



Short Communication

Universality of gender differences in 10 aspects of personality: A study of younger and older adult Peruvians[☆]



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ABSTRACT

This study replicated the Weinberg, DeYoung, and Hirsh (2011) Canadian study in Lima, Peru to assess the universality of gender differences in personality. Younger (aged 22–32, N = 363) and older (aged 33–55, N = 348) participants in university executive extension programs filled in the Big Five Aspect Scales. Gender differences entailing the commonalities of the Volatility and Withdrawal aspects of Neuroticism and the specificities of the Enthusiasm and Assertiveness aspects of Extraversion emerged in one or the other age group. Gender differences in the commonalities of the Compassion and Politeness aspects of Agreeableness and specificities of the Intellect and Openness aspects occurred in both groups. The article addresses the possible reasons why these gender differences in personality recur consistently.

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1. Introduction

Gender differences in personality traits among adults have been documented consistently for Neuroticism and Agreeableness (with females scoring higher than males) but contradictions have been observed with respect to the other Big Five domains. In North America, Goodwin and Gotlib (2004) reported significantly higher levels of Neuroticism, Agreeableness, Extraversion, and Conscientiousness among females and Openness/Intellect among males; Chapman, Duberstein, Sörensen, and Lyness (2007) reported gender differences only in Neuroticism and Agreeableness; and Weinberg, DeYoung, and Hirsh (2011) reported differences in these domains and, to some extent, in Extraversion. The contradictions could be explained by the use of participants aged 25 to 74 in the Goodwin and Gotlib (2004) study and older participants, ranging from 65 to 98, in the Chapman et al. (2007) study; the Weinberg et al. (2011) study had a larger age range than the Chapman et al. (2007) study at both ends of the distribution. Systematic variation in personality traits is observed over large portions of the life-span in various countries (Edmonds, Goldberg, Hampson, & Barkley, 2013; Milojević & Sibley, 2014; Walton et al., 2013). These developmental changes may be associated with changes in gender differences; for example, Weinberg et al. (2011) reported that the well-known gender difference in Neuroticism

was reversed at older age, such that men had higher scores than women in advanced age.

A similar lack of consistency occurs cross-culturally. Whereas in a study of 26 cultures women emerged higher in Neuroticism and Agreeableness (Costa, Terracciano, & McCrae, 2001), in a study that encompassed 55 cultures women reported higher levels of Neuroticism, Agreeableness, Extraversion, and Conscientiousness (Schmitt, Realo, Voracek, & Allik, 2008). This contradiction could be explained considering that the Costa et al. (2001) study used the 240-item NEO-PI-R instrument and the Schmitt et al. (2008) study utilized the 44-item Big Five Inventory. The nature of the specific cultures encompassed in the studies could have played a role, too; gender differences appear to be greater in more individualistic societies (Borkenau, McCrae, & Terracciano, 2013).

Another source of inconsistency is the structure of the Big Five. DeYoung, Quilty, and Peterson (2007) demonstrated the existence of two correlated but distinct aspects within each of these broad domains: *Volatility* and *Withdrawal* (Neuroticism), *Compassion* and *Politeness* (Agreeableness), *Industriousness* and *Orderliness* (Conscientiousness), *Enthusiasm* and *Assertiveness* (Extraversion), and *Intellect* and *Openness* (Openness). Thus, the lack of gender differences in Extraversion could reflect *Enthusiasm* confounding the greater *Assertiveness* of men and *Assertiveness* confounding the greater *Enthusiasm* of women. A study of gender differences by Weinberg et al. (2011) using the 100-item Big Five Aspect Scales (DeYoung et al., 2007) is especially relevant. They applied it mostly to individuals of a Canadian metropolitan area (N = 2643) who ranged in age from 17 to 85 and identified themselves mainly as White and secondarily Asian. Significant gender differences were

[☆] Availability of data set: The data set utilized in the study will be made available upon request.

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reported for Neuroticism, Agreeableness, and, to some extent, Extraversion, but not Conscientiousness or Openness/Intellect. On the other hand, significant differences were observed in raw scores regarding nine of the ten aspects (*Industriousness* being the exception) and in the ten aspects when residualized scores from each pair of aspects were considered; for instance, in *Volatility* controlling for *Withdrawal* or *Compassion* holding *Politeness* constant. That is, gender differences were more pervasive at the aspect level than for the Big Five. However, age moderated these relationships. For example, the gender difference in Neuroticism was reversed at older age and, for Openness/Intellect, the gender difference was non-existent at younger ages but favored women at older ages.

The research presented here is a constructive replication of the Canadian study using a Peruvian sample, designed to test the universality of the gender differences and changes with age reported by Weinberg et al. (2011). Five hypotheses are tested.

Hypothesis 1. Women present greater *Volatility*, *Withdrawal*, *Compassion*, and *Politeness* than men.

Hypothesis 2. Women score higher than men in *Orderliness* and lower than men in *Industriousness*.

Hypothesis 3. Women present greater *Enthusiasm* and weaker *Assertiveness* than men.

Hypothesis 4. Women score higher than men on *Openness* and lower than men in *Intellect*.

Hypothesis 5. Age moderates the relationships entailed in Hypotheses 1–5.

2. Method

2.1. Context and participants

ESAN, a university based in Lima, Peru launched in 2013 an Online Management Extension Program for Executives as an alternative to its traditional face-to-face Executive Extension Program. Students of both programs were targeted for the present study and invited to participate via electronic mail. The offer of their personality profile when the data were collected was used as incentive. Once outliers (respondents older than 55 and younger than 22) were excluded, respondents numbered 711, all college graduates. Of these, 52% were males and 48% females. Average age was 34.15 (SD = 8.23). To simplify the analyses, the sample was divided into younger (aged 22–32, N = 363) and older adults (aged 33–55, N = 348).

2.2. Measurements

DeYoung et al. (2007)'s 100-item Big Five Aspect Scales were forward-back translated into Spanish and utilized to measure the 10 aspects among participants. Their internal consistency reliability ranged from $\alpha = 0.61$ to $\alpha = 0.81$. The 10-aspect structure of the Big Five Aspect Scales was validated through a confirmatory factor analysis that yielded satisfactory adjustment indices ($\chi^2/df = 2.060$; CFI = 0.95; TLI = 0.95; RMSEA = 0.039; SRMR = 0.057). The factorial matrix yielded the following coefficients: *Volatility* = -0.597 , *Withdrawal* = -0.868 , *Compassion* = 0.569, *Politeness* = 0.675, *Industriousness* = 0.916, *Orderliness* = 0.623, *Enthusiasm* = 0.756, *Assertiveness* = 0.919, *Intellect* = 0.891, and *Openness* = 0.690. Since at least three first-order factors per one second-order factor were needed to obtain a hierarchy of factors (10 aspects, 5 domains), this task was impossible to implement. On the other hand, the expected Big Five structure failed to materialize when we tried an exploratory factor analysis with the ten aspects.

2.3. Analytic strategy

The study hypotheses on the universality of gender differences in personality traits imply that these are strong. Therefore, they should be expected to emerge even under low-powered research designs. If they do not appear in a sample with N = 300, their relevance should be questioned. To residualize the scores, each pair of aspects (e.g., *Volatility* and *Withdrawal*) was entered into the same regression equation. Bootstrapping was used in hypothesis testing to avoid problems with variables which might not satisfy the statistical assumptions.

3. Results

Among men, the order of self-attributed aspects was: *Intellect* (Mean = 40.80, SD = 5.30), *Politeness* (38.77, 4.74), *Assertiveness* (38.09, 5.74), *Openness* (37.23, 5.27), *Compassion* (37.08, 5.95), *Industriousness* (36.95, 4.73), *Orderliness* (36.87, 5.34), *Enthusiasm* (36.67, 5.79), *Volatility* (24.23, 6.57), and *Withdrawal* (24.10, 6.07). Among women, the order was: *Politeness* (40.29, 4.73), *Intellect* (39.37, 5.43), *Compassion* (39.08, 6.02), *Assertiveness* (38.09, 5.74), *Enthusiasm* (37.62, 5.83), *Industriousness* (36.86, 4.63), *Orderliness* (35.96, 6.13), *Volatility* (25.41, 6.49), and *Withdrawal* (24.80, 5.97). The correlations between the ten aspects and gender and age are shown in Tables S1 (for younger adults) and S2 (for older adults) in Online Supplementary Material.

Table 1 presents the results of four regression models at each age group for each Big Five domain. The sum of the two aspects of a domain (Model 1), the first aspect (Model 2), the second aspect (Model 3), and both aspects (Model 4) were entered as predictors of gender in logistic regression equations. It can be seen in the table that, at the domain level (Model 1), only Agreeableness is a significant predictor in both age groups, whereas Neuroticism is in the younger group. Only in the case of Agreeableness the two aspects of the domain (Models 2, 3) are significant predictors or approach significance at both age levels, whereas different aspects are significant in the case of Openness/Intellect. Finally, only in the case of Openness/Intellect both aspects predict gender under Model 4 at both age levels, whereas this occurs only at younger age for Agreeableness and older age for Extraversion.

4. Discussion

The findings strongly suggest the universality of gender differences in *Compassion* and *Politeness* among younger and older adults, with females always scoring above males. Regarding this domain, our results are similar to the cross-cultural findings of Costa et al. (2001) and Schmitt et al. (2008) as well as those of Goodwin and Gotlib (2004) and Chapman et al. (2007) in the United States and Weinberg et al. (2011) in Canada. In contrast, De Bolle et al. (2015) did not find such differences among adolescents in their study of 23 cultures. Weinberg et al. (2011) utilized the concept of a different self-construal of men and women (Cross & Madson, 1997) to gain further insights into the observed differences in Agreeableness: whereas men tend to differentiate themselves from others, try to be unique, and exhibit a competitive attitude, women exhibit a cooperative attitude and tend to identify with others, seeking to strengthen their commonalities and making others part of the own self. Thus, "women... may be more motivated than men to maintain social and emotional bonds by enacting more agreeable traits" (Weinberg et al., 2011, p. 8). This interpretation can be complemented with a more precise delineation of the specific meaning of the domain and its two aspects. What Agreeableness, *Compassion*, and *Politeness* have in common (commonalities) is the broad dimension of social life, which may vary from weak to intense. What distinguishes them (specificities) appears to be the greater presence of affect and emotion in *Compassion* vis-à-vis attention paid to the social desirability of specific behaviors – implying emotional intelligence – in *Politeness*. Our findings indicate that the commonalities between the two aspects differentiate men and women at both adult age levels, whereas the

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