

**Measuring Walsh's Family Resilience Framework:  
Reliability and Validity of the Family Resilience Assessment  
(FRA) Among Women With a History of Breast Cancer**

Crystal Duncan Lane

Department of Family and Consumer Sciences, Western Michigan University, Kalamazoo, MI,

USA

Peggy S. Meszaros

Department of Human Development, Virginia Polytechnic Institute and State University,

Blacksburg, VA, USA

Jyoti Savla

Department of Human Development, Virginia Polytechnic Institute and State University,

Blacksburg, VA, USA

Address correspondence to Crystal Duncan Lane, Department of Family and Consumer Sciences, Western Michigan University, Kalamazoo, MI 49008-5322, USA. E-mail: crystal.duncanlane@wmich.edu

**Abstract**

Walsh's family resilience framework presents a comprehensive and inclusive lens of family process that may assist clinicians, family service professionals, and health care providers with

understanding the functioning of individuals and families in their care. A mechanism for using this framework is needed, as is empirical evidence of its cogency. This article reports on the development of the Family Resilience Assessment, a 29-item survey intended to assess dimensions of Walsh's framework. The family resilience assessment is presented as a reliable and valid mechanism for assessing the family resilience framework. Results of the use of the survey with women with a history of breast cancer demonstrate that it is a reliable instrument with content and construct validity.

**Keywords:** assessment, family resilience, family resilience framework, instrument

Resilience is a universally recognized concept whose definition and meaning continue to be debated (Liebenberg & Ungar, 2009; Luthar, Cicchetti, & Becker, 2000). It is conceptualized as a trait where individuals and families are either resilient or not (Garmezy, 1991; Rutter, 1999; Werner & Smith, 1992), as an active process that can be learned and increased (Liebenberg & Ungar, 2009; Walsh, 1996, 2016), and a potential outcome of crisis (Hill, 1949; McCubbin, Dahl, Lester, Benson, & Robertson, 1976; McCubbin & Patterson, 1983). It is discussed at both the individual (Luthar et al., 2000) and relational/ family levels (McCubbin & McCubbin, 1993; Ungar, 2005; Walsh, 2016). Furthermore, it is viewed as a one-time response to a crisis (McCubbin et al., 1993), as well as an evolving process throughout the life cycle (Walsh, 2016). Henry, Morris, and Harrist (2015) discuss two waves of evolution on the concept of resilience, advocating for more "consistency in terminology," (p. 22) as the concept moves into a third wave of theorization. Consistent terminology that lends itself to rigorous operationalization is also crucial to the further study of the construct. Walsh's (1996, 2002, 2003, 2016) family resilience framework provides this terminology, as well as a multivariate structure that allows for rigorous measurement.

Walsh's postmodern framework shifts away from an emphasis on resilience as a one-time response to crisis, to that of a transformative, evolving and iterative process occurring throughout the family lifecycle. This conceptualization of resilience allows families to "bounce forward," (2002, p. 133) from the crisis and is a potential resource they can stand upon during future adversity. Walsh focuses on "key processes that can reduce stress and vulnerability in high-risk situations; foster healing and growth out of crisis; and empower families to surmount prolonged adversity," (2016, p. 18). The focus is not on whether families are or are not resilient at a given point in time. Rather, it is on how families *do resilience* across the life course, during both acute and chronic family stress, and how the key processes described below intervene during challenging times, as well as providing a preventative influence for weathering future adversity. Underscoring the inclusive (Allen, 2000) nature of this framework is Walsh's emphasis that "no single model (of resilience) fits all families or situations," (2016, p. 18). This is a powerful and distinguishing feature of this framework, as is the potential for it to mold to the family in question. Despite this promise, the family resilience framework does not have an established instrument that measures family resilience from this perspective, and has yet to be empirically validated.

Two previous attempts at validating this measure suffer from methodological limitations. Sixbey (2005) created a measure with good reliability, but discussed family resilience as a second order variable, while generalizing it across groups of individuals. Coyle (2005) claims to validate the family resilience framework, but did so using the Family Assessment Measure (Skinner, Steinhauer, & Sitarenios, 2000) which was created to test the process model of family functioning. Though not described as an attempt at validation, the Walsh Family Resilience Questionnaire (WFRQ) is offered in the third edition of *Strengthening Family Resilience*, as "a way to operationalize the nine key processes and their components" (Walsh, 2016, p. 111). Reliability and

validity are not noted, nor is information related to pilot testing, or how the questionnaire has been effectively utilized.

The purpose of this study was to validate the family resilience framework through the development of a reliable and valid measure, by using it with women with a history of breast cancer serving as the population. The next section provides an overview of the family resilience framework. The development and validation of the Family Resilience Assessment (FRA) are discussed next, as well as implications for practice and research.

## **COMPONENTS OF THE FAMILY RESILIENCE FRAMEWORK**

The family resilience framework is comprised of nine processes which are grouped into three themes (see Table 6.1 in Walsh, 2016, p. 103). The first theme is *belief systems* and includes the processes of making meaning of adversity, having a positive outlook, and transcendence and spirituality. *Meaning making* is found in individual and family narratives, with a key feature being the construction of the adversity as something the family is facing together, as well as a general sense of coherence (Antonovsky 1979; Antonovsky & Sourani, 1988/2003; Walsh, 2016). The overall tone of the family narrative as hopeful and courageous are key aspects of the *positive outlook* process. The lens through which the narrative is told is where the third process of *transcendence and spirituality* is seen. Here, family narratives surrounding adversity are told with a focus on there being a greater purpose or “larger values,” (Walsh, 2016, p. 103), reliance on spirituality, and allowing the adversity to transform and promote family growth.

The second theme is *organizational patterns* and includes the processes of flexibility, connectedness, and social and economic resources. Walsh discusses this theme as “family shock absorbers,” (2016, p. 80). Here, families are *flexible* and willing to deconstruct and rewrite parts

of their narratives to fit the adversity, with the rewriting done in the context of togetherness and mutual dependence on one another. Through the process of *connectedness* families are open to collaboration while respecting individual boundaries and seeking reconciliation when necessary. The strong presence of both of these processes facilitates community networking, and seeking social support, which are both aspects of the *social and economic resources* process. The last part of this process is “build[ing] financial security; navigat[ing] stressful work-family challenges,” (p. 103). While care must be taken with this concept in particular so that resilience does not become dependent upon class, as well as considering the realistic potential for a family to build financial security; A possible application of this concept may be in assessing willingness to interface and “transact with larger systems,” (p. 108) as financial assistance is sought.

The third theme is *communication/ problem solving* and is divided into clarity, open emotional expression, and collaborative problem solving. Families operating with *clarity* demonstrate a willingness to tell the difficult truths and strive to avoid vagueness in how they discuss the crisis or stressor at hand. Honesty is favored over rationing of information or creation of family secrets to shield family members from the pain that the information may bring. Clarity is facilitated via the second process of *open emotional expression* which emphasizes a safe family atmosphere where positive and negative emotions are both allowed and welcome. Families demonstrating this process continue to celebrate traditions, laugh together, and have “positive interactions,” (p. 109) as well. Finally, *collaborative problem solving* is utilized to navigate the crisis or stressor as families take a “proactive stance” (p. 103) and operate with an authoritative approach to obstacles.

Taken together, the nine processes in the family resilience framework offer a holistic and integrated lens for assessing family functioning. While it is unlikely that a family will consistently

demonstrate high levels of all nine processes across time, breaking the construct of family resilience down in this fashion may allow practitioners a more accurate view of where a family needs support, as well as where a family is already succeeding. This multidimensional lens supports a positive health-oriented gaze (Antonovsky 1979; Antonovsky & Sourani, 1988/2003), rather than simply focusing on pathology. The nine process and three theme composition also provides a solid thematic structure for operationalizing the family resilience framework and using it as an instrument.

## **METHOD**

A non-experimental quantitative design was used to develop the Family Resilience Assessment (FRA) and test it for reliability, content, and construct validity. The study occurred in two phases. Phase I involved the initial writing of items, review of items by an expert panel, and a pilot test. This led to Phase II which included item revision and deletion, administering the revised survey, and analyzing the data for construct validity.

### **Phase I: Developing Content Validity**

#### **Procedures**

The theoretical structure of the family resilience framework guided its operationalization into three latent variables and nine indicators (see **Figure 1**). Items were written for each indicator, with 50 initial items sent to a panel consisting of experts in instrument creation and psychometrics, and the family resilience framework. Panel feedback resulted in a draft FRA with 44 content items. As seen in **Table 1**, items are written in a way allowing them to be tailored to both the adversity, and its state (past, ongoing, acute, chronic). Respondents may be the person directly experiencing the adversity (as is the case with this study), or a family member.

The response format for all items was a 5-point Likert response scale using a summative frame and possible total range of 44–220. An undecided category was placed at the end of the Likert responses to give participants the ability to opt out of an item while minimizing skipped questions. An undecided response was coded as zero. Response options measured frequency and included “not at all,” “very little,” “sometimes,” “a lot,” “all the time,” or “undecided.” There was no reverse coding.

The authors used the online service SurveyMonkey, as the method for distribution. Institutional review board approval (#10–921) from Virginia Tech was received on November 19, 2010 for all aspects of the study. Using an anonymous user identity, the authors posted a link to the draft FRA in Facebook groups with a focus on breast cancer awareness, as well as in the online forums of support groups that were associated with breast cancer awareness organizations.

### **Participants**

A total of 41 women filled out the draft FRA. They ranged in age from 34–69 years old, with a mean of 55.12 ( $SD = 10.15$ ). One African American (2%), one American Indian or Alaska Native (2%), 31 Caucasians (76%), and one Hispanic or Latino (2%) participated, with seven (17%) missing responses. Of these women, 28 stated they had a partner (68%), and 13 stated that they did not (32%).

### **Data Analysis and Refining the FRA**

Data were analyzed for the 41 responses using Cronbach’s Alpha (Cronbach, 1951) for reliability. Item statistics, summary item statistics, item total statistics, and scale statistics were utilized to see how well items related to one another as well as the overall survey. Results of the pilot analysis led to dropping 15 items and no revisions of any items. This created a 29-item FRA

to be tested in Phase II. The same 5-point Likert response scale was utilized with a possible total range of 29–145, and an undecided category placed at the end, with any undecided responses coded as zero.

## **Phase II: Testing the Instrument and Construct Validity**

### **Procedures**

The link to the revised 29-item FRA was posted in the online forums of support groups associated with breast cancer awareness organizations (not utilized in Phase I), sent to listservs and face-to-face breast cancer support groups in the Southeastern U.S., as well as to the Families and Health section of the National Council on Family Relations (NCFR) listserv. One of the researchers visited a face-to-face group as well and provided a pencil and paper version of the survey.

### **Participants**

A total of 113 women filled out the revised FRA. They ranged in age from 29–80 years old, with a mean of 54.05 ( $SD = 9.40$ ). Four African Americans (4%), two American Indian or Alaska Natives (2%), 98 Caucasians (87%), and five Hispanic or Latinos (4%) participated, with two missing responses (2%). Of these women 86 stated that they had a partner (76%), and 27 said they did not (24%).

### **Data Analysis**

Data were analyzed for the 113 responses using Cronbach's Alpha, as well as split-half reliability (Colton & Covert, 2007). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1974) as well as Bartlett's Test of Sphericity (Tobias & Carlson, 1969) tested

the appropriateness of using exploratory factor analysis (EFA). Both the KMO (0.83) and Bartlett's Test of Sphericity ( $p = 0.00$ ) indicated suitability for EFA. When using principal components analysis (PCA) to reveal factors, the Kaiser criterion is often utilized as the standard for retention, with eigenvalues of 1.00 and greater retained (Costello & Osborne, 2005). Because the FRA is created to specifically measure nine indicators, PCA were run using orthogonal rotation so that nine factors were extracted regardless of eigenvalue.

The nine-factor structure was further analyzed using confirmatory factor analysis (CFA). The chi-square ( $\chi^2$ ), comparative fit index (CFI), root mean square error approximation (RMSEA), standardized root mean square residual (SRMR), and incremental fit index (IFI) values were used to evaluate model fit.

## **RESULTS**

### **Phase I Participants and Analysis**

Cronbach's Alpha for the draft FRA was 0.97. Item analysis included five steps. The first step included comparing each item mean to the average mean ( $M = 4.5$ ,  $SD = 1.18$ ) of the entire FRA. In the second step, the mean of the item if deleted was compared with the scale mean ( $M = 197.85$ ,  $SD = 34.24$ ). In step 3, the corrected item total of each item was compared, and the Cronbach's Alpha if the item is deleted was compared in step 4. Finally, the inter-item correlations were compared for each item. As previously mentioned, this resulted in 15 dropped items, no revisions, and one questionable item: "My family and I felt financially secure during the breast cancer experience," which was kept for replication.

### **Phase II Participants and Analysis**

## Reliability

Cronbach's Alpha for the main FRA is 0.929. Split-half reliability was 0.86 for odd numbers and 0.87 for even, which demonstrates internal consistency.

## Content Validity

As previously mentioned, items were written specifically for the three constructs and nine variables in Walsh's family resilience framework. They were then cross-referenced with a specific construct/variable in the framework as well as the literature on family resilience and families experiencing breast cancer with the item pool sent to an expert panel.

Content validity was also demonstrated statistically by using the same analyses conducted in phase one: item statistics, summary item statistics, scale statistics ( $M = 108.89$ ,  $SD = 19.85$ ), item-total statistics, and inter-item correlation. Only one item stood out as being exceptionally different from the total item mean ( $M = 3.75$ ,  $SD = 1.18$ ). Item 18, ( $M = 2.85$ ,  $SD = 1.54$ ) "My family and I sought reconnection after the breast cancer experience." The low item-total correlation of 0.39 reflects this large difference.

Results of corrected item-total correlations point to the need for further review of four items: "I felt encouraged by my health care provider to face the challenge of breast cancer;" "My family and I struggled well against the breast cancer;" "My family and I continued with family rituals, traditions, and activities in spite of the breast cancer;" and "My family and I sought out support groups to assist with the breast cancer experience." These items have the lowest corrected item-total correlations, yet Cronbach's Alpha when deleted stays the same or decreases indicating that they are still contributing to the reliability of the FRA. These items were kept for replication, to see how they perform with a different population.

Two items had low corrected item-total correlations and an increase in Cronbach's Alpha if deleted: "My family and I found support from extended family and friends," and "My family and I felt financially secure during the breast cancer experience." As previously mentioned in Phase I, the poor performance of the latter item was unclear. While this item performed better in Phase II with fewer negative inter-item correlations, it had the lowest item-total correlation of 0.14.

### Construct Validity

EFA and CFA were used to measure construct validity of the FRA. As previously mentioned, PCA were run to extract nine factors with an eigenvalue range of 0.86–10.78 (see **Table 2**). For most items, at least 60% of the variance continued to be explained after extraction. The mean communality was 0.71. An orthogonal rotation was chosen and the following factor themes emerged: social support/meaning making/cohesion, optimism, spirituality and transcendence, clarity, open emotional sharing and collaborative problem solving, health care system support, financial security, extended support, and struggling well. In particular, "My family and I felt financially secure during the breast cancer experience," loaded onto its own factor and as previously discussed, demonstrated the poorest item analysis.

**Table 3** includes the correlation matrix utilized in the CFA. The EM Algorithm (Dempster, Laird, & Rubin, 1977) was used to impute missing values with the LISREL generated covariance matrix and maximum likelihood estimation used for analysis.

**Figure 2** presents the standardized path values of model one. The significance of the chi-square ( $p = 0.03$ ), along with the RMSEA (0.07) indicate an adequate fit of the hypothesized model. All of the completely standardized paths in this model are significant ( $t > 1.96$ ) and ranged from 0.51 to 0.81. The error terms for these items ranged from 0.24 to 0.74. The high correlations

between the latent variables and erroneous values above 1.00 indicate that they are likely measuring the same thing, and modification indices suggest the correlation of C7 (clarity) and C8 (open emotional sharing). These changes are reflected in model two. **Figure 3** and **Table 4** indicate the results of this new model.

All paths in model two have significant *t* values, and both chi-square and fit indices (See **Table 5**) indicate the new model has a good fit. Further, a large amount of variance is accounted for by each indicator, with *social and economic resources* having the smallest path value of 0.52, and the smallest squared multiple correlation (0.27). A chi-square difference test between the two models approaches significance, showing this is a better fitting model than the hypothesized one. These results, along with the EFA results demonstrate construct validity in the FRA.

## DISCUSSION

The measure of the family resilience framework (Walsh, 2016) validated in this study demonstrates strong reliability as well as content and construct validity. This section details these findings along with implications and limitations.

### Content Validity

Two items negatively impacted FRA reliability. The first item “My family and I found support from extended family and friends” may have performed poorly as a result of the population and the personal nature of breast cancer as experienced by women. Studies of social support for women experiencing breast cancer emphasize the importance of social support in the form of a confidant (Maunsell, Brisson, & Deschenes, 1995) and more specifically, that of a long-term committed partner (LaPierre, 2009; Skerrett, 1998, 2003). It may be that *extended* family and friends are not a system that most women with breast cancer tend to utilize, and that this item will

perform differently when another illness or adversity is being experienced. This item will remain in the next version of the FRA to see how these results change by population.

The second item, “My family and I felt financially secure during the breast cancer experience,” performed the worst of all items and appears to negatively impact both content and construct validity. It may be that this item is too broad, and may be better broken down into components such as financial security and work-family balance (Kostiainen, Martelin, Kesila, Martikainen, & Koskinen, 2009). For health-related adversities, a financial security item focusing specifically on health-insurance status (Nielson & Garasky, 2008) at the time of diagnosis and treatment may also help clarify this variable. It may also be that the connection between financial security and class may cause it to operate more as a family trait than a family process. This item and subsequent portion of the family resilience framework are both explored more in depth below.

### **Construct Validity**

The nine factor themes that emerged from the EFA include social support/meaning making/cohesion, optimism, spirituality and transcendence, clarity, open emotional sharing and collaborative problem solving, health care system support, financial security, extended support, and struggling well. While the above factors do reflect most of the indicators in Walsh’s framework, items did not always factor in a manner that reflected the intended indicator. While the CFA does provide evidence of the structure of Walsh’s framework, further research is needed to assess whether this was a result of how items are written, the population, and/or an actual reflection of how the family processes within Walsh’s framework may operate.

Of the nine factors mentioned above, social support/meaning making/cohesion emerged as the strongest. This finding reflects the large scale quantitative study by Ozer, Best, Lipsey, and

Weiss (2003) who demonstrated that social support can serve as a powerful protective factor against post-traumatic stress disorder, which often results from the woman's experience with breast cancer and compounds healing. Regarding the impact of breast cancer on the couple/family, quality of life is experienced as better when family members are given social support. Further, when quality of life is increased for the family, survivorship in the woman experiencing breast cancer also increases (Awadalla et al., 2007). The relationship status of the woman may very well serve to predict survivorship in women experiencing breast cancer (Carver et al., 2005). The quality of this relationship is a powerful factor in not only survivorship, but in the impact of breast cancer on that relationship, and the family as a whole. Skerrett found that optimally functioning couples support one another through the experience of breast cancer through defining the disease as "our problem," (1998, p. 281). She further found that supporting the use of the definition of "we," (2003, p. 69) in the experience of breast cancer is one way that couples can increase survivorship and also enhance their relationship.

As previously mentioned, the item indicating "My family and I felt financially secure during the breast cancer experience," was the poorest performing item, and loaded onto its own factor. Costello and Osborne note that "a factor with three or more items is generally unstable," (2005, p. 5). As can be seen in **Figure 3**, the indicator *social and economic resources* of which this item is a part has the smallest path value. While further research is needed to reveal if this is a function of how the item is written and/or this indicator is measured; the possibility that financial security/ economic resources is not a measure of family resilience must be explored. This is particularly important if the FRA is to be used with a health related adversity, where health and ability to pay for healthcare often intersect (Nielson & Garasky, 2008).

Along with financial security, the indicators of clarity and open emotional sharing need further exploration. Though these variables performed well as indicators of family resilience, analyses indicate that these two variables are not statistically different. Combining these two variables into one indicator was confirmed as a better fitting model. It is proposed here that while theoretically distinct, clarity may be better *measured* as an aspect of open emotional sharing. Open emotional sharing is discussed as the presence of empathy, tolerance for differences, and the ability to share a range of emotions. For any of these aspects to be adequately interpreted however, there must be clarity in how they are communicated.

### **Implications**

The FRA has implications for practice and research. At an applied level, it provides a method for using Walsh's family resilience framework to increase understanding of family functioning before, during, and after an adversity. Though it is not intended to be an additive measure with the scores of individual family members added together for an overall score; the FRA may be used to compare and contrast the lenses of individual family members on family functioning. An increased understanding of how the indicators operate together could possibly allow a future FRA to provide subscale scores on the nine indicators, and offer a more accurate picture of what families are doing well, as well as where they may need support.

From a research perspective, the FRA offers evidence that the family resilience framework is empirically valid and is a reliable and valid instrument for measuring it. Further investigation is needed to examine how family resilience emerges from the nine indicators and how those indicators operate together. Further research is also needed to assess if financial security should be

included as a part of the social and economic resources indicator, and if so, how it should be conceptualized.

## **Limitations and Conclusion**

Although this study offers a reliable and valid way to measure Walsh's family resilience framework, there are limitations that need to be addressed. This study is limited by its focus on women with a history of breast cancer. Though breast cancer is the most prevalent cancer in women in the U.S. (Centers for Disease Control and Prevention, 2015), it remains unclear how the nine indicators of family resilience may change based on a particular adversity.

A second limitation is the lack of racial/ethnic diversity among participants. Seventy six percent of phase I and 87% of phase II participants identified themselves as Caucasian. The FRA needs to be replicated with diverse populations, particularly if it is to be utilized with health related adversities. Individuals and families from groups who have "persistently experienced social disadvantage or discrimination," are more likely to experience health disparities (Braveman, 2006, p. 14), which compounds the experience of a health related adversity, and the opportunity for demonstrating family resilience.

A third limitation is that aside from five responses, data collection was done completely online. Limitations to online research include the reduction of participants to those with access to technology and the Internet, as well as to those participants who are literate (Dillman, Smyth, & Christian, 2008). Internet data collection does offer protection against the mistrust of being called and asked to answer survey questions, and also removes the possibility of potential participants feeling coerced by the researcher.

In conclusion, the FRA validates Walsh's family resilience framework and provides a reliable and valid instrument for measuring it. While the framework is discussed in terms of nine indicators, further investigation is needed to reveal *how* those indicators operate together, and if financial security should be included in the framework. Replication is needed with more diverse populations, as well as different adversities.

## Acknowledgments

The authors would like to acknowledge and thank Fred Piercy, Katherine Allen, April Few-Demo, and Gary Bischof for their guidance and support of this work.

## ORCID

Crystal Duncan Lane <http://orcid.org/0000-0001-7052-449X>

## References

- Allen, K. A. (2000). A conscious and inclusive family studies. *Journal of Marriage and the Family*, 62, 4–17. doi:10.1111/j.1741-3737.2000.00004.x
- Antonovsky, A. (1979). *Health, stress, and coping*. San Francisco: Jossey-Bass Publishers.
- Antonovsky, A. & Sourani, T. (2003). Family sense of coherence and family adaptation. In P. Boss (Ed.), *Family stress: Classic and contemporary readings* (pp. 3–18). Thousand Oaks, CA: SAGE Publications. (Reprinted from *Journal of Marriage and the Family*, 50, pp. 79–92, 1988). doi:10.2307/352429
- Awadalla, A. W., Ohaeri, J. U., Gholoum, A., Khalid, A. O., Hamad, H. M., & Jacob, A. (2007). Factors associated with quality of life of outpatients with breast cancer and gynecologic cancers and their family caregivers: A controlled study. *BMC Cancer*, 7. Retrieved from <http://www.biomedcentral.com/1471-2407/7/102>. doi:10.1186/1471-2407-7-102
- Braveman, P. (2006). Health disparities and health equity: Concepts and measurement. *Annual Review of Public Health*, 27, 167–194. doi:10.1146/annurev.publhealth.27.021405.102103
- Carver, C. S., Smith, R. G., Antoni, M. H., Petronis, V. M., Weiss, S. & Derhagopian, R. P. (2005). Optimistic personality and psychosocial well-being during treatment predict psychosocial well-being among long-term survivors of breast cancer. *Health Psychology*, 24, 508–516. doi:10.1037/0278-6133.24.5.508
- Centers for Disease Control and Prevention. (2015). *Breast cancer statistics*. Retrieved from <http://www.cdc.gov/cancer/breast/statistics/>.

- Colton, D., & Covert, R. W. (2007). *Designing and construction instruments for social research and evaluation*. San Francisco: Jossey-Bass.
- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*(7). Retrieved from <http://pareonline.net/pdf/v10n7.pdf>.
- Coyle, J. P. (2005). *An exploratory study of the nature of family resilience* (Doctoral dissertation). Retrieved from ProQuest. (AAT 3174146.)
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297–334. doi:10.1007/BF02310555
- Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society. Series B (Methodological), 39*, 1–38. Retrieved from: <http://www.jstor.org/stable/2984875>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: John Wiley & Sons.
- Garmezy, N. (1991). Resiliency and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist, 34*, 416–430. doi:10.1177/0002764291034004003
- Henry, C. S., Morris, A. S., & Harrist, A. W. (2015). Family resilience: Moving into the third wave. *Family Relations, 64*, 22–43. doi:10.1111/fare.12106
- Hill, R. (1949). *Families under stress: Adjustment to the crises of war separation and reunion*. New York: Harper & Brothers.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*, 31–36. doi:10.1007/BF02291575
- Kostiainen, E., Martelin, T., Kesila, L., Martikainen, P., & Koskinen, S. (2009). Employee, partner, and mother: Woman's three roles and their implications for health. *Journal of Family Issues, 30*, 1122–1150. doi:10.1177/0192513X08329597
- LaPierre, T. A. (2009). Marital status and depressive symptoms over time: Age and gender variations. *Family Relations, 58*, 404–416. doi:10.1111/j.1741-3729.2009.00562.x
- Liebenberg, L. & Ungar, M. (2009). Introduction: The challenges of researching resilience. In L. Liebenberg & M. Ungar (Eds.), *Researching resilience* (pp. 3–25). Toronto: University of Toronto Press.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*, 543–562. doi:10.1111/1467-8624.00164
- Maunsell, E., Brisson, & Deschenes, L. (1995). Social support and survival among women with breast cancer. *Cancer, 76*, 631–637. doi:10.1002/1097-0142(19950815)76:4<631::aid-cncr2820760414>3.0.co;2-9
- McCubbin, H. I., Dahl, B., Lester, G., Benson, D., & Robertson, M. (1976). Coping repertoire of families adapting to prolonged war-induced separations. *Journal of Marriage and the Family, 38*, 461–471. doi:10.2307/350415
- McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The double ABCX model of adjustment and adaptation. *Marriage & Family Review, 6*, 7–37. doi:10.1300/j002v06n01\_02
- McCubbin, M. A., & McCubbin, H. I. (1993). Families coping with illness: The resiliency model of family stress, adjustment, and adaptation. In C. B. Danielson, B. Hamel-Bissell, & P. Winstead-Fry (Eds.), *Families, health, & illness* (pp. 21–63). St. Louis, MO: Mosby.

- Nielson, R. B., & Garasky, S. (2008). Health insurance stability and health status: Do family level coverage patterns matter? *Journal of Family Issues*, 23, 483–514. doi:10.1177/0192513X08316254
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, 129, 52–73. doi:10.1037/0033-2909.129.1.52
- Rutter, M. (1999). Resilience concepts and findings: Implications for family therapy. *Journal of Family Therapy*, 21, 119–144. doi:10.1111/1467-6427.00108
- Sixbey, M. T. (2005). *Development of the family resilience assessment scale to identify family resilience constructs* (Doctoral dissertation). Retrieved from ProQuest. (AAT 3204501.)
- Skerrett, K. (1998). Couple adjustment to the experience of breast cancer. *Families, Systems, & Health*, 16, 281–298. doi:10.1037/h0089855
- Skerrett, K. (2003). Couple dialogues with illness: Expanding the “We.” *Families, Systems & Health*, 21, 69–80. doi:10.1037/h0089503
- Skinner, H., Steinhauer, P., & Sitarenios, G. (2000). Family assessment measure (FAM) and process model of family functioning. *Family Therapy*, 22, 190–210. doi:10.1111/1467-6427.00146
- Tobias, S. & Carlson, J. E. (1969). Brief report: Bartlett’s test of sphericity and chance findings in factor analysis. *Multivariate Behavioral Research*, 4, 375–377. doi:10.1207/s15327906mbr0403\_8
- Ungar, M. (2005). A thicker description of resilience. *The International Journal of Narrative Therapy and Community Work*, 3–4, 89–96.
- Walsh, F. (1996). The concept of family resilience: Crisis and challenge. *Family Process*, 35, 261–281. doi:10.1111/j.1545-5300.1996.00261.x
- Walsh, F. (2002). A family resilience framework: Innovative practice applications. *Family Relations*, 51, 130–137. doi:10.1111/j.1741-3729.2002.00130.x
- Walsh, F. (2003). Family resilience: Strengths forged through adversity. In F. Walsh (Ed.), *Normal family processes* (3rd ed., pp. 399–423). New York: The Guilford Press.
- Walsh, F. (2016). *Strengthening family resilience* (3rd ed.). New York: The Guilford Press.
- Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High-risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.

**Table 1.** Sample FRA items with associated latent variable/ indicator

Item	Latent variable/indicator
The support of my family helped me when I felt overwhelmed with the_____.	Belief systems/Meaning making
We realized the _____ could not be changed, but made the best of the situation.	Belief systems/Positive outlook
Spirituality was a positive resource in the way my family and I coped with the _____.	Belief systems/Spirituality
My family and I continued with family rituals, traditions, and activities in spite of the _____	Organizational patterns/Flexibility
My family and I sought reconnection after the_____.	Organizational patterns/Connectedness
My family and I found support from extended family and friends.	Organizational patterns/Social and Economic Resources
When my family and I communicated about the _____, it was clear, specific, and honest.	Communication processes/Clarity
My family and I talked openly with one another about the _____.	Communication processes/Open Emotional Sharing
My family and I respected our differences of opinion about the_____.	Communication processes/Collaborative Problem Solving

**Table 2.** Eigenvalues of nine extracted factors

Factor	Eigenvalue
Social support/meaning making/cohesion	10.78
Optimism	2.48
Spirituality and transcendence	1.86
Clarity	1.71
Open emotional sharing and collaborative problem solving	1.40
Health care system support	1.30
Financial security	1.25
Extended support	0.87
Struggling well	0.86

**Table 3.** Correlation matrix with standard deviations

	A1	A2	A3	B4	B5	B6	C7	C8	C9
A1	1.00								
A2	0.65	1.00							
A3	0.48	0.55	1.00						
B4	0.64	0.52	0.55	1.00					
B5	0.68	0.58	0.61	0.51	1.00				
B6	0.40	0.31	0.29	0.31	0.40	1.00			
C7	0.47	0.48	0.36	0.39	0.52	0.29	1.00		
C8	0.43	0.43	0.46	0.52	0.46	0.26	0.60	1.00	
C9	0.65	0.71	0.63	0.65	0.61	0.32	0.53	0.56	1.00
SD	3.17	3.38	5.41	1.72	2.81	2.12	2.02	3.10	2.71

*Note:* A1-Meaning making, A2-Positive outlook, A3-Transcendence/Spirituality, B4-Flexibility, B5-Connectedness, B6-Social/Economic Resources, C7-Clarity, C8-Open emotional expression, C9-Collaborative problem solving

**Table 4.** Model two values

Variable	<i>t</i>	SE	SMC
Family Resilience			
(A1) Meaning making	6.12	0.34	0.66
(A2) Positive outlook	6.36	0.38	0.62
(A3) Spirituality	6.73	0.48	0.52
(B4) Flexibility	6.56	0.42	0.58
(B5) Connectedness	6.29	0.38	0.62
(B6) Social/ Economic Resources	7.14	0.73	0.27
(C7) Clarity	6.95	0.57	0.43
(C8) Open Emotional Sharing	6.89	0.60	0.40
(C9) Collaborative Problem Solving	5.72	0.28	0.72

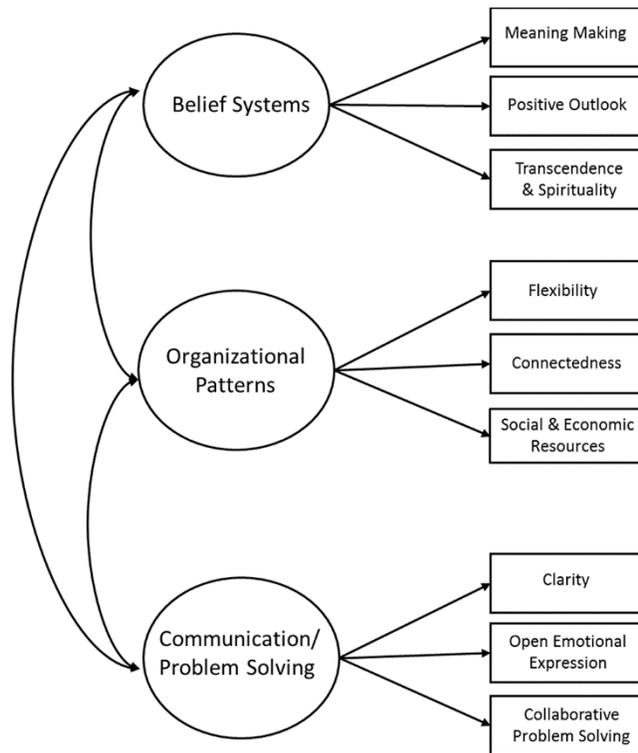
Note. *t* values higher than 1.96 are significant; SMC = squared multiple correlation.

**Table 5.** Chi-square and fit indices with difference test

Model	$\chi^2$	df	RMSEA	SRMR	CFI	IFI
Model one	38.34	24.00	0.07	0.04	0.99	0.99
Model two	34.60	26.00	0.05	0.03	0.99	0.99
$\chi^2$ difference	3.74	2				

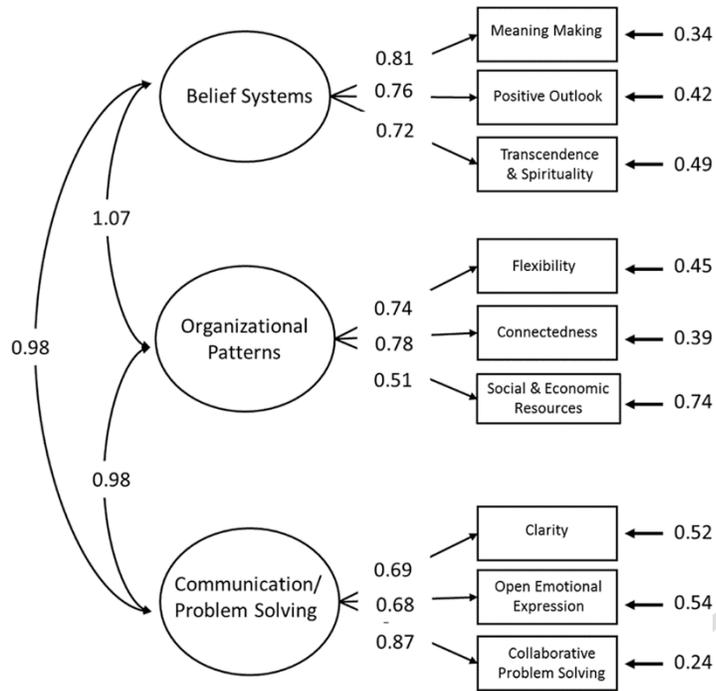
Accepted Manuscript

**Figure 1.** Latent variables and indicators measured by the FRA.



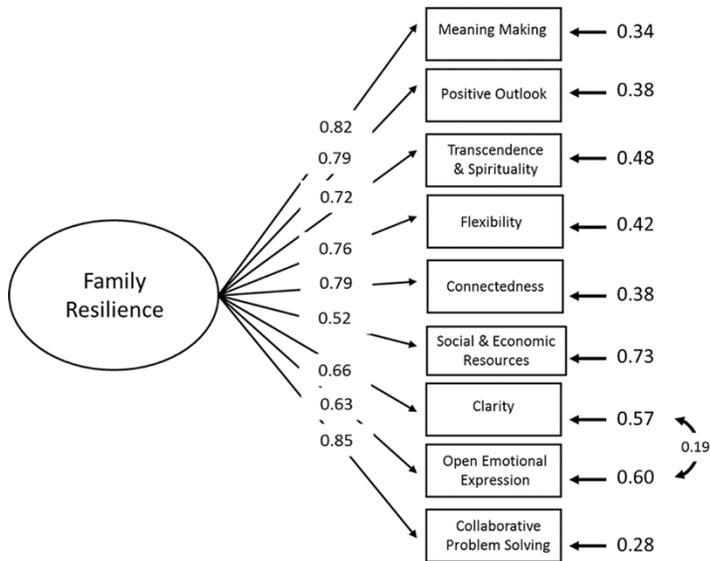
**Figure 2.** Model one.

*Model One*



**Figure 3. Model two.**

*Model Two*



Accepted Manuscript