When the Difference is in the Details: A Critique of Zentner and Mitura (2012) “Stepping out of the Caveman’s Shadow: Nations’ Gender Gap Predicts Degree of Sex Differentiation in Mate Preferences”

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Abstract: In a recent 10-nation study, Zentner and Mitura (2012) reported observing smaller sex differences in mate preferences within nations that have higher gender parity. As noted in previous research, and in a re-analysis of Zentner and Mitura’s own data, sex differences in some mate preferences (e.g., long-term mate preferences for physical attractiveness) are either unrelated to or actually get larger with higher national gender parity. It is critically important to distinguish among mate preference domains when looking for patterns of sexual differentiation across nations. Indeed, for many psychological domains (e.g., attachment styles, Big Five traits, Dark Triad traits, self-esteem, personal values, depression, emotional expression, crying behavior, intimate partner violence, tested mental abilities, health indicators; see Schmitt, 2012), sex differences are demonstrably larger in nations with higher sociopolitical gender parity. By not distinguishing among mate preferences, Zentner and Mitura committed a form of the ecological fallacy—making false conclusions about individual mate preferences when looking only at associations among groups of mate preferences.

Keywords: Sex Differences, Mate Preferences, Physical Attractiveness, Ecological Fallacy.

Introduction

A fundamental assertion of critics of evolutionary theories of mate preferences is that most psychological sex differences actually result from socio-structural power differentials between men and women (e.g., Eagly and Wood, 1999). A recent study (Zentner and Mitura, 2012) provides apparent evidence in support of this position. In their 10-nation study, Zentner and Mitura observed smaller sex differences in long-term mate preferences within nations that have higher “gender parity” (with gender parity based on the Global Gender Gap Index; Hausmann, Tyson, and Zahidi, 2010). Entirely missing from their analysis, however, were critical distinctions among different types of mate...
preferences, as different mate preference domains show vastly dissimilar patterns of gender-parity-linked sexual differentiation across nations.

Sex Differences in the Preference for Status-Related Attributes

For instance, the magnitude of sex differences in long-term (not short-term) mate preferences for Status-Related attributes does tend to shift from a large/medium effect size in nations with lower gender parity to a more moderate medium/small effect size in nations with higher gender parity. Zentner and Mitura (2012) found exactly this after placing their 10 nations into three groups, low gender parity (within which women valued Ambition-Industriousness moderately more than men, $d = -0.65$), medium gender parity (women valued Ambition-Industriousness moderately more, $d = -0.53$), and high gender parity (women valued Ambition-Industriousness moderately more, $d = -0.48$). Hence, sex differences in the preference for Ambition-Industriousness in long-term mates were reduced (though still medium in terms of effect size; Cohen, 1988) in nations with higher levels of gender parity.

Most other sex differences in Status-Related mate preferences also were attenuated from larger to more moderate levels in nations that were higher in gender parity (e.g., Good Financial Prospects went from $d = -1.04$, to $d = -0.84$, to $d = -0.55$; Favorable Social Status went from $d = -0.67$, to $d = -0.42$, to $d = -0.31$). In most cases, these reductions were caused by women preferring Status-Related traits less in high gender parity nations, though in many cases men’s preferences for Status-Related attributes also were reduced in high gender parity nations (which seems counter to the logic of men appreciating women’s Status-Related traits more as women enter the workforce in high gender parity nations; Eagly and Wood, 1999). Nevertheless, Zentner and Mitura (2012) concentrated solely on the omnibus sex difference ($d$) shift across all mate preference attributes combined, leaving unnoticed and unexplained important variations in men’s means, women’s means, and the incongruously shifting sex differences of specific mate preferences (for a discussion of the importance of sex-specific means when considering sex differences across cultures, see Lippa, 2009).

Eagly and Wood (1999) may have documented a version of this Status-Related finding years ago. They correlated sex differences in mate preferences for Good Financial Prospects across nations (Buss, Abbott, Angleitner, Biagio, Blanco-Villasenor, et al., 1990) with four national indicators of gender parity and found one significant correlation suggesting that the sex difference was attenuated in higher gender parity nations. It is unclear why, but Eagly and Wood (1999) did not examine links between gender parity and the Buss et al. (1990) findings regarding sex differences in Ambition-Industriousness or Favorable Social Status.

Sex Differences in the Preference for Good Looks

Unlike Status-Related findings, sex differences in long-term mate preferences for Good Looks are usually unrelated to a nation’s gender parity, as Eagly and Wood (1999) initially documented. Gangestad, Haselton, and Buss (2006) also found sex differences in Good Looks were entirely unrelated to national levels of gender parity, as were the Status-Related traits of Favorable Social Status and Good Financial Prospects (after controlling for
national income, geographical region, and latitude; see also Low, 1990). Gangestad et al. (2006) did find that women’s and men’s mate preferences for Good Looks were closely linked to national pathogen levels, with Good Looks serving as a critical adaptive cue to health and fertility within high pathogen environments.¹

Surprisingly, Zentner and Mitura’s (2012) own data show that in low gender parity nations, men valued Good Looks only a little more than women, \( d = 0.24 \); in medium gender parity nations, men’s valuation of Good Looks was higher still than women’s, \( d = 0.43 \); and in the highest gender parity nations, men’s valuation of Good Looks was the most different from women’s, \( d = 0.51 \). Thus, Zentner and Mitura found that sex differences in Good Looks are \textit{larger} in nations with \textit{higher} gender parity, \( F(2, 3174) = 22.14, p < .001 \). By wrongly conflating their findings on Status-Related and Good Looks mate preferences, Zentner and Mitura may have led their readers to commit a form of the ecological fallacy. The ecological fallacy is the mistaken notion that one can make conclusions about individual instances of a phenomenon based solely on grouped instances of a phenomenon (Freedman, 1999), and it seems Zentner and Mitura implied false conclusions about all individual instances of mate preferences by basing their judgments solely on omnibus grouped instances of all mate preferences combined.

\textit{Misguided Understandings of Evolved Sex Differences across Cultures}

Observing shifts in the magnitude of sex differences in mate preferences across cultures should not cast doubt on the existence of evolved mate preferences. Contrary to Zentner and Mitura’s (2012) faulty conceptualization of evolved sex differences (e.g., “the differences should hold across variations in culture and social context” p. 1176), evolutionary psychologists expect mate preferences to be sensitive and responsive to environmental input (e.g., Gangestad and Simpson, 2000), and gender parity (along with many other contextual factors) may influence the degree of activation of mate preference adaptations (see Gangestad et al., 2006; Pirlott and Schmitt, in press). The flawed notion that all evolved psychological attributes should be fixed and somehow unresponsive to environmental contexts is at odds with the foundational assumptions made by evolutionary anthropologists, biologists, and psychologists (Brown, 1991; Kenrick, Nieuweboer, and Buunk, 2010; Nettle, 2009; Tooby and Cosmides, 1992). It is unfortunate this misconceptualization still exists. It is likely the result of an implicit dualism stemming from Descartes in which dichotomous, and not interactive, thinking dominates our conceptions of nature and nurture, particularly with regard to sex differences (Carothers and Reis, 2012).

Regrettably, media reports perpetuate this thinking with ill-advised headlines such as \textit{“When Men Stop Seeking Beauty and Women Care Less About Wealth”} and \textit{“Trophy Wives And Sugar Daddies Less Common Where Men And Women Are Equal,”} statements trumpeting the view that high parity nations have absolutely “stopped” sex differences in mate preferences and, therefore, that any sex differences that do exist are unlikely to be evolved. These interpretations of cultural variability in sex differences may seem commonsensical to those who believe psychological sex differences are entirely learned
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(Eagly, Wood, and Johannesen-Schmidt, 2004), but such interpretations are to a large extent theoretically misguided and empirically unsupported.¹

For example, sex differences in mate preferences are rarely eliminated in high gender parity nations. Rather, most sex differences in mate preferences are merely reduced from large effect sizes to more moderate effect size magnitudes. Across all eight mate preferences within the highest gender parity nations investigated by Zentner and Mitura (2012), their average $|d|$ was 0.42. This would place the size of mate preference sex differences within the highest gender parity nations in the 81st percentile of meta-analytically documented psychological sex differences (Hyde, 2005), hardly a disappearing act. Moreover, many psychological sex differences actually increase in size in higher gender parity nations (Schmitt, 2012).² No fewer than 65 psychological sex differences have been documented as universal across cultures, many in ways consistent with evolutionary neuroandrogenic theory (Ellis, 2011) which hypothesizes that hormone-related organizational effects on the human brain (along with activational and direct autosomal genetic effects; Dimas et al., 2012) play vital roles in the context-sensitive development of sex differences in cognition, affect, and behavior. Continuing to promote the erroneous view that psychological sex differences are entirely learned and are largely absent in high gender parity nations may seriously hamper the advancement of sexological science and could be deleterious to men’s and women’s sex-linked psychiatric and healthcare needs (see also, Schmitt et al., 2012).

Discussion

Depending on the trait, the sample, and the cultural indicators examined, it is likely that sometimes psychological sex differences vary across cultures as a result of facultative adaptive responses to local ecologies (e.g., pathogens, resource scarcity), sexual selection processes (e.g., sex ratio, degree of polygyny), or life history factors (e.g., mortality rate, fertility rate). For example, sex differences in dismissing attachment are attenuated in high stress nations, perhaps by women’s greater psychological responsiveness to high pathogen ecologies (Schmitt et al., 2003; Tybur, Bryan, Lieberman, Caldwell Hooper, and Merriman, 2011). For dozens of attributes across a wide variety of psychological domains, such facultative adaptations can lead to the counterintuitive result of larger sex differences being present in nations with higher sociopolitical gender parity (for a review, see Schmitt, 2012).

Additionally, the magnitude of psychological sex differences may vary across cultures as a function of the degree of mismatch between modern and ancestral

¹ Cultural levels of pathogens have been linked to an increasing array of psychological attributes, including personality traits, personal values, levels of conformity, political ideologies, sociosexuality, and mate preferences (Schaller & Murray, 2008; Tybur & Gangestad, 2011).
² Sex differences are larger in higher gender parity nations for personal attributes such as romantic attachment styles (Schmitt et al., 2003), Big Five personality traits (Schmitt et al., 2008), Dark Triad personality traits, self-esteem, love, personal values, depression, emotional expression, intimate partner violence, crying behavior, tested mental abilities, physical size (e.g., height and BMI), blood pressure, the list goes on (for reviews, see Schmitt, 2011, 2012).
environments (Schmitt, Realo, Voracek, and Allik, 2008) or sociocultural pressures like religiosity affecting one sex more than the other (Francis, 1997). Most major religions typically seek to lessen short-term mating (Adamczyk and Hayes, 2012), and may try to do so more strongly to women than men. Sometimes sex difference shifts are caused, in part, by methodological factors (e.g., reference group effects) and sometimes sex differences may vary across nations because "increased gender equality permits both sexes to pursue more freely the values they inherently care about more" (Schwartz and Rubel-Lifschitz, 2009, p. 171).

As with most social science, context is everything when it comes to understanding sex differences in mate preferences. Much as throwing the baby out with the bathwater is foolhardy, concluding that all sex differences in mate preferences diminish as a function of increasing national gender parity (when only some do, and even then not by much) is empirically unwarranted and heuristically unwise. Even a caveman would not do it.

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References

Adamczyk, A., and Hayes, B. E. (2012). Religion and sexual behaviors: Understanding the influence of Islamic cultures and religious affiliation for explaining sex outside of marriage. American Sociological Review, 77, 723-746.

Brown, D. E. (1991). Human universals. New York: McGraw-Hill.

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. Behavioral and Brain Sciences, 12, 1-14.

Buss, D. M., Abbott, M., Angleitner, A., Biaggio, A., Blanco-Villaseñor, A., Bruchon-Schweitzer, M. . . . Yang, K. -S. (1990). International preferences in selecting mates: A study of 37 cultures. Journal of Cross Cultural Psychology, 21, 5-47.

Carothers, B. J., and Reis, H. T. (2012). Men and women are from Earth: Examining the latent structure of gender. Journal of Personality and Social Psychology. Advance online publication. doi: 10.1037/a0030437

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum.

Dimas, A., Nica, A., Montgomery, S., Stranger, B., Raj, T., Buil, A. . . . Dermitzakis, E. (2012). Sex-biased genetic effects on gene regulation in humans. Genome Research. Advance online publication. doi: 10.1101/gr.134981.111

Eagly, A. H., and Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. American Psychologist, 54, 408–423.

Eagly, A. H., Wood, W., and Johannesen-Schmidt, M. C. (2004). Social role theory of sex differences and similarities: Implications for the partner preferences of women and
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men. In A. H. Eagly, A. Beall, and R. J. Sternberg (Eds.), The psychology of gender (2nd ed.) (pp. 269-295). New York: Guilford.

Ellis, L. (2011). Evolutionary neuroandrogenic theory and universal sex differences in cognition and behavior. Sex Roles, 64, 707-722.

Francis, L. J. (1997). The psychology of gender differences in religion: A review of empirical research. Religion, 27, 81-96.

Freedman, D. A. (1999). Ecological inference and the ecological fallacy. Technical Report No. 549. Berkeley, CA: University of California, Berkeley.

Gangestad, S. W., Haselton, M. G., and Buss, D. M. (2006). Evolutionary foundations of cultural variation: Evoked culture and mate preferences. Psychological Inquiry, 17, 75-95.

Gangestad, S. W., and Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. Behavioral and Brain Sciences, 23, 573-644.

Hausmann, R., Tyson, L. D., and Zahidi, S. (2010). The global gender gap report 2010. Geneva, Switzerland: World Economic Forum.

Hyde, J. S. (2005). The gender similarities hypothesis. American Psychologist, 60, 581-592.

Kenrick, D. T., Nieuweboer, S., and Buunk, A. P. (2010). Universal mechanisms and cultural diversity: Replacing the Blank Slate with a coloring book. In M. Schaller, A. Norenzayan, S. J. Heine, T. Yamagishi, and T. Kameda (Eds.), Evolution, culture, and the human mind (pp. 257-272). New York: Psychology Press.

Lippa, R. A. (2009). Sex differences in sex drive, sociosexuality, and height across 53 nations: Testing evolutionary and social structural theories. Archives of Sexual Behavior, 38, 631-651.

Low, B. S. (1990). Sex, power, and resources: Male and female strategies of resource acquisition. International Journal of Contemporary Sociology, 27, 49–73.

Nettle, D. (2009). Beyond nature versus culture: Cultural variation as an evolved characteristic. Journal of the Royal Anthropological Institute, 15, 223-240.

Pirlott, A., and Schmitt, D. P. (in press). Gendered sexual culture. In A. Cohen (Ed.), New directions in the psychology of culture. Washington, DC: American Psychological Association Books.

Schaller, M., and Murray, D. R. (2008). Pathogens, personality, and culture: disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. Journal of Personality and Social Psychology, 95, 212–221.

Schmitt, D. P. (2011). Psychological adaptation and human fertility patterns: Some evidence of human mating strategies as evoked sexual culture. In A. Booth and A. C. Crouter (Eds.), Romance and sex in adolescence and emerging adulthood: Risks and opportunities (pp. 161-170). Mahwah, NJ: Lawrence Erlbaum Associates.

Schmitt, D. P. (2012). Sexual strategies theory and sex differences across cultures: On the adaptive evocation of psychological differences. Presentation to the Society for Experimental Social Psychology, Austin, Texas.

Schmitt, D. P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., . . . Zupaneie,
A. (2003). Are men universally more dismissing than women? Gender differences in romantic attachment across 62 cultural regions. *Personal Relationships, 10*, 307-331.

Schmitt, D. P., Jonason, P. K., Byerley, G. J., Flores, S. D., Illbeck, B. E., O’Leary, K. N., and Qudrat, A. (2012). A reexamination of sex differences in sexuality: New studies reveal old truths. *Current Directions in Psychological Science, 21*, 135-139.

Schmitt, D. P., Realo, A., Voracek, M., and Allik, J. (2008). Why can’t a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. *Journal of Personality and Social Psychology, 94*, 168-182.

Schwartz, S. H., and Rubel-Lifschitz, T. (2009). Cross-national variation in the size of sex differences in values: Effects of gender equality. *Journal of Personality and Social Psychology, 97*, 171-185.

Tooby, J., and Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow, L. Cosmides, and J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 19-136). New York: Oxford University Press.

Tybur, J. M., Bryan, A. D., Lieberman, D., Caldwell Hooper, A. E. and Merriman, L. A. (2011). Sex differences and sex similarities in disgust sensitivity. *Personality and Individual Differences, 51*, 343–348.

Tybur, J. M., and Gangestad, S. W. (2011). Mate preferences and infectious disease: theoretical considerations and evidence in humans. *Philosophical Transactions of the Royal Society B, 366*, 3375-3388.

Zentner, M., and Mitura, K. (2012). Stepping out of the caveman's shadow: Nations' gender gap predicts degree of sex differentiation in mate preferences. *Psychological Science, 23*, 1176-1185.