

The association of partner type instability with sexual orientation incongruity among sexual minorities in Britain: findings from the National Survey of Sexual Attitudes and Lifestyle 2010-2012

Short Title: Instability and incongruity in minority sexual orientation

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Abstract

Background: Previous study of sexual minorities has documented both instability in the sex of sex partners and incongruity among all three dimensions of sexual orientation (attraction, behavior and identification), but no attempt has been made to relate the two. How, if at all, does past change affect present incongruity? This study attempts, for the first time, to examine this question.

Method: Using a representative probability sample of the British population (n = 15,162), the current dimensions of sexual orientation were compared across changes in sex partner type—opposite-sex only (O/Sex), same-sex only (S/Sex), or both opposite-sex and same-sex (B/Sex)—over three time periods—before 5 years ago (Time 1), 5 years to 1 year ago (Time 2), and the past year (Time 3)—for the nonheterosexual population. Differences and trends in population-weighted percentage frequencies stratified by sex were assessed by t-test or inspection of 95% confidence intervals.

Results: Overall incongruity and instability were high: 74% of men and 85% of women did not report congruent lifetime sexual attraction, behavior and identification; of persons reporting any same-sex sex partners at Time 1, 82% reported a different partner type at Time 3. Most change (80% for women, 84% for men) involved a single partner type transition (transience) rather than multiple changes (fluidity) and movement toward increased heterosexual orientation (69%; 65% to O/Sex partners. From Time 1 to Time 3, 19% of persons with S/Sex partners moved to O/Sex partners; 0.1% of persons with O/Sex partners moved to S/Sex partners.

Instability moderately reduced already high incongruity for the majority moving toward increased heterosexual orientation, but increased already low incongruity for the minority moving toward increased same-sex orientation. Among presently S/Sex partnered persons (comprising 12% of sexual minorities), incongruity was reported by 1.4% of persons with stable partnership history and 11% of persons with unstable partnership history ($p=.0052$). For all except presently S/Sex partnered persons (comprising 88% of sexual minorities), incongruity was reported by 97% of persons with stable partnership history and 86% of persons with unstable partnership history ($p=.0000$).

Conclusion: For most sexual minority persons, partner type instability contributed to a modest reduction of high sexual minority orientation incongruity after moving toward increased heterosexual practice. Among current S/Sex partnered persons, however, instability strongly increased incongruity between identification and behavior or attraction. These results are consistent with minority stress theory but inconsistent with homosexual immutability, and counsel caution regarding legal restrictions on support for sexual minority persons moving toward increased heterosexual partnership.

Keywords: sexual orientation; sexual fluidity; British National Survey of Sexual Attitudes and Lifestyles

Introduction

Sexual orientation is generally conceived to encompass three dimensions: sexual attraction (what sex persons are sexually attracted to), behavior (what sex persons have sex with), and identity (what persons call themselves). Laumann and colleagues were among the first to report that, while these three dimensions were highly congruent for the dominant heterosexual majority, this was not the case for the non-heterosexual minority. In their survey of a representative sample of the American population, they found that, of persons who experienced same-sex orientation on any one of the three dimensions, only 24% of males and 15% of females experienced it on all three dimensions (1,2). Similarly, Geary et al. found in a British survey conducted 2010-2012 only 26% of non-heterosexual men and 14% of non-heterosexual women reported same-sex orientation on all three dimensions. (3)

As well as incongruity, minority sexual orientation is also subject to change over the life course. Diamond and Rosky (4) found that from 26% to 64% of respondents reporting same-sex attraction at first assessment on four national longitudinal surveys reported a change in sexual attraction by the second assessment. (5–8) Over half of those who changed moved to heterosexual attraction, and change was more common among women and persons with initial bisexual attraction, yet even from 4% to 10% of initially exclusively homosexually attracted men changed sexual attraction by the second assessment. These results, the authors observed, “unequivocally demonstrate that same-sex and other-sex attractions do change over time in some individuals.” (4)

Little attempt to date has been made to relate instability to incongruence in dimensions of sexual orientation. Does incongruent sexual attraction, behavior or identification mean a person has experienced change between same- and other-sex orientation on one or more of the three

dimensions? The present study attempts to address this question by examining the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). Natsal-3 is a 2010-12 probability sample survey of the British population, which provides helpful data to address these questions.

Designed to examine British sexual and reproductive health over the life course, (9) Natsal-3 included time-specified retrospective measures which provide information on respondents' history of sexual behavior. Previous studies have exploited this temporality to examine possible associations of past sexual behavior with a range of issues in current health and behavior, including sexuality. (3,9,9–11) Geary et al. (2018) reported findings indicating that both incongruence and transience in sexual orientation are common: that “[m]ore than a quarter of men and approximately half of women reporting same-sex sex in the past 5 years identified as heterosexual;”(3) and that “[l]ess than half of those who reported same-sex sex more than five years ago reported any same-sex attraction, compared to more than 80% of those who reported same-sex sex in the past 5 years.” Furthermore, the size of the proportion of men and women who had had same-sex sex within the past 5 years was matched by the size of the proportion who “reported same-sex sex ever, but not in the past 5 years”: each proportion being just under 3%. (3, Table S2)

Data and Methods

Comprehensive descriptions of Natsal-3's design and methods have been published elsewhere, (9,12) to which we refer the interested reader. Here we present a brief summary pertinent to the present study. From September 2010 to August 2012 Natsal-3 interviewed 15,162 household residents aged 16-74 in England, Scotland and Wales, selected using a stratified multi-stage cluster sampling frame that was probabilistically representative of the British population. The contact response rate was 57.7%.

During the interview male (female) participants were shown three cards related to the dimensions of sexual orientation, with options associated with random letters of the alphabet, and asked to tell which letter best represented them to the interviewer, who entered the letter into a computer. One card, labeled “**Sexual identity**,” asked “Which of the options on this card best describes how you think of yourself.?” The response options, conforming to the guidelines of the Office of National Statistics, (13) were “Heterosexual / Straight; Gay / Lesbian; Bisexual; Other.” Earlier in the interview participants were presented a card which read, “I have felt **sexually attracted**. . . (1) Only to *females (males)*, never to *males (females)* (2) More often to *females (males)*, and at least once to a *male (female)* (3) About equally often to *females (males)* and to *males (females)* (4) More often to *males (females)*, and at least once to a *female (male)* (5) Only to *males (females)*, never to *females (males)* (6) I have never felt sexually attracted to anyone at all.” Another card presented six similar responses options for sexual experience, defined as any form of sexual contact. Respondents who did not indicate an absence of sexual experience (i.e., all responses except option 6) were then given a computer and asked to enter directly, without telling the interviewer, whether the sexual experience involved genital contact and about the number and sex of their sex partners in the past year, the past 5 years, and ever.

Despite the assurance of computer-assisted confidentiality, sexuality item nonresponse was high due to the sensitivity of the questions. A total of 639 cases (4.2%) could not be classified due to nonresponse, principally information on lifetime sexual partners, which went unreported by 618 respondents (4.1%). Another 562 persons who reported same-sex partners did not report information about heterosexual partners. Removed from the analysis were 8 cases which reported more sex partners in the past 5 years than total lifetime partners. Three cases which reported more than 50 partners in the past year were topcoded at 50 to counteract any outlier effect. The items measuring numbers of sex partners permitted the response “at least

one”. Cases that reported “at least one” partner over their lifetime, past 5 years or past year, but reported a more specific number for one or more of the other periods, were coded in accord with the most specific designation consistent with the sequence of time periods. For example, 22 cases which reported “at least one” partner in the past 5 years but from 2 to 30 lifetime partners were corrected using the lifetime number.

We constructed a synthetic history of four types of sexual partners from the responses of those who had ever had genital sex. We classified the partner type, the stability of partnership and the congruity of partnership. We classified the respondents over three time periods: before the past 5 years (Time 1); 5 years to 1 year ago (Time 2); and the past year (Time 3) as shown in the following definitions (Box 1).

Box 1: Definitions for this study	
SEXUAL PARTNER(S) AND ATTRACTION TYPE	Sex of sexual partner/object
O/Sex	Other-sex only
S/Sex	Same-sex only
B/Sex	Both other-sex and same-sex
None	No sex partners or sexual attraction
SYNTHETIC ASSESSMENT PERIOD	
Time 1	Before 5 years ago
Time 2	5 years to 1 year ago
Time 3	In the past year
STABILITY	
Stable	Reported the same partner type in all three time periods
Unstable	Did not report the same partner type in all three periods. Reported either transient change or fluid change:
Transient	One Change: Reported changed partner type from Time 1 to Time 2 or from Time 2 to Time 3, but not both.
Fluid	Two Changes. There were two types of fluidity:

Fluid Revert	Reported changed partner type both from Time 1 to Time 2 and from Time 2 to Time 3 but not from Time 1 to Time 3.
Fluid Change	Reported a different partner type in all three time periods.
CONGRUITY	
Congruent	Reported one of the following three patterns: A. All of O/Sex partners, O/Sex attraction and heterosexual identity; B. All of S/Sex partners, S/Sex attraction and gay or lesbian identity; C. All of B/Sex partners, B/Sex attraction and bisexual identity.
Incongruent	Did not report one of the three patterns listed above.

Past research has used the term “fluid” to refer to any change in a dimension of sexual orientation (4,14) and sometimes even inconsistency among the dimensions (5). For the present analysis we defined sexual partnership type as “stable” if there was no change over the three time periods observed in this study, and “unstable” otherwise; “transient” if there was a single change in partnership type; and “fluid” if there was more than one change. Thus, for example, a respondent who reported only lifetime O/Sex partners would be defined as stable; O/Sex partners at Time 1 (before 5 years ago) but B/Sex at Time 2 and Time 3 would be defined as transient; and O/Sex partners at Time 1, B/Sex partners at Time 2, and S/Sex partners at Time 3, would be defined as fluid. For inconsistency among the dimensions of sexual orientation we use the term “incongruent” or “incongruity” interchangeably. An example of incongruity in sexual orientation would be a heterosexual woman who reported attraction only to women and/or had only female sex partners.

Statistical analyses for this present study were performed using SPSS version 22 and Stata version 13, adjusting for sample stratification, clustering and weighting using information supplied by Natsal-3, so as to represent as closely as possible the British population of men and

women aged 16-74 years. As an anonymous secondary analysis of pre-existing publicly available data, the present study is considered exempt from human subject ethical review.

Results

Summary Results in Three Dimensions

Table 1 presents the percentage distribution of the three dimensions of sexual orientation in the British population. As the extreme skew in the distribution of all three dimensions makes clear, the overwhelming majority (above 90%) of British persons identified as heterosexual and reported attraction to and sexual partnerships exclusively with persons of the opposite sex, thereby experiencing a stable sexual orientation congruent in all three dimensions.

Table 1. Percent distribution of sexual partners, attraction and identity: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

	Lifetime sex partners % (SE)	Reported sexual attraction % (SE)	Reported sexual identity % (SE)
O/Sex	90.4 (0.28)	90.4 (0.27)	97.2 (0.15) [Heterosexual]
B/Sex	4.8 (0.21)	8.4 (0.25)	1.6 (0.12) [Bisexual, Other]
S/Sex	0.58 (0.07)	0.63 (0.07)	1.2 (0.10) [Gay/Lesbian]
None	4.2 (0.17)	0.62 (0.07)	N/A
Total	100	100	100

Percentages shown are weighted for population and survey design. %, percent; SE, standard error; N, number of unweighted cases; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Not included in the table are persons who declined to report information on lifetime sex partners (4.0%) or sexual attraction (0.2%). Percentages may not total exactly 100 due to rounding.

Instability and incongruence in sexual choices may characterize the remaining 9 percent of sexually active non-heterosexual persons, however, almost all of whom (93%, being 8.4/9.03) reported some level of sexual attraction to both sexes. The mismatch of sexual identity with sexual desires and practices roughly corresponds to this duality or ambivalence. Other features

of the table suggest a large degree of independence among the dimensions of sexual orientation. More persons identified as heterosexual or as gay/lesbian than was reflected in the corresponding desires and practices. Amongst non-heterosexuals, twice as many persons identified as gay or lesbian than reported having had O/Sex partners or only same-sex sexual attraction. Fewer persons identified as bisexual than were attracted to or had had sex with persons of both sexes. The proportion identifying as Bisexual or Other was only a third of that reporting B/Sex partners, and less than one fifth of that reporting both opposite-sex and same-sex sexual attraction. A substantial proportion of persons with mixed-sex attractions either did not identify as bisexual and / or did not have sex with both sexes.

Table 1 also illustrates that, unlike other-sex attractions and behavior, same-sex attractions and behavior were rarely exclusive. Regarding attraction, of the 98.8% of persons that reported attraction to the opposite sex, 90.3% (90.4/98.8) were attracted exclusively to persons of the opposite sex, but of the 9.03% who experienced attraction to the same sex, only 7.0% (0.63/9.03) reported being exclusively attracted to persons of the same sex. Regarding sexual behavior, 95.0% of those reporting any other-sex partners never had a same-sex partner, while only 10.8% of those reporting any same-sex partners had never had an other-sex partner. In sum, almost all persons with same-sex attraction also experienced other-sex attraction (93.0%), and almost all persons who had engaged in same-sex behavior had also engaged in other-sex behavior (89.2%).

Incongruity

Table 2 presents all the permutations of the three dimensions of same-sex sexual orientation - same-sex attraction, LGB identification, and same-sex sexual partners in the British population.- in the Natsal-3 dataset. The left two columns include in the dimension of same-sex

partnership all persons who reported ever having a same-sex partner. The right two columns narrow the scope to those reporting a same-sex partner in the past 5 years; these replicate the proportions reported by Geary et al., Figure 2, (3) and are presented here for only for comparison and validation.

Table 2 documents the presence of a very low degree of congruity among the three dimensions of sexual orientation in the non-heterosexual population. Of the 8.5% of British men who expressed at least one of the dimensions of non-heterosexual orientation, just over a quarter (26%) expressed all three dimensions. The rate of congruity of all three dimensions among nonheterosexual British women, who comprised 12.9% of women, was even lower, at 15.1%.

Table 2. The overlap among same-sex sexual attraction, LGB sexual identity, and same-sex sex for men and women: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

Same-sex Attraction	LGB Identity	Same-sex sex	Ever same-sex sex (lifetime)		Same-sex sex in past 5 years	
			Population Percent	NH Population Percent	Population Percent	NH Population Percent
			% (CI)	% (CI)	% (CI)	% (CI)
Men						
Yes	No	No	2.85 (2.43, 3.35)	33.70 (29.30, 38.40)	3.65 (3.17, 4.20)	53.22 (47.66, 58.69)
No	Yes	No	0.16 (0.05, 0.53)	1.85 (0.55, 6.00)	0.17 (0.05, 0.52)	2.44 (0.78, 7.33)
No	No	Yes	1.54 (1.20, 1.97)	18.23 (14.53, 22.62)	0.28 (0.16, 0.50)	4.09 (2.28, 7.23)
Yes	Yes	No	0.13 (0.07, 0.24)	1.57 (0.88, 2.79)	0.51 (0.35, 0.73)	7.43 (5.21, 10.48)
No	Yes	Yes	0.03 (0.01, 0.13)	0.36 (0.09, 1.53)	0.02 (0.00, 0.14)	0.29 (0.04, 2.04)
Yes	No	Yes	1.31 (1.01, 1.69)	15.49 (12.10, 19.63)	0.45 (0.29, 0.71)	6.61 (4.28, 10.07)
Yes	Yes	Yes	2.21 (1.83, 2.66)	26.09 (22.03, 30.61)	1.78 (1.45, 2.18)	25.92 (21.63, 30.73)
Total			8.47 (7.69, 9.32)	100	6.85 (6.17, 7.61)	100
No of cases			6,293	579	6,293	485
Women						
Yes	No	No	6.62 (6.03, 7.27)	51.25 (47.84, 54.64)	8.10 (7.46, 8.79)	67.92 (64.75, 70.94)
No	Yes	No	0.07 (0.02, 0.22)	0.52 (0.16, 1.69)	0.07 (0.02, 0.22)	0.57 (0.17, 1.83)
No	No	Yes	1.24 (1.00, 1.53)	9.58 (7.78, 11.74)	0.48 (0.34, 0.68)	4.03 (2.87, 5.65)
Yes	Yes	No	0.33 (0.24, 0.47)	2.58 (1.83, 3.64)	0.58 (0.44, 0.77)	4.86 (3.68, 6.39)
No	Yes	Yes	0.02 (0.00, 0.13)	0.14 (0.02, 0.98)	0.02 (0.00, 0.13)	0.15 (0.02, 1.06)
Yes	No	Yes	2.57 (2.22, 2.98)	19.88 (17.30, 22.75)	1.00 (0.81, 1.23)	8.39 (6.81, 10.31)
Yes	Yes	Yes	1.95 (1.67, 2.28)	15.09 (13.07, 17.37)	1.68 (1.41, 2.00)	14.07 (11.98, 16.47)

Total	12.93 (12.16, 13.74)	100	11.92 (11.19, 12.71)	100
No of cases	8,869	1,283	8,869	1,187

Values shown are weighted for population and survey design. LGB, lesbian, gay, or bisexual; N, unweighted number of cases; NH, non-heterosexual; CI, confidence interval. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data.

By not including reported same-sex partners prior to five years ago, Geary et al. (3) excluded 18.1% of sexual minority men and 7.8% of sexual minority women from their analysis of sexual orientation dimensions. Excluding these cases prevents examining transience and fluidity (See Box 1), but affects observed congruity only marginally, reducing it from 26.1% to 25.9% for men and from 15.1% to 14.1% for women, differences that are well within the range of sampling uncertainty. Although Geary et al. may have excluded earlier sexual partnerships due, in part, to perceived increased uncertainty with a longer retrospective measure, it is worth noting that when including all sexual partners in the present analysis, estimated congruity was slightly lower, with smaller confidence intervals. This suggests that earlier lifetime sexual behavior may contribute to, and assuredly does not obscure, persons' current assessment of their sexual orientation.

Table 3 restates the effects of Table 2 in terms of incongruence rather than congruence, isolating the pairwise incongruence between and summary incongruence among all three dimensions of sexual orientation. As just noted, almost three-fourths (73.9%) of non-heterosexual men and six-sevenths (84.9%) of non-heterosexual women did not report all of their behavior, attraction and identification (BAI) to be consistent with their sexual minority status. In sum, in the sexual minority population, incongruity among the dimensions of sexual orientation is very high.

Table 3. Incongruity between attraction, identification and behavior by sex among nonheterosexual persons: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

Percent incongruent between ...	Men % (95% CI)	Women % (95% CI)
Non-Heterosexual	579	1283
Behavior and Identification (BI)	73.54 (69.01, 77.63)	84.77 (82.48, 86.81)
Behavior and Attraction (BA)	58.41 (53.32, 63.33)	65.02 (61.77, 68.14)
Attraction and Identification (AI)	72.34 (67.78, 76.48)	82.32 (79.90, 84.51)
Behavior, Attraction and Identification (BAI)	73.91 (69.40, 77.97)	84.91 (82.63, 86.93)

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval. Denominators used in calculations may be reduced due to item-missing data.

The following alternative analyses may help to illustrate high sexual minority incongruity. First, Table 4 reports the proportion of persons who have same-sex sexual partners but report only other-sex attraction and/or identify as heterosexual. These represent the extreme cases of incongruity in the non-heterosexual population. Among persons with B/Sex partners in the past year, almost a fifth (18% of men; 19% of women) reported that they were sexually attracted only to persons of the opposite sex; over half of this group (50% of men; 59% of women) identified as heterosexual. These findings echo those of Lewis et al (2017 Table 2) regarding the very mixed sexual practices of 16-24 year olds in Natsal-3. (15) Even 1.2% of men and 0.4% of women with O/Sex partners in the past year reported only opposite-sex attraction; 7% of this group (6.6% of men; 7.5% of women) with O/Sex partners identified as heterosexual. Though some are small, all of the proportions reported in Table 4 are significantly greater than zero.

Table 4. Adverse attraction and identity among persons with S/Sex partners: Representative population sample of sexual minority persons, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

Current partnership type ...	Reports only opposite-sex attraction		Identifies as “heterosexual/straight”	
	Men % (95% CI)	Women % (95% CI)	Men % (95% CI)	Women % (95% CI)
Any same-sex partner (n=357)	6.43 (3.34, 12.04)	9.53 (5.36, 16.38)	19.63 (12.71, 29.07)	32.61 (25.46, 40.67)
S/Sex (n=207)	1.16 (0.26, 4.99)	0.37 (0.05, 2.68)	6.64 (2.75, 15.20)	7.51 (3.02, 17.45)
B/Sex (n=150)	18.43 (8.77, 34.68)	19.33 (11.01, 31.72)	49.98 (32.13, 67.84)	59.48 (47.43, 70.49)

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; d, Cohen’s D. Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data.

Second, in Table 4 the analysis of dimensional incongruity does not take into account the definition of sexual identification, the correlates of which are permitted to overlap. Table 5 reports the alternative conceptualization, in which sexual identification categories are conceived to be mutually exclusive. In this analysis, gay or lesbian identification is consistent with exclusive same-sex partnership and attraction; heterosexual identification with exclusive opposite-sex partnership and attraction; and bisexual identification with any mixed attraction or partnership involving both sexes. Since 100% of persons classified as sexual minority who identify as heterosexual are incongruent by definition, the table includes all heterosexual persons, thus comparing all persons subscribing to each of the three sexual identifications shown. For both men and women, definitional inconsistency is lowest among heterosexual persons and highest among gay/lesbian persons. Over half (57.6%) of gay males and almost all (89.2%) lesbian females reported sexual partnership or attraction which is not consistent with an exclusive understanding of gay/lesbian identity.

Table 5. Definitional Inconsistency by sexual identification: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

	Men % (95% CI)		Women % (95% CI)	
	Inconsistent	Consistent	Inconsistent	Consistent
Heterosexual	6.38 (5.68, 7.15)	93.62 (92.85, 94.32)	11.18 (10.44, 11.98)	88.82 (88.02, 89.57)
Bisexual	36.60 (21.97, 54.21)	63.40 (45.79, 78.03)	29.07 (21.06, 38.64)	70.93 (61.36, 78.94)
Gay/Lesbian	57.59 (47.18, 67.38)	42.41 (32.62, 52.82)	89.24 (80.21, 94.44)	10.76 (5.56, 19.79)

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; d, Cohen's D. Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data. Men and women who did not report one of these three sexual identities, reported no sexual desire, or had never had any sexual partner were excluded.

Instability

The findings of this section make use of crosstabulations of past and present sexual partner types which are included as supplemental tables with this paper. Tables S1 and S2 report case counts and estimated population values for the entire British population; tables S3 and S4 for the non-heterosexual population only.

Table 6 summarizes the variability of same-sex behavior in the manner of prior population studies of sexual orientation change, (4–6,8,14,16) based on computations from Supplemental Tables S1 and S2 appended below.

Table 6. Selected changes in reported sexual behavior, interpreting effects of Tables S1 and S2: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

	Men	Women
1. Percent reporting any same-sex partners before 5 years ago.	4.4	5.1
2. Of those reporting any same-sex partners before 5 years ago, the percent reporting changed behavior in the past year.	78.6 (72.7, 83.5)	84.8 (80.6, 88.3)
3. Of those reporting changed behavior in row 2, the percent who changed to ...		

O/Sex partners	62.2 (54.5, 69.4)	66.9 (61.3, 72.1)
B/Sex partners	3.2 (1.3, 7.7)	4.4 (2.7, 7.2)
S/Sex partners	17.9 (12.8, 24.6)	17.2 (13.1, 22.3)
No partners	16.6 (11.8, 22.8)	11.4 (8.3, 15.4)
4. Of those reporting changed behavior in row 2, the percent who changed in a heterosexual direction.*	65.5 (57.9, 72.4)	71.4 (66.0, 76.2)
5. Percent of all A before 5 years ago who changed to B in the past year; where		
A = O/Sex and B = S/Sex	0.1 (0.04, 0.2)	0.1 (0.05, 0.2)
A = S/Sex and B = O/Sex	12.2 (6.2, 22.6)	28.7 (18.5, 41.7)
A = B/Sex and B = O/Sex	60.2 (52.1, 67.8)	60.9 (55.2, 66.4)
A = B/Sex and B = S/Sex	18.5 (13.2, 25.2)	16.8 (12.8, 21.7)

Percents shown are population-weighted and design-adjusted to represent the British population. Not included in the table are 582 respondents (3.8%) with missing information on sex partners. O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. *Includes persons changing from S/Sex or B/Sex to O/Sex and from S/Sex to B/Sex.

In Table 6, change in the orientation of non-heterosexual partnerships was far more prevalent than not, and most change was in a heterosexual direction. Of persons who engaged in any same-sex behavior before 5 years ago, the overwhelming majority (82.0%, 95% CI 78.5, 85.0), comprised of 78.6% of men (95% CI 72.7, 83.5) and 84.8% of women (95% CI 80.6, 88.3), reported changed partnership behavior in the past year. Over two thirds (68.8; 95% CI 64.3, 72.9) of change, comprised of 65.5% of men (95% CI 57.9, 72.4) and 71.4% of women (95% CI 66.0, 76.2) was toward increased heterosexual partners, including from B/Sex and S/Sex to O/Sex and from S/Sex to B/Sex. The single largest destination category of change (64.9%, 95% CI 60.2, 69.2) was to O/Sex partnerships. Almost one in five persons (18.7%, 95%

CI 12.8, 26.4) formerly with S/Sex partners currently had O/Sex partners. By contrast, only 17.5% (95% CI 14.2, 21.4) of those who changed moved to S/Sex partners, and almost no persons (0.1%, 95% CI 0.05, 0.15) changed from O/Sex to S/Sex partners. Those who began with B/Sex partners were most likely to change; about 6 in ten such persons (60% of men, 61% of women) transitioned to O/Sex partners, while 19% of men and 17% of women who began with B/Sex partners transitioned to S/Sex partners.

This pattern of high instability, mostly away from bisexual behavior and toward exclusively heterosexual partnerships, is consistent with the repeated findings of prior population studies of sexual orientation change and variability using measures of sexual attraction.

Diamond and Rosky's review of such studies, as noted above, found that up to 64% of lesbians reported change in sexual attraction over time, with the majority changing in a heterosexual direction and women changing more than men.(4) The similarity of the present results with these findings reassuringly suggests that Natsal's retrospective measures are sensitive to the same changes over time observed using longitudinal measures in other studies.

Stability, Transience and Fluidity

The full range of variability in sexual partnerships in Natsal-3 was somewhat higher than the analysis in Table 6 suggests due to intervening changes in sexual partnership type. Table 7 reports the increased proportions. Transience (see Box 1) was defined as a change in sexual partnership type from T1 (before 5 years ago) to T3 (the past year); fluidity also included any additional change in partnership type at T2 (1-5 years ago). Table 7 shows almost all variance in sexual partnership types involved a single transition from T1 to T3. Fluidity increased overall change by 4% for men and 5% for women.

Table 7. Frequency of stability, transience and fluidity (fluid revert and fluid change) by current partnership type: representative non-heterosexual

**population sample, Great Britain (England, Scotland and Wales), 2010-2012
(N=1,862)**

Current partnership type	Men (n=579)				Women (n=1,283)			
	Stable (T1=T2=T3)	Transient (T1≠T3, T1=T2 or T2=T3)	Fluid Revert (T1=T3, T1≠T2 & T2≠T3)	Fluid Change (T1≠T3, T1≠T2 & T2≠T3)	Stable (T1=T2=T3)	Transient (T1≠T3, T1=T2 or T2=T3)	Fluid Revert (T1=T3, T1≠T2 & T2≠T3)	Fluid Change (T1≠T3, T1≠T2 & T2≠T3)
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
All types	39.55 (34.80, 44.50)	51.10 (46.28, 55.90)	3.52 (2.07, 5.92)	5.83 (3.98, 8.47)	45.86 (42.62, 49.13)	43.33 (40.18, 46.53)	4.72 (3.65, 6.09)	6.09 (4.84, 7.64)
O/Sex	43.84 (37.28, 50.63)	48.59 (42.09, 55.15)	4.31 (2.24, 8.11)	3.26 (1.76, 5.94)	54.04 (49.96, 58.07)	36.83 (33.09, 40.74)	4.68 (3.47, 6.29)	4.44 (3.19, 6.15)
B/Sex	46.31 (30.37, 63.05)	46.94 (30.91, 63.63)	0 (no cases)	6.75 (1.92, 21.09)	49.79 (38.34, 61.25)	39.18 (28.68, 50.79)	8.62 (4.11, 17.18)	2.41 (0.87, 6.53)
S/Sex	39.75 (29.64, 50.82)	50.32 (39.64, 60.98)	4.07 (1.22, 1.27)	5.86 (2.89, 11.49)	11.19 (6.26, 19.20)	71.86 (61.79, 80.12)	5.19 (2.09, 12.32)	11.76 (6.64, 19.99)
None	22.49 (14.42, 33.32)	61.78 (50.55, 71.88)	1.97 (0.58, 6.49)	13.76 (7.30, 24.42)	17.12 (11.60, 24.55)	66.09 (57.08, 74.07)	2.08 (0.68, 6.20)	14.71 (9.25, 22.59)

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data.

The general picture presented by this flux is one of a very high degree of change in sexual partnership types for persons of minority sexual orientation. Among the non-heterosexual British population, partnership instability was more common than stability, and was particularly high among men and women currently with only same-sex partners or with no partners.

Instability and Incongruity

In the previous sections we have seen that minority sexual orientation is subject to both high incongruity and high instability, including both transience (a single change in partner type)

and fluidity (multiple changes in partner type); see Box 1 for definitions. This section examines whether incongruity and instability are related.

Table 8 compares differences in incongruity by partnership type instability. For all forms of incongruity, increased partner type change was associated with reduced inconsistency.

Incongruity was consistently lower among those with a transient rather than stable partnership history. Fluidity reduced incongruity further, only slightly and with one exception (BA incongruity for women) with a fluid revert pattern, but more strongly and consistently with fluid change.

Table 8. Incongruity by partner type instability, non-heterosexual men and women: Representative non-heterosexual population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

Percent incongruent	All	Stable	Transient	Fluid Revert	Fluid Change	S=T, d	S=FR, d	S=FC, d
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)			
Men (n=579)								
Behavior and Identification (BI)	73.54 (69.01, 77.63)	78.66 (71.70, 84.28)	71.06 (64.72, 76.67)	71.63 (44.43, 88.86)	61.24 (42.86, 76.90)	.0730, -.29	.5675, -.19	.0671, -3.32
Behavior and Attraction (BA)	58.41 (53.31, 63.34)	74.81 (67.37, 81.03)	50.37 (43.46, 57.27)	49.47 (25.26, 73.93)	33.67 (19.02, 52.33)	.0000, -.43	.0715, -.30	.0000, -5.62
Attraction and Identification (AI)	72.34 (67.77, 76.48)	75.81 (29.64, 50.82)	70.96 (64.64, 76.56)	68.99 (42.35, 87.08)	61.24 (42.86, 76.90)	.2646, -.27	.5852, -.20	.1276, -3.07
Behavior, Attraction and Identification (BAI)	73.91 (69.39, 77.97)	78.66 (71.70, 84.28)	71.81 (65.50, 77.36)	71.63 (44.43, 88.86)	61.24 (42.86, 76.90)	.1044, -.28	.5675, -.19	.0671, -3.32
Women (n=1,283)								
Behavior and Identification (BI)	84.77 (82.48, 86.81)	95.31 (93.04, 96.87)	79.00 (74.81, 82.65)	67.45 (53.12, 79.12)	64.46 (52.49, 74.85)	.0000, -.30	.0000, -.84	.0000, -3.74
Behavior and Attraction (BA)	65.02 (61.77, 68.14)	91.78 (88.72, 94.06)	45.24 (40.26, 50.32)	50.90 (38.16, 63.52)	26.79 (16.83, 39.82)	.0000, -.54	.0000, -1.05	.0000, -7.09
Attraction and Identification (AI)	82.32 (79.90, 84.74)	91.94 (89.19, 94.69)	76.59 (72.27, 80.91)	69.60 (55.97, 83.23)	64.46 (52.49, 76.43)	.0000, -.28	.0006, -.64	.0000, -3.02

	84.51)	94.03)	80.41)	80.48)	74.85)			
Behavior, Attraction and Identification (BAI)	84.91 (82.63, 86.93)	95.31 (93.04, 96.87)	79.00 (74.81, 82.65)	70.44 (56.75, 81.23)	64.46 (52.49, 74.85)	.0000, -.30	.0001, -.80	.0000, -3.75

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Effect sizes with a confidence interval that includes zero are not reported. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data.

Although the association of instability with incongruity was robust and statistically significant among women, among men it was too weak to be statistically significant for all except BA incongruity. This sex difference is consistent with the findings above. Both incongruity and instability—and the relative size of the sexual minority population—were somewhat smaller among men, corroborating multiple prior studies that have reported sexual minority instability or incongruence to be weaker or not significant among men compared to women. (1,3,4,14)

When partitioned by current sexual partner type, however, a more complex picture of the association of incongruity with instability emerges. As Table 9 shows, among non-heterosexual persons, that is, those who reported ever having a same-sex partner, incongruity dropped sharply according to the level of current same-sex partnership. The proportion of persons not congruent on all three dimensions of sexual orientation declined from 94% of men/96% of women with O/Sex partners to 53%/61% with B/Sex partners and to only 7%/9% with S/Sex partners.

Persons whose partnership type at T3 remained more similar to the defining feature of their origin partnership at T1 expressed much less present incongruity. At the same time, the incongruity-reducing association of instability also diminished, then reversed, in line with increasing nonheterosexual partnership. Instability was associated with lowered incongruity among persons with O/Sex partners, which by definition contradicts one of the three dimensions

of same-sex sexual orientation, and by extension among those with no partners. For the moderating category of persons with B/Sex partners, instability had no effect on incongruity. Then for the single category of current partner behavior that was unqualifiedly nonheterosexual—S/Sex partners—instability was associated with sharply raised incongruity. Both men and women with S/Sex partners experienced much less incongruity with stable partners (1.4%, 95% CI 0.3, 5.6) than with unstable partners (10.5%, 95% CI 5.8, 18.2). As Table 9 reports, the effect was much stronger, and only statistically significant, for men. Indeed, for men with stable S/Sex partners incongruity was almost nonexistent; almost all (94.5%, 95% CI 59.1-99.5) the incongruity in this population was positively related to instability.

Table 9. Overall (BAI) incongruity by instability and current partnership type: Representative non-heterosexual population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

Current partnership type ...	Percent BAI Incongruent									
	All	Men				Women				P(Test: S=U)
Stable % (95% CI)		Unstable % (95% CI)	P (Test: S=U)	% change S:U	Stable % (95% CI)	Unstable % (95% CI)	All			
All (n=1862)	73.91 (69.39, 77.97)	78.66 (71.70, 84.28)	70.77 (64.95, 75.99)	.0533	-10.0	84.91 (82.63, 86.93)	95.31 (93.04, 96.87)	76.61 (72.83, 80.00)	.0000	-19.6
O/Sex	94.13 (89.88, 96.66)	100.0	89.55 (82.32, 94.04)	.0004	-10.5	96.33 (94.69, 97.48)	100.0	92.05 (88.66, 94.48)	.0000	-8.0
B/Sex	53.27 (35.04, 70.66)	55.77 (29.64, 79.06)	51.23 (27.91, 74.03)	.8035	-8.1	61.13 (49.06, 71.98)	67.35 (49.56, 81.24)	54.97 (39.32, 69.69)	.2846	-18.4
S/Sex	7.10 (3.08, 15.51)	0.97 (0.13, 6.86)	11.20 (4.77, 24.10)	.0328	1055	9.10 (4.01, 19.34)	3.33 (0.43, 21.56)	9.83 (4.21, 21.28)	.2196	195
None	83.01 (74.18, 89.26)	100.0	78.08 (67.29, 86.05)	.0000	-21.9	85.74 (77.97, 91.09)	100.0	82.73 (73.53, 89.20)	.0000	-17.3
All except S/Sex	88.04 (84.05, ...)	95.42 (90.89, ...)	83.25 (77.42, ...)	.0001	-12.8	92.04 (90.05, ...)	97.21 (95.10, ...)	87.08 (83.62, ...)	.0000	-10.4

91.14)	97.76)	87.81)			93.66)	98.42)	89.89)		
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Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; d, Cohen's D. Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Respondents reporting no lifetime sexual partners were excluded. Denominators may be reduced due to item-missing data.

The lack of association of BAI instability with lower incongruity among all nonheterosexual men, reported in both Table 8 and Table 9, is an artifact of the strong countervailing association of instability with higher incongruity among men with S/Sex partners. When those currently with S/Sex partners were not included, instability was associated with significantly reduced incongruity for all other sexual minority persons among men as well as among women (See Table 9, "All except S/Sex").

The main contributing factor to the summary (BAI) incongruity reported in Table 9 for persons with S/Sex partners was definitional inconsistency, that is, behavior and/or attraction that was inconsistent with reported sexual identification. Both men and women currently with S/Sex partners reported identical levels of incongruity between behavior and identification (BI) and between attraction and identification (AI), at 7.1% for men and 9.1% for women, as Table 9 reports. Incongruity between behavior and attraction (BA), at 1.7% (0.5, 5.5) for men and 0.4% (0.1, 2.7) for women, was almost nonexistent for this group. Instability had a strong effect on definitional inconsistency, though in opposite directions: it sharply raised such inconsistency among persons identifying as heterosexual or gay/lesbian, but reduced it among persons identifying as bisexual. See Table 10. The effects were similar for both men and women, were strongest for gays and lesbians and were almost completely determinative of definitional consistency for gay males. Almost all gay/lesbian persons (85.6% of men, 93.9% of women) with an unstable partnership history expressed inconsistent behavior or attraction. On the other

hand, most lesbian women (63.6%) and almost all gay men (84.8%) with a stable partnership history expressed consistent, exclusive same-sex behavior and attraction.

Table 10. Definitional inconsistency by sexual identification and instability: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

	Men				Women			
	All	Stable % (95% CI)	Unstable % (95% CI)	P (S=U)	All	Stable % (95% CI)	Unstable % (95% CI)	P (Test: S=U)
Men								
Heterosexual	6.38 (5.68, 7.15)	3.00 (2.44, 3.68)	14.05 (12.18, 16.16)	.0000	11.18 (10.44, 11.98)	7.98 (7.20, 8.84)	17.98 (16.36, 19.72)	.0000
Bisexual	36.60 (21.97, 54.21)	63.80 (33.55, 86.02)	23.79 (12.19, 41.25)	.0154	29.07 (21.06, 38.64)	60.66 (42.13, 76.56)	16.27 (9.55, 26.35)	.0000
Gay/Lesbian	57.59 (47.18, 67.38)	15.16 (6.32, 32.12)	85.60 (74.16, 92.49)	.0000	89.24 (80.21, 94.44)	36.43 (11.68, 71.29)	93.93 (86.88, 97.31)	.0011

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; d, Cohen's D. Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data.

The effect of instability on extreme incongruity, reported in Table 11, generally confirms these trends. Among persons with any same-sex partner, instability was associated with higher proportions of men and lower proportions of women reporting O/Sex attraction and/or identifying as heterosexual. Unstable same-sex-partnered women were half as likely to identify as heterosexual as those with a stable sexual history, whereas among men with S/Sex partners, over 10% with an unstable sexual history identified as heterosexual, compared to under 1% of those with a stable sexual history.

Table 11. Adverse attraction and identity by sexual partner type instability among persons with any same-sex partners: Representative population sample of sexual minority persons, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

	Reports only opposite-sex attraction		Identifies as "heterosexual/straight"	

Current partnership type	All	Unstable % (95% CI)	Stable % (95% CI)	P (S=U)	All	Unstable % (95% CI)	Stable % (95% CI)	P (S=U)
...								
Men								
Any same-sex partner (n=151)	6.43 (3.34, 12.04)	8.18 (3.86, 16.51)	4.01 (1.05, 14.15)	.3017	19.63 (12.71, 29.07)	20.27 (12.11, 31.94)	18.74 (9.03, 34.88)	.8458
S/Sex (n=110)	1.16 (0.26, 4.99)	1.29 (0.18, 8.85)	0.97 (0.13, 6.86)	.8416	6.64 (2.75, 15.20)	10.44 (4.20, 23.65)	0.97 (0.13, 6.86)	.0467
B/Sex (n=41)	18.43 (8.77, 34.68)	25.69 (11.05, 49.03)	10.01 (2.03, 37.34)	.2026	49.98 (32.13, 67.84)	45.26 (23.41, 69.11)	55.77 (29.64, 79.06)	.5654
Women								
Any same-sex partner (n=206)	9.53 (5.36, 16.38)	4.67 (2.65, 8.24)	20.96 (9.57, 39.91)	.0392	32.61 (25.46, 40.67)	24.26 (17.60, 32.44)	52.26 (37.10, 67.01)	.0015
S/Sex (n=97)	0.37 (0.05, 2.68)	0 (no cases)	3.33 (0.43, 21.56)	.3257	7.51 (3.02, 17.45)	8.04 (3.11, 19.23)	3.33 (0.43, 21.56)	.3504
B/Sex (n=109)	19.33 (11.01, 31.72)	13.52 (7.41, 23.38)	25.20 (11.32, 47.10)	.2486	59.48 (47.43, 70.49)	54.97 (39.32, 69.69)	64.03 (46.10, 78.75)	.4406

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; P, p-value of t-test result; d, Cohen's D. Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Denominators used in calculations may be reduced from those shown, and vary slightly, due to item-missing data.

Discussion

The findings of this study regarding instability and incongruity can be summed up in the following observations: Sexual minority men and women experienced both high incongruity among the dimensions of sexual orientation and high instability in the orientation of lifetime sexual partners. Incongruity dropped sharply with decreasing current heterosexual partnership, i.e., from O/Sex to B/Sex to S/Sex. Most instability consisted of a single change in partnership type (transience), not multiple changes (fluidity); originated from persons with B/Sex partners; and moved toward heterosexual partnering. Instability generally decreased (the high level of) incongruity, fluidity somewhat more than transience and among women more than men, among

O/Sex partnered persons and those with no partners; had no effect on incongruity among B/Sex partnered persons; and sharply increased (the low level of) incongruity among S/Sex partnered persons.

These patterns are consistent with those reported by previous analyses of Natsal-3. Lewis et al. (15) evidenced incongruent partner types in youth of 16-24 years old showing heterosexual sex repertoires of youth whether heterosexual or LGB in identity, and whether opposite-sex or both-sex attracted, documenting incipient patterns of fluidity and transience in this age group that are suggestive of the present findings. Similarly, Mercer et al. (9) showed a marked drop between the number of people reporting any genital contact with a person of the same sex and those reporting same-sex sexual partnering in the last five years.

The effect of instability on incongruity, then, depends on the vector of the partnership change(s) relative to S/Sex partners. For those who moved toward increased heterosexual partnership at T3, a history of changing sexual partner types appeared to moderate the attendant high incongruity in sexual orientation. Reduced incongruity following such partnership type changes may reflect an attempt to resolve inconsistency or better integrate identity through revised self-understanding or self-presentation. This was only moderately successful; even after reduction, the large majority of sexual minority persons currently with O/Sex, B/Sex or no partners remained incongruent on one or more dimensions of sexual orientation. For those who moved toward S/Sex partnership at T3, changing partner types was accompanied by increased incongruity relative to those who remained with their original S/Sex partnership, among whom incongruity was very low.

Although the analysis class consisted only of persons with one or more dimensions of same-sex orientation, the difference in the effect of instability by current partner type was not a result of definition but of the contingent fact that persons were several times more likely to move

away from than toward same-sex partnership activity. Six in ten men and women with B/Sex partners at T1 moved to O/Sex at T3, while less than a third this proportion moved to S/Sex. Twelve percent of men and 29% of women with S/Sex partners at T1 moved to O/Sex partners at T3, but only 0.1% of men or women moved from O/Sex at T1 to S/Sex at T3. (See Table 6) The fact that most transitions were in the direction of exclusively other-sex partnership means that most incongruity, as a proportion, involved other-sex partnership or attraction or heterosexual identification among persons initially with same-sex experience. Consequently, as Tables 12 and 13 confirm, the large majority of persons, women somewhat more than men, who have ever experienced any same-sex attraction or partnership or identification currently have only other-sex partners and/or identify as heterosexual.

Table 12. Present partnership type of non-heterosexual persons, interpreting effects of Tables S3 and S4: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

	Men		Women	
	N	% (CI)	N	% (CI)
O/Sex	288	57.14 (52.15, 62.00)	892	72.35 (69.47, 75.05)
B/Sex	41	7.65 (5.33, 10.87)	109	7.69 (6.06, 9.70)
S/Sex	111	17.57 (14.19, 21.55)	97	8.23 (6.62, 10.19)
None	112	17.64 (14.36, 21.47)	149	11.73 (9.90, 13.86)
Total	552		1,247	

Percents shown are weighted for population and survey design. N, unweighted number of cases; CI, 95% confidence interval; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex.

Table 13. Sexual identification of sexual minority persons: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,862)

O/Sex	7.05 (2.65, 17.46)	92.24 (55.49, 99.13)	7.76 (0.87, 44.51)	100	22.50 (13.46, 35.13)	97.16 (81.27, 99.63)	2.84 (0.37, 18.73)	100
B/Sex	38.24 (26.19, 51.93)	73.37 (52.44, 87.32)	26.63 (12.68, 47.56)	100	63.08 (49.38, 74.96)	84.79 (70.51, 92.86)	15.21 (7.14, 29.49)	100
S/Sex	54.71 (41.06, 67.70)	16.42 (6.82, 34.52)	83.58 (65.48, 93.18)	100	13.69 (6.54, 26.46)	34.31 (10.20, 70.62)	65.68 (29.38, 89.80)	100
Partnership								
O/Sex	12.24 (6.25, 22.58)	100	0	100	28.71 (18.46, 41.73)	100	0	100
B/Sex	10.78 (48.72, 74.09)	100	0	100	29.16 (18.40, 42.90)	100	0	100
S/Sex	62.24 (48.72, 74.09)	9.28 (2.76, 26.92)	90.72 (73.08, 97.24)	100	27.15 (16.72, 40.90)	31.68 (13.22, 58.54)	68.32 (41.46, 86.78)	

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Those reporting no sex partners, attraction or identification were included in the analysis but suppressed in the table.

Table 14 shows that the proportions of both men and women with S/Sex partners five years ago who now claim something other than exclusive same-sex attraction or gay/lesbian identity, are roughly similar to the proportions who have defected from S/Sex partnerships. This is true even though the proportions of all three dimensions are very different for men than they are for women. Among formerly S/Sex partnered men, 30.8% did not currently claim gay identity and 45.3% did not currently report S/Sex attraction. These proportions roughly correspond to the 37.8% who currently reported something other than only same-sex partnership. Among formerly S/Sex partnered women, 72.5% did not currently claim lesbian identity and 86.3% did not currently report S/Sex attraction, in line with the 72.2% who no longer reported only same-sex partnership. Of those formerly with S/Sex partners currently identifying as heterosexual, almost all (97.0% of men and 98.8% of women) did so following a change in partnership type away from S/Sex. Of those currently reporting O/Sex attraction, 92.2% of men

and 97.2% of women did so following a change of partnership type, from S/Sex to one that involved one or more other-sex partners. For both formerly S/Sex partnered men and women, current incongruity is in line with past instability.

Those who began at T1 with B/Sex partners (Table 15) were much more unstable. Only 8.8% of men and 13.4% of women have persisted in this partnership type, with the majority moving to O/Sex partners and a minority of 18.5% of men and 16.8% of women moving to S/Sex partners. As with Table 15, these proportions are similar to current sexual identification, and partner type instability was associated with almost all non-bisexual identification. Of those in Table 15 currently identifying as heterosexual, 93.2% of men and 89.6% of women also had changed partnership type; for those currently identifying as gay or lesbian, 98.6% of men and 100% of women had changed partnership type. Instability was similarly strongly associated with current sexual attraction.

Table 15. Dimensional Characteristics at Time 3 (in the past year) of persons with B/Sex partners at Time 1 (before five years ago): Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=604)

	Men			Total	Women			Total
	All	Unstable Row % (95% CI)	Stable Row % (95% CI)		All	Unstable Row % (95% CI)	Stable Row % (95% CI)	
Identification								
Heterosexual	69.53 (61.72, 76.36)	93.24 (85.95, 96.89)	6.76 (3.11, 14.05)	100	70.08 (64.46, 75.15)	89.57 (83.98, 93.36)	10.43 (6.64, 16.02)	100
Bisexual	15.09 (10.28, 21.61)	76.68 (57.89, 88.72)	23.32 (11.28, 42.11)	100	13.38 (10.02, 17.63)	72.13 (56.94, 83.51)	27.87 (16.49, 43.06)	100
Gay/Lesbian	14.86 (10.24, 21.08)	98.61 (90.47, 99.81)	1.39 (0.19, 9.53)	100	14.77 (11.20, 19.24)	100	0	100
Attraction								
O/Sex	41.22 (33.11,	97.85 (90.45,	2.15 (0.46,	100	22.85 (18.19,	87.41 (73.43,	12.59 (5.43,	100

	49.83)	99.54)	9.54)		28.28)	94.57)	26.57)	
B/Sex	56.54 (48.09, 64.63)	85.89 (76.93, 91.74)	14.11 (8.26, 23.07)	100	73.71 (68.13, 78.63)	88.41 (83.54, 91.98)	11.59 (8.02, 16.46)	100
S/Sex	1.99 (0.81, 4.78)	100	0	100	3.11 (1.60, 5.95)	100	0	100
Partnership								
O/Sex	60.23 (52.10, 67.82)	100	0	100	60.94 (55.22, 66.37)	100	0	100
B/Sex	8.83 (5.31, 14.34)	0	100	100	13.40 (9.82, 18.02)	14.75 (7.00, 28.46)	85.25 (71.54, 93.00)	100
S/Sex	18.45 (13.18, 25.22)	100	0	100	16.77 (12.76, 21.72)	100	0	100

Values shown are weighted for population and survey design. n, unweighted number of cases; CI, confidence interval; O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Those reporting no sex partners, attraction or identification were included in the analysis but suppressed in the table.

Almost all exclusive other-sex attraction and heterosexual identification in these two sexual minority groups at Time 1 was associated with a change in sexual partnership. Although we cannot be conclusive on this point, this would not likely be the case if social influences were strong disposing factors. If there was any influence of stigma avoidance on current identification, it would appear to be avoidance of bisexual identification. For both the S/Sex and B/Sex groups at T1, while the proportion of men and women identifying as either heterosexual or gay/lesbian was greater than the proportions reporting corresponding O/Sex or S/Sex attractions, the proportion identifying as bisexual was much smaller than that reporting B/Sex attraction. While not discounting a role for stigma and social acceptance, the movement toward heterosexuality in these groups is very closely associated with partnership instability.

Diamond and Rosky argued that the high observed instability of lesbian partnerships challenges the notion that sexual orientation is immutable. (4) The present findings confirm the premise of this argument. It is difficult to reconcile the assertion that sexual orientation cannot

ever change with the fact that over 80% of sexual minority persons have in fact changed one or more dimensions of sexual orientation during their lifetime. The present findings also extend this argument in two ways. First, they demonstrate that an unstable partnership history exacerbates the incongruity of dimensional boundaries precisely for the group claiming status, i.e., gays and lesbians. For persons who moved toward other-sex orientation on one or more dimensions, instability was associated with greater coherence of sexual orientation; for persons moving toward S/Sex orientation, instability was associated with greater fragmentation.

Second, the present findings demonstrate that the effects of instability are as strong or stronger for gay male identity than they are for lesbian identity. As Table 6 reports, the proportion of men with SSPs reporting a change in partnership orientation (79%) is only slightly less than that of lesbians (85%). Although instability was much higher among women than among men with S/Sex partners or no partners, among all sexual minority persons instability was higher among men. Fluidity may have been slightly higher among women, but transience was higher among men. (See Table 7) Apart from currently exclusively other-sex partnered persons, the effect of instability on incongruity was not different, within the limits of uncertainty, for both men and women, and for those with only same-sex partners, the effect of instability was strong and significant only for men (see Table 9). The perception of lower instability in male same-sex experience compared to female same-sex experience in other studies (1,3,4,14) may be due, in part, to the fact that the effect of instability among same-sex partnered persons, which counteracts its effect for other sexual minority partnership types, is stronger among gay males than among lesbians. Ott et al., studying sexual orientation change through early adulthood, also found that female instability, though higher overall, was no higher than male partner type instability among sexual minority persons. (7)

The observed fact that change was much more common than stability is also consistent with recent twin and genome-wide association study (GWAS) research efforts which have converged on the finding that, relative to non-biological environmental factors, the genetic influence on same-sex sexual orientation is small and diffuse. Polderman's meta-analysis of virtually all twin studies (17) and Ganna's definitive genome-wide association study (GWAS) of sexual orientation (18) independently estimated that the non-genetic influences on the heritability of sexual orientation were about twice as large as the genetic influences. Both the high instability and indeterminacy observed in the present study confirm Ganna et al.'s conclusion that "there is certainly no single genetic determinant (sometimes referred to as the "gay gene" in the media). ...All measured common variants together explain only part of the genetic heritability at the population level and do not allow meaningful prediction of an individual's sexual preference." (18)

The present evidence may also challenge the assumption that same-sex orientation functions as a reciprocal alternative to heterosexual identity in at least two ways. First, the two are emphatically distinct with regard to stability. Among non-heterosexual persons, change in sexual partner type was far more common than stability; as already noted, over 4 in 5 nonheterosexual persons (80% of non-heterosexual men and 84% of non-heterosexual women) changed partner types over their lifetime. By the same measure, which includes persons changing to or from B/Sex partners to either O/Sex or S/Sex partners, and persons changing to or from "no partners", stability was far more common than change among heterosexual persons; only 13.4% of heterosexual men and 20% of heterosexual women changed partnership type. Second, although partnership history and sexual attraction are overwhelmingly exclusive in orientation among self-identified heterosexual persons, the same is not true among self-identified gays or lesbians. Table 16 reports the numbers. Almost all heterosexual persons (97%) reported

only lifetime other-sex partners, but only a minority of self-identified gays or lesbians (41%) reported only lifetime same-sex partners. Similarly, 93% of heterosexual persons acknowledged sexual attraction only to persons of the opposite sex, but only 43% of self-identified gays or lesbians reported that they were attracted only to persons of the same sex. Non-exclusivity was directly affected by instability, but even over a quarter (26.8%) of stable gays or lesbians, who had only ever had S/Sex partners, reported a lack of exclusive same-sex attraction.

Table 16. Non-exclusive partnership and attraction by sexual identification: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

	Partnership History		Current Attraction	
	Heterosexual	Gay/Lesbian	Heterosexual	Gay/Lesbian
Exclusive	96.66 (96.28, 97.00)	40.94 (33.71, 48.59)	92.73 (92.26, 93.17)	42.78 (35.13, 50.78)
Non-exclusive	3.34 (3.00, 3.72)	59.06 (51.41, 66.29)	7.27 (6.83, 7.74)	57.22 (49.22, 64.87)
Unstable	11.16 (10.02, 12.42)	80.95 (73.39, 86.75)	11.84 (10.76, 13.02)	75.11 (66.59, 82.05)
Stable	0.37 (0.25, 0.55)	1.06 (0.14, 7.37)	5.88 (5.41, 6.40)	18.13 (9.04, 33.05)

Percentages shown are weighted for population and survey design. %, percent; SE, standard error; N, number of unweighted cases. Non-exclusive indicates any discordant sex partners or attraction. Adverse indicates exclusive partnership or attraction the opposite of identification. Percentages may not total exactly 100 due to rounding. Excluding those with no partners.

Conclusion

The present study found a close affinity between instability and incongruity of sexual orientation dimensions among non-heterosexual persons in Britain. Unlike the heterosexual majority, instability among the non-heterosexual minority was high. Over 80% of sexual minority persons had changed one or more dimensions of sexual orientation during their lifetime. The association with incongruity depended on the direction of change. For those changing closest to exclusive other-sex partnership, incongruity was highest, and was reduced by past transitions. For those changing closest to exclusive same-sex partnership, incongruity was lowest, and was increased by past transitions. Over two-thirds of past transitions were in the direction of exclusive other-sex partnership, and most present incongruity reflected other-sex

partnership or attraction and/or heterosexual identification. The relation of these complex effects bears further study, which could helpfully explore their association with life cycle transitions, age of sexual debut and detailed sexual partner histories.

These findings confirm and extend the substantial body of population evidence that contradicts the claim that sexual orientation is a chronic immutable trait. Insofar as it is expressed in behavior, non-heterosexual orientation is highly unstable, transient, and tends to resolve toward heterosexual orientation over time. One need not adjudicate whether the resolution is a matter of essentialism or social norms to observe that, for most who experience it, non-heterosexual orientation cannot be essential.

While social acceptance of minority sexual orientations has grown in past decades, in many settings bisexual orientation remains subject to stigma, including stigma from other sexual minorities, and discrimination against changing sexual orientation, particularly toward heterosexuality, has recently grown. As the present findings show, such stigmas prejudice the majority of the sexual minority population, including most who eventually resolve to a stable gay or lesbian identity. The prototypical ideal of stable, unchanging gay or lesbian partnership characterizes only 8% of nonheterosexual men and 1% of nonheterosexual women in Britain. This is a complex matter with many political implications that cannot be resolved by an empirical study. We respectfully offer for consideration the ethical principle of symmetry, i.e., that persons will not be fully free to leave heterosexual for nonheterosexual partnership until they are also equally free to leave nonheterosexual for heterosexual partnership.

Technical Supplement

Change in Sexual Partner Type

Tables S1 through S4 below present reference mobility tables reporting change and stability in sexual partner behavior among non-heterosexual men and women in Great Britain. Tables S1

and S2 include all cases; tables S3 and S4 include only non-heterosexual respondents, that is, those who had ever had one or more same-sex partners. The tables crosstabulate the origin (before 5 years ago) and the destination (past year) of sexual partnering related to orientation, whether O/Sex, B/Sex, S/Sex, or none. The table cells report raw case counts, with population-weighted proportions in parentheses. The result is a transition matrix or stayer/model model, in which the cells on the diagonal report persons who had the same sexual partner types in the past year that they did up until five years ago (“stayers”), while the off-diagonal cells report those who underwent a transition in partnership type over the period (“movers”). Calculations from these tables form the basis for several of the findings presented in the text of this paper, and may be useful for exploring additional effects and hypotheses regarding this population.

Table S1. Crosstabulation of past (before 5 years ago; Time 1) with present (past year; Time 3) sexual partner types for men: representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

Past Partners Present Partners	O/Sex N (% of total)	B/Sex N (% of total)	S/Sex N (% of total)	None N (% of total)	Total N (% of total)
O/Sex	3,845 (71.2)	106 (2.0)	11 (0.1)	775 (8.7)	4,737 (82.0)
B/Sex	12 (0.2)	18 (0.3)	8 (0.1)	3 (0.02)	41 (0.6)
S/Sex	7 (0.07)	45 (0.6)	42 (0.6)	17 (0.1)	111 (1.5)
None	672 (10.7)	28 (0.4)	14 (0.2)	437 (4.6)	1,151 (15.9)
Total	4,526 (82.2)	197 (3.4)	75 (1.0)	1,232 (13.4)	6,040 (100)

Percents shown are weighted for population and survey design. O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. Not included in the table are 253 respondents (4.0%) with missing information on sex partners.

Table S2. Crosstabulation of past (before 5 years ago; Time 1) with present (past year; Time 3) sexual partner types for women: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=15,162)

Past Partners Present Partners	O/Sex N (% of total)	B/Sex N (% of total)	S/Sex N (% of total)	None N (% of total)	Total N (% of total)
O/Sex	5,350 (66.9)	254 (2.7)	23 (0.2)	879 (7.2)	6,506 (77.0)
B/Sex	18	58	24	9	109

	(0.2)	(0.6)	(0.2)	(0.06)	(1.0)
S/Sex	10 (0.08)	57 (0.6)	19 (0.2)	11 (0.09)	97 (1.1)
None	1,309 (16.5)	38 (0.4)	9 (0.1)	472 (4.0)	1,828 (21.0)
Total	6,687 (83.6)	407 (4.4)	75 (.7)	1,371 (11.3)	8,540 (100)

Percents shown are population-weighted and design-adjusted to represent the British population. O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, other-sex and same-sex. Not included in the table are 329 respondents (3.7%) with missing information on sex partners.

Table S3. Crosstabulation of past (before 5 years ago; Time 1) with present (past year; Time 3) sexual partner types, non-heterosexual men only: representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=579)

Past Partners \ Present Partners	O/Sex N (% of total)	B/Sex N (% of total)	S/Sex N (% of total)	None N (% of total)	Total N (% of total)
O/Sex	137 (27.5)	106 (24.2)	11 (1.5)	34 (4.0)	288 (57.1)
B/Sex	12 (2.5)	18 (3.5)	8 (1.3)	3 (0.3)	41 (7.7)
S/Sex	7 (0.8)	45 (7.4)	42 (7.7)	17 (1.7)	111 (17.6)
None	40 (6.5)	28 (5.0)	14 (1.8)	30 (4.3)	112 (17.6)
Total	196 (37.3)	197 (40.1)	75 (1.0)	84 (10.2)	552 (100)

Percents shown are weighted for population and survey design. O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. "Non-heterosexual" denotes persons who have ever had a same-sex sex partner. Not included in the table are respondents with missing information on sex partners.

Table S4. Crosstabulation of Past (before 5 years ago) with Present (past year) Sexual Partner Types, non-heterosexual women only: Representative population sample, Great Britain (England, Scotland and Wales), 2010-2012 (N=1,283)

Past Partners \ Present	O/Sex N (% of total)	B/Sex N (% of total)	S/Sex N (% of total)	None N (% of total)	Total N (% of total)
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Partners					
O/Sex	502 (42.5)	254 (20.4)	23 (1.4)	113 (8.0)	892 (72.4)
B/Sex	18 (1.3)	58 (4.5)	24 (1.5)	9 (0.5)	109 (7.7)
S/Sex	10 (0.6)	57 (5.6)	19 (1.4)	11 (0.7)	97 (8.2)
None	67 (5.8)	38 (3.0)	9 (0.7)	35 (2.3)	149 (11.7)
Total	597 (50.1)	407 (33.5)	75 (5.0)	168 (11.4)	1,247 (100)

Percents shown are weighted for population and survey design. O/Sex, other-sex only; S/Sex, same-sex only; B/Sex, both other-sex and same-sex. “Non-heterosexual” denotes persons who have ever had a same-sex sex partner. Not included in the table are respondents with missing information on sex partners.

Data Availability

Johnson, A., University College London, Centre for Sexual Health and HIV Research. (2021). National Survey of Sexual Attitudes and Lifestyles, 2010-2012. [data collection]. 2nd Edition. UK Data Service. SN: 7799, DOI: 10.5255/UKDA-SN-7799-2

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