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Gendered Self-Views Across 62 Countries: A Test of Competing Models

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Abstract

Social role theory posits that binary gender gaps in agency and communion should be larger in *less* egalitarian countries, reflecting these countries' more pronounced sex-based power divisions. Conversely, evolutionary and self-construal theorists suggest that gender gaps in agency and communion should be larger in *more* egalitarian countries, reflecting the greater autonomy support and flexible self-construction processes present in these countries. Using data from 62 countries (N = 28,640) we examine binary gender gaps in agentic and communal self-views as a function of country-level objective gender equality (the Global Gender Gap Index) and subjective distributions of social power (the Power Distance Index). Findings show that in more egalitarian countries, gender gaps in agency are smaller, and gender gaps in communality are larger. These patterns are driven primarily by cross-country differences in men's self-views, and by the PDI more robustly than the GGGI. We consider possible causes and implications of these findings.

Keywords: *communality, agency, self-views, binary sex differences, egalitarianism, gender equality*

Gendered Self-Views Across 62 Countries: A Test of Competing Models

How do women's and men's gendered self-views differ across cultures? Different perspectives offer competing answers to this question. On the one hand, social role theory (Eagly & Steffen, 1984; Wood & Eagly, 2012) posits that binary gender gaps in self-views should be larger in *less* egalitarian countries, reflecting these countries' more pronounced vertical and horizontal gender segregation of occupational and social roles (Eagly et al., 2020). On the other hand, evolutionary theorists (cf. Schmitt et al., 2017) and self-construal theorists (Guimond et al., 2007) suggest gender gaps in gendered self-views should be larger in *more* egalitarian countries, reflecting the greater autonomy and flexible self-construction processes enjoyed in these countries. Here, using data from 62 countries (N = 28,640), we test these competing hypotheses by examining how binary gender gaps in communal and agentic self-views vary with both objective and subjective country-level measures of egalitarianism (the Global Gender Gap Index [GGGI; World Economic Forum, 2020], and the Power Distance Index [PDI; Hofstede, 2010]).

Explaining Gendered Self-Views

Communality and agency are dimensions of human evaluation (cf. Bakan, 1966; Fiske et al., 2002) underlying gender stereotypes and gendered self-views. Stereotypes linking communality to women and agency to men are cross-culturally universal (Bosson et al., 2022; Williams & Best, 1990), as are gender gaps in gendered self-views: Across cultures, women generally rate themselves higher in communal traits than men, and men generally rate themselves higher in agentic traits than women (Williams & Best, 1990). This likely occurs because people derive self-views, in part, by internalizing qualities associated with valued social groups (Tobin et al., 2010; Turner et al., 1987).

And yet, there are individual and cultural differences in the extent to which people internalize gender stereotypes as stable self-views (Biernat et al., 1996; Wood & Eagly,

2012). Of interest here, cultural factors related to egalitarianism are theorized to covary with the size of gender gaps in communal and agentic self-views.

Social Role Theory

According to social role theory (Eagly & Steffen, 1984) and its updates (i.e., biosocial construction theory; Wood & Eagly, 2012), gender gaps in self-views stem distally from sex-based power and labor divisions, mediated through gender socialization processes. To the extent that cultures divide power and labor along gender lines, they should more assiduously socialize girls and boys to adopt traits and preferences that will prepare them for sex-based roles. For example, in contexts that segregate women and men into non-overlapping domestic and breadwinner roles, respectively, girls are socialized to be more communal, and boys to be more agentic. More rigid gender socialization, in turn, encourages internalization of gendered tendencies, producing larger gender gaps in gendered self-views.

Two types of gender segregation may distally drive gender gaps in self-views. Whereas *vertical segregation* is the underrepresentation of women in powerful and high-status roles, *horizontal segregation* is the clustering of women and men in occupations of similar status but differing demands (Charles, 1992; Wong & Charles, 2020). Importantly, both vertical and horizontal segregation should drive gender gaps in self-views insofar as both concentrate men in roles requiring agency and competitiveness and women in roles requiring communality and social skills (Croft et al., 2015; Eagly et al., 2020). Here, however, we focus exclusively on vertical segregation as a predictor, because this type of segregation is captured by country-level indicators of gender equality – such as the GGGI – via measures of women's economic participation and political empowerment (World Economic Forum, 2020). Specifically, because countries lower in gender equality tend to have more traditional sex-based labor divisions (Glick et al., 2000; Wood & Eagly, 2012), we should observe larger gender gaps in gendered self-views in these countries.

Note that this logic may pertain more to agentic than communal self-views (Eagly et al., 2020). In less vertically gender segregated countries, women and men are more equally distributed across high-status roles, which should result in more similar self-views on the agentic traits predictive of success in such roles. In contrast, even in the most gender equal countries, women remain visibly overrepresented in the domestic and caretaking roles that presumably foster communal self-views (e.g., Charmes, 2019). As such, gender gaps in communal self-views may associate relatively weakly with country-level gender equality.

Supporting social role approaches, increases in gender equality are associated with smaller gender gaps in self-views (Donnelly & Twenge, 2017), job attribute preferences (Konrad et al., 2000), sociosexual tendencies (Schmitt, 2005), and mate preferences (Eagly & Wood, 1999; Zentner & Mitura, 2012).

Evolutionary Theories

According to evolutionary theorists (Buss & Schmitt, 1995; Schmitt, 2015), women and men evolved different traits and preferences to solve different adaptive problems in humans' ancestral past. For instance, gender gaps in parental investment (Trivers, 1972) presumably created sexual selection pressures that shaped men's innately higher levels of agentic traits and women's innately higher levels of communal traits (Buss, 1997). Although such gender gaps are universally observed, cultural contexts influence how freely these innate tendencies can be expressed. Presumably, contemporary environments that more closely match the hunter-gatherer environments of early humans should best allow adaptive, innate sex differences to emerge, whereas those that differ markedly from ancestral environments may impede the emergence of evolved sex differences (e.g., Crawford, 1998). Interestingly, some propose that more developed countries – as opposed to more agricultural countries – offer autonomy-supportive ecological and psychological conditions that more closely mimic humans' ancestral environments (Schmitt, 2005). Thus, according to some evolutionary

approaches, we should see larger gender gaps in gendered self-views in more egalitarian countries, as these countries better allow the autonomous expression of women's and men's innate psychological tendencies (Schmitt et al., 2008).

Consistent with this perspective, greater gender equality across cultures is associated with larger gender gaps in personality traits (Costa et al., 2001; Schmitt et al., 2008), behavior preferences (Falk & Hermle, 2018), emotional reactions (Niedenthal et al., 2006), and academic STEM strengths (Stoet & Geary, 2019).

Self-Construal Theories

Combining ideas from social comparison and self-categorization (Turner et al., 1987) theories, the self-construal approach proposes that people acquire self-views via social comparisons to others. However, the groups against whom people compare (e.g., own gender versus other gender) should influence their resulting self-views (Guimond et al., 2007; Guimond et al., 2010). Moreover, the comparison group or standard that people use when reporting their self-views varies with countries' levels of egalitarianism – and more specifically, power distance. In countries higher in power distance (which are less egalitarian), people tend to view intergroup boundaries as stable and impermeable, and they accept hierarchies as legitimate and inevitable; in such countries, people are unlikely to derive self-views from other-gender social comparisons. Conversely, in countries lower in power distance, people tend to reject hierarchies and social inequities; in such countries, gendered self-views more likely arise from other-gender social comparisons.

Consistent with this perspective, lower power distance across five countries predicted larger gender gaps in agentic and communal self-views (Guimond et al., 2007). Further, gender gaps (favoring boys) in math performance are larger in countries lower in power distance, suggesting that the greater self-stereotyping that arises from other-gender comparisons can have consequences for academic outcomes (Hamamura, 2011).

The Present Research

Whereas social role theory (cf. Wood & Eagly, 2012) predicts larger gender gaps in gendered self-views in less egalitarian countries, evolutionary approaches (cf. Schmitt, 2015) and self-construal theorists (cf. Guimond et al., 2010) predict larger gender gaps in more egalitarian countries. Here, we test these approaches by examining gender gaps in communal and agentic self-views across 62 countries.

This project adds to the literature in several ways. First, the inclusion of data from 62 countries makes this the most comprehensive cross-cultural study of gendered self-views to date; prior studies examined between 25 (Williams & Best, 1990) and 55 (Schmitt et al., 2008) countries. Second, the recency of our data collection (2018-2020) allows for an updated test of the universality of gender gaps in communion and agency. Third, we examined the measurement invariance of agency and communion across world regions, thus allowing for meaningful cross-cultural comparison of these constructs' relations with other variables. Note that Hsu et al.'s (2021) recent meta-analysis showed no effect of national gender equality on gender gaps in agency, and a small positive association of national gender equality with gender gaps in communion. However, these researchers did not demonstrate the measurement invariance of communality and agency given their reliance on study-level data. Fourth, we examined gender gaps as a function of both objective and subjective country-level egalitarianism: The GGGI (World Economic Forum, 2020), which captures vertical segregation by indexing objective gender-based disparities in access to resources and power, and the PDI (Hofstede, 2010), which reflects subjective perceptions of general societal power distributions.

These two measures of egalitarianism may, of course, associate differently with gender gaps in self-views insofar as they measure different constructs: Whereas the GGGI indexes objective outcomes that are gender-specific, the PDI indexes subjective beliefs about

power distributions in general. Thus, both social role and evolutionary theories may posit the GGGI as a more direct predictor of women's and men's self-views, given these theories' emphasis on gender as a primary source of difference. Nonetheless, the GGGI and PDI overlap. For instance, countries higher in PDI are also higher in traditional gender ideologies (Glick et al., 2000, 2005), and these in turn function to maintain the stability of country-level gender hierarchies. More broadly, results of a factor analysis of 85 cultural variables showed that GGGI and PDI both load strongly – though in opposite directions – on the same cultural "superfactor" (Fog, 2021), reflecting cultural development and empowerment. Hence, GGGI and PDI both reflect aspects of cultural orientations related to human development. Thus, using both of these variables allows us to test the generalizability and consistency of our effects across both perceived (PDI) and actual (GGGI) country-level egalitarianism.

The hypotheses listed here are pre-registered as confirmatory and exploratory (see OSF: https://osf.io/583ct). First, across cultures, men will rate themselves higher on agency than women (Hypothesis 1), and women will rate themselves higher on communality than men (Hypothesis 2). Next, we ask whether objective and subjective indices of egalitarianism (GGGI and PDI) correlate negatively or positively with the size of gender gaps in communality and agency (Exploratory Question 1). Because gender equality and economic growth are bidirectionally associated (Holter, 2014; Inglehart et al, 2003), we also examine whether patterns observed with the GGGI and PDI remain significant when controlling for country-level wealth (Gross National Income [GNI]; United Nations Development Programme, 2019) (Exploratory Question 2). We also controlled for age in analyses, given different levels of variance in age across the samples.

Method

Participants and Procedure

Data were collected between January 2018 and February 2020 as part of a large cross-cultural project (see OSF: *https://osf.io/fqd4p*). Participants were undergraduate students who volunteered their time and (in most countries) received no compensation. IRB approval was obtained at each institution when required, and all participants gave informed consent. Participants completed a set of scales that measured more variables than those described here (see https://osf.io/7tza3). Order of measures was randomized and data were collected via SurveyMonkey or Qualtrics (in rare cases, participants completed paper surveys). From the initial sample (N = 34,023), we removed records from 5,185 individuals who failed more than 1 of 3 attention checks or provided incomplete data. This yielded a final sample of N = 28,640 respondents (37% self-identified men) from 62 countries. Information on sample composition appears in Table 1.

Measures

Bilingual scholars used the back-translation procedure (Van de Vijver & Leung, 2021) to create 29 language versions of the surveys below.

Agency and Communality

Participants indicated the extent to which 12 agentic traits and 12 communal traits described them on scales of 1 (*does not describe me at all*) to 7 (*describes me well*). Traits were selected from a pool of 472 prescriptive gender stereotypes (see supplementary material, Table S1 and https://osf.io/7tza3) (cf. Prentice & Carranza, 2002; Rudman et al., 2009; Williams & Best, 1990).

Global Gender Gap Index (GGGI)

The GGGI (World Economic Forum, 2020) benchmarks women's disadvantage, relative to men's, in economic, education, health, and political arenas. Thus, GGGI reflects

cross-cultural variation in vertical segregation (Wong & Charles, 2020), with scores ranging from 0 (gender disparity) to 1 (gender parity).

Power Distance Index (PDI)

The PDI (Hofstede, 2011) measures the extent to which less powerful members of institutions and organizations within a country expect and accept unequal power distributions. It is measured with a scale that runs roughly from 0 to 100.

Gross National Income (GNI)

Gross National Income (GNI; United Nations Development Programme, 2019) is the nation-level standard of living per capita adjusted for the price level of the country.

Results

Table 1 shows the country-level indicators (GGGI, PDI, and GNI) for each country. Moreover, as detailed in the supplementary materials (see Table S2), communal and agentic items displayed acceptable internal consistency reliabilities in all countries and the measures of agency and communion demonstrated adequate measurement invariance across world regions. It is therefore appropriate to compare these scores across countries. Table 2 shows mean communality and agency scores by country, split by gender within country, and for the total sample.

Table 1

Sample Composition and Country-Level Indicators for Each Country

Country	*N*	% Male	M_{Age}	SD_{Age}	PDI	GGGI	GNI
Albania	215	39	23.15	5.06	0.90	0.769	14 350
Argentina	345	48	32.58	12.22	0.49	0.746	22 060
Armenia	187	59	20.04	1.90	0.85	0.684	14 460
Australia	614	34	29.75	11.13	0.36	0.731	51 560
Belgium	1 681	47	21.52	5.92	0.65	0.750	54 730
Bosnia	179	49	22.95	5.75	0.90	0.712	15 770
Brazil	963	32	23.81	7.46	0.69	0.691	14 850
Canada	883	31	19.84	2.90	0.39	0.772	50 810
Chile	128	41	21.63	4.89	0.63	0.723	24 140
China	520	36	19.48	1.97	0.80	0.676	16 740
Colombia	539	39	21.49	5.05	0.67	0.758	15 150

Croatia	290	24	23.32	6.02	0.73	0.720	29 520
Czechia	365	74	27.91	8.15	0.57	0.706	40 660
Denmark	239	39	25.44	4.81	0.18	0.782	61 410
England	671	40	22.30	7.46	0.35	0.767	48 040
Finland	277	12	26.17	6.97	0.33	0.832	51 210
France	366	19	22.28	6.72	0.68	0.781	50 390
Georgia	157	53	21.83	3.33	0.65	0.708	15 020
Germany	1 257	36	29.76	10.37	0.35	0.787	57 690
Ghana	276	40	20.25	2.59	0.80	0.673	5 510
Greece	256	26	26.23	8.99	0.60	0.701	31 350
Hungary	656	18	22.36	4.25	0.46	0.677	32 750
India	332	38	22.14	5.14	0.77	0.668	6 960
Indonesia	217	47	21.02	3.96	0.78	0.700	11 930
Iran	160	40	29.21	8.31	0.58	0.584	–
Ireland	533	47	19.83	3.75	0.28	0.798	68 050
Italy	2 215	34	22.79	5.22	0.50	0.707	44 580
Japan	196	41	21.67	3.72	0.54	0.652	44 780
Kazakhstan	336	44	20.21	3.83	0.88	0.710	24 050
Kosovo	372	41	20.35	3.97	0.90	0.769	14 350
Lebanon	115	30	19.64	0.80	0.80	0.599	15 260
Lithuania	283	32	24.06	6.93	0.42	0.745	37 010
Luxembourg	174	35	24.56	5.32	0.40	0.725	77 570
Malta	235	34	26.83	9.84	0.56	0.693	41 690
Mexico	268	49	23.90	9.04	0.81	0.754	19 810
Morocco	253	46	29.28	9.55	0.70	0.605	7 680
Nepal	185	37	22.36	5.45	0.65	0.680	3 600
Netherlands	823	32	20.60	3.40	0.38	0.736	59 890
New Zealand	214	29	19.01	2.34	0.22	0.799	42 710
Nigeria	395	44	21.20	3.08	0.77	0.635	5 170
Northern Ireland	284	38	22.14	5.52	0.35	0.767	48 040
Norway	191	47	23.00	3.86	0.31	0.842	69 610
Pakistan	372	45	22.14	3.72	0.55	0.564	5 210
Philippines	417	49	19.77	2.09	0.94	0.781	10 200
Poland	729	44	22.98	4.73	0.68	0.736	32 710
Portugal	157	17	22.12	4.92	0.63	0.744	35 600
Romania	225	42	22.78	4.49	0.90	0.724	31 860
Russia	629	33	21.89	6.94	0.93	0.706	28 270
Serbia	617	25	22.12	5.14	0.86	0.736	17 960
Slovakia	516	48	21.95	4.49	1.00	0.718	33 680
South Africa	353	41	20.62	2.55	0.49	0.780	12 630
Spain	1 025	37	25.55	8.57	0.57	0.795	42 300
Suriname	153	47	22.90	5.89	0.85	0.707	15 200
Sweden	609	47	26.09	7.03	0.31	0.820	57 300
Switzerland	538	35	23.43	5.20	0.34	0.779	72 390
Turkey	1 364	32	22.28	4.06	0.66	0.635	27 410
UAE	443	35	20.00	1.34	0.80	0.655	70 240

Ukraine	258	35	19.16	1.43	0.92	0.721	13 750
Uruguay	157	40	22.71	6.70	0.61	0.737	21 120
USA	684	31	20.34	4.36	0.40	0.724	65 880
Vietnam	358	26	22.38	6.68	0.70	0.700	7 750
Wales	191	34	30.34	10.31	0.35	0.767	48 040
Total sample	**28,640**	**37**	**23.05**	**6.82**	–	–	–

Notes. PDI = Power Distance Index, GGGI = Global Gender Gap Index, GNI = Gross National Income per capita

Table 2

Descriptive Statistics and Gender Comparision for Agency and Communality for Each Country

Country	Self-ratings on Agency						*t*	*Cohen's d*	Self-ratings on Communality						*t*	*Cohen's d*
	All		Male		Female				All		Male		Female			
	M	*SD*	*M*	*SD*	*M*	*SD*			*M*	*SD*	*M*	*SD*	*M*	*SD*		
Albania	5.19	0.93	5.35	0.95	5.08	0.91	2.11*	0.30	5.48	0.97	5.00	1.11	5.78	0.73	-5.69**	0.87
Argentina	4.84	0.97	4.87	0.93	4.82	1.01	0.43	0.05	5.12	0.90	5.00	0.93	5.23	0.85	-2.41*	0.26
Armenia	5.08	0.95	5.16	1.04	4.98	0.81	1.30	0.19	5.17	0.95	5.02	1.02	5.39	0.79	-2.82**	0.40
Australia	4.99	0.89	5.02	0.98	4.98	0.85	0.51	0.05	5.52	0.82	5.24	0.87	5.66	0.76	-5.85**	0.52
Belgium	4.71	0.82	4.82	0.83	4.62	0.80	4.91**	0.24	5.26	0.79	5.09	0.83	5.41	0.73	-8.59**	0.42
Bosnia	5.08	0.91	5.38	0.78	4.78	0.93	4.66**	0.70	5.50	0.76	5.37	0.69	5.64	0.81	-2.39*	0.36
Brazil	4.88	0.97	4.98	0.92	4.83	0.99	2.22*	0.15	5.23	0.81	5.03	0.78	5.33	0.80	-5.46**	0.37
Canada	4.95	0.92	5.10	0.97	4.89	0.88	3.02**	0.23	5.44	0.88	5.22	0.90	5.55	0.85	-5.12**	0.38
Chile	5.12	1.01	5.03	0.98	5.18	1.03	-0.79	0.14	5.50	1.03	5.35	0.90	5.61	1.11	-1.46	0.25
China	4.41	0.92	4.54	1.04	4.33	0.83	2.35*	0.23	5.10	0.79	4.98	0.88	5.17	0.72	-2.57**	0.25
Colombia	4.91	0.98	4.98	1.04	4.86	0.93	1.32	0.12	5.12	0.90	5.01	0.87	5.19	0.91	-2.33*	0.20
Croatia	4.83	0.92	5.06	0.99	4.76	0.88	2.19*	0.32	5.67	0.71	5.37	0.71	5.77	0.68	-4.08**	0.58
Czechia	4.72	0.89	4.74	0.91	4.67	0.83	0.75	0.09	5.13	0.82	4.99	0.80	5.52	0.74	-5.95**	0.69
Denmark	4.97	0.76	5.07	0.60	4.91	0.84	1.74	0.22	5.28	0.95	4.62	0.95	5.71	0.67	-9.70**	1.39
England	4.76	0.86	4.83	0.90	4.72	0.83	1.56	0.12	5.38	0.79	5.12	0.85	5.56	0.70	-7.04**	0.58
Finland	4.66	0.94	4.55	1.00	4.67	0.93	-0.67	0.13	5.17	0.83	4.57	0.99	5.26	0.78	-3.81**	0.85
France	4.52	0.87	4.61	0.82	4.49	0.88	1.00	0.13	5.44	0.79	5.10	0.82	5.52	0.76	-3.84**	0.54
Georgia	4.91	1.05	4.85	1.02	4.98	1.08	-0.79	0.13	5.41	0.99	5.05	1.03	5.81	0.77	-5.21**	0.82
Germany	4.82	0.84	4.83	0.83	4.81	0.84	0.30	0.02	5.30	0.79	5.05	0.78	5.43	0.77	-8.54**	0.49
Ghana	5.50	1.04	5.60	1.00	5.44	1.06	1.27	0.16	5.78	0.85	5.60	0.79	5.90	0.87	-2.96**	0.36
Greece	4.85	0.94	4.93	0.84	4.83	0.98	0.82	0.11	5.73	0.75	5.34	0.80	5.86	0.69	-4.71**	0.72
Hungary	4.70	0.91	4.71	0.95	4.70	0.90	0.08	0.01	5.50	0.81	5.12	0.93	5.58	0.76	-5.02**	0.58
India	5.42	0.85	5.47	0.84	5.40	0.86	0.76	0.09	5.69	0.74	5.52	0.72	5.79	0.74	-3.34**	0.38
Indonesia	5.09	0.86	5.17	0.89	5.01	0.83	1.39	0.19	5.55	0.69	5.62	0.69	5.49	0.69	1.36	0.19
Iran	4.71	1.00	4.92	1.07	4.57	0.93	2.11*	0.35	5.37	0.84	5.31	0.82	5.42	0.85	-0.80	0.13
Ireland	5.03	0.88	5.12	0.91	4.96	0.85	2.04*	0.18	5.18	0.80	4.98	0.79	5.36	0.76	-5.54**	0.48
Italy	4.75	0.93	4.81	0.93	4.72	0.94	2.25*	0.10	5.30	0.83	5.08	0.86	5.41	0.79	-8.89**	0.41
Japan	3.54	1.05	3.59	1.04	3.50	1.05	0.64	0.09	4.76	0.82	4.74	0.87	4.78	0.80	-0.33	0.05
Kazakhstan	4.75	0.99	4.84	0.96	4.68	1.02	1.52	0.17	5.28	0.87	5.07	0.85	5.44	0.85	-3.90**	0.43
Kosovo	5.35	0.99	5.52	0.88	5.24	1.05	2.74**	0.28	5.69	0.82	5.54	0.86	5.80	0.77	-3.04**	0.33
Lebanon	5.14	0.86	5.26	0.69	5.09	0.92	1.09	0.20	5.66	0.84	5.42	1.03	5.76	0.73	-1.75	0.41

Lithuania	4.51	0.98	4.47	1.00	4.53	0.98	-0.51	0.07	5.24	0.87	4.79	0.83	5.46	0.80	-6.37**	0.82
Luxembourg	5.20	0.83	5.28	0.83	5.15	0.83	1.00	0.16	5.57	0.73	5.40	0.77	5.66	0.69	-2.20*	0.36
Malta	5.03	0.91	5.01	1.05	5.05	0.83	-0.23	0.03	5.56	0.81	5.39	0.89	5.64	0.75	-2.16*	0.31
Mexico	5.24	0.89	5.48	0.82	5.02	0.89	4.38**	0.54	5.49	0.79	5.41	0.74	5.57	0.82	-1.65	0.20
Morocco	5.72	1.15	5.82	1.19	5.63	1.12	1.34	0.17	5.75	0.99	5.58	1.10	5.90	0.86	-2.51**	0.32
Nepal	4.88	1.04	5.00	1.07	4.81	1.02	1.18	0.18	5.50	0.84	5.33	0.89	5.59	0.80	-2.02*	0.32
Netherlands	4.72	0.73	4.83	0.78	4.67	0.70	2.72**	0.21	5.38	0.67	5.19	0.66	5.47	0.66	-5.75**	0.43
New Zealand	4.96	0.85	5.04	0.78	4.93	0.87	0.89	0.13	5.57	0.78	5.30	0.81	5.68	0.75	-3.24**	0.50
Nigeria	5.59	1.00	5.63	0.97	5.56	1.03	0.70	0.07	5.80	0.95	5.73	0.93	5.86	0.96	-1.36	0.14
Northern Ireland	4.89	0.93	5.00	1.00	4.83	0.88	1.44	0.18	5.42	0.89	4.98	0.90	5.70	0.76	-6.94**	0.88
Norway	4.64	0.78	4.79	0.77	4.52	0.76	2.43*	0.35	5.16	0.78	4.96	0.81	5.33	0.71	-3.35**	0.49
Pakistan	5.07	0.99	5.15	0.79	5.00	1.12	1.45	0.15	5.45	0.96	5.07	1.02	5.76	0.78	-7.21**	0.77
Philippines	5.09	0.88	5.09	0.91	5.10	0.85	-0.19	0.02	5.46	0.80	5.39	0.84	5.53	0.74	-1.80	0.18
Poland	4.66	0.90	4.82	0.91	4.53	0.88	4.43**	0.33	5.21	0.85	5.04	0.87	5.34	0.81	-4.79**	0.36
Portugal	4.96	0.81	5.27	0.84	4.90	0.80	2.11*	0.46	5.47	0.67	5.22	0.60	5.52	0.67	-2.37*	0.46
Romania	5.33	0.89	5.39	0.86	5.28	0.91	0.85	0.11	5.61	0.78	5.38	0.81	5.77	0.72	-3.72**	0.51
Russia	4.44	0.97	4.62	1.00	4.36	0.95	3.07**	0.27	5.24	0.82	5.01	0.85	5.35	0.79	-4.80**	0.42
Serbia	5.09	1.01	5.19	0.94	5.06	1.03	1.47	0.13	5.59	0.91	5.12	0.87	5.74	0.87	-7.68**	0.71
Slovakia	4.62	1.03	4.71	1.03	4.53	1.02	1.98*	0.17	5.24	0.89	5.04	0.86	5.42	0.88	-5.07**	0.45
South Africa	5.20	0.90	5.25	0.97	5.17	0.84	0.79	0.09	5.41	0.87	5.18	0.80	5.56	0.88	-4.19**	0.45
Spain	4.88	0.87	4.92	0.84	4.86	0.89	1.11	0.07	5.32	0.75	5.11	0.75	5.44	0.73	-6.97**	0.46
Suriname	4.93	0.95	4.93	0.81	4.92	1.06	0.01	0.00	5.54	0.79	5.32	0.86	5.73	0.68	-3.19**	0.53
Sweden	4.81	0.84	4.76	0.85	4.86	0.83	-1.50	0.12	5.16	0.79	4.91	0.80	5.39	0.71	-7.81**	0.64
Switzerland	4.83	0.83	4.89	0.88	4.80	0.81	1.17	0.11	5.39	0.76	5.12	0.78	5.54	0.71	-6.15**	0.58
Turkey	4.75	1.06	4.99	1.01	4.63	1.06	6.07**	0.35	5.47	0.80	5.36	0.83	5.51	0.78	-3.17**	0.19
UAE	4.94	0.96	5.01	0.92	4.90	0.98	1.21	0.12	5.44	0.83	5.23	0.76	5.55	0.84	-4.00**	0.39
Ukraine	4.86	0.87	5.07	0.89	4.75	0.85	2.75**	0.37	4.94	0.84	4.74	0.89	5.04	0.80	-2.73**	0.37
Uruguay	4.82	0.92	4.98	0.95	4.71	0.88	1.74	0.29	5.47	0.72	5.26	0.77	5.61	0.65	-2.93**	0.50
USA	5.05	0.94	5.13	0.89	5.02	0.96	1.52	0.12	5.48	0.87	5.23	0.84	5.59	0.86	-5.19**	0.43
Vietnam	4.32	1.01	4.49	0.96	4.26	1.02	1.97	0.23	5.29	0.79	5.17	0.79	5.33	0.79	-1.66	0.20
Wales	4.86	1.01	4.83	1.13	4.88	0.95	-0.26	0.04	5.35	1.04	4.85	1.06	5.61	0.93	-4.89**	0.78
Total sample	**4.86**	**0.96**	**4.95**	**0.96**	**4.80**	**0.95**	**13.12****	**0.20**	**5.37**	**0.84**	**5.14**	**0.86**	**5.50**	**0.80**	**-34.53****	**0.43**

Notes. ** $p < 0.01$, * $p < 0.05$

Primary Analyses

Given that the measures of agency and communion demonstrated adequate measurement invariance, multilevel modelling (MLM) is appropriate. We thus used MLM to test eight models predicting agency self-views (Models 1A-8A) and eight models predicting communion self-views (Models 1C-8C; see Table 3). Models 1A and 1C were baseline models with no predictors, used to calculate intraclass correlations (ICCs). Models 2A and 2C included individual-level variables (gender and age), and Models 3A, 3C, 4A, and 4C included country-level variables as separate predictors (GGGI in 3A and 3C, and PDI in 4A and 4C). Next, we included cross-level interaction effects of Gender-by-GGGI (see Models 5A and 5C) and Gender-by-PDI (see Models 6A and 6C). In Models 7A and 7C, we included both of the cross-level interaction effects simultaneously to examine their unique effects, and in Models 8A and 8C we added GNI as a covariate. In all models, we included random slopes for gender. We used the lavaan (Rosseel, 2012) and lme4 (Bates et al., 2015) packages in the R environment (R Core Team, 2020). Table 4 displays the fit indices for all models.

Table 3

Multilevel Models Predicting Agency and Communality Self-Views

Model type	Predictor	Self-views on Agency								Self-views on Communality							
		Model 1A	Model 2A	Model 3A	Model 4A	Model 5A	Model 6A	Model 7A	Model 8A	Model 1C	Model 2C	Model 3C	Model 4C	Model 5C	Model 6C	Model 7C	Model 8C
Baseline	*Intercept*	4.91**	4.52**	4.96**	4.33**	4.79**	4.35**	4.33**	6.15**	5.41**	5.46**	6.24**	5.30**	5.96**	5.39**	5.88**	6.64**
Individual-level variables (L1)	Age	–	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**	–	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**
	Gender (male)	–	0.13**	0.13**	0.13**	0.54**	0.01	0.22	0.15	–	-0.37**	-0.37**	-0.37**	0.28	-0.56**	-0.16	-0.29
Country-level variables (L2)	GGGI	–	–	-0.61	–	-0.38	–	0.03	0.71	–	–	-1.08*	–	-0.69	–	-0.63	-0.45
	PDI	–	–	–	0.41*	-	0.26	0.27	-0.10	–	–	–	0.26*	-	0.11	0.04	-0.11
	Log (GNI per capita)	–	–	–	–	–	–	–	-0.47**	–	–	–	–	–	–	–	-0.18
Cross-levels interaction component	Gender x GGGI	–	–	–	-	-0.57*	–	-0.28	-0.21	–	–	–	-	-0.90*	–	-0.50	-0.35
	Gender x PDI	–	–	–	–	–	0.23**	0.20**	0.21**	–	–	–	–	–	0.31**	0.23*	0.27*
Random effects	Residual	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.80
	Gender random slope	0.16	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.41	0.16	0.16	0.16	0.15	0.15	0.15	0.14
	Intercept	0.32	0.32	0.32	0.32	0.32	0.31	0.31	0.29	0.24	0.20	0.20	0.20	0.20	0.20	0.20	0.19

Notes. Number of observations = 28,640; Number of countries = 62. Models 7A/C and 8A/C were tested on 61 countries and 28,480 observations. * $p < 0.05$; ** $p < 0.01$.

Table 4

Multilevel Models' Fit Indices

Model	Type	Description	Self-views on Agency (Models A)				Self-views on Communality (Models C)			
			Δ df	- 2 log likelihood	AIC	L. Ratio	Δ df	- 2 log likelihood	AIC	L. Ratio
1A/C	Baseline	Individuals nested within their country with no other predictors	–	76729	76739	–	–	69253	69263	–
2A/C	Random coefficient and fixed predictors	Individual-level variables: Age and Gender	2	76402	76416	327**	2	69138	69152	116**
3A/C		Individual and country level variables: Age, Gender, GGGI	0	76401	76417	1	0	69132	69148	6*
4A/C		Individual and country level variables: Age, Gender, PDI	0	76399	76414	4*	0	69134	69150	4*
5A/C		Individual (Age, Gender) and country level (GGGI) variables and cross-levels interaction (Gender x GGGI)	1	76397	76415	4*	1	69127	69145	5*
6A/C		Individual (Age, Gender) and country level (PDII) variables and cross-levels interaction (Gender x PDI)	1	76388	76406	10*	1	69125	69143	8*
7A/C		Individual (Age, Gender) and country level (GGGI, PDI) variables and cross-levels interactions (Gender x GGGI, Gender x PDI)	1	76387	76409	1	1	69120	69142	5*
8A/C		Individual (Age, Gender) and country level (GGGI, PDI, GNI per capita) variables and cross-levels interactions (Gender x GGGI, Gender x PDI)	–	75929	75953	– [a]	–	68718	68742	– [a]

Notes. AIC = Akaike's information criteria; GGGI = Global Gender Gap Index; PDI = Power Distance Index; GNI = Gross National Income per capita. Models 8A/C were tested on 61 countries and 28,480 observations, $p < 0.05$; ** $p < 0.01$.

Sex Differences in Agentic Self-Views

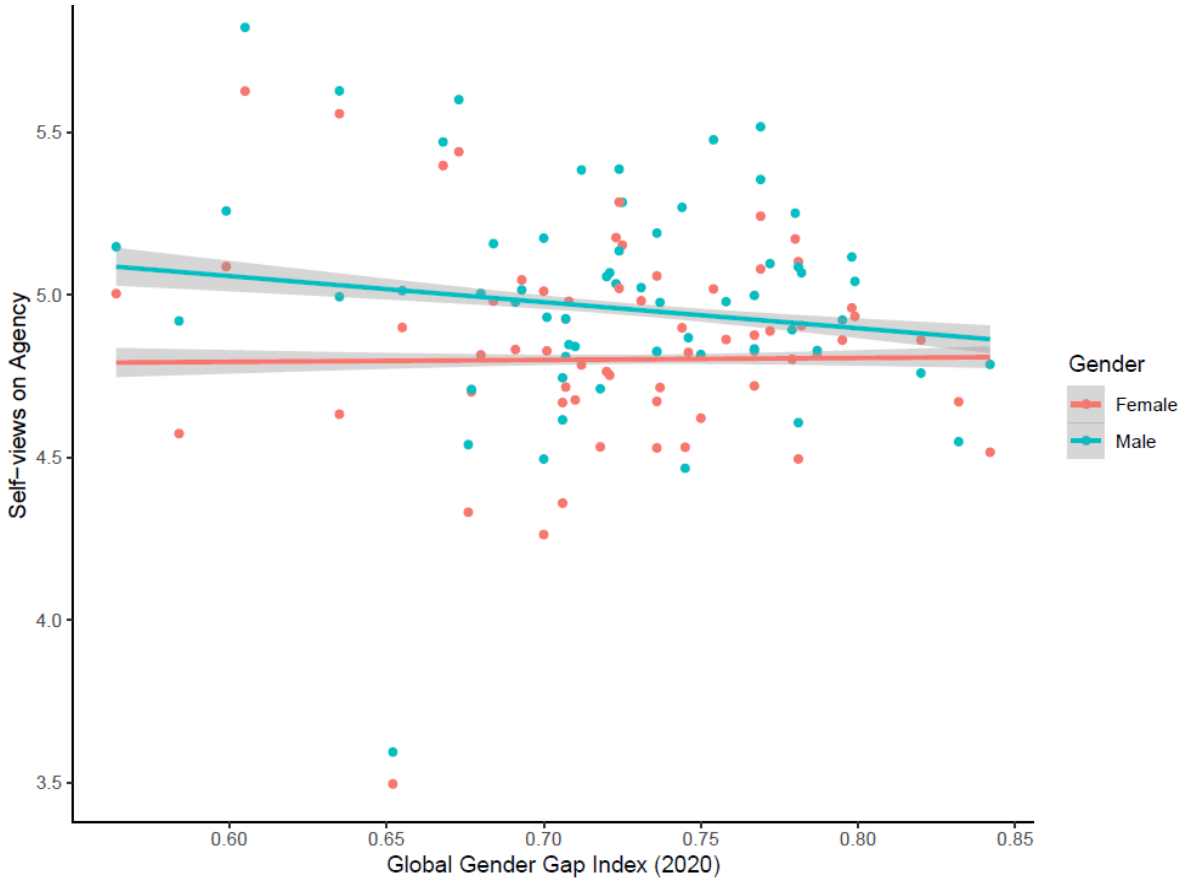
In Model 1A, 11% of the variance in agency was explained by country (ICC = 0.11), indicating a multilevel approach was appropriate (Dyera et al., 2005). Next, in support of Hypothesis 1, there was a main effect of gender such that men described themselves as more agentic than women (see Tables 3 and 4, Model 2A). However, analyses of gender gaps in agency by country (see Table 2) yielded significant differences in only 20 out of 62 (32%) countries. Moreover, the whole sample effect size was small (d = .20). Thus, we found partial support for Hypothesis 1.

Models 5A and 6A tested Exploratory Question 1 by examining interactions of gender with GGGI and PDI predicting agentic self-views. First, as shown in Tables 3 and 4 (see Model 5A) and illustrated in Figure 1[1], the Gender-by-GGGI interaction was significant such that gender gaps in agency were smaller in countries higher in GGGI. This pattern was driven primarily by men: We found insufficient evidence to indicate that women's agency differed by GGGI (B = 0.19, p = 0.15), whereas men reported significantly lower agency in countries higher in GGGI (B = -0.64, p < 0.01). Similarly, the Gender-by-PDI interaction was significant (see Tables 4 and 5, Model 6A). As shown in Figure 2, gender gaps in agency were smaller in countries lower in PDI, and again, the pattern was driven more by men than women: We found no evidence that women's agency differed by PDI (B = -0.001, p = 0.94), while men reported significantly lower agency in countries lower in PDI (B = 0.27, p < 0.01). Thus, on both objective and subjective country-level indices, gender gaps in agentic self-views were smaller when egalitarianism was higher. These patterns are consistent with social role theory's assumption that reductions in vertical segregation should lead to greater similarity of women's and men's agentic self-views.

1 See the supplementary materials for Figures S1-S4, which illustrate women's and men's average agentic and communal self-views, with countries ordered from low to high in GGGI and PDI.

Figure 1

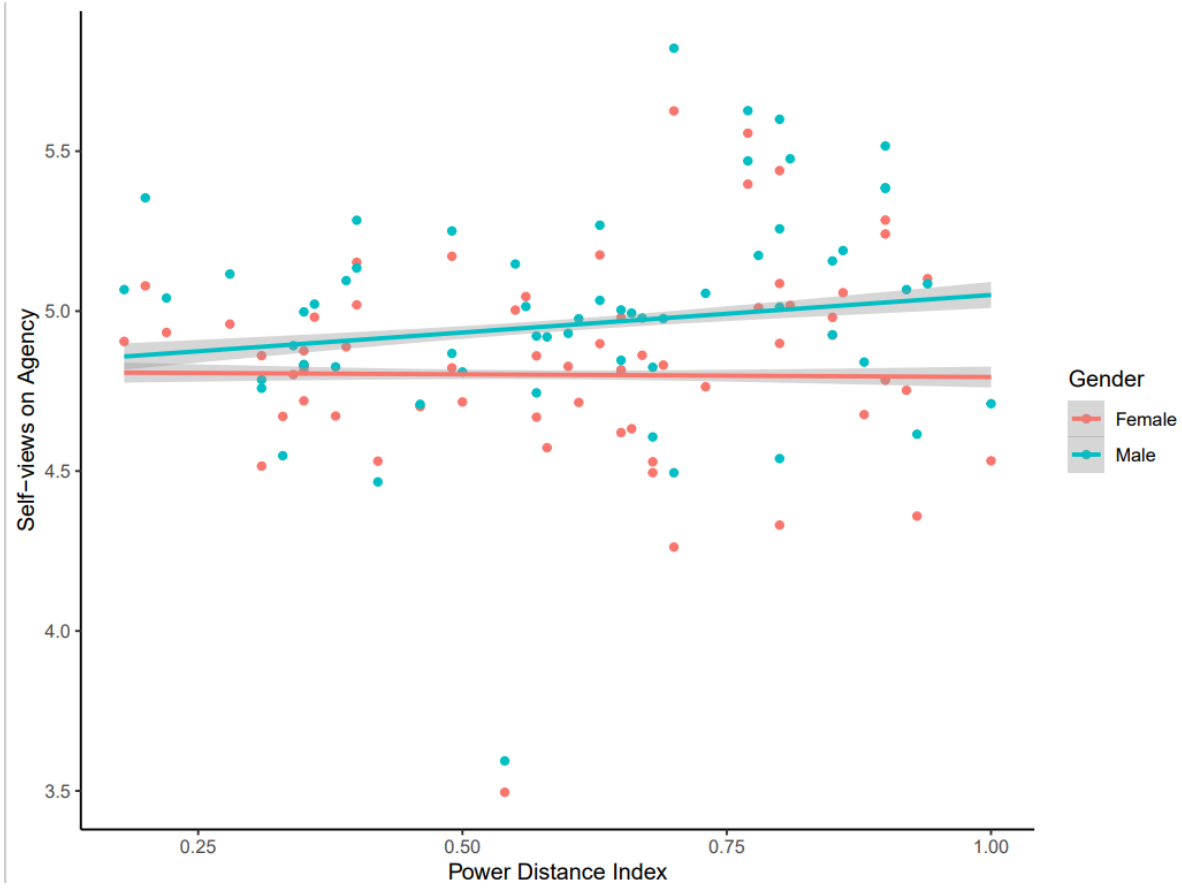
GGGI Predicts Country-Level Binary Gender Gaps in Agentic Self-Views



Note. Dots are mean raw agency self-views for each gender in each country. Lines are simple regression lines.

Figure 2

PDI Predicts Country-Level Binary Gender Gaps in Agentic Self-Views



Note. Dots are mean raw agency self-views for each gender in each country. Lines are simple regression lines.

When we included both of the cross-level interaction effects simultaneously to examine their unique effects (Model 7A), the Gender-by-GGGI interaction was no longer significant but the Gender-by-PDI interaction remained significant (see Table 3). The Gender-by-PDI interaction also remained significant when we added GNI as a covariate (Model 8A).

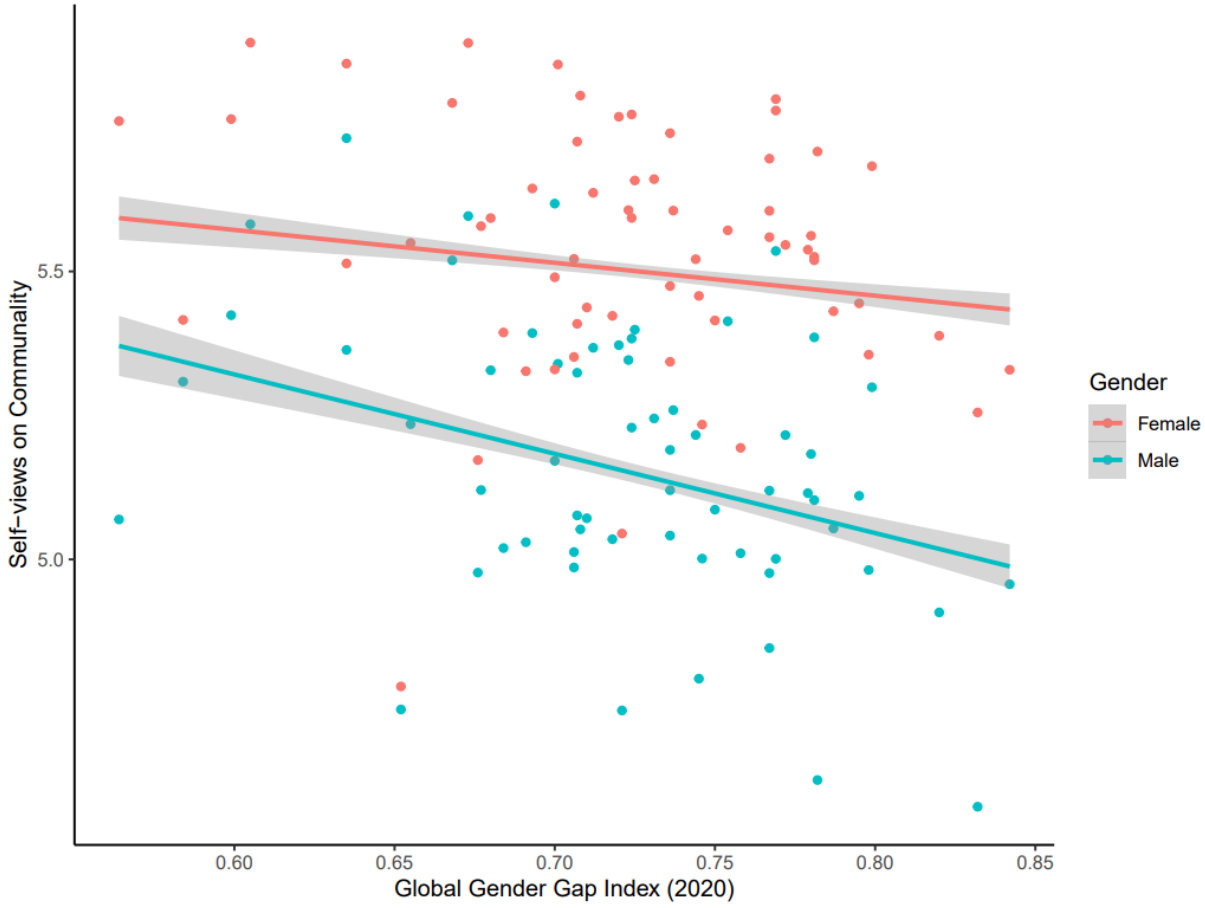
Sex Differences in Communal Self-Views

In Model 1C, 5% of the variance in communality was explained by country (ICC = 0.05), indicating that a multilevel approach was suitable. Strongly supporting Hypothesis 2, a main effect of gender emerged (see Tables 3 and 4, Model 2C). Women described themselves as more communal than men in 53 of 62 (85%) countries, with a medium whole sample effect size of d = .43 (see Table 2).

Exploratory Question 1 was tested in Models 5C and 6C via interactions of gender with GGGI and PDI predicting communal self-views. As shown in Tables 3 and 4 (Model 5C) and illustrated in Figure 3, there was a significant Gender-by-GGGI interaction. Gender gaps in communality were larger in countries higher in GGGI, driven by a (weaker) negative association of women's communality (B = -0.42, p < 0.01), and by a (stronger) negative association of men's communality (B = -1.23, p < 0.01), with country-level GGGI. Similarly, the Gender-by-PDI interaction was significant (see Tables 3 and 4, Model 6C). As illustrated in Figure 4, gender gaps in communality were larger in countries lower in PDI, and this pattern was driven by men: We found no evidence that women's communality differed by PDI (B = 0.002, p = 0.93), whereas men reported significantly lower communality in countries lower in PDI (B = 0.34, p < 0.01). Thus, on both objective and subjective country-level indices, gender gaps in communal self-views were larger when cultural egalitarianism was higher. These patterns are consistent with the evolutionary and self-construal approaches.

Figure 3

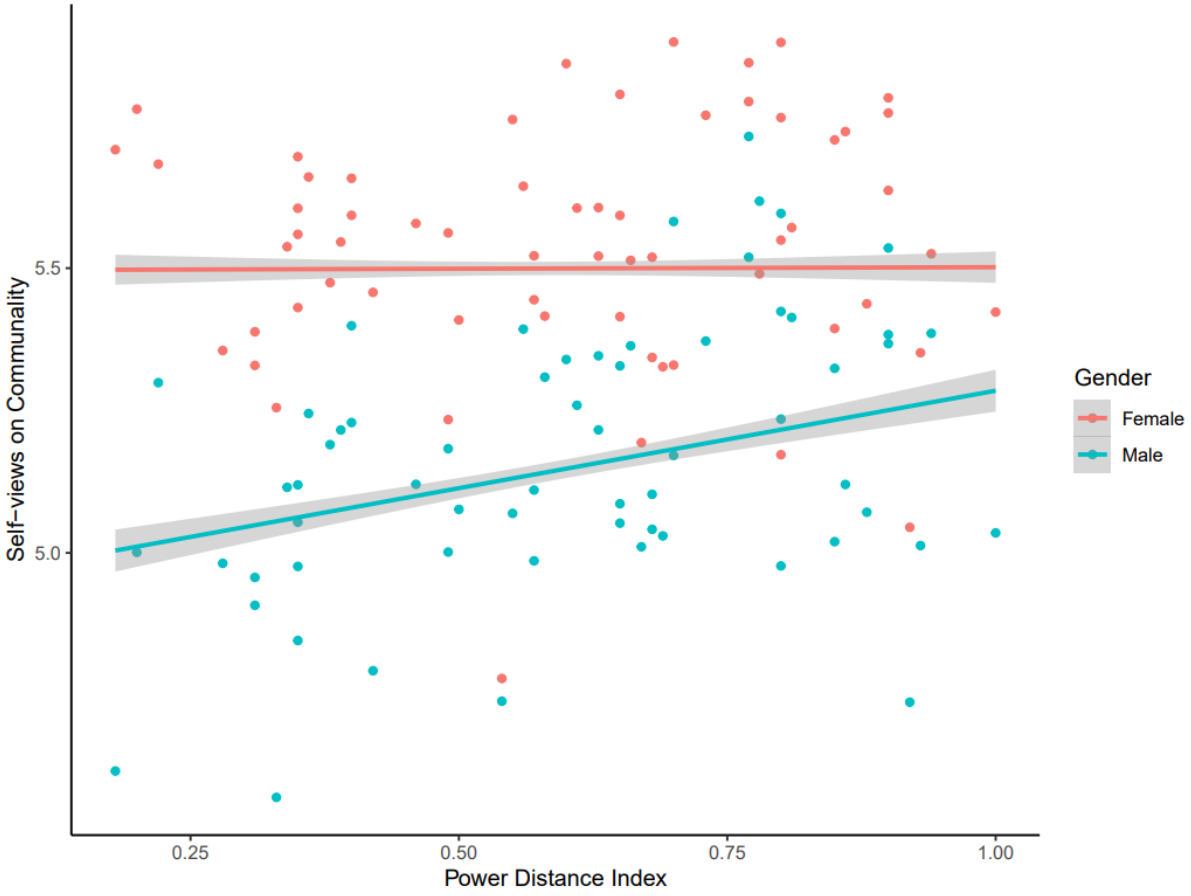
GGGI Predicts Country-Level Binary Gender Gaps in Communal Self-Views



Note. Dots are mean raw communality self-views for each gender in each country. Lines are simple regression lines.

Figure 4

PDI Predicts Country-Level Binary Gender Gaps in Communal Self-Views



Note. Dots are mean raw communality self-views for each gender in each country. Lines are simple regression lines.

When we included both of the cross-level interaction effects simultaneously to examine their unique effects (Model 7C), the Gender-by-GGGI interaction became non-significant but the Gender-by-PDI interaction remained significant (see Table 3). The Gender-by-PDI interaction also remained significant when we added GNI as a covariate in Model 8C.

Discussion

Across 62 countries, we examined the universality of gendered self-views, and tested two models of the links between gender gaps in gendered self-views and country-level egalitarianism. Consistent with our expectations and past cross-cultural investigations (e.g., Williams & Best, 1990), women all over the world view themselves higher in communality than men. Men, conversely, view themselves higher in agency than women. However, this latter sex difference is less consistent across countries than is the sex difference in communal self-views. Thus, whereas women's greater self-perceived communality is universal, men's greater agency is a much more variable phenomenon. Given the limited movement of men into domestic and caregiving roles, and the continued predominance of women in these communal activities (Croft et al., 2015), women clearly still view themselves as more communal than men.

Next, using both objective (GGGI) and subjective (PDI) indices, we examined the size of gender gaps in agentic and communal self-views as a function of country-level egalitarianism. Here, we found that gender gaps in agency were smaller, whereas gender gaps in communality were larger, in countries higher in gender equality and lower in power distance. These patterns emerged consistently across both the GGGI and PDI in models that examined these country-level predictors separately. However, in models that entered both country-level predictors simultaneously, only subjective egalitarianism (PDI) uniquely predicted gender gaps in gendered self-views. That is, we found no evidence that GGGI interacted with gender to predict self-views when PDI was in the model. This suggests that

objective gender equality's shared variance with PDI accounts for its associations with self-views in our analyses, a finding that bears further scrutiny. In contrast, subjective perceptions of power distance capture something that goes beyond both objective gender equality and wealth.

How can we explain the seemingly contradictory tendency for more egalitarian countries to be associated with smaller gender gaps in agency and larger gender gaps in communality? On one hand, these patterns may be explained by social role theory (cf. Wood & Eagly, 2012), if we consider how self-views are shaped by both vertical and horizontal gender inequality (only the former of which was measured here). Eagly and colleagues (2020) found that stereotypes regarding women's communality advantage increased in the U.S. from 1946 to 2018, while stereotypes regarding men's agency advantage declined weakly and non-significantly. To explain this, Eagly et al. suggested that reductions in vertical segregation decreased men's agency advantage as U.S. women increasingly entered high-status and leadership positions over time. Concurrently, women's communality advantage increased due to women's continued overrepresentation in domestic roles, combined with increasing levels of horizontal gender segregation as women concentrated into female-dominated occupational subfields such as education or health care (Charles & Bradley, 2009).

Applying this logic to the current findings, perhaps gender gaps in agency decline with country-level differences in PDI (which indexes vertical segregation), while sex differences in communality increase with country-level differences in horizontal segregation. Even in the most egalitarian countries, domestic roles remain markedly gender segregated, with women doing most of this work regardless of whether they work outside the home (Croft et al., 2015; Kan et al., 2011). And these gender disparities in domestic responsibilities may be especially salient in more egalitarian countries, as they challenge expectations of equality. Moreover, countries higher in egalitarianism may, curiously, be higher in horizontal segregation (Jarman

et al., 1999). If so, this may help explain the larger gender gaps in communal self-views observed in more egalitarian countries. Note that in Hsu et al.'s (2021) meta-analysis of gender gaps in agency and communion, they found a weak tendency for national gender equality to predict a larger gender gap in communion (as we did here), but this effect was no longer significant when they controlled for horizontal segregation in a small subset of countries. Instead, only horizontal segregation uniqely predicted gender gaps in communion. Thus, it is plausible that different types of segregation predict gender gaps in agency versus communion. Unfortunately, a strong test of this hypothesis requires a cross-culturally validated measure of horizontal segregation, which to our knowledge does not exist. Another issue that must await future tests was our finding that gender gaps in agency and communion across countries were driven primarily by men's self-views, a pattern which is inconsistent with social role theory.

On the other hand, proponents of the evolutionary approach would argue that our findings for communality – i.e., larger gender gaps in more egalitarian, lower power distance countries – are consistent with assumptions about evolved adaptations that are more freely expressed in more developed countries (Schmitt et al., 2008). These communality findings also add to the Gender Equality Paradox (GEP; Connolly et al., 2020; Stoet & Geary, 2019) literature, which is typically explained with evolutionary logic. Moreover, as noted above, we found that gender gaps for both self-view dimensions were driven more strongly by variations in men's than women's self-views: Whereas we found little evidence that women's communal and agentic self-views differed across countries as a function of egalitarianism, men view themselves both as less agentic *and* as less communal in more egalitarian countries. These patterns are consistent with the evolutionary approach which assumes that, in sexually dimorphic species, the larger sex is more vulnerable to environmental pressures (Abouheif & Fairbairn, 1997), and thus variations in men's traits should drive variations in sex differences

across cultures (Schmitt et al., 2008). However, the evolutionary approach cannot easily explain our findings regarding agency.

Similarly, proponents of self-construal approaches would explain our communality findings as reflecting cross-country differences in people's reliance on other-gender social comparisons when describing themselves (e.g., Guimond et al., 2007). In countries lower in power distance, in which individuals make more other-gender social comparisons, we see larger gender gaps in communal self-views. Other-gender social comparisons should amplify gender gaps in gendered self-views by highlighting group boundaries and eliciting self-stereotyping. Of course, this approach also cannot explain our findings regarding agency, nor why PDI predicts men's self-views across countries and not women's. Moreover, self-construal approaches do not offer insights into why agency and communion are relevant to gender in the first place.

Finally, cultural differences in core values provide another possible explanation for our communality findings. People generally attribute the most culturally valued traits to more dominant social groups, which are usually men (Sidanius & Pratto, 1999). Thus, stereotypes about men tend to differ with the core values of a given culture. For example, men are stereotyped and prescribed as more communal in less egalitarian (low GGGI, high PDI) countries (e.g., Cuddy et al., 2015), presumably because such cultures value communal qualities that promote interdependence. Using similar logic, men in less egalitarian countries likely develop more communal self-views as they internalize prescriptive, communal stereotypes. This perspective can help explain why men, in particular, exhibit more communal self-views in less egalitarian countries where these traits are highly valued. At the same time, the cultural values perspective – like the evolutionary and self-construal perspectives – cannot explain why men in more egalitarian countries exhibit less agentic self-views. Agency is more valued in more egalitarian (and richer) countries (Sedikides et al., 2003), and we thus would

expect people to internalize this socially desired trait. That men instead report less agentic self-views in more egalitarian countries thus remains an open question in need of more research.

Limitations and Future Research

Our dataset covers a large multi-country sample but our participants were all university students and we did not measure their employment status. Moreover, most of the samples did not have sufficient variance in age to allow us to examine whether our findings were moderated by age. We caution readers not to generalize our findings to all or most residents of the countries we studied.

As noted earlier, future studies should continue to explore the joint and unique predictive utility of distinct indicators of country-level egalitarianism. Most societies are structured by a gendered division of labor that mirrors prescriptive and proscriptive gender roles, which both create and reinforce gender hierarchies (Eagly & Wood, 1999). PDI and GGGI both reflect and promote social inequalities and correlate with country-level wealth (GGGI-GNI: $r = 0.50$; PDI-GNI: $r = -0.63$) but our results demonstrate that only PDI, and not GGGI, significantly predicts gendered self-views when both of these indices are included in analyses. This suggests that country-level, objective gender equality is not directly linked to gendered self-views, but may instead operate through proximal, subjective perceptions of inequality. Perhaps this is because GGGI reflects objective, structural outcomes related to gender that operate more distally, while PDI reflects internalized, subjective perceptions of gender (and other social) hierarchies. Recall also that PDI and GGGI similarly reflect fundamental elements of cultural orientations related to human development (Fog, 2021). Finally, recall that Hsu et al. (2021) found that the association of GGGI with gender gaps in communal self-views became non-significant when controlling for horizontal segregation. Thus, our findings join a growing body of research indicating that GGGI itself may not be a

primary or direct diver of gender gaps in self-views. It is difficult to disentangle the effects of objective gender equality from other aspects of egalitarianism and human development, highlighing the need for a nuanced framework specifying precisely if and how objective gender equality directly and/or indirectly influences gendered self-views (cf. Connolly et al., 2020).

Finally, future research should seek to replicate our self-view findings using measures of gender stereotypes of agency and communion. It will be important to examine whether cross-cultural gender stereotypes map closely onto people's gendered self-views, as several theoretical perspectives would predict (Tobin et al., 2010; Turner et al., 1987; Wood & Eagly, 2012).

Conclusions

Social role theory predicts that gender gaps should shrink as societies become less vertically gender segregated. Conversely, evolutionary and self-construal theories anticipate larger gender gaps in more egalitarian countries (Guimond et al., 2007; Schmitt, 2015). Here, results from a large, 62-country dataset, show that gender gaps in gendered self-views correlate differently with cultural egalitarianism depending on the dimension (and the egalitarianism index) under examination: Gender gaps in agentic self-views are smaller, and gender gaps in communal self-views are larger, in more egalitarian countries. These patterns emerged across two distinct, objective and subjective country-level indices of egalitarianism, but are accounted for more robustly by subjective than objective egalitarianism. Moreover, whereas women's more communal self-views appear universal, men's more agentic self-views vary considerably across countries, and cross-country patterns were driven more by variations in men's than women's self-views. We encourage future research to examine cross-country gender gaps in gendered self-views through the lens of culturally constructed gender

identities (Charles & Bradley, 2009), and to seek evidence of explanatory mechanisms that can explain the associations between country-level predictors and individuals' self-views.

References

Abouheif, E., & Fairbairn, D. J. (1997). A comparative analysis of allometry for sexual size dimorphism: assessing Rensch's rule. *The American Naturalist, 149*(3), 540-562. https://doi.org/10.1086/286004

Bakan, D. (1966). *The duality of human existence: An essay on psychology and religion.* Rand McNally.

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*.https://doi.org/10.18637/jss.v067.i01

Biernat, M., Vescio, T. K., & Green, M. L. (1996). Selective self-stereotyping. Journal of *Personality and Social Psychology, 71*(6), 1194–1209. https://doi.org/10.1037/0022-3514.71.6.1194

Bosson, J. K., & Michniewicz, K. S. (2013). Gender dichotomization at the level of ingroup identity: What it is, and why men use it more than women. *Journal of Personality and Social Psychology, 105*(3), 425-442. https://doi.org/10.1037/a0033126

Breda, T., Jouini, E., Napp, C., & Thebault, G. (2020). Gender stereotypes can explain the gender-equality paradox. *Proceedings of the National Academy of Sciences, 117*(49), 31063-31069. https://doi.org/10.1073/pnas.2008704117

Buss, D. M., & Schmitt, D. P. (1993). Sexual Strategies Theory: An evolutionary perspective on human mating. *Psychological Review, 100*(2), 204–232. https://doi.org/10.1037/0033-295x.100.2.204

Charles, M. (1992). Cross-national Variation in Occupational Sex Segregation. *American Sociological Review, 57*, 483–502. https://doi.org/10.2307/2096096

Charles, M., & Bradley, K. (2009). Indulging our gendered selves? Sex segregation by field of study in 44 countries. *American Journal of Sociology, 114*(4), 924-976. https://doi.org/10.1086/595942

Charmes, J. (2019). The Unpaid Care Work and the Labour Market. An analysis of time use *Office*. Retrieved from: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_732791.pdf

Chazal, S., Guimond, S., & Darnon, C. (2012). Personal self and collective self: When academic choices depend on the context of social comparison. *Social Psychology of Education, 15*(4), 449-463. https://doi.org/10.1007/s11218-012-9199-x

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling, 14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Connolly, F., Goossen, M. & Hjerm, M. (2020). Does Gender Equality Cause Gender Differences in Values? Reassessing the Gender-Equality-Personality Paradox. *Sex Roles 83,* 101–113. https://doi.org/10.1007/s11199-019-01097-x Costa, P. T., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology, 81*(2), 322–331. https://doi.org/10.1037/0022-3514.81.2.322

Crawford, C. (1998). Environments and adaptations: Then and now. In C. Crawford & D. L. Krebs (Eds.), *Handbook of evolutionary psychology: Ideas, issues, and applications* (pp. 275–302). Mahwah, NJ: Erlbaum.

Croft, A., Schmader, T., & Block, K. (2015). An underexamined inequality: Cultural and psychological barriers to men's engagement with communal roles. *Personality and Social Psychology Review*, *19*(4), 343-370. https://doi.org/10.1177/1088868314564789

Cuddy, A. J., Wolf, E. B., Glick, P., Crotty, S., Chong, J., & Norton, M. I. (2015). Men as cultural ideals: Cultural values moderate gender stereotype content. *Journal of*

Personality and Social Psychology, 109(4), 622-635. https://doi.org/10.1037/pspi0000027

Donnelly, K., & Twenge, J. M. (2017). Masculine and feminine traits on the Bem Sex-Role Inventory, 1993–2012: A cross-temporal meta-analysis. *Sex Roles, 76*(9), 556-565. https://doi.org/10.1007/s11199-016-0625-y

Dyer, N. G., Hanges, P. J., & Hall, R. J. (2005). Applying multilevel confirmatory factor analysis techniques to the study of leadership. *Leadership Quarterly, 16*(1), 149-167. https://doi.org/10.1016/j.leaqua.2004.09.009

Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation.* Lawrence Erlbaum Associates, Inc.

Eagly, A. H., Nater, C., Miller, D. I., Kaufmann, M., & Sczesny, S. (2020). Gender stereotypes have changed: A cross-temporal meta-analysis of U.S. public opinion polls from 1946 to 2018. *American Psychologist, 75(3),* 301–315. https://doi.org/10.1037/amp0000494

Eagly, A. H., & Steffen, V. J. (1984). Gender stereotypes stem from the distribution of women and men into social roles. *Journal of Personality and Social Psychology, 46*(4), 735–754. https://doi.org/10.1037/0022-3514.46.4.735

Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist, 54*(6), 408–423. https://doi.org/10.1037/0003-066X.54.6.408

Eagly, A. H., Wood, W., & Diekman, A. B. (2000). Social role theory of sex differences and similarities: A current appraisal. In T. Eckes & H. M. Trautner (Eds.), *The developmental social psychology of gender* (p. 123–174). Lawrence Erlbaum Associates Publishers.

Falk, A., & Hermle, J. (2018). Relationship of gender differences in preferences to economic development and gender equality. *Science*. 362(6412), eaas9899. https://doi.org/10.1126/science.aas9899

Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*(6), 878-902. https://doi.org/10.1037//0022-3514.82.6.878

Fog, A. (2021). A Test of the Reproducibility of the Clustering of Cultural Variables. *Cross-Cultural Research, 55(1),* 29–57. https://doi.org/10.1177/1069397120956948

Glick, P., Fiske, S. T., Mladinic, A., Saiz, J. L., Abrams, D., Masser, B., Adetoun, B., Osagie, J. E., Akande, A., Alao, A., Annetje, B., Willemsen, T. M., Chipeta, K., Dardenne, B., Dijksterhuis, A., Wigboldus, D., Eckes, T., Six-Materna, I., Expósito, F., . . . López, W. L. (2000). Beyond prejudice as simple antipathy: Hostile and benevolent sexism across cultures. *Journal of Personality and Social Psychology, 79*(5), 763-775. https://doi.org/10.1037/0022-3514.79.5.763

Grimm, S. D., & Church, A. T. (1999). A cross-cultural study of response biases in personality measures. *Journal of Research in Personality, 33*(4), 415–441. https://doi.org/10.1006/jrpe.1999.2256

Guimond, S. (2008). Psychological similarities and differences between women and men across cultures. *Social and Personality Psychology Compass, 2*(4), 494–510. https://doi-org.ezproxy.lib.usf.edu/10.1111/j.1751-9004.2007.00036.x

Guimond, S., Branscombe, N. R., Brunot, S., Buunk, A. P., Chatard, A., Désert, M., Garcia, D. M., Haque, S., Martinot, D., & Yzerbyt, V. (2007). Culture, gender, and the self: Variations and impact of social comparison processes. *Journal of Personality and Social Psychology, 92*(6), 1118–1134. https://doi.org/10.1037/0022-3514.92.6.1118

Hamamura, T. (2012). Power distance predicts gender differences in math performance across societies. *Social Psychological and Personality Science, 3*(5), 545-548. https://doi.org/10.1177/1948550611429191

Holter, Ø. G. (2014). "What's in it for men?": Old question, new data. *Men and Masculinities, 17*(5), 515–548. https://doi.org/10.1177/1097184x14558237

Hsu, N., Badura, K. L., Newman, D. A., & Speach, M. E. P. (2021). Gender, "masculinity," and "femininity": A meta-analytic review of gender differences in agency and communion. *Psychological Bulletin, 147*(10), 987 - 1011. https://doi.org/10.1037/bul0000343

Inglehart, R., Norris, P., & Ronald, I. (2003). *Rising tide: Gender equality and cultural change around the world*. Cambridge University Press. https://doi.org/10.1017/CBO9780511550362

Jarman, J. Blackburn, RM., Brooks, B., Dermott, E. (1999). Gender differences at work: International variations in occupational segregation. *Sociological Research Online 4(1).* Available at: http://www.socresonline.org.uk/4/1/jarman.html

Kan, M. Y., Sullivan, O., & Gershuny, J. (2011). Gender convergence in domestic work: Discerning the effects of interactional and institutional barriers from large-scale data. *Sociology, 45*(2), 234-251. https://doi.org/10.1177/0038038510394014

Kline, R. B. (2016). *Principles and practice of structural equation modelling* (4th ed.). New York: The Guilford Press.

Konrad, A. M., Ritchie, J. E., Jr., Lieb, P., & Corrigall, E. (2000). Sex differences and similarities in job attribute preferences: A meta-analysis. *Psychological Bulletin, 126*(4), 593–641. https://doi.org/10.1037/0033-2909.126.4.593Lord F. M., & Novick M. R. (1968). *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.

Lueptow, L. B., Garovich-Szabo, L., & Lueptow, M. B. (2001). Social change and the persistence of sex typing: 1974–1997. *Social Forces, 80(1),* 1–36. https://doi.org/10.1353/sof.2001.0077

Milfont, T. L., & Fisher, R. (2010). Testing measurement invariance across groups: Applications

in cross-cultural research. *International Journal of Psychological Research, 3*(1), 111–121. https://doi.org/10.21500/20112084.85

Millsap, R. E. (2011). *Statistical approaches to measurement invariance.* Routledge/Taylor & Francis Group.

Ng, T. W., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology, 58*(2), 367-408. https://doi.org/10.1111/j.1744-6570.2005.00515.x

Niedenthal, P. M., Krauth-Gruber, S., & Ric, F. (2006). *Psychology of emotion: Interpersonal, experiential, and cognitive approaches.* Psychology Press.

R Core Team (2020). *R: A language and environment for statistical computing.* R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/

Rogoza, R., Żemojtel-Piotrowska, M., Jonason, P. K., Piotrowski, J., Campbell, K. W., Gebauer, J. E., Maltby, J., Sedikides, C., Adamovic, M., Adams, B. G., Ang, R. P., Ardi, R., Atitsogbe, K. A., Baltatescu, S., Bilić, S., Bodroža, B., Gruneau Brulin, J., Bundhoo Poonoosamy, H. Y., Chaleeraktrakoon, T., … Włodarczyk, A. (2021). Structure of dark triad dirty dozen across eight world regions. *Assessment, 28*(4), 1125–1135. https://doi.org/10.1177/1073191120922611

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1-36. https://doi.org/10.18637/jss.v048.i02

Schmitt, D. P. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences, 28*(2), 247–275. https://doi.org/10.1017/s0140525x05000051

Schmitt, D.P. (2015). Fundamentals of human mating strategies. In D.M. Buss (Ed.). *The Handbook of Evolutionary Psychology* (pp. 258-291). John Wiley & Sons. https://doi.org/10.1002/9780470939376.ch9

Schmitt, D. P., Long, A. E., McPhearson, A., O'Brien, K., Remmert, B., & Shah, S. H. (2017). Personality and gender differences in global perspective. *International Journal of Psychology, 52*(S1), 45-56. https://doi.org/10.1002/ijop.12265

Schmitt, D. P., Realo, A., Voracek, M., & Alik, 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*(1), 168–192. https://doi.org/10.1037/a0014651.

Sedikides, C., Gaertner, L., & Toguchi, Y. (2003). Pancultural self-enhancement. *Journal of Personality and Social Psychology, 84(1),* 60–79. https://doi.org/10.1037/0022-3514.84.1.60

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. Cambridge University Press. https://doi.org/10.1017/CBO9781139175043

Stoet, G., & Geary, D. C. (2019). A simplified approach to measuring national gender inequality. *PLoS ONE, 14*(1), e0205349. https://doi.org/10.1371/journal.pone.0205349

Tobin, D. D., Menon, M., Menon, M., Spatta, B. C., Hodges, E. V. E., & Perry, D. G. (2010). The intrapsychics of gender: A model of self-socialization. *Psychological Review, 117*(2), 601–622. https://doi.org/10.1037/a0018936

Trivers, R. L. (1972). Parental Investment and Sexual Selection. In B. Campbell (Ed.), *Sexual Selection and the Descent of Man, 1871-1971* (pp. 136-179). Chicago, IL: Aldine.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory.* Basil Blackwell.

United Nations Development Programme. (2019). *Human development report 2019. Beyond income, beyond averages, beyond today: inequalities in human development in the 21st century*. New York, NY. //hdr.undp.org/sites/default/files/hdr2019.pdf

United Nations Statistics Division. (2021). *Standard country or area codes for statistical use (M49)*. New York, NY. https://unstats.un.org/unsd/methodology/m49/overview/

van de Vijver, F. J. R., & Leung, K. (2021). *Methods and Data Analysis for Cross-Cultural Research* (V. Fetvadijev & J. He (eds.); 2nd ed.). Cambridge University Press.

Wang, M. T., & Degol, J. L. (2017). Gender gap in science, technology, engineering, and mathematics (STEM): Current knowledge, implications for practice, policy, and future directions. *Educational Psychology Review, 29*(1), 119-140. https://doi.org/10.1007/s10648-015-9355-x

Williams, J. E., & Best, D. L. (1990). *Measuring sex stereotypes: A multination study (Rev. ed.).* Sage Publications, Inc.

Wood, W., & Eagly, A. H. (2012). Biosocial construction of sex differences and similarities in behavior. *Advances in Experimental Social Psychology*, *46*, 55-123. https://doi.org/10.1016/B978-0-12-394281-4.00002-7

Wong, Y. L. A., & Charles, C. (2020). Gender and occupational segregation. In N. A. Naples (Ed.), *Companion to Women's and Gender Studies* (pp. 305-327). Wiley.

World Bank. (2020). *GNI per capita, PPP (current international $)*. Washington, D.C. https://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD.

World Economic Forum. (2020). *Global Gender Gap Report 2020*. Geneva, Switzerland. http://www3.weforum.org/docs/WEF_GGGR_2020.pdf

Zentner, M., & Mitura, K. (2012). Stepping out of the caveman's shadow: Nations' gender gap predicts degree of sex differentiation in mate preferences. *Psychological Science, 23*(10), 1176–1185. doi:10.1177/0956797612441