to a pre-intervention baseline. For labor and delivery, holistic interventions would include but not be limited to...

*Measuring Holistic Comfort: The General Comfort Questionnaire*

The General Comfort Questionnaire (GCQ), developed by Katharine Kolcaba, PhD, RN, is a 48-item Likert scaled questionnaire with responses ranging from strongly disagree to strongly agree (ranges 1-6). There are equal numbers of positive and negative response items to reduce response bias. The instrument is scored by reverse coding the negative items and then summing scores. Higher scores indicate higher levels of comfort. The Cronbach’s alpha for the instrument is 0.90. Correlations between the subscales (relief, ease and transcendence) range from 0.57 to 0.65 which suggests the subscales are related but not redundant.

Kolcaba measured holistic comfort within several patient populations adapting her General Comfort Questionnaire with items designed according to a comfort taxonomic grid (Figure 1). Items on the questionnaire represent the juxtaposition of a specific context and sense of comfort, for example, a question such as “I have enough privacy’ represents the sociocultural sense of comfort within the context of ease.

	<b>Relief</b>	<b>Ease</b>	<b>Transcendence</b>
<b>Physical</b>			
<b>Psychospiritual</b>			
<b>Sociocultural</b>			
<b>Environmental</b>			

**Figure 1. Comfort Taxonomy**

The previous intervention studies demonstrated that significant increases in comfort over three time periods could be obtained: (a) guided imagery for women with breast cancer going

through radiation treatments (Kolcaba & Fox, 1999), (b) cognitive strategies with community-dwelling persons with moderate incontinence (Dowd, Kolcaba, & Steiner, 2001), and (c) hand massage with hospice patients (Kolcaba, Steiner, Dowd, & Mitzel, 2004). The following indicators for internal consistency reliability for each instrument were reported: (a) for the Radiation Therapy Comfort Questionnaire (RTCQ), Cronbach's alpha of .76, n=53 (Kolcaba & Fox); (b) Urinary Incontinence and Frequency Comfort Questionnaire (UIFCQ), Cronbach's alpha of .82, n=40 (Dowd, Kolcaba, & Steiner); and (c) End of Life Comfort Questionnaire (EOL Comfort), Cronbach's alpha averaged over three time points was .65 with decreasing alphas on each successive data collection point. These declines corresponded to the patients' progressively declining cognitive status (Kolcaba, Steiner, Dowd, & Mitzel). The consistently high reliability scores of previous adapted comfort instruments give evidence that of the development of the GCQ was based on a rigorous theoretical process, and gives confidence that future adapted instruments will perform equally well. On the other hand, the adapted instruments were not subjected to factor analysis because of their small sample size and further testing is required to increase generalizability.

*Measuring Childbirth Comfort: The Childbirth Comfort Questionnaire*

The Childbirth Comfort Questionnaire (CCQ) is adapted from the GCQ according to directions from Katharine Kolcaba, PhD, RN which are available on her website: <http://wwwTheComfortLine.com> The CCQ is a 14-item instrument designed to assess the level of comfort a birthing woman is experiencing. Respondents indicate their level of agreement or disagreement with situational statements using a 5-point Likert scale anchored by "strongly disagree" to "strongly agree". The statements address comfort needs of laboring women and, like the GCQ, are state-specific, meaning women respond to how they are feeling at that particular moment.

The CCQ uses the same taxonomic structure as the GCQ; thus, each cell reflects synthesis of the two dimensions of meaning where they intersect because all aspects are interdependent; a change in one produces a change in others (Kolcaba, 1992). The instrument is intended to holistically measure comfort during childbirth. All cells of the comfort taxonomic grid are represented by an item in order to assure that all of the content domains of childbirth comfort are addressed (Kolcaba, 1991). More items for the CCQ occur in the transcendence cell because it is theorized that comfort during labor may occur more often in this content domain.

Development of the CCQ began with identification of items on the GCQ that are relevant to the sense and context of comfort during childbirth. This enabled recognition of items relevant to childbirth that either needed revision from their current GCQ form or that had to be developed. For example, after relevant items were identified from the GCQ, it was noted that there was no item on the GCQ addressing childbirth comfort within the context of transcendence (sense)/physical (context) so the item 'The pain of the contractions motivates me to be strong' was added to the CCQ. Items requiring revision and newly developed items were derived from clinical experience of the author, literature review, interviews with women who had experienced labor and birth, and interviews with nurse-midwives. An equal number of positive and negative items were generated to keep response bias to a minimum.

Like the GCQ, scoring the CCQ is accomplished by summing the responses once reverse coding is completed for the negatively worded items. Scores can potentially range from 14-70 (provided all questions are answered); higher scores indicate higher comfort. Scores for each subscale may be documented in order to assess in which content domain participants experience the highest level of comfort e.g., relief (sense)/physical (context). Face validity for the CCQ was initially established by having the instrument reviewed by 10 expert nurse-midwives, 10 obstetrician/gynecologists and 10 women who had experienced labor and a vaginal birth.

The CCQ is administered between contractions and assesses the level of comfort the woman is experiencing at the time the questions are asked. In this study, the CCQ was administered twice during labor: latent phase (T<sub>1</sub>) and active phase (T<sub>2</sub>). Data collectors were

midwives or nurses who were experienced in working with laboring women and who had received training in instrument administration.

#### *Piloting the Childbirth Comfort Questionnaire*

The instrument was piloted with 25 sets of data related to a childbirth comfort and pain study in a population of primiparous normally laboring women. Adequacy of the sample size for statistical analysis was assessed and the internal consistency of the CCQ was examined using a Cronbach's alpha. Cronbach's alpha is based on the strength of the inter-correlations of all items in the instrument as well as the number of items used. It assesses the items for homogeneity to assure the scale is measuring one construct (Devillis, 1991; Polit, Beck & Hungler, 2001). An alpha of 0.70 is considered acceptable for newly developed instruments (Gillis & Jackson, 2002). Cronbach's alpha was used to assess internal consistency reliability primarily because this is the same measure used to assess the internal consistency of the GCQ.

#### *Psychometric Properties of the Childbirth Comfort Questionnaire*

The Cronbach's alpha for the CCQ during the pilot phase was 0.71. Based on this finding it was determined that the CCQ was internally consistent and could be used to measure comfort during childbirth. Data collection continued until 64 data sets were obtained. The Cronbach's alpha was repeated twice during the study to assure it remained within acceptable parameters. The final Cronbach's alpha remained 0.71. Although overall the CCQ's internal reliability is acceptable for a new instrument, continued assessment of its validity and reliability for future use is warranted.

#### *Discussion*

The CCQ is a new instrument developed to assess a woman's comfort during childbirth. The psychometric properties suggest the instrument has adequate internal consistency reliability, however further testing of the instrument within larger and more diverse populations is necessary. A small number of women ( $n = 10$ ) were debriefed at the completion of the study and their qualitative data suggest the instrument was indeed measuring comfort. However, construct validity of the instrument has yet to be determined. Construct validity is accomplished by

confirmatory factor analysis which requires a larger sample size, therefore refinement and revision of the instrument is ongoing.

The ability to quantify comfort during labor however, suggests that pain and comfort are not binary opposites, and that relieving pain does not necessarily raise a woman's level of comfort. The ability to measure comfort does not negate the necessity to assess pain, but provides an added piece of vital assessment information. Relieving pain and providing comfort is important to laboring women. The measurement of pain and comfort suggests that women who experience comfort are those women who use complementary methods such as one-to-one support, massage and freedom of movement. Refinement of the CCQ will enable development of evidence based guidelines for comfort care during childbirth.

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Appendix A  
Childbirth Comfort Questionnaire

Thank-you VERY MUCH for helping in this study about the feelings women experience during labor. I am going to ask you to rate how you feel about 14 statements. Please rate each statement from 1 to 5 with “1” meaning you ‘strongly disagree’ and “5” meaning you ‘strongly agree’ at this moment.

I would not include directions to data collectors on the instrument

- |  | strongly disagree | strongly agree |
|--|-------------------|----------------|
| 1. I have enough privacy.                                      | 1...2...3...4...5 |                |
| 2. My pain is difficult to endure.                             | 1...2...3...4...5 |                |
| 3. I feel empowered by those around me.                        | 1...2...3...4...5 |                |
| 4. I don't think I can do this without the help of others.     | 1...2...3...4...5 |                |
| 5. I am working well with my body.                             | 1...2...3...4...5 |                |
| 6. This chair (bed) makes me hurt.*                            | 1...2...3...4...5 |                |
| 7. I can rise above my pain because it helps me birth my baby. | 1...2...3...4...5 |                |
| 8. I feel confident I can birth my baby.                       | 1...2...3...4...5 |                |
| 9. This room makes me feel weak and helpless.                  | 1...2...3...4...5 |                |
| 10. The pain of the contractions motivates me to be strong.    | 1...2...3...4...5 |                |
| 11. This is a safe place to be.                                | 1...2...3...4...5 |                |
| 12. I feel like giving up.                                     | 1...2...3...4...5 |                |
| 13. I worry I will lose control.                               | 1...2...3...4...5 |                |
| 14. I need to feel better informed about my progress.          | 1...2...3...4...5 |                |

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Note: The Childbirth Comfort Questionnaire (CCQ) was developed and tested in 2002-2003. Face validity was accomplished by a panel of experts: midwives, obstetricians, labor and delivery nurses and women who had given birth. The instrument has a 0.71 Cronbach's (sample size n = 64). The instrument is administered twice during labor: latent & active phase. To score, reverse code the negative responses and total the sum. Higher totals mean higher comfort. This instrument was used in a population of primiparous women who gave birth in the United States. Further testing of the instrument is ongoing. For comments or questions please contact: ([kschui@nmu.edu](mailto:kschui@nmu.edu)) or 906-227-2834 or via mail:

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