Journal of Perf'onality and Social Psydwlog~
2001. Vol. 81. No. 2. 322-331

1O.I037/IO022-3514.XI.2.322

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.' Maccoby and Jacklin (1974) conducted the first major review of research on sex-related differences in cognition, temperamento and social behavior in children and adults. They concluded ¡hat men are more assenive 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 gen del' differences in adult personality traits reponed by Maccoby and Jacklin (1974) and explored other gender differences in normative data fram the most widely used personality inventories. He concluded that women scored lower than men on asseniveness and higher on gregariousness (extraversion). anxiety, trust, and tendermindedness (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 comprehen sive guide to personality traits, that model can provide the basis for a systematic examination of gen del' differences in personality. Unfortunately, from the available data. Feingold was only able to conduct reviews of nine traits. In this anicle, 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 gen del' differences in personality.

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Portions 01' this article were presented as part 01' the symposium. *CrassCI/ltl/ral Per.\}lectil'es 011 Gender Difjáel/ces in Persona lit y Traits,* presented at the Second Annual Meeting of the Society for Personality and Social Psychology. February 2001. San Antonio. Texas.

For providing unpublished data analyzed here. we thank Filip De Fruyt, ¡van Mervielde. Hans Hoekstra. Wayne Parker. Jüri Allik. Talvi Kallasmaa. Anu Realo. Gregorio del Pilar. A. Timothy Church. Marcia Katigbak. Jean-Pierre Rolland. Jean-Michel Petol. Fritz Ostendorf, Alois Angleitner. Lena Halim. Gian- Vittorio Caprara. Claudio Barbaranelli. Savita Deo. P. H. Lodhi. Hilmar Nordvik. 0yvind Martinsen. Margarida Pedrosa de Lima. Ralph L. Piedmont. Maria A via. Jesús Sanz. María SánchezBernardos. Goran Knezević. B. Radović. and Thomas Martin.

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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).

Neuroricisl11 (N)

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

I As the *American PsycllOlogical As.\'Ociation Pl/blicati(Jll Mal/ual* (4th ed.: American Psychological Association. 1994) states. *gel/der* is cultural and *se.l'* is biological: whether the differences al issue in this article are cultural or biological (01' both) is as yet unresolved. We use *gel/del' differel/ces* beca use that term was used in the latest major review 01' the topic (Feingold. 1994). but we do not wish 10 imply that we consider personality differences to be cultural in origino

(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. inYlol1}en 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 ¡han \ women i (Scherwitz, P~i~~I).s,~.b~~.n.t4'L.§Ltlugl1es, 1991LÓther¿, ho~ever, have reported that women score higher in anger (Ross & Van Willigen, 1996), or that there is no difference (A verill, 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 .b$$e.rtiveness, women on Warrnth.

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. AIthough 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 Ihal wOlllcn should score higher in Openness to Aesthetics and Feelin¡!s. and men, who are more intellectually oriented, should score higher in Openness to Ideas.

There is considerable empirical evidence for the view thal women are more sensitive to emotions. Eisenberg, Fabes, Schaller. and Miller (1989) found evidence of greater facial express ion of emotion in women, and the ability to decode non verbal 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 mor~ intensely and vividly than mendo (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 _wom~n _scored
vc.:ry.sligh!IY...l1igh~t, than men ~m this trail. The present s0!iy'-a~~e.sses genderoifferences 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

dcvelopment. There is considerable controversy over whether gender roles are purely cultural creations or whether they reflect precxisting 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 excIusive. It is entirely possible that social roles and other environmental influences can modify a biologically based pattem, and there is always a danger that findings from any single method of measurement will be biased.

Cross-Cultural Perspectives

Pancu/tural 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 al so possible that pancultural gender differences result from universals in leamed 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 leam 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 concIuded that differences were generally invariant across nations. Lynn and Martin (] 997) examined gender differences in N, E, and Psychoticism (Eysenck, 1978) in 37 countries. They found that men were consistent]y lower than women in N and generally higher on Psychoticism and E. Nolen-Hoeksema (1987) found that women were more like]y than men to be depressed across a range of countries, although the magnitude of the sex difference ratio varied markedly.

Williams and Best (1982,] 990) conducted an extensive cross-cultural investigation of gender stereotypes; that is, characteristics generally attributed to men or to women (regard]ess of empirical accuracy). University students in 30 different countries judged each of 300 items of the Adjective Check List (ACL; Gough & Heilbrun,]983) 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 con verted to an M% score, defined as M% = [male frequency/(ma]e frequency + female frequency)] X]00. High M% values thus indicated that an item was main]y 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 psycho]ogical characteristics associated with mal e and female pan cultura] gender stereotypes-and these stereotypes by and]arge were consistent with reported gender differences. For examp]e, in a subsample of]4 countries, the word *aggressive* had M% scores ranging from 62 to 99, whereas *affectionate* had M% scores from 1 to 34.

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

Gender Differentiation Across Cu/tures

Even if all cultures show the same pattem 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 Ro]e Ideo]ogy sca]e in]4 cultures and confirmed that men and women in traditiona] cultures (e.g., Pakistan, Nigeria) emphasized sex role differences, whereas those in modem cuItures (e.g., the Netherlands, Fin]and) minimized them. According to the socia] role model (Eag]y & Wood,]99]), 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 in come 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 al so be related to a dimension of cuIture Hofstede (1980) called *masculinity.* This dimension was derived from contrasting work values: In masculine cultures (Iike Japan and Austria), emphasis is placed on occupational advancement and eamings; in feminine cultures (Iike 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 cIearly ascribed to men or to women, but not both, suggesting strong gender differentiation. Curiously, these variance scores were

Table 1

Characteristics of the Samples

		Sample size				
		Col!ege age		Adult		
Country	Language	Men	Women	Men	Women	Source
Hong Kong	Chinese	60	62			McCrae et al., 1998
Taiwan'	Chinese	173	371			Chen, 1996
Croatia	Croatian	233	233	123	133	Marusié, Bratko, & Eterovié, 1997
The Netherlands	Dutch	615	690			Hoekstra, Ormel, & De Fruyt, 1996
Belgium'	DutchIFlemish	34	68	527	490	F. DeFruyt
United States	English	148	241	500	500	Costa & McCrae, 1992
South Africa (Blacks)"	English	19	46			W. Parker
South Africa (Whites)'	English	4]	168			W. Parker
Estonia'	Estonian	119	398	]89	331	1. Allik
The Philippines'	Filipino	134	375			G. del Pilar
	English	152	236			A. T. Church
France	French	54	338	279	395	J. P. Rolland; Rolland,]998
Germany	German	290	454	1]85	180]	F. Ostendorf
Indonesia"	Indonesian	34	138			L. Halim
Italy	Italian	26	4]	315	308	G. V. Caprara
Japan	J apanese	176	]77	164	]64	Shimonaka, Nakazato, Gondo, & Takayama,] 999
South Korea	Korean (1)	1,257	1,096			Lee,] 995
	Korean (2)			278	3]5	R. L. Piedmont
Malaysia'	Ma]aysian	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	0. Martinsen
Portugal	Portuguese	205	253	606	816	M. P. de Lima
Zimbabwe"	Shona	36	35	135	106	R. L. Piedmont
United States'	Spanish	24	49			Psychological Assessment Resources,] 994
Peru"	Spanish	274	165			Cassaretto, 1999
Spain	Spanish			89	]07	M. Avia
Yugoslavia	Serbian	72	547	256	245	G. Knezevié
Russia	Russian	26	81	20]	192	T. Martin

Note. From "Trait Psychology and Culture: Exploring Intercultura] Comparisons," by R. R. McCrae (in press). *Journal01 Persollality.*]n the public domain. Where no reference is given, data were provided by the individual listed.

• 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 les s developed countries is al so 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 tates of clinical jepression, but they may differ sharply in A, leading to marked jifferences in work values. In the present study, use of the full ~EO-PI-R allowed us to ask whether gender differentiation is ;ommon across a range of traits or specific 10 individual factors. We examined associations of gender differentiation with several ;ulture-Ievel variables, including M% variance and Hofstede's llasculinity index.

Method

Literature Search

The data analyzed were provided by col!eagues from a variety of countries who had translated the NEO-PI-R and collected data for their own research projects. As a requirement of]icensing, translators are obliged to submit an independent back-trans]ation 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 pub]ications 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 concemed with mean leve! differences among cultures. Although it would be possible to include additiona! 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 samp]es. Participants in al! these studies were volunteers; clinical and occupationaI selection samples were excluded. Samples were stratified by age and gender; in addition to

\"',Ti,';", samples. college-age samples were available for 24 cultures and adtlll samples for 14 cultures. The samples represent five continenls and sL'yeral different language families. Nole that gender differences in the American sal11ples ha ve been previously published (Cosla & McCrae.
1992).

Measure

The NEO-PI-R (Costa & McCrae, 1992) assesses 30 specific trails. or facets. that define Ihe five basic factors of personality: N. E. O, A. and C: faClor scores use weighted cOl11binations of all 30 facets (see Costa & McCrae. 1992. Table 2). Infonnation on Ihe reliability and validity of the American version of the NEO-PI-R is summarized in the manual (Costa & McCrae, 1992).

The instrument has been lranslaled into over 30 languages, with backIranslations inlO English reviewed by the original test authors. In general. these Iranslations have shown adequate reliabilities. and all have satisfactorily replicaled the original faclor structure (see McCrae, in press). Some 01' 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), sal11ples were di\'ided inlo subsamples 01' college age (generally age 18-21, but varying somewhat across cultures) and adult (age 22 or above). the age division used in norrlling Ihe American version of the NEO-PI-R. When raw scores from Ihe adult subsamples were compared with the college-aged subsamples. Ihe expected differences were seen: Adults were lower in N. E. and O and higher in A and C across the 26 cultures (all" < .01).

To ohtain a common melric across all cultures. we con verted raw facet scores lO ~. scores by subtracting the mean and dividing by the standard deviation 1'01' Ihe suhsample. and we computed factor scores from these :-scored facels.2 Differences between women's and men's z scores provide the familiar *d* melric 01' effecl size. Raw facet and factor scores for men and women re!lecl cultural differences as well as any artifacts introduced by Iranslation and adaptation. bUI the ds analyzed here subtracI out most cultural and artifactual effects. and are directly comparable across cultures.

Culture-Lel'el Variables

To help inlerpret cultural varialions in gender differences, we related data in the presenl Sludy to culture-level variables (i.e.. variables thal characlerize a culture rather Ihan an individua\). Mean levels of NEO-PI-R faclors from the same samples studied here are reported in McCrae (in press). In addilion. we examined correlations of gender differentiation wilh Ihe culture-Ievel dimensions identified by Hofslede (1994: Peabody, 1999). These are Power Distance. found in cultures in which stalus differences are the accepled norm: Uncerlainty Avoidance. high in cultures Ihat seek 10 reduce ambiguous silmuions: Individualism. characterislic 01' cultures in which each person is oriented loward his or her own interests instead 01' those 01' Ihe group: and Masculinity. high in cultures Ihat value ego goals 01' achieyemenl and material advancement over social goals like cooperation. Hofslede ratings were availahle for 23 01' Ihe 26 cultures. Finally, Williams and Besl (1990) reponed variance in masculinity ralings acmss the 300 ACL adjectives: high variances suggest strong gender stereotype clifferentiation. *M'7c* ratings were available for only lO 01' the 26 cultures:'

In addilion. we examinccl so me national slatislics as indicators of the status 01' women in Ihe 26 cultures (Unitecl Nations Stalislics Division. 2(00). These incluclecl gross domestic producl (GDP). fertilily rateo and wOl11en's life expectancy. We also examined illiteracy rales; these were not pro\'idecl 1'01' .!apan. Taiwan. Hong Kong, Germany, Spain. Norway. Ihe United States. France. Ihe Netherlunds. or Belgium. presumably because "illiteracy is believecl lO have been reduced to minimal levels" (United Nations Statislics Division. 20(0). We assigned values of 0% to these 10 coun!ries. We aiso calculated the difference hetween 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 facel scales. The firsl column reporls individual-Ievel gender differences in Ihe U.S. adult normalive sample (Cosla & McCrae, 1992). The second and Ihird columns reporl culture-Ievel analyses across Ihe 25 olher cultures included in Table 1, grouped by age. Because the focus here was on patterns across cultures, nol individuals. unweighlecl means were used, giving equal weight lo each culture.

The firsl nOlable feature of Ihe Table is Ihe magnitude of gender differences. None of Ihe effecIs in Table 2 is as large as one-half slandard devialion; mosl are closer to one-quaner standard devialion. Gencler differences. although pervasive. appear lo be relatively sublle compared wilh the range of individual differences found wilhin each gender (ef. Williams & Best. Il)l)()).

A second point is thal individual differences inthe United Slales elosely mirrar Ihe average effeelS seen across a range of olher cultures. Correlations belween Ihe Ihree columns in Tahle 2 ranged from .84 lo .91. Addilional analyses 01' Ihe eleven eultures not included in reviews by Feingold (1994) and Lynn and Martin (1997) showed Ihe same patterns Ihere. It appears Ihal self-reporlecl gender differences. like gender slereolypes. are pancultural.

Third, the differences seen are generally consistent with previous lilerature and wilh some Iheorelieal predictions. In particular. women were consislenlly higher in facets 01' N and A. They showed u more varied pattern wilh Ihe other three domains. however. Women in mosl cultures were higher Ihan men in Warmth. Gregariousness, and Positive Emotions. bltllower in Assertiveness and Excilemenl Seeking. These associalions are prediclable from Ihe placemenl of Ihese lrails wilhin Ihe Interpersonal Circumplex (McCrae & Cosla, 1989), Women scored higher than men in Openness 10 Aesthelics, Feelings. and Aelions. bUI lower in Openness to Ideas, consislen! wilh pervasive slereotypes that associale women with feeling and men wilh Ihinking. There are no consislen! gender differences on Openness 10 Fan!asy 01' Values. In most cultures. women were more dUliful Ihan men. bUI Ihere are few olher consistent differences in facets of C.

To tesl Ihe hypothesis Ihal gender differences in N facets were attribulable 10 greater sensilivity to emolional experiences among women, we conducled analyses of covariance contrasling men and women on Ihe six N facets. conlrolling 1'01' 03: Feelings. As hypothesized. Ihere was a reduclion in the magnilude of gender differences, although women remained significanlly higher on NI: Anxiely, N4: Self-Consciousness, and N6: Vulnerability. Further. Ihere is reason lo Ihink that Ihe effeels are nol specific 10 emolional sensilivily: When A2: Slraighlforwardness is used as the covarime.

.2 Data were also analyzed by an alternative l11ethod. in whieh combinedsex American standard deviations were used lO standardize data (cf. McCrae. in press). Results were essentially identical. suggesling Ihal American norl11s can be used if local standard deviations are nOI available.

, Although Williams and Besl (1990) reponed M'i'c values 1'01' South Africa. their sample consisted of stUdents of lnclian descent who are no! direclly comparable 10 either B lack or White South A fricans.

Table 2
Mean z-Score Differences (d) Between Women and Men on Revised NEO Personality lnventory (NEO-PI-R) Facets in the Uniled States and 25 *Olher CU/lures*

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

Note. Ns = 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 I 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 :>elow.

Effects on the five factors themselves are largely predictable from the facet results. Among U. S. adults, there are strong effects *:ds* = .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 :ffects for N, A, and E are replicated in culture-Ievel analyses of)oth college-age and adult samples *(ds* = .28 to .50). In addition, 10wever, there are smaller *(ds* = .11 to .16) but significant effects n both age groups showing women higher than men in O and C 'actors.

';ross-Cultural Variation in Gender Differences

Although the general pattem of gender differences is similar LCroSS 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 nol simply the result of sampling error. With the available data, the cIearest 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 *(rs* = .75, .73, and .61, respectively, *ps* < .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 pattems at the facet leve!. To represent gender differences in these domains, we created two new variables that summarize consistent gender differences. Feminine extraversionlintroversion (F-Ex/In) was calculated as (El: Warmth + E2: Gregariousness - E3: Assertiveness - ES: 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/ cIosedness (F-Op/CI) was calculated as (02: Aesthetics + 03: Feelings + 04: Actions - 05: 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/CI composites. AII 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 nol. Correlations across the four columns in Table 3 show that all variables are strongly intercorrelated *(rs* = .52 to .81, *n* = 26, *p* < .0 1). These associations show a generalized pattem of gender differentiation, as if some cultures emphasized the universal pattem of gender differences, whereas other cultures minimized il. 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 mosl. 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 pattem: 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). Westem nations with individualistic values and with inhabitants who are more assertive and progressive have greater gender differences in self-reported personality traits than

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11. <111 ,-S,'ore Differences (d) Be/weel1 Womel1 l/l1d Mel1 il1 .'(. ('///llIres 011 Revised NEO Persona/ir)' Jl11'enlOry /'Úc/Ors 01' Composi/es

Culture	N	A	F-Ex/ln	. F-Op/CI
Zimbabweans	-.02	-.05	.10	.11
Black South Africans	.08	.05	.05	.12
South Koreans	.20	.18	.11	.16
Japanese	.09	.39	.17	.19
Malaysians	.44	.16	.10	.15
Indian s	.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	.11
Germans	.51	.41	.28	.33
Spaniards	.55	.50	.24	.14
Estonians	.41	.51	.26	.35
Norwegians	.65	.38	.24	.27
lta1ian s	.70	.47	.23	.15
Americans	.55	.57	.25	.29
Hispanic Americans	.68	.53	.17	.19
French	.71	.43	.19	.19
Dutch	.63	.49	.23	.39
Croatians	.75	.54	.28	.31
Belgians	.69	.55	.36	.40

NOIe. N = Neuroticism: A = Agreeableness; F-Ex/ln = feminine extraversion/intro\'ersion; F-Op/CI = feminine openness/closedness.

non-Western. collectivistic cuhures. The correlation 01' 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 ($1' = .27$, $11 = 10$, *ns).*

Finally, we examined rank-order correlations between gender differentiation and national statistics in the 22 cuhures for which data were available. Gender differentiation was positively associated with GDP ($1' = .47$. $P < .05$) and women's life expectancy ($1' = .57$. $P < .01$). and negatively associated with fertility rate ($1' = -.56$. $P < .05$). women's illiteracy rate ($1' = -.46$, $P < .05$), and women's illiteracy rate relative to men's ($1' = -.48$. $P < .05$). Gender differences in self-reported personality traits are largest in prosperous and healthy cuhures where women have greater educational opportunities.

DisclIssion

The present results extend to a wider range 01' cuhures and a broader selection 01' 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 01' the gender differences we found can be grouped in four categories: Women tend to be higher in negative affec!. submissiveness. and nurturance. and more concerned with feelings than with ideas.

The elevation 01' N facets among women in the present study is consistent with the conclusions 01' previous reviews that have assessed general anxiety or neuroticism (Feingold. 1994; Lynn & Martin. 1997). It is al so consistent with pancuhural gender stereotypes. For example. Williams and Best (1990. Appendix A) reported M% scores across 14 cuhures averaging 15 for *femfu/* and 14 for *comp/aining.* These gender differences in susceptibility to negative affect are not auributable solely to differential sensitivity to emotional experience. because many 01' thelll 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 virlllally 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 thm wOlllen scored substantially higher than men on A. These findings. again. are consistent with panculural gender stereotypes: mean M% scores for *l/d"el1/ltrlJIIs* and *dOll1il1ol11* were 94 and 87. whereas Illean M'Y" scores rol' *(({fec/io//ate* and *sel11ill1el1ta/* 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 ES: Excitelllent Seeking. and women higher in El: Warllllth. E2: Gregariousness. and E6: Pos itive Emotions. Because Extraversion scales vary in the ratio of dominant 10 nurturant conten!. the direction 01' 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 1'01' the Eysenck scale.

The difference in experiential preference for feelings versus ideas found here is also retlected in gender stereotypes. *E/IIO/iol1a/* has a mean M% 01' 12, whereas */ogica/* has a mean M% 01' 80 across the 14 cuhures studied by Williams and Best (1990). These effects have not often been reported in the literature. however, beca use relatively fe\\' personality instruments assess different facets 01' O. Perhaps the strongest support for this effect is found in the literalllre on vocational interests. in which men score higher in investigative interests and women higher in artistic interests. These two types 01' interest are differentially associated with Openness to Ideas and Aesthetics. respectively (Costa. McCrae. & Holland. 1984).

Some Possible Limita/iol1s

The present dataset is less than optimal in several respects. The range 01' cultures is limited, with only one Latin American and two Black African cultures. Few 01' the samples can be considered nationally representative. and in mos!. \\'omen are overrepresented. Some 01' the subsamples are quite small. Yet the overall patterning 01' the data seems to emerge despite thesc 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

presenl results were dislorted by age differences or cohort effects. Yel differences belween college-age and adult samples were fairly modesl, as Table 2 shows, and an Age x Gender analysis of variance in Ihe American normalive sample showed no significant inleraction. It seems likely thal any maturational or cohort effecIs on gender differences after age 18 are modest.

The data analyzed here were collecled at different times, and it is possible that period effects mighl have biased results (cf. Twenge, 1997). Date of data colleclion was not recorded; however, all translations were begun after publication of the NEO-PI-R in 1992, and Ihe literature search was compleled 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 invesligator. 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, 200 1), Italian college students and adults (214 men and 355 women; personal communicalion, A. Terracciano, March lO, 200 1), 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/ln, and F-Op/CI) were calculated for these three samples. For Taiwan they were .23, .32, .10, and .23, respeclively; for Italy, .62, .39, .26, and ,37, respectively; and for Belgium, .54, .67, .37, and .38, respeclively. These values are very close to those seen in Table 3, and, summed lO estimate overall gender differentiation, they would show identical ranks for all Ihree cullures. If Ihese Ihree cultures are representative, Ihen Ihe present results are likely to be generalizable across different studies and samples within cultures.

Cultural Differellces in Gellder Differel11iatioll

Of particular inleresl in the presenl sludy was Ihe puzzling finding Ihat self-reported gender differences are more pronounced in Weslem. individualislic counlries. These countries lend lO have more progressive sex role ideologies, endorsing such ilems as HA women should have exaclly the same freedom of aClion as aman" and "Swearing by a woman is no more objeclionable Ihan swearing by aman" (Williams & Besl, 1990, p. 89). The social role model would have hYPolhesized thal gender differences would be attenualed in progressive countries, when in fact Ihey are magnified. Evolutionary theory al so appears lO be unable to accounl for Ihis pattern; evolved species-wide characleristics oughl to be uniforrn across cultures.

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

Thal fact makes some explanations unlikely. Differences across cultures in the frequency of psychialric diagnoses mighl be due lo differential access to health care (Nolen-Hoeksema, 1987), bUI thal could nol easily explain differences in A. Yel the same cultures Ihal find little difference belween Ihe sexes in N also find little

diffcrl'lll'c 111 1\. ami 111 \'1'1111""111'\ 111 l."..." 1111111 I ,11,,1 t) \1111'" broader cxplallalioll SI'I'II1S lo he IIITtk"

One possiblc cxplallatioll is Ihal Ihl"" u"III" au' ar 111 „<'llIal Perhaps in traditional culturcs. whcrl'l'll'ar ,ex rok dllll-u'lll"" al(' prescribed, self-descriplions are basco 011 l'oll1parisolls ot Ihe sell wilh olhers of the same gender. For exal11plc, whclI askl'd it sl1<' were kind, a tradilional woman might rank herself rclatiVl' lo women she knows, but not to men. In thal case, gender differellces would be eliminated, just as Ihey are eliminaled by Ihe use 01' 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, Ihen gender stereotypes would not be affected, because questions about stereotypes require the respondent explicitly lo contrast the sexes. Yet Williams and Best (1990) al so found that gender stereotypes were most differentialed in Westem, individualistic cultures.4

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

It is possible thal gender differences in personality are genelically deterrnined, and Ihal variations in gender differentiation are a result of differences in gene pool s between European and non-European countries. Such a possibility mighl be tested in acculluralion studies (McCrae, Yik, Trapnell, Bond, & Paulhus, 199X). For example, if culture dictates the degree of gender differentiation, one would expect U.S.-bom African Americans and Asian Americans 10 show Ihe same pronounced gender differenlialioll as Americans of European descent. Curiously, a preliminary sluoy (McCrae, Herbst, & Masters, 2001) of African American sal11pb instead showed small gender differences thal more closely rCSI'I11bled those of Asian and African cultures than ofEuropean culturl's. However, it is possible that the relatively traditional sex rol,' ideology of African American subculture (Levanl, Majors, ,..... Kelley, 1998) is responsible for this effect.

A final, and perhaps mosl plausible, explanation relies 011 allll bution processes (Weiner, 1990). In individualistic, cgahlanall countries, an act of kindness by a woman may be perceivcd (hy h"1 and others) as a free choice that musl reflect on her pcrsollahl\ The same act by a woman in a collectivistic, tradilional \'11111111) mighl be dismissed as mere compliance with sex role norll1s. 'l"hlls. real differences in behavior might be seen everywhcrc, hlll "0111" be attributed to roles ralher than Iraits in Iradilional CUItIlI"" N

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4 The co-occurrence of highly differemiated gender ,ll'rt'IIIYlw, \lllh large gender differences in personality is consistent wilh socia' ",le Ih,',,, \ which holds that traits and behaviors follow socially innlk..,,,,, hd,,'" .1,,01 expectation. What is not clear from social role Ihenry " \lh\ nlll'",,' gender stereotypes would be found in countries with pro!!""""" ".\ ,,,¡.ideologies.

that such a process would affect not on]y the self-reports with which the present study was concerned, but al so the gender stereotypes studied by Williams and Best (1990). In traditional cultures, perceived differences betweell men and womell in general might be attributed to role requiremellts rather than to intrinsic differellces in personality traits.

The presellt study relied exclusively on the use of self-repons to assess personality traits. Many of the difficulties in interpreting cultural differences in gender differentiation are due to this mono-method approach. The attribution argument, for example, assumes a discrepancy betweell 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 altribution 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 01' research on gender differences in personality lies beyond self-reports.

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Received November 30, 2000
Revision received March 30, 2001
Accepted April 9, 2001 .