Looking at Empathy with a Positive: Psychometrics of a Multidimensional Empathy Scale

A thesis submitted in partial fulfillment of the requirements.

For the degree of Master of Arts in
Psychological Science

by

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Dedication

This thesis is dedicated to:

My family who has supported me through my personal and academic life, helping and guiding me through the hardest parts and celebrating with me in the victories.

My friends who push me to work harder and think smarter.
Acknowledgment

I would like to thank my committee members who supported my efforts in writing this thesis.

To my chair, Dr. Ainsworth, for the endless support and knowledge you have provided through my CSUN career, providing a support system and friendship both inside and outside the CSUN community, and portraying calmness even during turbulent times.

To Dr. Plunkett, for the amazing support you provide all students at CSUN through templates and advice for professional development; you have helped more students than you know.

To Dr. Otten, for teaching me the advanced techniques required for this project with kindness and patience and answering my questions in an easy-to-understand manner.
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Abstract

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Empathy is a crucial skill in many relationships in life, including interpersonal, therapeutic, and with the world. With the importance of this concept, proper measurement of empathy is needed. Emerging research on the multi-faceted construct of empathy has revealed a new factor in the understanding of empathy: responsive joy. Being able to empathize with another’s positive emotions cannot be considered on a spectrum with understanding another’s negative emotions. Instead, these dimensions of empathy are separate from each other. An empathy scale was developed to address this issue by assessing responsive joy as a distinct subfactor of empathy. The purpose of this study was to further validate an empathy scale through confirmatory factor analysis to assess the structure of the scale. Additionally, this thesis aims to provide further evidence of the validity of the scale by testing convergent validity between empathy factors and theoretically related variables. Emotional intelligence positively related to the subfactors of perspective-taking and empathic concern. Kindness positively related to the subfactors of empathic concern and responsive joy. Finally, vulnerability positively related to the subfactor of responsive distress. Results showed that the factor structure had moderate fit to the data (CFI = 0.929; RMSEA = 0.063; SRMR = 0.047.). The subfactors positively correlated to theoretically related variables as hypothesized. This study provides further evidence for the reliability and validity of the empathy scale.
CHAPTER I

Introduction

Empathy is a crucial concept to cultivate in an ever-growing society with increasingly important social issues. Empathy is a multidimensional, psychological process that connects individuals with others through emotional and cognitive understanding. Empathy is important in different areas of life including interpersonal relationships (Pang et al., 2022) and social work (Gerdes et al., 2010), and can affect larger-scale issues such as environmental problems (Bickel & Preston, 2022). Understanding empathy in its multiple facets can produce better relationships with others, within society, and within the world.

Empathy has been positively related to different prosocial behaviors (Andreychik & Migliaccio, 2015; Pang et al., 2022; Peterson & Seligman, 2004). One type of prosocial behavior, altruism, is helping behaviors with no expectation of a returned favor (Andreychik & Migliaccio, 2015). Research has shown that those who are high in empathy generally demonstrate more altruistic prosocial behaviors (Pang et al., 2022). Prosocial behaviors have been related to many interpersonal benefits as well as overall health benefits (Peterson & Seligman, 2004).

Carl Rogers first introduced the idea of empathy into clinical work by emphasizing the importance of understanding the client’s point of view in a therapeutic setting (Gerdes et al., 2010). Understanding the client’s point of view strengthens the relationship between the client and clinician and provides for a better insight from the clinician. This shows the power of empathy in interpersonal relationships, which is crucial for clinical application, and the ability to cultivate empathy as a skill.
More than interpersonal relationships develop from empathy; empathy also extends to society and nature. Bickel and Preston (2022) showed this by revealing that empathy was negatively associated with impassivity toward climate change. Thus, people with higher empathy showed more concern for action against climate change. This relates empathy with other larger-scale issues concerning natural and societal issues.

Empathy is often the foundation of positive change in the world. Without being able to empathize with those in need or marginalized, there is less chance of changing views and policies to help marginalized populations. People who are higher in empathy are more likely to put money into social programs and believe it is their responsibility to increase the well-being of others (Bickel & Preston, 2022). Empathy is important to understand for personal relationships, clinical work, and to meaningfully affect social structures in ways that benefit marginalized groups.

**Measuring Empathy**

Although there is agreement on the importance of empathy in different aspects of life, measuring empathy has been more difficult (Gerdes et al., 2010). Empathy has been understood as both a cognitive and affective process in theory, but few comprehensive measurement tools aligned with this understanding (Davis, 1983). Measuring empathy is generally aligned with either a cognitive approach or emotional approach. For example, the Hogan Empathy Scale (Hogan, 1969) looked at empathy as a cognitive understanding of others through looking at one’s awareness or perceptions of another’s emotional state or situation (Gerdes et al., 2010). This cognitive ability of empathy refers to the ability to intellectualize another’s emotional response or state (Davis, 1983). Meanwhile Feshbach and Roe (1968) developed a measurement for affective understanding of empathy by
having participants rate how they felt about another’s situation (Gerdes et al., 2010). This affective trait of empathy is the ability to understand or experience the emotions of others (Davis, 1983). These early measurements of empathy lead to the understanding of empathy as a multidimensional construct.

Davis (1980, 1983) showed a more complex understanding of empathy. Following research that showed empathy could not be measured as a single construct, Davis (1980) thought that there should be a more multidimensional approach to measuring empathy. Through an exploratory factor analysis, Davis (1980) used items from existing scales as well as newly written items to form the Interpersonal Reactivity Index (IRI). Four subfactors emerged from this process: perspective-taking, empathic concern, responsive distress, and fantasy (Davis, 1983). Perspective-taking involves the cognitive ability to put oneself into another’s shoes. Empathic concern refers to the affective ability to feel what another is feeling. Responsive distress refers to the experience of negative feelings due to others’ negative feelings. Fantasy is the emotional connection with a fictional character.

This four-factor model of empathy has been validated in different countries (Davis, 1983; Gilet et al., 2013; Fernández et al., 2011; Siu et al., 2005). However, in each of these validation studies, fantasy does not correlate with other factors. This was originally expected by Davis (1983) because sharing emotions with fictional characters did not relate to real world empathy skills. This notion is carried through in the works of Gilet et al. (2013) and Fernández et al. (2011). For example, Gilet et al. (2013) showed that perspective-taking, empathic concern, and responsive distress correlated with each other and the Emotional Quotient scale, but the fantasy subscale did not correlate with
other subscales or with the Emotional Quotient scale. Fernández et al. (2011) revealed the same correlation pattern between IRI subfactors while also showing correlations between perspective taking, empathic concern, and responsive distress with self-esteem and social distress, but no correlation between fantasy and related variables.

While shared experiences with fictional characters may resemble empathy, there was repeated evidence that it did not correlate to empathy-related variables. Meanwhile, Andreychik and Migliaccio (2015) and Batson et al. (1991) provided evidence that positive empathic responses are experienced distinctly from negative empathic responses. These studies provided direction to a substitute for the fantasy subfactor with some form of positive empathy. Tran's (2019) solution for the issue of the fantasy subfactor was replacing it with another subfactor of responsive joy in their empathy scale. Responsive joy is more theoretically relevant to the individual differences in empathy than fantasy, while providing a distinctly positive dimension of empathy.

Responsive joy is the proclivity to share in another’s positive emotions and has meaningful correlations with empathy-related variables, such as altruistic behaviors and kind acts (Andreychik & Migliaccio, 2015). Tran (2019) showed this concept was different from responsive distress, rather than being on opposite ends of the same construct, by showing a positive correlation between the responsive distress and responsive joy in a sample of university student. Additionally, responsive distress and responsive joy were correlated to different emotional variables in different directions.

**Theoretically Related Variables**

Empathy relates to many other variables, such as emotional intelligence, kindness, vulnerability, prosocial behaviors, gratitude, parental style, and more (Deutsch & Madle,
1975; Davis, 1983; Jolliffe & Farrington, 2006; Pang et al., 2022; Peterson & Seligman, 2004; Tran, 2019).

**Emotional Intelligence**

Emotional intelligence is the ability one has to recognize, understand, regulate, and utilize emotions within oneself or another (De Jesus Cardona-Isaza et al., 2022). While similar in concept to empathy, the distinction comes from the relation to another’s emotions; where emotional intelligence takes a more cognitive, analytic style to emotion processing, while empathy includes the cognitive and affective styles of deep relation to another’s feelings. In this sense, these two concepts are related, yet distinct. Due to the nature of emotional intelligence being recognition and understanding, it is hypothesized to associate more with perspective-taking and empathic concern factors of empathy versus the other empathy factors (i.e., responsive distress, responsive joy).

**Kindness**

Kindness is defined as the proclivity to do good deeds or willingly assist others (Peterson & Seligman, 2004). It also has a longstanding relationship with compassion, prosocial behaviors, and empathy (Peterson & Seligman, 2004; Tran, 2019). In the context of empathy, kindness has two components: the ability to know how kindness will make the other feel and the willingness to participate in their happiness. Thus, it is hypothesized that kindness should correlate with two of the empathy subfactors (i.e., empathic concern and responsive joy). Empathic concern and responsive joy are the empathic qualities that increase the tendency and effectiveness of kind acts (Batson et al., 1991).

**Vulnerability**
Vulnerability is defined as the tendency to be in harm’s way or in a situation where one’s psychological defensives are lowered (Tran, 2019). This increase in suffering due to situations increases individuals’ openness towards other people (Petherbridge, 2019). This inherently has empathic ties due to being open to one another with specific ties to negative empathy. Understanding vulnerable states through personal experience led to an openness to others associated with negative empathy (Andreychik & Migliaccio, 2015). Due to the relation with negative empathy, it is hypothesized that vulnerability would correlate with the empathy factor of responsive distress.

**Statement of the Problem**

Current empathy scales often measure one or more neutral factors of empathy (e.g., perspective taking, empathic concern, and fantasy) and/or one negative factor (i.e., personal distress). Andreychik and Migliaccio (2015) showed a contrast between positive and negative empathy, while also showing that each side of empathy is positively associated with overall empathy. This provides evidence of a missing measurement component in empathy scales (i.e., a subfactor that focuses on the positive empathic response).

Looking into empathy multidimensionally has shown the different and unique aspects of empathy. However, there have been issues with the theoretical understanding of the multiple dimensions of empathy. While showing empathy towards fictional characters may predict one’s level of empathy (e.g., Interpersonal Reactivity Index [IRI], Davis, 1983), it is not necessarily relevant to showing empathy towards a live person. Additionally, there is another aspect of empathy that is overlooked, i.e., responsive joy. Understanding one’s distress and negative emotions is not the same skill set as
understanding one’s joy and positive emotions.

This empathy scale looks at replacing the fantasy subfactor from the IRI scale (i.e., fantasy) with responsive joy. The fantasy subfactor only has associations with emotionality, but not many other indicators of empathy (Davis, 1983). This brings about issues with the conceptual relationship between fantasy subfactor and empathy. Tran (2019) posits that this issue occurs due to the mis-conceptualization of fantasy as a measure of empathy. While these concepts relate, they are distinctive phenomena. Therefore, adding a responsive joy subfactor is needed to better test multidimensional empathy.

To account for this missing component of empathy, Tran (2019) includes a responsive joy subfactor in the empathy scale. This helps with the dilemma of not incorporating positive empathy into theoretical models of multidimensional empathy. This in turn can produce a more valid and reliable measurement of multidimensional empathy.
CHAPTER II

Current Study

Purpose

The purpose of this study is to confirm the factor structure of the four-factor model and provide more evidence of validity for the Empathy Scale. Specifically, looking to see if the original model found through exploratory factor analysis can be confirmed with new data. In addition to confirming the factor structure of the scale, subfactors will be tested for convergent validity to ensure that they are accurately testing what they intend. This study will look into the responsive joy subfactor to ensure this change in measurement of empathy fits well with the other dimensions of empathy.

Through the confirmation of the factor structure and validity tests, there is an additional purpose for expanding the understanding and measuring of empathy. With the addition of the new subfactor, responsive joy, this study aims to provide further evidence that positive and negative empathic responses should be understood as distinct concepts and not two ends of the same spectrum.

Definitions

1. Empathy refers to the cognitive and affective ability to understand another’s feelings and see from their perspective (Davis, 1983).

2. Perspective-taking is the ability to recognize another’s emotional and mental state by seeing another’s point of view instead of just one’s own (Davis, 1983).

3. Empathic concern is the propensity to understand what another person is feeling (Davis, 1983).

4. Responsive distress is the tendency to share in the negativity of others (Davis, 1983).
5. Responsive joy is the tendency to share in the positivity of others (Batson et al., 1991).

6. Emotional intelligence is the ability one has to recognize, understand, regulate, and utilize emotions within oneself or another (De Jesus Cardona-Isaza et al., 2022).

7. Kindness is understood as the proclivity to do good deeds or willingly assist others. (Peterson & Seligman, 2004).

8. Vulnerability is defined as the tendency to be in harm’s way or in a situation where one’s psychological defensives are lowered (Petherbridge, 2019).

**Hypotheses**

*Null Hypotheses*

The data analyses for this thesis were guided by the following null hypotheses:

1. Model covariance matrix will not be similar to the data covariance matrix.

2. Perspective-taking and empathic concern have no correlation or negative correlation with emotional intelligence.

3. Responsive distress will have no correlation or negative correlation with vulnerability.

4. Responsive joy will have no correlation or negative correlation with kindness.

*Research Hypotheses*

Based on the introduction, the following research hypotheses were developed.

1. Model covariance matrix will be similar to the data covariance matrix.

2. Perspective-taking and empathic concern have a positive correlation with emotional intelligence.

3. Responsive distress will have a positive correlation with vulnerability.
4. Responsive joy will have a positive correlation with kindness.

Assumptions

This research was conducted under basic assumptions. First, participants were assumed to be able to read and understand questionnaire items as all participants were attending an American university. Participants were assumed to be collected from a representative sample. Scales used were assumed to be appropriate measures for all ethnic groups, age ranges, and genders. Additionally, scales used were assumed to be reliable and valid. Since self-reported scales were used, there is an assumption that participants would answer items about themselves truthfully. Since data is secondary, there is an assumption that the data was input correctly, and variables were not changed for any reason. Finally, there is the assumption that data was analyzed correctly in SPSS and in R, and appropriate tests were performed.
CHAPTER III  
METHODOLOGY  

Procedures  

Data was collected using participants from an ethnically diverse and comprehensive university in Southern California. Participants signed up for the study using Sona Systems subject pool software, then were (1) given a link to the online survey hosted on Qualtrics or (2) administered a pencil-paper questionnaire. Qualtrics and pencil-paper questionnaires had the same formatting and scaling to avoid bias. Participants were university students ranging from freshman status to senior status during the years of 2014-2017. Participants were asked to sign consent forms before answering questionnaire items. Questionnaires took participants approximately 12-15 minutes to complete. Five check questions were added to test whether students were carefully reading, and those who did not answer check questions correctly were removed from the sample. 

Once the data were collected, the analyses had two phases: reliability of factor structure and validity of subfactors. For phase one, confirmatory factor analysis was conducted using Lavaan package in R. For phase two, composite scores were made for subfactors of empathy and related variables. Then, Pearson correlations were run using SPSS between composite variables to test for convergent validity.  

Sample  

Analyses were performed on a sample of 1070 university students. Approximately 19.3% of participants were collected in 2014, 64.1% of participants collected in 2015, 14.3% of participants collected in 2016, and 2.3% of participants collected in 2017.
The subjects were more female than male with 66.3% of participants being female. Ages ranged from 18 to 44 years old, but most participants were younger than 22 years old. Specifically, 38% of participants were 18 years old; 30.3% were 19 years old; 13.2% were 20 years old; 7.0% were 21 years old; 3.5% were 22 years old; and 7.9% were older than 22 years old.

Looking at the ethnicity breakdown of the participants showed that 51.5% of participants were Hispanic; 14.7% were Asian; 10.9% were Caucasian; 4.9% were African American; 4.9% were Armenian; 4.1% were Persian or Middle Eastern; and 9.1% were other or mixed race.

Generation status is also available above in Table 1, where 16.3% of participants were first generation, 49.8% were second generation, and 22% were third generation students.
Measurement

Empathy Scale

Empathy Scale measures multidimensional empathy through four subfactors of perspective taking, empathic concern, responsive distress, and responsive joy. It was collected on a Likert scale ranging from 1 (“Strongly Disagree”) to 6 (“Strongly Agree”) with no neutral option (See Appendix A). Alphas on subfactors in a previous study were as follows: perspective-taking, $\alpha = .86$; empathic concern, $\alpha = .87$; responsive distress, $\alpha = .76$; and responsive joy, $\alpha = .94$ (Tran, 2019).

Social, Personal, Emotional Intelligence

The Social, Personal, and Emotional Intelligence scale, adapted from the Virtues in Action Assessment, measures emotional and interpersonal skills through 7 items. Responses ranged from 1 (“Very Inaccurate”) to 5 (“Very Accurate”) with 3 being neutral (“Neither Inaccurate or Accurate”; Peterson & Seligman, 2004; See Appendix A). The emotional intelligence scale included one reverse scored item (reversed items are marked “RC” in Appendix A) and had a Cronbach’s alpha of $\alpha = .72$ in McGrath (2019) and $\alpha = .78$ with this study’s data.

Kindness/Generosity

The Kindness/Generosity scale, adapted from the Virtues in Action Assessment, tests an individual’s propensity towards acts of goodness towards others. There were 10 items ranging from 1 (“Very Inaccurate”) to 5 (“Very Accurate”) with 3 being neutral (“Neither Inaccurate or Accurate”; Peterson & Seligman, 2004; See Appendix A). The scale included three reversed scored items (reversed items are marked “RC” in Appendix A) and had a Cronbach’s alpha of $\alpha = .83$ in McGrath (2019) and $\alpha = .80$ with this
study’s data.

**Vulnerability**

The Vulnerability scale, adapted from the NEO Personality Inventory, measures the propensity of an individual to be in emotionally negative or tumultuous situations (Costa & McCrae, 1992). There are 10 items ranging from 1 (‘Very Inaccurate’) to 5 (‘Very Accurate’) with 3 being neutral (‘Neither Inaccurate or Accurate’; See Appendix A). The vulnerability scale included five reversed scored items (reversed items are marked ‘RC’ in Appendix A) and had a Cronbach’s alpha of $\alpha = .92$ in Costa and McCrae (1992) and $\alpha = .87$ with this study’s data.

**Data Analyses**

Data analyses were conducted in two phases. The first phase confirmed the factor structure with the items from original model. The second phase investigated the convergent validity with theoretically related variables, especially responsive joy.

For phase one, the Lavaan Package in R was used to perform a confirmatory factor analysis. Lavaan provides model fits statistics and pathways between variables (Rosseel, 2012). The model has items loading on a four-factor model, following Davis’s (1980) original model with five items in perspective-taking factor, seven items in the empathic concern factor, four items in the responsive distress factor, and eight items in the responsive joy factor (see Appendix A). Criterion for fit statistics were a comparative fit index (CFI) equal to or greater than 0.95, a root mean square error of approximation (RMSEA) equal to or less than 0.06, and a standardized root mean square residual (SRMR) equal to or less than 0.08 (Sivo et al., 2006)

For phase two, SPSS was used to correlate the composite empathy subfactors with
the composite scores on social/personal/emotional intelligence, kindness, and vulnerability to test for convergent and discriminant validity. First items in subfactors were composited into means, then the correlation function of SPSS was used to find Pearson correlations. Correlation criteria follow low correlation from .30 to .49, moderate correlation from .50 to .69, and a high correlation from .70 to .90 (Mukaka, 2012). For convergent validity to be met, subfactors should have a moderate to high correlation with related variables. For discriminant validity, subfactors should have a low correlation with other constructs/variables.
CHAPTER IV

Results

Confirmatory factor analysis was conducted using the Lavaan package in R. Analysis took 60 iterations using 998 participants from the original 1070 due to listwise deletion method for missing data. Chi-squared statistic ($\chi^2 = 1799.039$) showed a significant difference ($p < .001$) between model covariance matrix and data covariance matrix. Fit statistics showed that the factor structure had moderate fit to the data: CFI = 0.888, RMSEA = 0.079, SRMR = 0.056.

Post hoc tests were then conducted in an attempt to improve fit in justifiable methods. Additional pathways were included in the model: (1) residual correlation between responsive distress items 8 and 9, (2) residual correlation between responsive joy items 1 and 2, (3) residual correlation between empathic concern items 6 and 7, (4) residual correlation between responsive joy items 2 and 3, and (5) residual correlation between responsive joy items 7 and 8. Chi squared tests were conducted to ensure there was a significant change with the addition of each pathway. Starting with the baseline model (no residual correlation included) being compared to Model 1, which added residual correlation between responsive distress items 8 and 9, there was a chi-squared difference of 219.13 with $p < .001$. Model 1 was compared to Model 2, which added a residual correlation between responsive joy items 1 and 2 and had a chi-squared difference of 194.36 with $p < .001$. Model 2 was compared to Model 3, which added residual correlation between empathic concern items 6 and 7 and had a chi-squared difference of 166.23 with $p < .001$. Model 3 was compared to Model 4, which added a residual correlation between responsive joy items 2 and 3 and had a chi-squared
difference of 75.338 with \( p < .001 \). Model 4 was compared to Model 5, which added residual correlation between responsive joy items 7 and 8 and had a chi-squared difference of 59.380 with \( p < .001 \). Model 5 was the final model because the additional modifications that were being suggested were unable to be justified theoretically. The baseline model had the following fit statistics: \( \chi^2 = 1799.039 \) with \( p < .001 \); CFI = 0.888; RMSEA = 0.080; and SRMR = 0.055. With the addition of these correlated residual pathways there was improvement in the overall model fit statistics: \( \chi^2 = 1084.598 \) with \( p < .001 \); CFI = 0.939; RMSEA = 0.059; and SRMR = 0.046.

Allowing the residuals to covary between these items removed a potential confounding variable that was attributed to the covariances (Cole et al., 2007). The highly correlated items were attributing more residual variance to the latent variable, resulting in a confounded latent variable. Thus, by allowing the residuals to covary, any shared covariance affecting the items outside of the intended latent variable was removed. According to Cole et al. (2007), if methodology is similar for measured variables, allowing residuals to covary can help minimize the measurement error and the effects of potential confounding variables.

The final model showed good factor loadings for the items to each subfactor (shown in
Loadings for perspective taking ranged from .63 to .82; loadings for empathic concern ranged from .62 to .80; loadings for responsive distress ranged from .51 to .75; and loadings for responsive joy ranged from .76 to .87.

Although the CFI did not meet the standard cutoff value, Sivo et al. (2006) states that RMSEA and SRMR are better statistics for identifying correct versus incorrect models. The SRMR fits into the criterion of good model fit, while the RMSEA barely misses the cutoff value. Taking into consideration the more discriminating effects of RMSEA and SRMR in correct model identification, this model was shown to have moderate fit to the data.

**Figure 1**

*Confirmatory Factory Analysis of Baseline Model*
Additionally, Cronbach’s alphas were conducted to investigate how well items in each subfactor hung together. Perspective taking had Cronbach’s alpha of $\alpha = 0.82$; empathic concern had Cronbach’s alpha of $\alpha = 0.86$; responsive distress had Cronbach’s alpha of $\alpha = 0.77$; responsive joy had Cronbach’s alpha of $\alpha = 0.94$. These scores show that items in subfactors sufficiently meet the criterion for good reliability.

In the next phase of analysis, Pearson’s correlations were run in SPSS using mean composites of each factor and the theoretically related variables. Table 2 indicates the subfactor intercorrelations for the Empathy Scale (red), the correlations between the subfactors and the other scales (blue), and the intercorrelations between the other scales (green). As shown in Table 2, Correlations, theoretically related variables and subfactors were correlated significantly.
and positively. In accordance with the alternative hypotheses, there was a positive and significant correlation between perspective taking and social/personal/emotional intelligence \((r = .432, p < .001)\); empathic concern and social/personal/emotional intelligence \((r = .351, p < .001)\); empathic concern and kindness \((r = .549, p < .001)\); responsive distress and vulnerability \((r = .301, p < .001)\); responsive joy and kindness \((r = .489, p < .001)\). Results showed low correlations for every pair, except for empathic concern and kindness which had a moderate correlation. However, theoretically related variables have higher correlations than non-theoretically related variables, providing some evidence of convergent validity (Abma et al, 2016).

Additionally, low to below low correlations between subfactors and other variables showed evidence of discriminant validity. Looking at perspective taking, it had the highest correlation with the theoretically related variable of social/personal/emotional intelligence \((r = .432, p < .001)\), with a lower correlation to kindness \((r = .430, p < .001)\) and almost no correlation to vulnerability \((r = -.189, p < .001)\). Perspective taking was able to accurately measure what it was intending without measuring unrelated constructs. Empathic concern had no correlation with the unrelated construct of vulnerability \((r = .051, p = .55)\). Responsive distress had issues as it was more associated with kindness \((r = .314, p < .001)\) than vulnerability \((r = .301, p < .001)\), but had a low correlation with social/personal/emotional intelligence \((r = .169, p < .001)\). Responsive joy related most to kindness \((r = .489, p < .001)\) compared to responsive joy and social/personal/emotional intelligence \((r = .344, p < .001)\) and vulnerability \((r = -.093, p = .02)\). Responsive joy had good discriminant validity due to the higher correlation to the related variable compared to the other variables.
Table 2

Correlations Between Empathy Subfactors and Theoretically Related Variables

<table>
<thead>
<tr>
<th></th>
<th>PT</th>
<th>EC</th>
<th>RD</th>
<th>RJ</th>
<th>Kind</th>
<th>EI</th>
<th>Vuln</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective Taking (PT)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathic Concern (EC)</td>
<td></td>
<td>.445*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsive Distress (RD)</td>
<td>.253*</td>
<td></td>
<td>.605**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsive Joy (RJ)</td>
<td>.370**</td>
<td>.592**</td>
<td>.431**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kindness (Kind)</td>
<td>.430*</td>
<td></td>
<td>.549*</td>
<td></td>
<td>.314*</td>
<td>.489*</td>
<td>1.000</td>
</tr>
<tr>
<td>Social/Personal/Emotional Intelligence (EI)</td>
<td>.432**</td>
<td>.351**</td>
<td>.169**</td>
<td>.344**</td>
<td>.481**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Vulnerability (Vuln)</td>
<td>-1.189**</td>
<td>.051</td>
<td>.301**</td>
<td>-0.93*</td>
<td>-0.236**</td>
<td>-0.379**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*p < .05. **p < .001.
CHAPTER V

Discussion

The purpose of this study was to provide evidence for the validity of the Empathy Scale and confirm the factor structure found by the original author. This scale provides a new factor of responsive joy in the understanding of multidimensional empathy. Current empathy research has found that positive and negative empathy (i.e., responsive joy versus responsive distress) are distinct constructs rather than two ends of the same continuum. Therefore, the need to measure both responsive distress and responsive joy is essential for accurate representation of individual empathy. This study looked into a multidimensional empathy scale that accounted for both positive and negative expressions of empathy in its four subfactors, thus more appropriately measuring individual empathy.

Discussion of the Findings

This study has found that there is some evidence of model fit to confirm the factor structure proposed. However, the evidence does show some doubt in the factor structure, as not all fit indices reached traditional cutoff values. The CFI did not meet cutoff criterion, but the RMSEA and SRMR did meet cutoff criteria. Sivo et al. (2006) showed that RMSEA and SRMR are better statistics to distinguish between correct and incorrect models. This provides evidence that the model does correctly fit the data, but not conclusively.

Similarly to the Exploratory Factor Analysis run by Tran (2019), factor loadings in this study are high (i.e., above .5 for each item on each subfactor), showing that both studies produced similar results in the factor structure. Additionally, the current study and
the study by Tran (2019) had similar inter-factor correlations. Specifically, subfactors in Tran (2019) had low correlations with each other, except for empathic concern and responsive joy which had a moderate correlation. Similarly, the correlations between subfactors in this study are also low except that empathic concern has a high correlation with responsive distress and responsive joy. This could be due to the similar meanings in the definitions of the latent variables. For example, empathic concern is the ability to understand someone else’s feelings, while responsive joy and responsive distress is the ability to take on someone else’s positivity or negativity (respectively). To take on someone’s emotions, one must be able to first understand how they are feeling. This could be an explanation for the high correlation between empathic concern and responsive distress and responsive joy.

Additionally, evidence of convergent validity was shown by the results. Although theoretically related variables had low to moderate correlations, the variables that were theoretically related correlated higher than non-related variable relationships which shows evidence of convergent validity. There was evidence of discriminant validity among the subfactors perspective-taking, empathic concern, and responsive joy where they related more highly to their theoretically related variables and had none to low correlations with other constructs. Responsive distress was the only subfactor that ran into issues with discriminant validity where it related to kindness more than vulnerability.

**Research Limitations**

This thesis will add to the understanding of empathy, however, certain limitations to the study exist. Participants were all undergraduate students at one university in Southern California which restricts generalizability of the study. This is also true given
the high percentage of students who were 18-20 years old, Latino, and female. Tran (2019) and this study were both conducted on the same campus, which may be driving the similar results between the two studies. This uneven sample and same sampling practices as the Tran (2019) study also affects the generalizability of the findings, which is important to investigate in future studies.

There is a concern that participants were untruthful due to wanting to seem more empathetic than they are, or through misunderstanding of themselves resulting in untruthful responses. This can be seen in the skewness of the data, where most people scored in the agreeing sections of the items. However, the skewness could be from a highly empathetic sample. Additional measures of validity need to be researched; one such is the need for methods of reporting empathy that are not self-report measures to test validity for the scale. These limitations open new paths of research in the future.

This study also included residual correlation pathways in the CFA final model, which shows that there is unexplained shared variance between the items. Looking over the items that have these added pathways, there is no obvious connection between them. This leads to the idea that the unexplained shared variance is due to measurement error, however, it still warrants further investigation on those items.

**Implications**

This study brings about a new method of measuring empathy with more theoretical consideration of the dimensions of empathy. With the development of a scale that more accurately captures empathy, researchers will have a fuller understanding of the empathetic capabilities of an individual. This scale can be used for clinical assessment to provide understanding of the client for themselves and the clinician. The information
provided can help clinicians provide assessment for how the individual handles other’s emotions. Employment decisions can be made with the aid of this scale. Hiring employees who are more inclined to share in positive emotions (high in responsive joy) and let negative emotions roll off them more easily (low in responsive distress) can create a better working environment. This scale can also be used for personally to better understand in what ways an individual expresses their empathy.

Conclusion

This study intended to further validate this empathy scale which incorporated the new subfactor of responsive joy into the measurement of multidimensional empathy. Although there are limitations to generalizability, there is evidence of the validity of the scale. This study furthers implications that there is a distinction between responsive joy and responsive distress, or positive and negative empathy, which needs to be measured separately. While proving this, it also has developed an accurate form of measuring the different factors of empathy. Empathy is an important, multidimensional concept, which makes accurate measurement of empathy crucial. This study shows promise for this new multidimensional empathy scale, and the need to further validate and investigate the use of this scale.
References

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https://doi.org/10.3389/fpsyg.2022.768827


https://doi.org/10.1080/09672559.2019.1594588


**APPENDIX A**

**MEASURES USED IN THE THESIS**

**Empathy Scale**

**Perspective taking**

<table>
<thead>
<tr>
<th></th>
<th>How much do you agree with each statement?</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>pt1</td>
<td>I am good at predicting how someone will feel.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt2</td>
<td>I can often understand how people are feeling even before they tell me.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt3</td>
<td>I am quick to spot when someone in a group is feeling awkward or uncomfortable.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt4</td>
<td>I can easily work out what another person might want to talk about.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt5</td>
<td>I can tell when others are sad even when they do not say anything.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt6</td>
<td>I can tell the difference between someone else’s feelings and my own.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt7</td>
<td>I try to understand my friends better by seeing things from their point of view.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pt8</td>
<td>I try to look at everybody’s point of view.</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Empathic concern**

<table>
<thead>
<tr>
<th></th>
<th>How much do you agree with each statement?</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
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<tbody>
<tr>
<td>ec1</td>
<td>I really enjoy caring for other people.</td>
<td>1 2 3 4 5 6</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>ec2</td>
<td>I feel concerned for people less fortunate than me.</td>
<td>1 2 3 4 5 6</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>ec3</td>
<td>I get a strong urge to help when I see someone who is upset.</td>
<td>1 2 3 4 5 6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ec4</td>
<td>When I see someone being taken advantage of, I feel protective towards him/her.</td>
<td>1 2 3 4 5 6</td>
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<td></td>
</tr>
<tr>
<td>ec5</td>
<td>When I care deeply for people, it feels like their emotions are my own.</td>
<td>1 2 3 4 5 6</td>
<td></td>
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</tr>
<tr>
<td>ec6</td>
<td>I describe myself as softhearted.</td>
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<td></td>
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</tr>
<tr>
<td>ec7</td>
<td>I am often quite touched by things that I see happen.</td>
<td>1 2 3 4 5 6</td>
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### Responsive distress

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<tr>
<th>Statement</th>
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<th>Strongly agree</th>
</tr>
</thead>
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<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>rd2</td>
<td>1 2 3 4 5 6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rd3</td>
<td>1 2 3 4 5 6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rd4</td>
<td>1 2 3 4 5 6</td>
<td></td>
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</tr>
<tr>
<td>rd5</td>
<td>1 2 3 4 5 6</td>
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<tr>
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</tr>
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<td>1 2 3 4 5 6</td>
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</tr>
<tr>
<td>rd8</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>rd9</td>
<td>1 2 3 4 5 6</td>
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### Responsive Joy

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<td>rj2</td>
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<td>rj3</td>
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</tr>
<tr>
<td>rj4</td>
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</tr>
<tr>
<td>rj5</td>
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<tr>
<td>rj7</td>
<td>1 2 3 4 5 6</td>
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</tr>
<tr>
<td>rj8</td>
<td>1 2 3 4 5 6</td>
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### Social/Personal/Emotional Intelligence

<table>
<thead>
<tr>
<th>Statement</th>
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<th>Neither inaccurate or accurate</th>
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<tr>
<td>ei6</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ei7</td>
<td>1 2 3 4 5</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
## Kindness/Generosity

<table>
<thead>
<tr>
<th></th>
<th>How accurately do the following statements describe you?</th>
<th>Very inaccurate</th>
<th>Moderately inaccurate</th>
<th>Neither inaccurate or accurate</th>
<th>Moderately accurate</th>
<th>Very accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>kind1</td>
<td>I am never too busy to help a friend.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind2</td>
<td>I go out of my way to cheer up people who appear down.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind3</td>
<td>I love to make other people happy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind4</td>
<td>I helped a neighbor in the last month.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind5</td>
<td>I get as excited about the good fortunes of others as I am about my own.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind6</td>
<td>I call my friends when they are sick.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind7</td>
<td>I love to let others share the spotlight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind8</td>
<td>I get impatient when others talk to me about their problems. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind9</td>
<td>I try not to do favors for others. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>kind10</td>
<td>I am only kind to others if they have been kind to me. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

## Vulnerability

<table>
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<tr>
<th></th>
<th>How accurately do the following statements describe you?</th>
<th>Very inaccurate</th>
<th>Moderately inaccurate</th>
<th>Neither inaccurate or accurate</th>
<th>Moderately accurate</th>
<th>Very accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>vul1</td>
<td>I panic easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul2</td>
<td>I become overwhelmed by events.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul3</td>
<td>I feel that I'm unable to deal with things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul4</td>
<td>I can't make up my mind.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul5</td>
<td>I get overwhelmed by emotions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul6</td>
<td>I remain calm under pressure. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul7</td>
<td>I can handle complex problems. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul8</td>
<td>I know how to cope. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul9</td>
<td>I readily overcome setbacks. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>vul10</td>
<td>I am calm even in tense situations. (RC)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>