

More Evidence that Societal Individualism Predicts Prevalence of Nonhomosexual Orientation in Male-to-Female Transsexualism

Anne A. Lawrence

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In an article published in *Archives of Sexual Behavior* (Lawrence, 2010), I examined the relationship between a measure of societal individualism—Hofstede's (2001) Individualism Index (IDV)—and the percentage of male-to-female (MtF) transsexuals who were nonhomosexual relative to natal sex (%NHS) in 22 studies of MtF transsexuals and gender dysphoric men conducted in 16 different countries. I observed that IDV and %NHS were highly correlated ($r = .88$) and that IDV accounted for 77 % of the variance in %NHS. Additional studies containing comparable data for several countries have subsequently been published, so I decided to examine whether a similar correlation between IDV and %NHS was found in these studies as well.

Table 1 shows the relevant information for these new studies. Note that the article by Kreukels et al. (2012) summarized data from studies of gender dysphoric men conducted in four different European countries. The parameters presented in Table 1 are the same ones reported for the 22 studies examined in Lawrence (2010); most are self-explanatory or are explained in the notes to Table 1. The exceptions are Hofstede's (2001) three other indexes of important characteristics of national cultures: Power Distance Index (PDI), a measure of attitudes toward inequality; Uncertainty Avoidance Index (UAI), a measure of desire to avoid uncertainty about the future; and Masculinity Index (MAS), a measure of achievement orientation. These

parameters, along with gross national income per capita (GNI/capita), were explored as alternative or supplemental predictors of %NHS for the 22 studies in Lawrence (2010).

Figure 1 displays the relationship between IDV and %NHS for the 7 new studies (solid, numbered squares; solid regression line) and the 22 earlier studies (open squares; dashed regression line). For the seven new studies, IDV and %NHS were once again strongly correlated, $r = .85$, $p < .05$, with IDV accounting for 73 % of the observed variance in %NHS. This represents a large effect size (Cohen, 1988). The slopes of the regression lines for the new ($n = 7$) and earlier ($n = 22$) studies were not significantly different, $t(25) < 1$.

Bivariate correlations between IDV, PDI, UAI, MAS, GNI/capita, and %NHS for the seven new studies are displayed above the diagonal in Table 2. As was found in Lawrence (2010), IDV was the strongest predictor of %NHS, but GNI/capita was also highly correlated with %NHS. Bivariate correlations for all 29 studies together are displayed below the diagonal in Table 2.

Table 3 shows the results of a multiple regression analysis in which IDV, PDI, UAI, MAS, and GNI/capita were used as predictors of %NHS for all 29 studies; the table also displays comparison data from Lawrence (2010) for the same analysis conducted with the 22 earlier studies. Once again, IDV was the only statistically significant predictor of %NHS, and the amount of variance explained was essentially unchanged ($R^2 = .78$; $R^2 \text{ Adj} = .74$) in comparison to IDV alone.

As I suggested previously (Lawrence, 2010), the observed relationship between IDV and %NHS probably reflects the combined operation of at least two distinct factors. First, non-homosexual persons probably constitute larger apparent percentages of MtF transsexuals and gender dysphoric persons in more individualistic societies because these societies place a higher value on individual self-expression (including cross-gender expression), despite the possible socially disruptive consequences of gender transition in men who are typically middle-

A. A. Lawrence
Department of Psychology, University of Lethbridge, Lethbridge,
AB, Canada

A. A. Lawrence (✉)
6801 28th Ave NE, Seattle, WA 98115, USA
e-mail: alawrence@mindspring.com

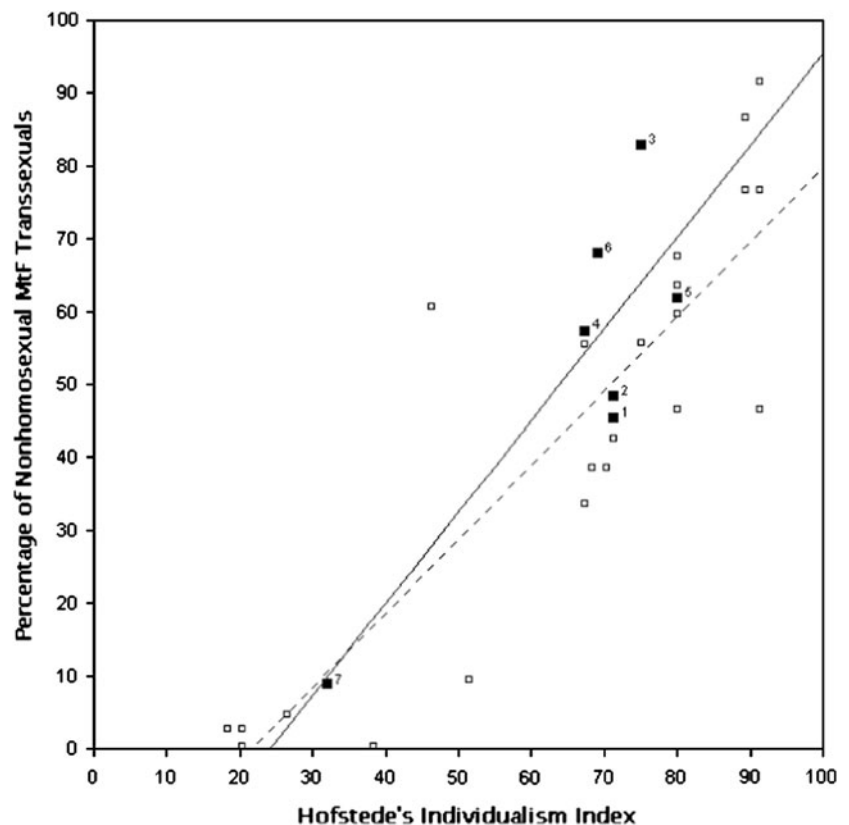
Table 1 Seven new studies of MtF transsexualism included in the analysis

Study	Country	IDV	PDI	UAI	MAS	GNI/capita ^a	Diagnosis or status	<i>N</i>	%NHS	Basis for deciding sexual orientation
1 Gorin-Lazard et al. (2012)	France	71	68	73	41	36,550	GID	31	45	Stated orientation
2 Johansson, Sundbom, Höjerback, and Bodlund (2010)	Sweden	71	31	23	6	43,580	Transsexualism	25	48	Stated orientation
3 Kreukels et al. (2012)	Belgium	75	65	80	53	38,600	Gender dysphoria	30	83	Stated attraction
4 Kreukels et al. (2012)	Germany	67	35	53	59	36,620	Gender dysphoria	21	57	Stated attraction
5 Kreukels et al. (2012)	Netherlands	80	38	45	14	42,670	Gender dysphoria	89	62	Stated attraction
6 Kreukels et al. (2012)	Norway	69	31	38	10	66,530	Gender dysphoria	25	68	Stated attraction
7 Winter, Rogando-Sasot, and King (2007)	Philippines	32	94	45	58	1,420	Live as a woman	147	9	Stated attraction

IDV Individualism Index, *PDI* Power Distance Index, *UAI* Uncertainty Avoidance Index, *MAS* Masculinity Index (all from Hofstede, 2001); *NHS* nonhomosexual male-to-female transsexuals; *GID* gender identity disorder

^a Gross national income per capita for 2006, in US dollars; from World Bank (2007)

Fig. 1 Percentage of nonhomosexual male-to-female transsexual participants (%NHS) versus Hofstede's IDV for studies in Table 1 (*solid squares*) and previously reported in Lawrence (2010; *open squares*)



aged, are often married, and have usually pursued traditionally masculine occupations. Second, homosexual persons probably constitute larger apparent percentages of MtF transsexuals and gender dysphoric persons in less individualistic (or more

collectivistic) societies because these societies place a higher value on inclusion and often provide socially approved transgender roles for pervasively feminine, androphilic gender dysphoric men.

Table 2 Bivariate correlations for 7 new studies and all 29 studies

	IDV	PDI	UAI	MAS	GNI/capita	%NHS
IDV		-.70	.17	-.48	.78*	.85*
PDI	-.71****		.48	.67	-.82*	-.59
UAI	-.34	.28		.65	-.15	.31
MAS	-.06	.16	.35		-.67	-.25
GNI/capita	.76****	-.79****	-.26	-.14		.77*
%NHS	.87****	-.60***	-.19	.05	.72****	

Correlations for 7 new studies are above the diagonal; correlations for all 29 studies are below the diagonal

IDV Individualism Index, *PDI* Power Distance Index, *UAI* Uncertainty Avoidance Index, *MAS* Masculinity Index (all from Hofstede, 2001); *GNI/capita* gross national income per capita for 2006 (from World Bank, 2007); *NHS* nonhomosexual male-to-female transsexuals

* $p < .05$; *** $p < .001$; **** $p < .0001$

Table 3 Multiple regression analyses for variables predicting percentage of nonhomosexual MtF transsexuals

Variable	β , all 29 studies	β , 22 studies from 2010
IDV	.79****	.88****
PDI	.12	.06
UAI	.07	.06
MAS	.08	.13
GNI/capita	.25	.08
	($R^2 = .78$; R^2 Adj = .74)	($R^2 = .80$; R^2 Adj = .73)

IDV Individualism Index, *PDI* Power Distance Index, *UAI* Uncertainty Avoidance Index, *MAS* Masculinity Index (all from Hofstede, 2001); *GNI/capita* gross national income per capita for 2006 (from World Bank, 2007)

*** $p < .001$; **** $p < .0001$

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