Three Subfactors of the Empathic Personality

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Reference: Barchard, K.A. (2002, May). *Three subfactors of the empathic personality*. Poster presented at the Canadian Psychological Association Annual Convention, Vancouver, BC.

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Empathy has historically been defined in a two different ways (Mehrabian, Young, & Sato, 1988). First, it can be defined as the ability to understand another person's feelings and perspective and to accurately predict their thoughts, feelings, and actions (see e.g., Dymond, 1949). Second, Empathy can be defined as a vicarious emotional response to the perceived emotional experiences of others (see e.g., Mehrabian, 1996; Mehrabian et al., 1988). These two definitions can be seen as representing cognitive and personality aspects of Empathy, respectively.

On the personality side of Empathy, at least three different characteristics can be distinguished: the tendency to respond empathically to other people's positive moods (Responsive Joy); the tendency to respond empathically to others' negative moods (Responsive Distress); and the tendency to feel concern or sympathy for those who are less fortunate than oneself (Empathic Concern). Previous research (Caruso & Mayer, 1999) has shown that Responsive Joy and Responsive Distress can be empirically distinguished, but no previous research has determined if these two constructs can be separated from Empathic Concern. Most measures of Empathy do not distinguish between these three constructs (but see Caruso & Mayer, 1999; and Davis, 1980, 1983), and no existing measure includes scales to measure all three of these constructs. As well, at present, only a very short (5 item) measure of Responsive Joy exists (see Caruso & Mayer, 1999).

The purpose of this research was, first, to replicate the finding that Responsive Joy and Responsive Distress represent distinct constructs, and second, to determine if Empathic Concern represents a distinct personality aspect of Empathy.

Method

Participants

Data were collected from members of the Eugene-Springfield Community of Oregon. The 30 items described below were administered along with a number of other items, in mailed questionnaires that were distributed over a period of a few years. Only those subjects who had completed each of these 30 items as well as measures of the Big Five personality dimensions were used in this analysis. The final sample therefore consisted of 428 adults (254 women and 174 men). They ranged in age from 20 to 85, with a mean of 52 and a standard deviation of 12 years.

Measures

Responsive Joy

Responsive Joy is the tendency to feel positive emotions when in the presence of other people who are feeling positive emotions. The Responsive Joy scale consists of six positively-keyed items and four negatively-keyed items, and was modeled after the Quick Scale of Empathy (Caruso & Mayer, 1999) Positive Sharing Subscale. New items were written rather than using the Positive Sharing Subscale because that subscale consists of only five items.

All 10 items on the Responsive Joy scale were written specifically for this scale. However, these 10 items have now been added to the International Personality Item Pool (IPIP; Goldberg, 1999b), and hence are now publicly available. The International Personality Item Pool is a set of 1,412 items that are publicly available on the Internet. Each item is rated on a five-point scale, based on how well the phrase describes the respondent as they generally are now: a rating of 1 indicates the phrase is "Very Inaccurate", and a rating of 5 indicates that the phrase is "Very Accurate". The 10-item Responsive Joy scale and the IPIP numbers of the items are given in Table 1.

Responsive Distress Scale

Responsive Distress is the tendency to feel negative emotions when in the presence of others who are feeling negative emotions. The Responsive Distress scale consists of 10 items, half of which are reverse-keyed. Many existing Empathy measures include subscales that tap Responsive Distress. However, in order to facilitate the use of the Eugene-Springfield Community Sample in this research, it was helpful to write new items that could be added to the International Personality Item Pool.

Five of the items used in the current Responsive Distress scale were existing IPIP items, and the remaining five are new items. This scale was modeled after items on the Empathy subscale of the Tett Emotional Intelligence Scale (Tett, Wang, Fisher et al., 1997; Tett, Wang, Gribler, & Martinez, 1997), the Quick Scale of Empathy (Caruso

& Mayer, 1999) Empathic Suffering, Responsive Crying, and Feeling for Others subscales, and the Interpersonal Reactivity Index (IRI; Davis, 1980, 1983) Responsive Distress subscale. The 10-item scale is given in Table 1.

Empathic Concern Scale

Empathic Concern is the tendency to feel concern or sympathy for those who suffer. Empathic Concern is different from Responsive Distress, in that the focus remains on the other person. The Empathic Concern scale consists of 10 items, half of which are reverse-keyed. Eight of the items used were existing IPIP items: only two new items were written. This scale was modeled after the IRI Empathic Concern subscale, and was created solely to facilitate administration in the Eugene-Springfield Community Sample. The complete Empathic Concern scale is given in Table 1.

The internal consistencies of these three scales are given in Table 2. In all cases, these internal consistencies were acceptable, although they were not particularly high. The values of coefficient alpha for men and women were compared using Feldt's (1969) approximate F-test. For the Responsive Joy and Responsive Distress subscales, these values were not significantly different for men and women. For the Empathic Concern subscale, however, coefficient alpha was significantly higher for men than women ($F(161, 218) = 1.7$, $p = .000$). The lower internal consistency for women may be due to the higher mean and lower variability on this scale for women.

The Big Five Dimensions of Personality

The NEO-PI-R (Costa & McCrae, 1992) results in 30 facet scores as well as scores for each of the Big Five dimensions (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism). Each facet is measured with 8-items, and dimension scores are the sum of the scores on the six subordinate facets. The NEO-PI-R was previously administered to the Eugene-Springfield Community sample, and item and scale level data were forwarded to me (see Table 3).

Analyses

Three analyses were undertaken. First, the Responsive Joy, Responsive Distress, and Empathic Concern scales were intercorrelated to replicate previous research that has shown that Responsive Joy and Responsive Distress have a moderate positive relationship, and to investigate whether Empathic Concern can be distinguished form Responsive Joy and Responsive Distress. Second, these three measures were correlated with the Big Five dimensions of personality, to determine if they have different patterns of relationships with other personality variables. Third, the 30 items from the three scales were factor analyzed, to determine the number and nature of underlying dimensions.

Results

Inter-Correlating the Three Measures of Empathy

Total scores on the Responsive Joy, Responsive Distress, and Empathic Concern scales were correlated with each other. These correlations were calculated separately for men and women and were compared (see Table 4). The correlation between Empathic Concern and Responsive Distress was significantly different for men and women ($z = 2.52$, $p < .05$), but the remaining two correlations were not significantly different for men and women.

As the reader will see from Table 4, the correlations between these three scales are low to moderate. In particular, the correlation between Responsive Joy and Responsive Distress is .305 for men and .298 for women, which indicates that these two dimensions are related to each other, but are clearly distinct. These two measures have approximately 9% of their variance in common. The correlations of Empathic Concern with Responsive Joy and Responsive Distress were also low and positive, indicating that Empathic Concern is related to but distinct from these other two personality characteristics of Empathy.

Correlating the Three Measures of Empathy with the Big Five Dimensions

Total scores on the Responsive Joy, Responsive Distress, and Empathic Concern scales were correlated with total scores on the NEO measures of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. These correlations were calculated separately for men and women (see Table 5). Only one of these fifteen correlations (the correlation between Responsive Distress and Agreeableness) was significantly different for men and women, using alpha = .05. With 15 significance tests and alpha = .05, it is relatively likely that at least one of these significance tests will be statistically significant by chance alone (the probability is approximately .54). Therefore, I conclude that all of these correlations are equal for men and women.

For both men and women, and for the averaged correlations, Responsive Joy had its highest correlation with Extraversion and had a non-significant correlation with Neuroticism, while Responsive Distress had its highest correlation with Neuroticism and had a non-significant correlation with Extraversion. These correlations provide evidence of discriminant validity of the measures of Responsive Joy and Responsive Distress.

Empathic Concern had significant positive correlations with Openness and Agreeableness and small correlations with both Neuroticism and Extraversion. These results held true for both men and women and for the

averaged correlations. This pattern of results suggests that Empathic Concern is distinct from both Responsive Joy and Responsive Distress.

Factor Analyzing the 30 Empathy Items

Between Group Differences

The 30 Empathy items were next subjected to a factor analysis. In order to be able to combine the data from men and women into a single factor analysis, two assumptions must be met. First, there must be no differences between men and women in terms of the means of the 30 items, or these mean differences must be eliminated by mean-deviating the items before proceeding. Second, the variance-covariance matrices among these 30 items should be the same for men and women.

The first assumption (equal means) was tested using Hotelling's T-squared. The means were significantly different for men and women ($F(30, 397) = 1730.611$, $p = .000$). This result implies that the 30 items should be mean-deviated so that both men and women have average scores of 0 on each item, before a combined analysis could be done.

The second assumption (equal variance-covariance matrices) was tested using Box's M. The variance-covariance matrices were found to be different ($F(465, 422292.10) = 1.322$, $p = .000$). This indicates that the relations among the 30 items are different for men and women, and that the factor analysis solutions may differ according to sex. Therefore, separate factor analyses were conducted for men and women.

Separate Three-Factor Solutions for Men and Women

For both men and women, three factors were extracted using Unweighted Least Squares, and were rotated obliquely using Direct Oblimin rotation (delta = 0), to determine if the concepts of Responsive Joy, Responsive Distress, and Empathic Concern would be recovered. See Tables 6 and 7.

For men, all but one of the Empathic Concern items had salient loadings on the first factor, and the remaining items with salient loadings also appeared to indicate a concern for the well-being of others. This factor was therefore labeled Empathic Concern. Items from both the Responsive Joy and the Responsive Distress scales loaded on the remaining two factors. The second factor appears to represent an overall factor of responsiveness to other's emotions. It was labeled Emotional Responsiveness. Most of the items loading on the third factor referred to emotionality without reference to other people. For example, the highest loading items were "Am easily moved to tears" and "Am not easily disturbed by events". This factor appears to be capturing Emotional Labiality. These three factors do not replicate the expected pattern, and thus the results for men do not support the division of personality characteristics of Empathy into the three characteristics used here: Responsive Joy, Responsive Distress, and Empathic Concern.

For women, most of the items related to Responsive Joy loaded on the first factor and none of these items loaded on the second or third factors. No items from the Responsive Distress or Empathic Concern scales loaded on this factor. The first factor was therefore labeled Responsive Joy. The second factor had salient loadings from slightly over half of the items for Empathic Concern, as well as one item from the Responsive Distress scale that also appears to indicate a concern for others. None of the Empathic Concern items had salient loadings on the remaining two factors. This factor was therefore labeled Empathic Concern. The third scale had salient loadings from precisely half of the items from the Responsive Distress scale. None of these items had salient loadings on the other two factors, and no other items loaded on this factor. This factor was therefore labeled Empathic Concern. Eleven items failed to load on any factor.

Higher-Order Factor Analyses for Men and Women

Separate higher-order factor analyses were conducted for men and women. For both men and women, one higher-order factor emerged. See Table 8. For men, all three first-order factors had salient loadings on the higher-order factor. For women, however, only two of the three first-order factors had salient loadings on the higher-order factor. The third factor, Responsive Distress, had a positive but non-salient loading.

Conclusions from the Factor Analysis

Examining the two solutions, it is clear that the women's solution provided more support for the distinctions between these three concepts than the men's solution did. In the women's solution, the outlines of these three concepts could be discerned, although not all items had salient loadings on their predicted factors, and not all of the first-order factors had salient loadings on the second-order factors. In the men's solution, however, none of the three factors clearly represented the original three concepts. Further research will be needed to clarify the relation of Responsive Joy, Responsive Distress, and Empathic Concern.

Conclusion

Empathic individuals possess many characteristics. In terms of their personality, they may be highly influenced by others' positive moods, they may be highly influenced by others' negative moods, and they may feel concerned about the well-being of others. These three dimensions – Responsive Joy, Responsive Distress, and

Empathic Concern – have small to moderate positive relations with each other, and have distinct correlations with the Big Five dimensions of personality. These two sources of evidence suggest that these three concepts can be distinguished. However, a factor analysis of the 30 items on the three scales did not clearly demonstrate the distinctions between these three concepts. The three concepts could be discerned in the pattern matrix for women; however, the three-factor solution for men did not recover these three factors. Therefore, although it is clear that several different personality dimensions of Empathy exists, further research is needed to delineate their nature and to produce distinct and reliable measures of them.

Table 1
The Responsive Joy, Responsive Distress, and Empathic Concern Scales

Responsive Joy

IPIP #	Item
B063	Feel other people's joy
B001	Like to watch children open presents
B076	Find it hard to stay in a bad mood if the people around me are happy
B071	Get caught up in the excitement when others are celebrating
B016	Usually end up laughing if the people around me are laughing
B072	Am strongly influenced by the good moods of others
B011	Am unaffected by other people's happiness
B002	Dislike being around happy people when I'm feeling sad
B013	Rarely get caught up in the excitement
B042	Dislike children's birthday parties

Responsive Distress

IPIP #	Item
X253	Am deeply moved by others' misfortunes
H992	Am easily moved to tears
H988	Suffer from others' sorrows
B135	Am upset by the misfortunes of strangers
B046	Would be upset if I saw an injured animal
E64	Am calm even in tense situations
H1046	Am not easily disturbed by events
B067	Am unaffected by the suffering of others
B056	Rarely cry during sad movies
B128	Remain calm during emergencies

Empathic Concern

Item #	Item
H1100	Am concerned about others
E115	Feel sympathy for those who are worse off than myself
X259	Sympathize with the homeless
X219	Believe that criminals should receive help rather than punishment
B024	Believe the poor deserve our sympathy
X244	Feel little concern for others
E169	Have no sympathy for criminals
H435	Look down on any weakness
X103	Don't like to get involved in other people's problems
B051	Have little sympathy for the unemployed

Table 2
Descriptive Statistics for the Responsive Joy, Responsive Distress, and Empathic Concern Scales

Scale	Mean		Standard Deviation		Coefficient Alpha		
	Men	Women	Men	Women	Men	Women	Average
Responsive Joy	3.75[b]	4.07[b]	0.44[a]	0.51[a]	.65	.74	.70
Responsive Distress	2.98[b]	3.45[b]	0.51	0.49	.65	.59	.62
Empathic Concern	3.40[b]	3.71[b]	0.60[a]	0.50[a]	.79[b]	.65[b]	.72

a. These values are significantly different for men and women at the .05 level.
b. These values are significantly different for men and women at the .001 level.

Table 3
Descriptive Statistics for the NEO Dimensions

Scale	Mean		Standard Dev.		Coefficient Alpha		
	Men	Women	Men	Women	Men	Women	Average
Openness	109.68[c]	114.90[c]	20.64	22.03	.92	.93	.92
Conscientiousness	125.02	124.68	17.64	20.10	.91	.92	.91
Extraversion	103.70	106.52	19.00	20.97	.93	.92	.92
Agreeableness	119.52[c]	129.94[c]	17.33[a]	14.94[a]	.90[b]	.86[b]	.88
Neuroticism	76.91	80.76	23.16	23.82	.94	.94	.94

a. These values are significantly different for men and women at the .05 level.
b. These values are significantly different for men and women at the .005 level.
c. These values are significantly different for men and women at the .001 level.

Table 4
Inter-Correlations between the Responsive Joy, Responsive Distress, and Empathic Concern Scales

	Responsive Joy	**Responsive Distress**	**Empathic Concern**
Responsive Joy	1	.31**	.34**
Responsive Distress	.30**	1	.47**
Empathic Concern	.29**	.22**	1

Note: Correlations for men are given above the diagonal; correlations for women are given below the diagonal.
** $p < .01$

Table 5
Correlations between the Responsive Joy, Responsive Distress, and Empathic Concern Scales and the Big Five Dimensions of Personality

		Responsive Joy	Responsive Distress	Empathic Concern
Men				
	Openness	.21**	.19*	.33**
	Conscientiousness	.07	-.23**	-.04
	Extraversion	.45**	-.00	.14
	Agreeableness	.20**	.31**	.49**
	Neuroticism	-.15*	.38**	-.09
Women				
	Openness	.34**	.05	.41**
	Conscientiousness	.01	-.12	-.18**
	Extraversion	.45**	.03	.18**
	Agreeableness	.28**	.04	.33**
	Neuroticism	-.08	.42**	-.08
Average				
	Openness	.28**	.12*	.37**
	Conscientiousness	.04	-.18**	-.11*
	Extraversion	.45**	.01	.16**
	Agreeableness	.24**	.18**	.41**
	Neuroticism	-.11*	.40**	-.09

* $p < .05$
** $p < .01$

Table 6
Pattern Matrices for Men, Three-Factor Solution

	Factor 1	Factor 2	Factor 3	h^2
Feel other people's joy	.226	**.406**	.111	.300
Like to watch children open presents	.099	**.396**	.029	.190
Find it hard to stay in a bad mood if the people around me are happy	.042	**.341**	-.038	.120
Get caught up in the excitement when others are celebrating	.072	.261	.195	.146
Usually end up laughing if the people around me are laughing	.077	**.388**	.176	.233
Am strongly influenced by the good moods of others	.038	.172	.287	.140
Am unaffected by other people's happiness (R)	.073	.225	**.314**	.201
Dislike being around happy people when I'm feeling sad (R)	-.073	.282	.069	.084
Rarely get caught up in the excitement (R)	-.042	.140	**.381**	.173
Dislike children's birthday parties (R)	.230	.247	.040	.150
Am deeply moved by others' misfortunes	**.332**	**.331**	.229	.394
Am easily moved to tears	.128	-.121	**.496**	.289
Suffer from others' sorrows	**.334**	.072	.261	.256
Am upset by the misfortunes of strangers	**.500**	.124	-.046	.279
Would be upset if I saw an injured animal	.203	.087	.157	.105
Am calm even in tense situations (R)	.020	**-.444**	**.482**	.356
Am not easily disturbed by events (R)	-.122	-.053	**.488**	.213
Am unaffected by the suffering of others (R)	**.412**	.182	.134	.296
Rarely cry during sad movies (R)	.096	-.039	**.415**	.201
Remain calm during emergencies (R)	.030	**-.633**	**.361**	.450
Am concerned about others	**.448**	.281	.031	.348
Feel sympathy for those who are worse off than myself	**.654**	-.084	.000	.411
Sympathize with the homeless	**.742**	-.029	-.005	.540
Believe that criminals should receive help rather than punishment	**.616**	-.256	-.090	.357
Believe the poor deserve our sympathy	**.578**	.109	-.007	.371
Feel little concern for others (R)	**.553**	.100	.039	.356
Have no sympathy for criminals (R)	**.538**	**-.345**	-.011	.325
Look down on any weakness (R)	**.425**	.046	-.019	.187
Don't like to get involved in other people's problems (R)	.228	.095	.124	.108
Have little sympathy for the unemployed (R)	**.617**	-.004	-.006	.378

Factor Correlation Matrix		Factor 1	Factor 2	Factor 3
	Factor 1	1.000	.220	.310
	Factor 2	.220	1.000	.175
	Factor 3	.310	.175	1.000

Note: Salient loadings are in bold.
h^2 equals communality.
(R) indicates that an item is reverse-keyed.

Table 7
Pattern Matrices for Women, Three-Factor Solution

	Factor 1	Factor 2	Factor 3	h^2
Feel other people's joy	**.573**	.150	.012	.413
Like to watch children open presents	.221	.149	-.052	.091
Find it hard to stay in a bad mood if the people around me are happy	**.589**	-.152	-.039	.304
Get caught up in the excitement when others are celebrating	**.771**	-.071	.040	.574
Usually end up laughing if the people around me are laughing	**.525**	.009	.024	.283
Am strongly influenced by the good moods of others	**.621**	.042	.164	.467
Am unaffected by other people's happiness (R)	**.358**	.103	.085	.183
Dislike being around happy people when I'm feeling sad (R)	.284	-.023	-.153	.087
Rarely get caught up in the excitement (R)	**.611**	-.065	.079	.371
Dislike children's birthday parties (R)	.251	.198	-.072	.133
Am deeply moved by others' misfortunes	.164	.257	.083	.137
Am easily moved to tears	.159	.041	**.320**	.154
Suffer from others' sorrows	.064	.272	**.324**	.216
Am upset by the misfortunes of strangers	.137	**.360**	.188	.238
Would be upset if I saw an injured animal	.143	.142	.080	.067
Am calm even in tense situations (R)	-.097	-.069	**.620**	.376
Am not easily disturbed by events (R)	-.008	-.060	**.416**	.173
Am unaffected by the suffering of others (R)	.066	.289	.062	.109
Rarely cry during sad movies (R)	.202	.024	.250	.125
Remain calm during emergencies (R)	-.171	-.002	**.641**	.403
Am concerned about others	.094	.179	.006	.053
Feel sympathy for those who are worse off than myself	.118	**.475**	.032	.283
Sympathize with the homeless	-.011	**.590**	-.051	.342
Believe that criminals should receive help rather than punishment	-.161	**.499**	-.134	.233
Believe the poor deserve our sympathy	-.113	**.602**	.092	.343
Feel little concern for others (R)	.131	.227	.026	.092
Have no sympathy for criminals (R)	-.114	**.443**	-.125	.185
Look down on any weakness (R)	.178	.101	-.033	.053
Don't like to get involved in other people's problems (R)	.074	.269	-.021	.090
Have little sympathy for the unemployed (R)	-.033	**.534**	.057	.282

Factor Correlation Matrix	Factor 1	Factor 2	Factor 3
Factor 1	1.000	.345	.164
Factor 2	.345	1.000	.081
Factor 3	.164	.081	1.000

Note: Salient loadings are in bold.
h^2 equals communality.
(R) indicates that an item is reverse-keyed.

Table 8
Higher-Order Factor Analyses, for Men and Women

Men Primary Factor	Higher-Order Factor	h^2
1	**.738**	.545
2	**.384**	.148
3	**.551**	.304

Women Primary Factor	Higher- Order Factor	h^2
1	**.871**	.758
2	**.477**	.227
3	.259	.067

Note: Salient loadings are in bold.
h^2 equals communality.

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