Supplementary Information

Participants

Facebook advertisements targeted men who indicated they were interested in men or, for the recruitment of heterosexual men, men who indicated they were interested in women. Only those 18 years of age and older were targeted, and the advertisements were presented only to those who spoke English. The locations selected included countries in which English is a first language (i.e., Australia, Canada, New Zealand, United Kingdom, and United States). At the Toronto Pride Festival, we offered festival attendees a business card with the survey's website, and/or recorded prospective participants' email addresses and then sent them the survey website address at a later date. We emailed details regarding how to complete our online questionnaire to 459 people from the Toronto Pride Festival, and our Facebook advertisements were shown to 56,155 people. Our online survey, hosted on Qualtrics, was completed by 1035 people. Only individuals who indicated that they were assigned male at birth were included in the study, and thus 208 participants were excluded because they reported being assigned as female at birth or did not indicate their sex at birth. Of the 827 participants, 82 were recruited via the Pride festival, and all others were recruited via Facebook advertisements; 736 of these participants specified their age (M = 32.96, SD = 14.38). Also, 717 participants indicated their ethnicity as White, 7 Black, 31 Asian, 7 Aboriginal, 13 Latin American, 1 Arab, 42 indicated other, and 4 declined to answer. The study was approved and conducted in accordance with the guidelines of the University of Toronto's research ethics board, and informed consent was obtained from all participants.

Measures

The *Recalled Childhood Gender Identity/Gender Role Questionnaire* (RCGI) measured childhood gender nonconformity. This 23-item questionnaire is scored such that high scores are male-typical, whereas low scores are gender-nonconforming. We present the data for a subset of this scale (the mean of 18 items belonging to factor 1 as described in (1)). This scale included questions such as

"*As a child, my best or closest friend was 1-always a boy",* to *"5-always a girl*", and "*In fantasy or pretend play, I took the role 1-only of boys or men",* to *"5-only of girls or women*". The internal consistency of this scale was evaluated using Cronbach's alpha, $\alpha = .74$.

The short form, 30-item, *Bem Sex-Role Inventory* was administered to participants (2, 3). They were asked to indicate on a seven-point Likert scale how much they personally have each characteristic: *1- never or almost never true* to *7- Aways or almost always true*. The 10 feminine items were added to obtain a Bem femininity score ($\alpha = .88$), and the 10 masculine items were added to obtain a Bem masculinity score ($\alpha = .84$; neutral items were not included in the analyses).

Masculine and feminine occupational preferences were measured as previously described (4, 5). On a seven-point Likert scale, participants indicated whether they would *1- strongly dislike* to *7- strongly like*, male- and female-typical occupations. Responses were added for masculine occupations and feminine occupations separately. A higher score on the masculine occupational preference indicates male-typicality ($\alpha = .84$); a higher score on the feminine scale indicates female-typicality ($\alpha = .69$).

The *Big Five personality traits* were measured using a 10-item short form of the Big Five Personality Inventory, as previously described (6). Two items were presented for each of the personality traits, and added together to form a score on openness, conscientiousness, extroversion, neuroticism, and agreeableness. Participants were asked to indicate on a five-point Likert scale how well each of the 10 statements described their personality (e.g., "*I see myself as someone who... is reserved*"). Spearman-Brown was used to calculate the internal reliability for these 2-item scales; low to moderate internal reliability was found for the following measures: openess $r_{kk} = .08$, neuroticism $r_{kk} = .56$, conscientiousness $r_{kk} = .37$, extroversion $r_{kk} = .64$ and agreeableness $r_{kk} = .35$.

Age

No differences were found between latent profiles on age, χ^2 (3, 736) = 3.822, p = .281. Similarly, no sexual orientation differences were found on age: identity: U = 25553, p = .273; attraction: U = 19562, p = .153; behavior: U = 21833, p = .073.

Sexual Orientation

Due to the small number of self-identified bisexual individuals and individuals who identified their attraction/behavior between 1-3 on the Likert scale (i.e., not exclusively heterosexual, some attraction and/or sexual experience with the same-sex), we examined whether it would be appropriate to collapse these groups for our analyses. To do so, we evaluated whether there was a difference in the distribution of gay and other nonheterosexual individuals across latent profiles. Using a Kruskal-Wallis test, we found that those who self-identified as bisexual (n = 19) or other nonheterosexual (n = 11; other nonheterosexual self-identified labels included: queer (n = 3), queer/gay (n = 2), homoflexible (n = 1), attraction to transgender women (n = 1), bicurious (n = 2), heterosexual with small attraction to men (n = 1) or bisexual but homoromantic (n = 1)) did not significantly differ from self-identified gay men on the distribution across profiles, H (3, 417) = 1.11, p = .57. Similarly, those who indicated an attraction or sexual experience as 1-3 on the Likert scale did not differ in the distribution across latent profiles, H (9, 432) = 2.84, p = .418 and H (9, 400) = 3.12, p = .374, respectively. These findings suggest that these intermediate sexual orientations were similarly distributed across profiles compared to gay men. Therefore, for all analyses, we compared heterosexual to nonheterosexual (gay or other nonheterosexual) individuals.

Correlations Between Biomarkers

Pearson's correlations were conducted to further assess whether a relationship exists between the 3 biomarkers: No significant correlations were found (see Table S2) in the full sample, or when

assessing correlations in the heterosexual or nonheterosexual sample only (see Table S2). These findings further support the findings from the LPA, such that the biomarkers examined rarely overlap within individuals.

Missing Values Analysis

Latent profile analysis has the advantage of full-information maximum likelihood methods, which makes it robust against missing data (7); however, to ensure data were missing at random, we conducted a missing values analysis (see Table S3 for missing values by measure and latent profile). The missing values analysis using the EM method indicated the data were missing completely at random (MCAR), Little's MCAR χ^2 (385, N = 827) = 382.69, p = .52.

Missing Data

Missing data were included in the LPA analyses (see Table S3). We used full information maximum likelihood (FIML) to handle missing data in our LPA analyses. FIML is the preferred method for data that are missing at random (MAR) or data missing completely at random (MCAR; 8-10). To assess whether data were MAR/MCAR, we conducted Little MCAR's test – this test was non-significant suggesting that the data were MCAR (see Table S3). To further assess whether data were MAR/MCAR, we conducted complete case analysis, and re-ran the LPA analyses; 2 out of 3 of the biomarker subgroups were extracted (i.e., the handedness and familiality subgroups were delineated, but the FBO group was not; see Table S4). This indicates that our data are not MCAR (*note:* MCAR is rare, and has been argued to not be tenable in practice; see 10, 11). To confirm data are MAR, we compared those participants with missing familiality data to those with familiality data on the biomarkers FBO and handedness (i.e., familiality had the highest rates of missing data, and as such we conducted these analyses to confirm that missing data for this variable did not have a relationship to the other two biomarkers). Results indicated that there were no differences on handedness or FBO between

participants with vs. without familiality data, $t(824) = -.577$, $p = .564$ and $t(598) = .422$, $p = .673$, respectively; these findings support our conclusion that our data are MAR and support the use of FIML in the LPA analyses.

Non-Normality of Biomarkers

The data for handedness, familiality and older brothers are skewed as might be expected given the relative low frequencies of these biomarkers in the population (i.e., especially rates of left-handedness and nonheterosexual male relatives; see SI Appendix A). While LPA can generally handle non-normal data (e.g., 12-14), modeling with the skew-t distribution analysis in Mplus can ensure meaningful subgroups are defined by the true structural differences in the latent profiles, thus eliminating the possibility of spurious profile formation due to the skewness of the data (15). As such, we conducted further LPA analyses with the skew-t distribution function. We found identical profile formation with this analysis, such that the distribution of participants was *identical* across latent profiles with the skew-t distribution analysis, and thus all means, SD and all statistical comparisons remain the same (See Table S5). This analysis further supports the meaningfulness of the latent profiles identified in the current study.

Are Heterosexual and Nonheterosexual Men From Profile 3 Indistinguishable on Developmental Markers?

A large proportion of nonheterosexual men, regardless of whether sexual orientation was defined by self-identification, attraction or behavior, were grouped with the majority of heterosexual men in Profile 1 – the profile that did not present elevations on any bio-developmental markers. We questioned whether heterosexual men and nonheterosexual men from Profile 1 were truly indistinguishable from each other on the developmental markers. Therefore, we evaluated whether heterosexual men (strictly heterosexual on identity, attraction and behavior) and nonheterosexual men

from Profile 1 differed on the developmental markers. Nonheterosexual men were indistinguishable from heterosexual men in Profile 1 on measures of handedness, $U = 14674.5$, $p = .32$, fraternal birth order, $U = 15150$, $p = .95$, and familliality, $U = 4947.5$, $p = .80$, (see Table S6).

Subgroups of Nonheterosexual Men Differ From Heterosexual Men on Developmental Markers

We compared the 4 profiles with only nonheterosexual men to the entire heterosexual male sample on developmental markers to test whether differences on developmental markers and personality traits persisted when only nonheterosexual men were in the subgroups (see Table S7). For these analyses, we used Kruskal-Wallis with posthoc Mann-Whitney tests. Significant omnibus effects were found for all developmental markers, including handedness, $H(4, 580) = 158.54$, $p < .001$, fraternal birth order, $H(4, 574) = 208.78$, $p < .001$, and familiality, $H(4, 334) = 41.23$, $p < .001$.

Compared to heterosexual men, Profile 1 nonheterosexual men were more right-handed and reported a lower proportion of older brothers. Profile 2 nonheterosexual men reported a higher proportion of older brothers compared to heterosexual men. Profile 3 nonheterosexual men were significantly more non-right handed compared to heterosexual men. Profile 4 nonheterosexual men were significantly more non-right-handed and had greater proportions of gay/bisexual male relatives in their family compared to heterosexual men.

Latent Profiles Composed of Only Nonheterosexual Men Differ on Developmental Markers

With heterosexual men removed from Profiles 1-4, differences on developmental markers persisted between latent profiles (Table S7). For example, Profile 1 nonheterosexual men continued to display low levels of all developmental markers, and were even lower compared to heterosexual men on handedness and proportion of older brothers. Specifically, Profile 1 nonheterosexual men were significantly more right-handed compared to Profile 3, Profile 4 and heterosexual men, but did not differ from Profile 2. Profile 1 nonheterosexual men reported significantly fewer older brothers

compared to Profile 2, Profile 3 and heterosexual men, but did not differ from Profile 4. Profile 1 nonheterosexual men reported fewer gay/bisexual men in their family compared to Profile 4, but did not differ from heterosexual men or any other profile on this measure.

Latent Profiles with Only Nonheterosexual Men Differ From Heterosexual Men on Personality Traits

We evaluated whether Profile 1 through 4 nonheterosexual men differed from all heterosexual men on personality traits (see Table S8). Significant omnibus effects were found for the following personality variables: RCGI scale, H (4, 549) = 154.01, $p < .001$, female occupational preferences, H (4, 572) = 38.6, $p < .001$, male occupational preferences, H (4, 572) = 51.25, $p < .001$, neuroticism, H (4, 569) = 14.82, $p = .005$, and openess, H (4, 570) = 12.77, $p = .012$.

Heterosexual men were more gender-conforming compared to gay men from all profiles: Heterosexual men scored more male-typical on the RCGI, female occupational preferences, and male occupational preferences scales compared to nonheterosexual men from Profile 1. Heterosexual men scored lower on neuroticism and openness compared to Profile 1 nonheterosexual men. Heterosexual men also scored lower on neuroticism compared to Profile 2 nonheterosexual men. Heterosexual men scored more male-typical on the RCGI, female occupational preferences, and male occupational preferences scales compared to Profile 3 nonheterosexual men. Similarly, heterosexual men were male-typical on the RCGI scale and female occupational preferences compared to Profile 4.

Subgroups of Nonheterosexual Men Differ from Each other on Personality Traits

Profiles 1 and 4 nonheterosexual men scored significantly more male-typical on the male occupational preference assessment compared to Profile 3 nonheterosexual men. Compared to Profile 2, Profile 3 nonheterosexual men were significantly more male-typical on the Bem femininity scale, but less male-typical on the male occupational preference scale. Profile 1 nonheterosexual men scored significantly more male-typical on the Bem femininity scale compared to Profile 2 nonheterosexual

men. Together, results suggest that Profile 1 nonheterosexual men are the most gender-conforming, whereas nonheterosexual men from other profiles differ in their degree of conformity depending on the scale. On the Big-Five personality inventory, Profile 2 nonheterosexual men scored higher on agreeableness compared to both Profile 3 and 4 nonheterosexual men. No other significant differences between nonheterosexual men by profile were found.

Profile Comparisons with Exclusively Heterosexual and Gay Men

To assess whether patterns would be consistent without bisexual/low same-sex oriented men included in the analyses, we evaluated whether latent profile differences would persist when comparing exclusively heterosexual men (i.e., self-identified heterosexual, only attracted to and sexual experience with women) and exclusively gay men (i.e., self-identified as gay, only attracted to and sexual experience with men; see Table S9). Briefly, the four profiles with exclusively heterosexual and gay men continued to differ on developmental measures and many of the same personality traits: fraternal birth order, H (501) = 243.13, $p < .001$, familiality, H (284) = 40.88, $p < .001$, handedness, H (507) = 161.52, $p < .001$, RCGI, H (483) = 10.30, $p = .02$, Bem femininity, H (500) = 12.05, $p = .007$, and agreeableness, H (499) = 10.26, $p = .016$. Together, these findings further support our decision to include other nonheterosexual men with gay men for all major comparisons.

The Fraternal Birth Order Effect by Latent Profiles Compared to the Expected Population Mean

Statistically, we found that Profiles 2, 3 and 4 all differed from Profile 1 in the proportion of older brothers, suggesting that Profiles 2, 3 and 4 were all affected by mechanisms underlying the fraternal birth order effect. In order to test whether this was accurate, we compared all profiles to the expected population value for proportion of older brothers (i.e., 0.25) using one-sample t-tests. Results revealed that only Profile 2 had a significantly higher proportion of older brothers compared to the expected population value, $t(116) = 35.893$, $p < .001$. Conversely, Profile 1 had a significanlty lower

proportion of older brothers compared to the hypothetical mean, $t(400) = -14.126$, $p < .001$. These results held true when heterosexual men were removed from the four profiles, such that only Profile 2 nonheterosexual men showed a significantly higher proportion of older brothers, $t(91) = 32.568$, $p < .001$, whereas Profile 1 nonheterosexual men had a significantly lower proportion older brothers, $t(273) = -11.640$, $p < .001$, compared to the hypothetical mean. Although heterosexual samples are small for Profiles 2, 3 and 4, and thus should be interpreted with caution, our findings indicate that heterosexual men from Profile 2 also have a significantly higher proportion of older brothers, $t(24) = 15.113$, $p < .001$, and Profile 1 heterosexual men also have a lower proportion of older brothers, $t(103) = -8.179$, $p < .001$, compared to the expected population mean.

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Table S1. Model Fit Indices for Latent Profile Analyses.

Solution	BIC	BLRT *p*-value	Entropy	Profile sizes
1 Profile	5030.64	-	-	100%
2 Profiles	4358.49	<.001	.983	Profile 1: 88.97% Profile 2: 11.08%
3 Profiles	4181.38	<.001	.945	Profile 1: 84.66% Profile 2: 10.2% Profile 3: 5.14%
4 Profiles	**4068.80**	**<.001**	**.82**	**Profile 1: 71.1%** **Profile 2: 14.15%** **Profile 3: 10.28%** **Profile 4: 4.47%**
5 Profiles	3975.16	.011	.84	Profile 1: 61.77% Profile 2: 22.87% Profile 3: 7.47% Profile 4: 5.28% Profile 5: 2.61%

Note: Bold indicates the best-fitting model. BIC = Bayesian information criterion; BLRT = bootstrap likelihood ratio test. BIC values steadily decreased as the number of profiles increased, indicating better model fit with increased profiles. BLRT values are significant for all profiles, also suggesting increased profiles represent a better model fit. However, profile sizes declined (i.e., profiles with less than 3% of sample) for the 5-profile model, and therefore may not be stable. As such, the 4-profile model was the best model fit for our data.

Table S2. Pearson Correlations Between Biomarkers for Full Sample, Heterosexual and Nonheterosexual Men.

		Handedness	Familiality
Full Sample (N = 827)	FBO	r = .011 p = .79 n = 599	r = -.019 p = .73 n = 332
	Handedness	-	r = .040 p = .465 n = 333
Sexual Orientation (Self-Identification)			
Heterosexual (n = 144)	FBO	r = -.017 p = .839 n = 141	r = -.077 p = .496 n = 81
	Handedness	-	r = -.135 p = .225 n = 82
Nonheterosexual (n = 437)	FBO	r = .010 p = .834 n = 432	r = -.004 p = .956 n = 251
	Handedness	-	r = .094 p = .136 n = 251

Table S3. Missing Values – number of participants who reported on the developmental markers and outcome measures by profile.

Variables	Profile 1	Profile 2	Profile 3	Profile 4	Total (Total *N* = 827)
Handedness	587	117	85	37	826
Proportion of Older Brothers	401	117	54	28	600
Familiality Total	216	74	33	11	334
Maternal Familiality	278	93	35	14	420
Paternal Familiality	249	81	41	15	386
RCGI	362	114	48	25	549
Bem Masculinity	377	116	53	25	571
Bem Femininity	377	116	53	25	571
Feminine Occupational Preference	378	116	53	25	572
Masculine Occupational Preference	378	116	53	25	572
Extroversion	377	114	53	25	569
Agreeableness	378	114	53	25	570
Conscientiousness	377	115	53	24	569
Neuroticism	376	115	53	25	569
Openness	377	115	53	25	570

Note: Latent profile analysis has the advantage of full-information maximum likelihood methods for missing data (Little & Rubin, 2014), and a missing values analysis indicated that the data for the biomarkers (i.e., FBO, handedness and familiality) as well as for all the outcome measures (i.e., RCGI scale, Bem masculinity, Bem femininity, feminine occupational preferences, masculine occupational preferences and the Big-Five measures) were missing completely at random (MCAR), Little's MCAR χ^2 (385, N = 827) = 382.69, p = .524.

Table S4. Model Fit Indices for Latent Profile Analyses with Complete Case Data.

Solution	BIC	BLRT *p*-value	Entropy	Profile sizes
1 Profile	2840.05	-	-	100%
2 Profiles	2597.56	<.001	.989	Profile 1: 90.03% Profile 2: 9.97%
3 Profiles	2439.83	<.001	.986	Profile 1: 86.91% Profile 2: 9.64% Profile 3: 3.44%
4 Profiles	2334.982	<.001	.973	Profile 1: 77.64% Profile 2: 9.97% Profile 3: 9.67% Profile 4: 2.72%
5 Profiles	2266.15	0.294	.983	Profile 1: 76.81% Profile 2: 10.86% Profile 3: 9.32% Profile 4: 2.42% Profile 5: 0.6%

Note: BIC = Bayesian information criterion; BLRT = bootstrap likelihood ratio test.

Table S5. Model Fit Indices for Latent Profile Analyses with Skew-t Distribution.

Solution	BIC	BLRT *p*-value	Entropy	Profile sizes
1 Profile	5030.69	-	-	100%
2 Profiles	4358.54	<.001	.983	Profile 1: 88.97% Profile 2: 11.08%
3 Profiles	4181.47	<.001	.945	Profile 1: 84.66% Profile 2: 10.2% Profile 3: 5.14%
4 Profiles	**4068.88**	**<.001**	**.82**	**Profile 1: 71.1%** **Profile 2: 14.15%** **Profile 3: 10.28%** **Profile 4: 4.47%**
5 Profiles	3975.24	<.011	.84	Profile 1: 61.77% Profile 2: 22.87% Profile 3: 7.47% Profile 4: 5.28% Profile 5: 2.61%

Note: Bold indicates the best-fitting model. BIC = Bayesian information criterion; BLRT = bootstrap likelihood ratio test. BIC values steadily decreased as the number of profiles increased, indicating better model fit with increased profiles. BLRT values are significant for all profiles, also suggesting increased profiles represent a better model fit. However, profile sizes declined to less than 3% of sample size for the 5-profile model, and therefore may not be stable. As such, the 4-profile model was the best model fit for our data.

Table S6. Means and Standard Deviations for Indicator Variable by Sexual Orientation for Profile 1.

Sexual Orientation: Profile 1	Handedness *M (SD)*	Fraternal Birth Order *M (SD)*	Familiality *M (SD)*
Heterosexual	0.099 (0.09)	0.169 (0.11)	0.032 (0.06)
Nonheterosexual	0.092 (0.09)	0.17 (0.11)	0.037 (0.07)

Table S7. Means and Standard Deviations for Indicator Variables by Latent Profile and Sexual Orientation

	Handedness	Fraternal Birth Order	Proportion of Gay/Bisexual Men
Heterosexual Men	0.154 (0.20)[b,d,e,]	0.243 (0.20)[b,c]	0.041 (0.13)[e]
Profile 1: Nonheterosexual Men	0.093 (0.09)[a,d,e]	0.173 (0.11)[a,c,d]	0.04 (0.07)[e]
Profile 2: Nonheterosexual Men	0.175 (0.23)[d,e]	0.599 (0.10)[a,b,d,e]	0.047 (0.09)[e]
Profile 3: Nonheterosexual Men	0.789 (0.15)[a,b,c,e]	0.302 (0.23)[b,c]	0.051 (0.08)[e]
Profile 4: Nonheterosexual Men	0.361 (0.17)[a,b,c,d]	0.223 (0.15)[c]	0.51 (0.13)[a,b,c,d]

Note: 1) On the handedness scale, a score of zero represents strict right-hand use, whereas a score of 1 represents a strict use of the left-hand. 2) Due to similarities between self-identified, attraction and behavior sexual orientation (see correlations Table 2, and SI "*Sexual Orientation*"), a composite measure was formed for these comparisons. Participants who were consistently heterosexual across self-identification, attraction and behavior were categorized as heterosexual, all others were categorized as nonheterosexual men.

[a] Significantly different from heterosexual men, $p < .05$.
[b] Significantly different from Profile 1 nonheterosexual men, $p < .05$.
[c] Significantly different from Profile 2 nonheterosexual men, $p < .05$.
[d] Significantly different from Profile 3 nonheterosexual men, $p < .05$.
[e] Significantly different from Profile 4 nonheterosexual men, $p < .05$.

Table S8. Means and Standard Deviations for Outcome Variables for Heterosexual Men vs Latent Profiles Consisting of Only Nonheterosexual Men

Outcome Variables	Heterosexual men	Profile 1	Profile 2	Profile 3	Profile 4
RCGI	4.33 (0.34)	3.71 (0.60)[a]	3.64 (0.50)[a]	3.61 (0.53)[a]	3.48 (0.50)[a]
Bem Masculinity	48.78 (8.23)	48.9 (8.84)	49.28(8.77)	49.33 (7.87)	49.56 (8.51)
Bem Femininity	52.78 (8.98)	53.39 (9.17)[e]	54.72 (8.09)[a,d]	50.74 (9.92)[c]	52 (6.9)
Female Occupational Preference	15.65 (5.75)	18.76 (6.05)[a]	19.96 (5.51)[a]	18.87 (5.77)[a]	18.94 (5.01)[a]
Masculine Occupational Preference	22.9 (6.9)	18.30 (7.26)[a,d]	18.72 (6.88)[a,d]	15.87 (7.39)[a,c,b,e]	21.13 (5.8)[d]
Extroversion	6.12 (2.07)	6.46 (2.12)	6.72 (2.06)	6.69 (2.24)	6.81 (2)
Agreeableness	7.18 (1.68)	6.99 (1.7)	7.26 (1.5)[d,e]	6.59 (1.69)	6.5 (2)[c]
Conscientiousness	7.09 (1.69)	7.02 (1.65)	7.37 (1.53)	7.15 (1.39)	7.06 (1.98)
Neuroticism	5.18 (2.17)	5.91 (2.13)[a]	6.09 (2)[a]	5.77 (2.15)	6.62 (2)
Openness	7.02 (1.63)	7.52 (1.79)[a]	7.17 (1.78)	7.85 (1.83)	7.13 (1.78)

Note: Due to similarities between self-identified, attraction and behavior sexual orientation (see correlations Table 2, and SI "*Sexual Orientation*"), a composite measure was formed for these comparisons. Participnats who were consistently heterosexual were categorized as heterosexual, all others were categorized as nonheterosexual men.

[a] Significantly different from heterosexual men, $p < .05$.
[b] Significantly different from Profile 1 nonheterosexual men, $p < .05$.
[c] Significantly different from Profile 2 nonheterosexual men, $p < .05$.
[d] Significantly different from Profile 3 nonheterosexual men, $p < .05$.
[e] Significantly different from Profile 4 nonheterosexual men, $p < .05$.

Table S9. Exclusively Heterosexual and Gay Men Comparisons.

Variables	Profile 1	Profile 2	Profile 3	Profile 4
Handedness	0.09 (0.09)[c,d]	0.12 (0.11)[c,d]	0.81 (0.15)[a,b,d]	0.33 (0.18)[a,b,c]
Fraternal Birth Order	0.17 (0.11)[b,c]	0.61 (0.1)[a,c,d]	0.27 (0.22)[a,b]	0.22 (0.13)[b]
Familiality	0.04 (0.07)[d]	0.04 (0.09)[d]	0.05 (0.08)[d]	0.55 (0.19)[a,b,c]
RCGI	3.88 (0.62)[b,c]	3.76 (0.55)[a]	3.67 (0.59)[a]	3.77 (0.58)
Bem Masculinity	48.6 (8.6)	49.03 (8.58)	50. 17 (7.67)	50.39 (9.26)
Bem Femininity	52.94 (9.07)[b]	55.67 (8.1)[a,c]	50.59 (9.15)[b]	52.52 (8.85)
Feminine Occupational Preference	17.88 (6.19)[b]	19.28 (5.88)[a]	18.24 (6.17)	18.22 (5.3)
Masculine Occupational Preference	19.27 (7.55)	19.32 (6.55)	17.37 (7.35)[d]	22.52 (7.67)[c]
Extroversion	6.34 (2.17)	6.48 (2.13)	6.72 (2.12)	6.65 (1.92)
Agreeableness	7.09 (1.7)[b]	7.51 (1.57)[a,c,d]	6.63 (1.72)[b]	6.83 (1.87)[b]
Conscientiousness	7.05 (1.67)	7.33 (1.56)	7.39 (1.54)	7.23 (1.82)
Neuroticism	5.75 (2.17)	5.81 (2.13)	5.52 (2.18)	5.17 (2.25)
Openness	7.32 (1.8)	7.31 (1.75)	7.74 (1.71)	7.09 (1.86)

[a] Significantly different from Profile 1 nonheterosexual men, $p < .05$.
[b] Significantly different from Profile 2 nonheterosexual men, $p < .05$.
[c] Significantly different from Profile 3 nonheterosexual men, $p < .05$.
[d] Significantly different from Profile 4 nonheterosexual men, $p < .05$.

Table S10. Effect Sizes for Latent Profile Comparisons.

	Omnibus 4-Profile comparison (η_p^2)	Profile 1 vs 2 (*d*)	Profile 1 vs 3 (*d*)	Profile 1 vs 4 (*d*)	Profile 2 vs 3 (*d*)	Profile 2 vs 4 (*d*)	Profile 3 vs 4 (*d*)
Indicator Variables							
Handedness	**0.35***	**0.32***	**7.37***	**2.96***	**5.59***	**2.07***	**3.08***
Older Brother	**0.46***	**3.91***	**0.93***	**0.54***	**2.43***	**3.24***	0.25
Familiality	**0.14***	0	0.14	**6.60***	0.13	**5.34***	**5.01***
Outcome Variables							
RCGI scale	**0.012***	**0.17***	**0.27***	0.28	0.11	0.13	0.017
Bem Masculinity	*NS*	0.01	0.14	0.21	0.16	0.25	0.11
Bem Femininity	**0.014***	**0.30***	0.31	0.05	**0.58***	0.24	0.33
Feminine Occupational Preference	*NS*	0.26	0.01	0.14	0.27	0.12	0.15
Masculine Occupational Preference	**0.009***	0.004	**0.33***	0.38	0.35	0.43	**0.70***
Extroversion	*NS*	0.03	0.06	0.13	0.03	0.10	0.07
Agreeableness	**0.015***	**0.27***	0.26	0.12	**0.56***	0.41	0.13
Conscientiousness	*NS*	0.17	0.11	0.05	0.06	0.12	0.06
Neuroticism	*NS*	0.08	0.12	0.28	0.20	0.36	0.16
Openness	*NS*	0.04	0.27	0.22	0.32	0.19	0.50

***Indicates significant comparisons, $p < .05$; posthoc tests were not performed for non-significant (NS) omnibus comparisons.*

Note: Due to the large differences in sample sizes between profiles, Cohen's *d* effect sizes were computed with the Hedges correction to adjust the calculation of the pooled deviation with weights for the sample sizes.

Table S11. Means and Standard Deviations for Indicator Variables by Latent Profile.

	Proportion of left-handedness	Proportion of older brothers	Proportion of Gay/Bisexual Men
Profile 1	0.09 (0.09)[b,c,d]	0.17 (0.11)[b,c,,d]	0.04 (0.07)[d]
Profile 2	0.12 (0.11)[a,c,d]	0.60 (0.11)[a,c,d]	0.04 (0.08)[d]
Profile 3	0.81 (0.14)[a,b,d]	0.28 (0.23)[a,b]	0.05 (0.08)[d]
Profile 4	0.37 (0.15)[c,a,b]	0.23 (0.13)[a,b]	0.55 (0.17)[a,b,c]

Note: Handedness scores ranged from 0-1, with a score of zero indicating the use of the right hand for all tasks on the Edinburgh questionnaire, whereas a score of one indicated use of the left hand for all tasks on the Edinburgh questionnaire.

[a] Significantly different from Profile 1, $p < .05$.

[b] Significantly different from Profile 2, $p < .05$.

[c] Significantly different from Profile 3, $p < .05$.

[d] Significantly different from Profile 4, $p < .05$.

Appendix A

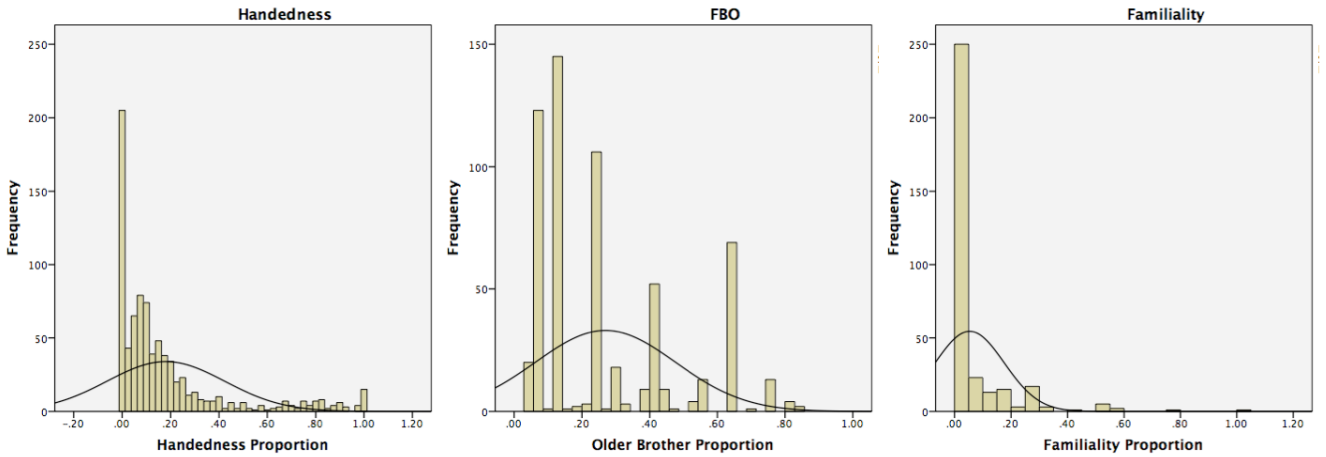

Figure S1. Non-*Normality of Biomarkers.* The data from the biomarkers included in the present study are skewed, as would be expected given the low frequencies of these biomarkers in the population. To eliminate the possibility of spurious profile formation, modeling was done with the skew-t distribution in Mplus (see SI "*Non-Normality of Biomarkers*" for further details).

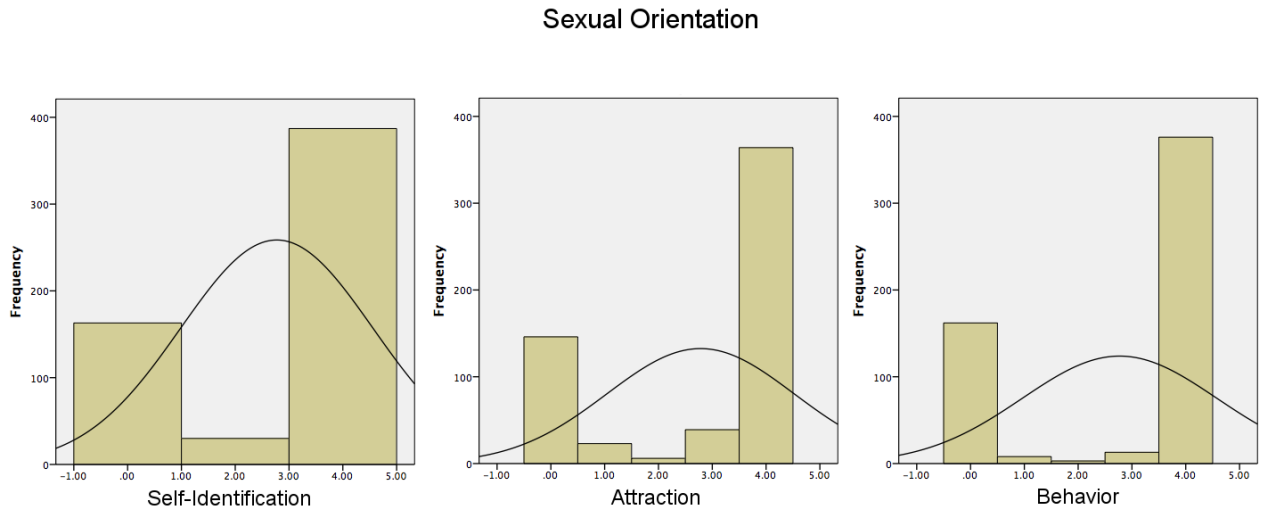

Figure S2. *Frequency Distribution of Participants by Sexual Orientation Category.* The distribution of participants based on the 3 classifications of sexual orientation were bimodal. No differences were found between non-exclusive sexual orientations and exclusively same-sex oriented participants; thus, these participants were grouped into one nonheterosexual group for the main analyses (see SI "*Sexual Orientation*" for further details).

Appendix B

```
TITLE:
      LCA study on sexual orientation
      4 class

  DATA:
      FILE is /Users/Ashlyn/Desktop/LPA180918.csv;

  VARIABLE:
      NAMES are handz oldbroz FamZ IDNumber;

      MISSING are all (999);

      IDVARIABLE = IDnumber;
      USEVAR are   handz oldbroz FamZ;

      CLASSES = c(4);

  ANALYSIS:
      type = mixture;
      starts = 1000 500;

  OUTPUT:
      TECH1 TECH8 TECH11 TECH14;


 SAVEDATA:
       SAVE = cprobabilities;
       FILE is SexualOrientation_4c_zscores_sept2018.dat;
```