

Gender Differences in Personality Traits Across Cultures: Robust and Surprising Findings

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Secondary analyses of Revised NEO Personality Inventory data from 26 cultures ($N = 23,031$) suggest that gender differences are small relative to individual variation within genders; differences are replicated across cultures for both college-age and adult samples, and differences are broadly consistent with gender stereotypes: Women reported themselves to be higher in Neuroticism, Agreeableness, Warmth, and Openness to Feelings, whereas men were higher in Assertiveness and Openness to Ideas. Contrary to predictions from evolutionary theory, the magnitude of gender differences varied across cultures. Contrary to predictions from the social role model, gender differences were most pronounced in European and American cultures in which traditional sex roles are minimized. Possible explanations for this surprising finding are discussed, including the attribution of masculine and feminine behaviors to roles rather than traits in traditional cultures.

Gender differences in personality traits have been documented in many empirical studies.¹ Maccoby and Jacklin (1974) conducted the first major review of research on sex-related differences in cognition, temperament, and social behavior in children and adults. They concluded that men are more assertive and less anxious than women; no differences were found for two other traits analyzed, locus of control and self-esteem.

Feingold (1994) used meta-analysis to confirm the gender differences in adult personality traits reported by Maccoby and Jacklin (1974) and explored other gender differences in normative data from the most widely used personality inventories. He concluded that women scored lower than men on assertiveness and higher on gregariousness (extraversion), anxiety, trust, and tender-mindedness (nurturance).

Feingold (1994) organized his review in terms of the five broad factors and 30 specific facets of the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992). As a comprehensive

guide to personality traits, that model can provide the basis for a systematic examination of gender differences in personality. Unfortunately, from the available data, Feingold was only able to conduct reviews of nine traits. In this article, we provide new data that allow an examination of gender differences in all 30 traits assessed by the NEO-PI-R, and thus offer a more complete account of gender differences in personality.

Broad Themes in Gender Differences

The NEO-PI-R is an operationalization of the Five-Factor Model (FFM), which structures specific traits in terms of five broad factors. It is possible to summarize known gender differences in terms of the FFM, although the summary is not completely straightforward. Previously reported gender differences appear to be associated with Neuroticism (N), the dimensions of the Interpersonal Circumplex (Wiggins, 1979), and variations within the domain of Openness to Experience (O).

Neuroticism (N)

N is a broad domain of negative affect, including predispositions to experience anxiety, anger, depression, shame, and other distressing emotions. Gender differences on traits related to N have been consistently reported, with women scoring higher than men (Lynn & Martin, 1997). Feingold (1994) found that women scored higher in anxiety; Nolen-Hoeksema (1987), in a review of general population surveys, reported that women scored higher in symptoms of depression; and Kling, Hyde, Showers, and Buswell

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¹ As the *American Psychological Association Publication Manual* (4th ed.; American Psychological Association, 1994) states, *gender* is cultural and *sex* is biological; whether the differences at issue in this article are cultural or biological (or both) is as yet unresolved. We use *gender differences* because that term was used in the latest major review of the topic (Feingold, 1994), but we do not wish to imply that we consider personality differences to be cultural in origin.

(1999) found that women scored lower than men on measures of self-esteem. Neuroticism predisposes individuals to a wide range of psychiatric disorders, and gender differences in N are reflected in the epidemiology of major psychopathology. Generalized anxiety disorder, panic disorder with or without agoraphobia, phobias, major depression, dysthymic disorder, and borderline personality disorder are all diagnosed substantially more often in women than in men (American Psychiatric Association, 1994).

A possible exception to the generalization that women score higher in traits related to N is anger. Some studies have found that men report higher levels of hostility than women (Scherwitz, Perkins, Chesney, & Hughes, 1991). Others, however, have reported that women score higher in anger (Ross & Van Willigen, 1996), or that there is no difference (Averill, 1982). These different results may be due to different operationalizations, some of which emphasize the experience of anger, whereas others focus on antagonistic attitudes (cf. Costa, Stone, McCrae, Dembroski, & Williams, 1987). Women should score higher on the former, men on the latter.

Interpersonal Traits

One of the most influential approaches to the study of gender differences was offered by Bem (1974), whose Sex Role Inventory included orthogonal scales measuring masculinity and femininity. As Wiggins and Broughton (1985) showed, Bem's masculinity scale is essentially a measure of dominance, whereas Bem's femininity is strongly related to the orthogonal dimension of love. Feingold's (1994) conclusion that men are high in assertiveness and women are high in nurturance is consistent with this distinction, as is Eagly and Wood's (1991) summary of the literature in terms of communal and agentic qualities.

Dominance and love are the axes of the Interpersonal Circumplex, and have been shown to be rotations of the FFM dimensions of Extraversion (E) and Agreeableness (A; McCrae & Costa, 1989); that is, E combines dominance and love, whereas A combines submission and love. It is clear from this analysis that women should score higher on measures of A (because they are both more submissive and more loving), and this has in fact been reported (Budaev, 1999). However, it is less clear whether and how E should be related to gender, because it combines both masculine and feminine traits. It is thus perhaps not surprising that the literature is inconsistent: Feingold (1994) concluded that women are slightly higher in E, and Lynn and Martin (1997) that they are lower. From the perspective of the NEO-PI-R, it would be expected that clear gender differences would be found in specific facets of E: Men should score higher on Assertiveness, women on Warmth.

Openness to Experience (O)

Men and women are often characterized in terms of differing cognitive styles. Winstead, Derlega, and Unger (1999) noted that Western philosophers have frequently characterized men as "guided by 'reason' and women by reason's opposites—including emotion" (p. 264). Within the framework of the FFM—and less pejoratively—this might be seen in terms of aspects of O. Although there is no reason to think that men and women differ in overall O, they might differ in the aspects of experience to which

they are preferentially open. It might be hypothesized that women should score higher in Openness to Aesthetics and Feelings, and men, who are more intellectually oriented, should score higher in Openness to Ideas.

There is considerable empirical evidence for the view that women are more sensitive to emotions. Eisenberg, Fabes, Schaller, and Miller (1989) found evidence of greater facial expression of emotion in women, and the ability to decode nonverbal signals of emotion is consistently found to be more developed in adult women than in men (McClure, 2000). Fujita, Diener, and Sandvik (1991) reported that, at least in the United States, women experience positive and negative emotions more intensely and vividly than men do (cf. Grossman & Wood, 1993).

It has recently been hypothesized that gender differences in depression and other negative affects might be due to the greater sensitivity on the part of women to these states (Rossy & Thayer, 2000). In the present study we tested the hypothesis that gender differences in depression, anxiety, and other facets of N are attributable solely to greater emotional sensitivity—Openness to Feelings—among women.

Conscientiousness (C)

Gender differences in aspects of C have rarely been examined. Feingold (1994) found seven studies relevant to the trait of order, which yielded a median *d* of $-.07$, suggesting that women scored very slightly higher than men on this trait. The present study assesses gender differences in six facets of C.

Explanations of Gender Differences

Two classes of theories, biological and social psychological, have tried to explain these gender differences in personality traits. The biological theories consider sex-related differences as arising from innate temperamental differences between the sexes, evolved by natural selection. Evolutionary psychology (Buss, 1995) predicts that the sexes will differ in domains in which they have faced different adaptive problems throughout evolutionary history. For example, for biological reasons, including pregnancy, childbirth, and lactation, women have more invested than men do in relations with children. Women who were more agreeable and nurturing may have promoted the survival of their children and gained evolutionary advantage.

Other biological theories have been proposed to account for gender differences in depression, and by extension, N in general. These explanations point to hormonal differences and their effects on mood and personality, and to sex-linked differences in genetic predispositions to psychopathology. In a 1987 review, Nolen-Hoeksema considered that evidence in support of these explanations was inconclusive; however, more recent studies (Berenbaum, 1999; Berenbaum & Resnick, 1997) suggest that sex differences in androgens during early development do affect interests, activities, and aggression.

Social psychological theorists argue for more proximal and direct causes of gender differences. The social role model (Eagly, 1987) explains that most gender differences result from the adoption of gender roles, which define appropriate conduct for men and women. Gender roles are shared expectations of men's and women's attributes and social behavior, and are internalized early in

development. There is considerable controversy over whether gender roles are purely cultural creations or whether they reflect preexisting and natural differences between the sexes in abilities and predispositions (Eagly, 1995; Geary, 1999).

A rather different example of a social psychological approach is the artifact model (Feingold, 1994) that explains gender differences on personality scales in terms of method variance. Social desirability bias may lead men and women to endorse gender-relevant traits, and some traits (such as fearfulness) may be less undesirable for women than for men.

These explanations are not mutually exclusive. It is entirely possible that social roles and other environmental influences can modify a biologically based pattern, and there is always a danger that findings from any single method of measurement will be biased.

Cross-Cultural Perspectives

Pancultural Patterns of Gender Differences

Cross-cultural studies can provide crucial evidence on the relative importance of biological versus cultural factors in gender differences in personality traits. If they are in fact biologically based, the same differences ought to be seen in all cultures, so pancultural gender differences would provide evidence for a biological basis. This might consist of direct effects on personality traits, mediated through neurological or hormonal differences between the sexes. But it is also possible that pancultural gender differences result from universals in learned gender roles. For example, because men in all cultures are physically stronger than women, they may universally be assigned roles as leaders, and in these roles may learn to become more assertive than women. Cross-cultural studies would be most revealing if they showed no consistency in gender differences; strictly biological explanations would essentially be ruled out by such findings.

Relatively few cross-cultural data are currently available. Feingold (1994) examined normative data from the Personality Research Form (Jackson, 1974) to explore gender differences in seven personality traits across six nations. He concluded that differences were generally invariant across nations. Lynn and Martin (1997) examined gender differences in N, E, and Psychoticism (Eysenck, 1978) in 37 countries. They found that men were consistently lower than women in N and generally higher on Psychoticism and E. Nolen-Hoeksema (1987) found that women were more likely than men to be depressed across a range of countries, although the magnitude of the sex difference ratio varied markedly.

Williams and Best (1982, 1990) conducted an extensive cross-cultural investigation of gender stereotypes; that is, characteristics generally attributed to men or to women (regardless of empirical accuracy). University students in 30 different countries judged each of 300 items of the Adjective Check List (ACL; Gough & Heilbrun, 1983) as to whether, in their culture, it was more frequently associated with women or men (or neither). Within each country, Williams and Best determined the frequency with which each item was identified as male associated. These frequencies were converted to an M% score, defined as $M\% = [\text{male frequency} / (\text{male frequency} + \text{female frequency})] \times 100$. High M% values thus indicated that an item was mainly associated with men,

whereas low values indicated that an item was associated with women. Williams and Best found substantial similarities across genders and countries for the psychological characteristics associated with male and female pancultural gender stereotypes—and these stereotypes by and large were consistent with reported gender differences. For example, in a subsample of 14 countries, the word *aggressive* had M% scores ranging from 62 to 99, whereas *affectionate* had M% scores from 1 to 34.

All these studies suggest that gender differences are likely to be widespread, if not universal. In the present article we examined NEO-PI-R data from 26 cultures, including eleven not included in the Feingold (1994) or Lynn and Martin (1997) reviews (see Table 1). We did not conduct traditional meta-analyses of these data because our interest is not in estimating a single effect size, but in examining patterns of cultural similarities or differences.

Gender Differentiation Across Cultures

Even if all cultures show the same pattern of gender differences, they may show variations in the magnitude of differences seen. In some cultures, gender differences may be exaggerated; in others, they may be masked. There are several reasons to expect such variation, but the literature to date is somewhat puzzling.

Cultures vary in the degree to which sex roles are emphasized. Williams and Best (1990) administered a Sex Role Ideology scale in 14 cultures and confirmed that men and women in traditional cultures (e.g., Pakistan, Nigeria) emphasized sex role differences, whereas those in modern cultures (e.g., the Netherlands, Finland) minimized them. According to the social role model (Eagly & Wood, 1991), such differences in prescribed values and behaviors should lead to differences in personality traits.

Lynn and Martin (1997) provided a test of that hypothesis. They reasoned that gender differences in personality traits might be greater in less developed countries where differences in norms for sex roles are generally greater and there is less equality between the sexes. They used per capita income as an index of development, but found no statistically significant correlation of this index with gender differences in N, E, or Psychoticism.

The magnitude of gender differences might also be related to a dimension of culture Hofstede (1980) called *masculinity*. This dimension was derived from contrasting work values: In masculine cultures (like Japan and Austria), emphasis is placed on occupational advancement and earnings; in feminine cultures (like Costa Rica and Sweden), cooperation with coworkers and job security are valued. Hofstede (1998) argued that gender differences are accentuated in masculine countries. For example, fathers in masculine cultures are said to deal with facts, mothers with feelings, whereas both fathers and mothers deal with feelings in feminine cultures. Both boys and girls are allowed to cry in feminine countries, but only girls may cry in masculine countries. Presumably such values could affect the development of gender differences in personality traits.

Some empirical data also point to cultural variations in the extent of gender differentiation. In their study of gender stereotypes, Williams and Best (1990) examined variance in M% scores across the 300 ACL items in different countries. High variance scores occur when many adjectives are clearly ascribed to men or to women, but not both, suggesting strong gender differentiation. Curiously, these variance scores were

Table 1
Characteristics of the Samples

Country	Language	Sample size				Source
		College age		Adult		
		Men	Women	Men	Women	
Hong Kong	Chinese	60	62			McCrae et al., 1998
Taiwan ^a	Chinese	173	371			Chen, 1996
Croatia	Croatian	233	233	123	133	Marušić, Bratko, & Eterović, 1997
The Netherlands	Dutch	615	690			Hoekstra, Ormel, & De Fruyt, 1996
Belgium ^a	Dutch/Flemish	34	68	527	490	F. DeFruyt
United States	English	148	241	500	500	Costa & McCrae, 1992
South Africa (Blacks) ^a	English	19	46			W. Parker
South Africa (Whites) ^a	English	41	168			W. Parker
Estonia ^a	Estonian	119	398	189	331	J. Allik
The Philippines ^a	Filipino	134	375			G. del Pilar
	English	152	236			A. T. Church
France	French	54	338	279	395	J. P. Rolland; Rolland, 1998
Germany	German	290	454	1185	1801	F. Ostendorf
Indonesia ^a	Indonesian	34	138			L. Halim
Italy	Italian	26	41	315	308	G. V. Caprara
Japan	Japanese	176	177	164	164	Shimonaka, Nakazato, Gondo, & Takayama, 1999
South Korea	Korean (1)	1,257	1,096			Lee, 1995
	Korean (2)			278	315	R. L. Piedmont
Malaysia ^a	Malaysian	124	327			Mastor, Jin, & Cooper, 2000
India	Marathi	107	107			S. Deo
Norway	Norwegian (1)	74	18	397	295	H. Nordvik
	Norwegian (2)			148	210	Ø. Martinsen
Portugal	Portuguese	205	253	606	816	M. P. de Lima
Zimbabwe ^a	Shona	36	35	135	106	R. L. Piedmont
United States ^a	Spanish	24	49			Psychological Assessment Resources, 1994
Peru ^a	Spanish	274	165			Cassaretto, 1999
Spain	Spanish			89	107	M. Avia
Yugoslavia	Serbian	72	547	256	245	G. Knežević
Russia	Russian	26	91	201	192	T. Martin

Note. From "Trait Psychology and Culture: Exploring Intercultural Comparisons," by R. R. McCrae (in press). *Journal of Personality*. In the public domain. Where no reference is given, data were provided by the individual listed.

^a New cultures not included in the Feingold (1994) or Lynn and Martin (1997) reviews.

strongest in modern, not traditional, countries: "In more developed countries with more individualistic value systems, the two sexes were viewed as more differentiated in terms of their psychological makeup than in less developed countries with more communal value systems" (p. 27).

That difference in stereotypes between more and less developed countries is also mirrored in epidemiological data on gender differences in depression. As Nolen-Hoeksema (1987) reported, most Western nations showed higher rates of depression in women, but "a number of the studies conducted in less modern cultures did not find significant sex differences" (p. 262).

It is possible that gender differentiation varies with the specific trait examined. For example, men and women in traditional cultures may not differ in N, leading to equivalent rates of clinical depression, but they may differ sharply in A, leading to marked differences in work values. In the present study, use of the full NEO-PI-R allowed us to ask whether gender differentiation is common across a range of traits or specific to individual factors. We examined associations of gender differentiation with several culture-level variables, including M% variance and Hofstede's masculinity index.

Method

Literature Search

The data analyzed were provided by colleagues from a variety of countries who had translated the NEO-PI-R and collected data for their own research projects. As a requirement of licensing, translators are obliged to submit an independent back-translation to the test authors (Paul T. Costa and Robert R. McCrae) for review and approval. In consequence, the authors are aware of all versions of the instrument. They also maintain a current bibliography of publications using the NEO-PI-R, based in part on periodic examinations of the PsycINFO database and the Social Sciences Citation Index. Drawing on these resources, McCrae (in press) prepared the present dataset for another article concerned with mean level differences among cultures. Although it would be possible to include additional samples from the United States, the data appear otherwise to exhaust available information on gender differences on the NEO-PI-R as of March 2000. More recent data are considered in the Discussion.

Samples

Table 1 summarizes characteristics of the samples. Participants in all these studies were volunteers; clinical and occupational selection samples were excluded. Samples were stratified by age and gender; in addition to

American samples, college-age samples were available for 24 cultures and adult samples for 14 cultures. The samples represent five continents and several different language families. Note that gender differences in the American samples have been previously published (Costa & McCrae, 1992).

Measure

The NEO-PI-R (Costa & McCrae, 1992) assesses 30 specific traits, or facets, that define the five basic factors of personality: N, E, O, A, and C; factor scores use weighted combinations of all 30 facets (see Costa & McCrae, 1992, Table 2). Information on the reliability and validity of the American version of the NEO-PI-R is summarized in the manual (Costa & McCrae, 1992).

The instrument has been translated into over 30 languages, with back-translations into English reviewed by the original test authors. In general, these translations have shown adequate reliabilities, and all have satisfactorily replicated the original factor structure (see McCrae, in press). Some of the translations are well validated, others have only preliminary supporting data.

Because previous research has shown age differences within cultures for all five factors (Costa et al., 2000; McCrae et al., 1999), samples were divided into subsamples of college age (generally age 18–21, but varying somewhat across cultures) and adult (age 22 or above), the age division used in norming the American version of the NEO-PI-R. When raw scores from the adult subsamples were compared with the college-aged subsamples, the expected differences were seen: Adults were lower in N, E, and O and higher in A and C across the 26 cultures (all $p < .01$).

To obtain a common metric across all cultures, we converted raw facet scores to z scores by subtracting the mean and dividing by the standard deviation for the subsample, and we computed factor scores from these z -scored facets.² Differences between women's and men's z scores provide the familiar d metric of effect size. Raw facet and factor scores for men and women reflect cultural differences as well as any artifacts introduced by translation and adaptation, but the d s analyzed here subtract out most cultural and artifactual effects, and are directly comparable across cultures.

Culture-Level Variables

To help interpret cultural variations in gender differences, we related data in the present study to culture-level variables (i.e., variables that characterize a culture rather than an individual). Mean levels of NEO-PI-R factors from the same samples studied here are reported in McCrae (in press). In addition, we examined correlations of gender differentiation with the culture-level dimensions identified by Hofstede (1994; Peabody, 1999). These are Power Distance, found in cultures in which status differences are the accepted norm; Uncertainty Avoidance, high in cultures that seek to reduce ambiguous situations; Individualism, characteristic of cultures in which each person is oriented toward his or her own interests instead of those of the group; and Masculinity, high in cultures that value ego goals of achievement and material advancement over social goals like cooperation. Hofstede ratings were available for 23 of the 26 cultures. Finally, Williams and Best (1990) reported variance in masculinity ratings across the 300 ACL adjectives; high variances suggest strong gender stereotype differentiation. M% ratings were available for only 10 of the 26 cultures.³

In addition, we examined some national statistics as indicators of the status of women in the 26 cultures (United Nations Statistics Division, 2000). These included gross domestic product (GDP), fertility rate, and women's life expectancy. We also examined illiteracy rates; these were not provided for Japan, Taiwan, Hong Kong, Germany, Spain, Norway, the United States, France, the Netherlands, or Belgium, presumably because "illiteracy is believed to have been reduced to minimal levels" (United Nations Statistics Division, 2000). We assigned values of 0% to these 10 countries. We also calculated the difference between illiteracy rate in

women and men as an index of the status of women relative to national development as a whole.

Results

Cross-Cultural Similarities in Gender Differences

Table 2 summarizes analyses of NEO-PI-R facet scales. The first column reports individual-level gender differences in the U.S. adult normative sample (Costa & McCrae, 1992). The second and third columns report culture-level analyses across the 25 other cultures included in Table 1, grouped by age. Because the focus here was on patterns across cultures, not individuals, unweighted means were used, giving equal weight to each culture.

The first notable feature of the Table is the magnitude of gender differences. None of the effects in Table 2 is as large as one-half standard deviation; most are closer to one-quarter standard deviation. Gender differences, although pervasive, appear to be relatively subtle compared with the range of individual differences found within each gender (cf. Williams & Best, 1990).

A second point is that individual differences in the United States closely mirror the average effects seen across a range of other cultures. Correlations between the three columns in Table 2 ranged from .84 to .91. Additional analyses of the eleven cultures not included in reviews by Feingold (1994) and Lynn and Martin (1997) showed the same patterns there. It appears that self-reported gender differences, like gender stereotypes, are pancultural.

Third, the differences seen are generally consistent with previous literature and with some theoretical predictions. In particular, women were consistently higher in facets of N and A. They showed a more varied pattern with the other three domains, however. Women in most cultures were higher than men in Warmth, Gregariousness, and Positive Emotions, but lower in Assertiveness and Excitement Seeking. These associations are predictable from the placement of these traits within the Interpersonal Circumplex (McCrae & Costa, 1989). Women scored higher than men in Openness to Aesthetics, Feelings, and Actions, but lower in Openness to Ideas, consistent with pervasive stereotypes that associate women with feeling and men with thinking. There are no consistent gender differences on Openness to Fantasy or Values. In most cultures, women were more dutiful than men, but there are few other consistent differences in facets of C.

To test the hypothesis that gender differences in N facets were attributable to greater sensitivity to emotional experiences among women, we conducted analyses of covariance contrasting men and women on the six N facets, controlling for O3: Feelings. As hypothesized, there was a reduction in the magnitude of gender differences, although women remained significantly higher on N1: Anxiety, N4: Self-Consciousness, and N6: Vulnerability. Further, there is reason to think that the effects are not specific to emotional sensitivity: When A2: Straightforwardness is used as the covariate,

² Data were also analyzed by an alternative method, in which combined-sex American standard deviations were used to standardize data (cf. McCrae, in press). Results were essentially identical, suggesting that American norms can be used if local standard deviations are not available.

³ Although Williams and Best (1990) reported M% values for South Africa, their sample consisted of students of Indian descent who are not directly comparable to either Black or White South Africans.

Table 2
Mean *z*-Score Differences (*d*) Between Women and Men on
Revised NEO Personality Inventory (NEO-PI-R) Facets in
the United States and 25 Other Cultures

NEO-PI-R facet	U.S. adults	Other cultures	
		College age	Adult
N1: Anxiety	.40***	.32***	.43***
N2: Angry Hostility	.09	.16***	.19***
N3: Depression	.24***	.17**	.29***
N4: Self-Consciousness	.30***	.22***	.23***
N5: Impulsiveness	.23***	.16**	.11*
N6: Vulnerability	.44***	.28***	.36***
E1: Warmth	.33***	.24***	.23***
E2: Gregariousness	.21***	.20***	.14***
E3: Assertiveness	-.19**	-.10*	-.27***
E4: Activity	.11*	.04	.11*
E5: Excitement Seeking	-.31***	-.18***	-.38***
E6: Positive Emotions	.29***	.27***	.16***
O1: Fantasy	-.16**	.12**	.06
O2: Aesthetics	.34***	.40***	.35***
O3: Feelings	.28**	.33***	.31***
O4: Actions	.19***	.11**	.17**
O5: Ideas	-.32***	-.17***	-.16*
O6: Values	-.07	.15**	.01
A1: Trust	.19**	.10*	.17***
A2: Straightforwardness	.43***	.34***	.32***
A3: Altruism	.43***	.25***	.25***
A4: Compliance	.38***	.03	.17***
A5: Modesty	.38***	.22***	.22***
A6: Tender-Mindedness	.31***	.26***	.28***
C1: Competence	-.20***	-.09	-.10
C2: Order	.05	.09	.10**
C3: Dutifulness	.00	.18***	.13*
C4: Achievement Striving	.08	.06	-.04
C5: Self-Discipline	-.02	.09*	.04
C6: Deliberation	-.12	-.04	-.06

Note. *N*s = 1,000 U.S. adults; 10,952 college age, other cultures; 10,690 adults, other cultures. *t* tests were used to compare U.S. men and women; paired *t* tests were used to compare means for men and women across cultures. N = Neuroticism; E = Extraversion; O = Openness to Experience; A = Agreeableness; C = Conscientiousness.

* $p < .05$. ** $p < .01$. *** $p < .001$.

a similar attenuation of gender differences in N facets is seen. Removing the influence of any variable on which there are marked gender differences may attenuate any other gender differences. Such an overall variation in gender differentiation is discussed below.

Effects on the five factors themselves are largely predictable from the facet results. Among U. S. adults, there are strong effects (d s = .51 and .59, respectively) for N and A, and a moderate effect (d = .29) for E; there are no significant differences for O or C. The effects for N, A, and E are replicated in culture-level analyses of both college-age and adult samples (d s = .28 to .50). In addition, however, there are smaller (d s = .11 to .16) but significant effects in both age groups showing women higher than men in O and C factors.

Cross-Cultural Variation in Gender Differences

Although the general pattern of gender differences is similar across cultures, there is also variation across cultures, especially in

the magnitude of gender differences. Before attempting to interpret such differences, it is necessary to show that they are reliable, and not simply the result of sampling error. With the available data, the clearest evidence of reliability comes from a comparison of college-age and adult samples: Do cultures in which there are strong gender differences among college students tend to show the same strong differences among adults? Complete data were available for 14 cultures; gender differences for college-age samples were significantly correlated with differences in the corresponding adult samples for N, E, and A (r s = .75, .73, and .61, respectively, p s < .05); correlations were not significant for O or C.

For N and A domains it is reasonable to consider gender differentiation at the factor level, because all the facets in these domains show the same direction of gender differences. For E and O, however, there are distinct patterns at the facet level. To represent gender differences in these domains, we created two new variables that summarize consistent gender differences. Feminine extraversion/introversion (F-Ex/In) was calculated as (E1: Warmth + E2: Gregariousness - E3: Assertiveness - E5: Excitement Seeking + E6: Positive Emotions)/5, because these five facets show significant gender differences across samples (see Table 2). High scorers on this composite are loving, sociable, submissive, cautious, and cheerful. Similarly, feminine openness/closedness (F-Op/Cl) was calculated as (O2: Aesthetics + O3: Feelings + O4: Actions - O5: Ideas)/4, and reflects a preference for feelings and novelty over intellectual interests. These two composites showed marginally significant correlations across age groups in 14 cultures (r = .48, p < .10; r = .53, p < .05). No facets of C showed consistent gender differences, so no composite was created for that domain.

To quantify gender differences in each culture, we calculated a mean score by averaging the subsamples across age groups in the 26 cultures. Differences in *z* scores (women - men) are reported in Table 3 for N and A factors and F-Ex/In and F-Op/Cl composites. All but two of the entries in the table are positive, emphasizing the universality of gender differences.

Although the five factors themselves are orthogonal, gender differences on the factors are not. Correlations across the four columns in Table 3 show that all variables are strongly intercorrelated (r s = .52 to .81, n = 26, p < .01). These associations show a generalized pattern of gender differentiation, as if some cultures emphasized the universal pattern of gender differences, whereas other cultures minimized it. Summing differences across the four variables gives an index of the extent to which gender differences are emphasized, and the cultures in Table 3 are ranked from least gender differentiated to most. Zimbabweans show little difference between men and women in any of the variables, whereas Belgians show strong gender effects for all of them.

An inspection of Table 3 shows an unmistakable pattern: Gender differences are most marked among European and American cultures and most attenuated among African and Asian cultures. Correlations of the ranking with mean levels of personality factors (McCrae, in press), shows that gender differentiation is associated with higher levels of E (r = .69, p < .001) and O (r = .43, p < .05). Correlations with the four Hofstede dimensions show that gender differentiation is associated with Individualism (r = .71, n = 23, p < .01). Western nations with individualistic values and with inhabitants who are more assertive and progressive have greater gender differences in self-reported personality traits than

Table 3
Mean z-Score Differences (*d*) Between Women and Men in
26 Cultures on Revised NEO Personality Inventory
Factors or Composites

Culture	N	A	F-Ex/In	F-Op/Cl
Zimbabweans	-.02	-.05	.10	.12
Black South Africans	.08	.05	.05	.12
South Koreans	.20	.18	.11	.16
Japanese	.09	.39	.17	.19
Malaysians	.44	.16	.10	.15
Indians	.15	.34	.20	.19
Taiwan Chinese	.16	.39	.17	.21
Indonesians	.33	.37	.09	.17
Filipinos	.34	.45	.16	.18
Hong Kong Chinese	.44	.43	.21	.17
Peruvians	.41	.43	.19	.25
Portuguese	.54	.45	.17	.16
White South Africans	.50	.46	.19	.27
Russians	.46	.27	.28	.43
Yugoslavians	.58	.46	.19	.21
Germans	.51	.41	.28	.33
Spaniards	.55	.50	.24	.24
Estonians	.42	.51	.26	.35
Norwegians	.65	.38	.24	.27
Italians	.70	.47	.23	.25
Americans	.55	.57	.25	.29
Hispanic Americans	.68	.53	.27	.19
French	.71	.43	.29	.29
Dutch	.63	.49	.23	.39
Croatians	.75	.54	.28	.32
Belgians	.69	.55	.36	.40

Note. N = Neuroticism; A = Agreeableness; F-Ex/In = feminine extraversion/introversion; F-Op/Cl = feminine openness/closedness.

non-Western, collectivistic cultures. The correlation of gender differentiation rank with Hofstede Masculinity did not approach significance, $r = -.21$. Gender differentiation was also unrelated to Power Distance and Uncertainty Avoidance and to M% variance in the small subsample with values for that variable ($r = .27$, $n = 10$, *ns*).

Finally, we examined rank-order correlations between gender differentiation and national statistics in the 22 cultures for which data were available. Gender differentiation was positively associated with GDP ($r = .47$, $p < .05$) and women's life expectancy ($r = .57$, $p < .01$), and negatively associated with fertility rate ($r = -.56$, $p < .05$), women's illiteracy rate ($r = -.46$, $p < .05$), and women's illiteracy rate relative to men's ($r = -.48$, $p < .05$). Gender differences in self-reported personality traits are largest in prosperous and healthy cultures where women have greater educational opportunities.

Discussion

The present results extend to a wider range of cultures and a broader selection of personality traits conclusions reached by Feingold in his 1994 review of gender differences in personality. In brief, gender differences are modest in magnitude, consistent with gender stereotypes, and replicable across cultures. Substantively, most of the gender differences we found can be grouped in four categories: Women tend to be higher in negative affect,

submissiveness, and nurturance, and more concerned with feelings than with ideas.

The elevation of N facets among women in the present study is consistent with the conclusions of previous reviews that have assessed general anxiety or neuroticism (Feingold, 1994; Lynn & Martin, 1997). It is also consistent with pancultural gender stereotypes. For example, Williams and Best (1990, Appendix A) reported M% scores across 14 cultures averaging 15 for *fearful* and 14 for *complaining*. These gender differences in susceptibility to negative affect are not attributable solely to differential sensitivity to emotional experience, because many of them remained significant even when Openness to Feelings was statistically controlled. Nor is an artifactual explanation likely: Researchers in the United States have failed to find evidence that men are more reluctant than women to report distress (Fujita et al., 1991), and even if they were, one would then need to explain why this gender-linked bias is found in virtually every culture.

As in previous studies and reviews (Feingold, 1994), men were found to be higher in assertiveness and women higher in nurturance, with the net effect that women scored substantially higher than men on A. These findings, again, are consistent with pancultural gender stereotypes: mean M% scores for *adventurous* and *dominant* were 94 and 87, whereas mean M% scores for *affectionate* and *sentimental* were 10 and 12, respectively.

Because E combines aspects of dominance and nurturance (McCrae & Costa, 1989), gender differences in E vary by facet, with men higher in E3: Assertiveness and E5: Excitement Seeking, and women higher in E1: Warmth, E2: Gregariousness, and E6: Positive Emotions. Because Extraversion scales vary in the ratio of dominant to nurturant content, the direction of gender differences may also vary. It seems likely that women scored lower than men on Extraversion in Lynn and Martin's (1997) review but higher here because the NEO-PI-R E factor emphasizes warmth more than assertiveness, whereas the opposite may be true for the Eysenck scale.

The difference in experiential preference for feelings versus ideas found here is also reflected in gender stereotypes. *Emotional* has a mean M% of 12, whereas *logical* has a mean M% of 80 across the 14 cultures studied by Williams and Best (1990). These effects have not often been reported in the literature, however, because relatively few personality instruments assess different facets of O. Perhaps the strongest support for this effect is found in the literature on vocational interests, in which men score higher in investigative interests and women higher in artistic interests. These two types of interest are differentially associated with Openness to Ideas and Aesthetics, respectively (Costa, McCrae, & Holland, 1984).

Some Possible Limitations

The present dataset is less than optimal in several respects. The range of cultures is limited, with only one Latin American and two Black African cultures. Few of the samples can be considered nationally representative, and in most, women are overrepresented. Some of the subsamples are quite small. Yet the overall patterning of the data seems to emerge despite these limitations.

The subsamples differ in age distributions, especially for adults. For example, the Russian adults were considerably younger than the Japanese adults (cf. Costa et al., 2000). It is possible that the

present results were distorted by age differences or cohort effects. Yet differences between college-age and adult samples were fairly modest, as Table 2 shows, and an Age \times Gender analysis of variance in the American normative sample showed no significant interaction. It seems likely that any maturational or cohort effects on gender differences after age 18 are modest.

The data analyzed here were collected at different times, and it is possible that period effects might have biased results (cf. Twenge, 1997). Date of data collection was not recorded; however, all translations were begun after publication of the NEO-PI-R in 1992, and the literature search was completed in 2000, leaving a fairly narrow window. Future reviews should deal more explicitly with period effects.

Finally, questions remain about how well each culture is represented by results from a single study and investigator. For three of the cultures, new data have since become available. Samples of Taiwan Chinese high school students (1,497 men and 1,898 women aged 17 to 19; personal communication, K. Wu, March 8, 2001), Italian college students and adults (214 men and 355 women; personal communication, A. Terracciano, March 10, 2001), and Belgian junior and senior high students (325 boys and 402 girls; personal communication, F. De Fruyt, December 8, 2000) were examined. Values of d for the four indicators in Table 3 (N, A, F-Ex/In, and F-Op/CI) were calculated for these three samples. For Taiwan they were .23, .32, .10, and .23, respectively; for Italy, .62, .39, .26, and .37, respectively; and for Belgium, .54, .67, .37, and .38, respectively. These values are very close to those seen in Table 3, and, summed to estimate overall gender differentiation, they would show identical ranks for all three cultures. If these three cultures are representative, then the present results are likely to be generalizable across different studies and samples within cultures.

Cultural Differences in Gender Differentiation

Of particular interest in the present study was the puzzling finding that self-reported gender differences are more pronounced in Western, individualistic countries. These countries tend to have more progressive sex role ideologies, endorsing such items as "A woman should have exactly the same freedom of action as a man" and "Swearing by a woman is no more objectionable than swearing by a man" (Williams & Best, 1990, p. 89). The social role model would have hypothesized that gender differences would be attenuated in progressive countries, when in fact they are magnified. Evolutionary theory also appears to be unable to account for this pattern; evolved species-wide characteristics ought to be uniform across cultures.

Analyses of cultural variation in gender differences showed that differentiation is both reliable and general. College-age men and women from each culture show the same magnitude of gender differences as do their adult counterparts, and cultures that show large differences on one variable tend to show large differences on others.

That fact makes some explanations unlikely. Differences across cultures in the frequency of psychiatric diagnoses might be due to differential access to health care (Nolen-Hoeksema, 1987), but that could not easily explain differences in A. Yet the same cultures that find little difference between the sexes in N also find little

difference in A, and in composites of facets from E and O. Some broader explanation seems to be needed.

One possible explanation is that these results are artifactual. Perhaps in traditional cultures, where clear sex role differences are prescribed, self-descriptions are based on comparisons of the self with others of the same gender. For example, when asked if she were kind, a traditional woman might rank herself relative to women she knows, but not to men. In that case, gender differences would be eliminated, just as they are eliminated by the use of within-gender norms. By contrast, in modern cultures men and women may compare themselves with others of both genders, and thus reveal true gender differences. If respondents in traditional cultures were explicitly instructed to compare themselves with both men and women, larger gender differences might be found.

However, if cultural differences in gender differentiation were due solely to the adoption of different standards of comparison, then gender stereotypes would not be affected, because questions about stereotypes require the respondent explicitly to contrast the sexes. Yet Williams and Best (1990) also found that gender stereotypes were most differentiated in Western, individualistic cultures.⁴

Another possibility is that personality traits in general are less relevant to members of collectivist cultures (Cross & Markus, 1999), and thus relatively subtle gender differences may simply not be noticed. Church and Katigbak (2000), however, in their review of trait psychology in one collectivist culture, the Philippines, disputed that claim. Observer-rating data, particularly from observers outside the culture, might help resolve this issue.

It is possible that gender differences in personality are genetically determined, and that variations in gender differentiation are a result of differences in gene pools between European and non-European countries. Such a possibility might be tested in acculturation studies (McCrae, Yik, Trapnell, Bond, & Paulhus, 1998). For example, if culture dictates the degree of gender differentiation, one would expect U.S.-born African Americans and Asian Americans to show the same pronounced gender differentiation as Americans of European descent. Curiously, a preliminary study (McCrae, Herbst, & Masters, 2001) of African American samples instead showed small gender differences that more closely resembled those of Asian and African cultures than of European cultures. However, it is possible that the relatively traditional sex role ideology of African American subculture (Levant, Majors, & Kelley, 1998) is responsible for this effect.

A final, and perhaps most plausible, explanation relies on attribution processes (Weiner, 1990). In individualistic, egalitarian countries, an act of kindness by a woman may be perceived (by her and others) as a free choice that must reflect on her personality. The same act by a woman in a collectivistic, traditional country might be dismissed as mere compliance with sex role norms. Thus, real differences in behavior might be seen everywhere, but would be attributed to roles rather than traits in traditional cultures. Note

⁴ The co-occurrence of highly differentiated gender stereotypes with large gender differences in personality is consistent with social role theory, which holds that traits and behaviors follow socially inculcated beliefs and expectation. What is not clear from social role theory is why extreme gender stereotypes would be found in countries with progressive sex role ideologies.

that such a process would affect not only the self-reports with which the present study was concerned, but also the gender stereotypes studied by Williams and Best (1990). In traditional cultures, perceived differences between men and women in general might be attributed to role requirements rather than to intrinsic differences in personality traits.

The present study relied exclusively on the use of self-reports to assess personality traits. Many of the difficulties in interpreting cultural differences in gender differentiation are due to this monomethod approach. The attribution argument, for example, assumes a discrepancy between behavior (in which the same gender differences are found everywhere) and questionnaire responses; clearly, it would be useful to observe behaviors in both controlled and natural settings to test that assumption. Again, the attribution hypothesis could be tested by comparing observer ratings of personality made by judges from within and outside a traditional culture. Even when judging the same targets (perhaps on videotape; cf. Funder & Sneed, 1993), traditional judges should perceive less evidence of gender differences in personality than would egalitarian judges. The future of research on gender differences in personality lies beyond self-reports.

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