

COULAUD, P.-J., SALWAY, T., ADAMS, N., BALL, W., LARMARANGE, J., KELLY-IRVING, M. and KNIGHT, R. 2024. Knowledge gaps in existing research exploring sexual fluidity and mental health among young adults. *Journal of epidemiology and community health* [online], 78(9), pages 556-560. Available from: <https://doi.org/10.1136/jech-2023-221844>

# Knowledge gaps in existing research exploring sexual fluidity and mental health among young adults.

COULAUD, P.-J., SALWAY, T., ADAMS, N., BALL, W., LARMARANGE, J.,  
KELLY-IRVING, M. and KNIGHT, R.

2024

*This is the accepted manuscript version of the above article. The published version of record is available from the journal website: <https://doi.org/10.1136/jech-2023-221844>*

# Knowledge gaps in existing research exploring sexual fluidity and mental health among young adults

**Authors:** Pierre-julien Coulaud [1]§, Travis Salway [2,3,4], Nick Adams [5], William Ball [5], Joseph Larmarange [6], Michelle Kelly-Irving [7], Rod Knight [1,4,8]

1. École de Santé Publique, Département de Médecine Sociale et Préventive, Université de Montréal, Montréal, Québec, Canada
2. Faculty of Health Sciences, Simon Fraser University, Burnaby, British Columbia, Canada
3. British Columbia Centre for Disease Control, Vancouver, British Columbia, Canada
4. Centre for Gender and Sexual Health Equity, Vancouver, British Columbia, Canada
5. School of Nursing, Midwifery and Paramedic Practice, Robert Gordon University, Aberdeen, Scotland
6. Centre Population et Développement (UMR 196 Université Paris Cité, IRD), SageSud (ERL INSERM 1244), Institut de Recherche pour le Développement, Paris, France
7. Centre for Epidemiology and Research in Population Health (CERPOP), Université de Toulouse, Inserm, Université Paul Sabatier, Toulouse
8. Centre de recherche en santé publique (CRéSP), Montréal, Québec, Canada

**§ Corresponding Author:** Pierre-julien Coulaud, PhD  
École de Santé Publique, Université de Montréal  
7101 Avenue du Parc, Montréal, QC H3N 1X9, Canada  
Email: pierre-julien.coulaud@umontreal.ca

## **ORCID IDs:**

Pierre-julien Coulaud: <https://orcid.org/0000-0002-2156-4759>

Travis Salway: <https://orcid.org/0000-0002-5699-5444>

Nick Adams: <https://orcid.org/0000-0003-1999-1134>

William Ball: <https://orcid.org/0000-0002-2722-7040>

Joseph Larmarange: <https://orcid.org/0000-0001-7097-700X>

Michelle Kelly-Irving: <https://orcid.org/0000-0001-5749-4791>

Rod Knight: <https://orcid.org/0000-0002-1464-1584>

# ABSTRACT

## **Abstract:**

While there is a large body of evidence indicating that sexual minority youth experience inequitably high rates of mental health problems (e.g., depression, suicidality), we know little about how temporal changes in sexual attractions, identities and behaviour may impact mental health (and other) outcomes. In this essay, we review existing research regarding sexual fluidity and mental health among young adults in order to identify critical knowledge gaps with respect to an epidemiological understanding of the relationship between these factors. We describe three gaps that in turn inform a larger public health research agenda on this topic. First, there are a number of methodological challenges given that fluidity can occur over short or long periods of time and across multiple dimensions of sexual orientation (e.g., attractions, identities, behaviour) with various patterns (e.g., directionality of change). Tailored measures that accurately and inclusively reflect diversities of sexual fluidity trajectories are needed. Second, causal relationships between sexual fluidity and mental health remain uncertain and unquantified. Third, little is known about how features of context (e.g., gender norms and political climate) influence youth experiences with sexual fluidity and mental health. Finally, we propose a set of recommendations to address these knowledge gaps to improve the quality of epidemiological research involving young people.

**Keywords:** Sexuality, sexual fluidity, mental health, young adults

## Introduction

Today's generation of young adults (i.e., 18-30 years) experience significant mental health challenges, with trends worsening over time [1,2]. One of the more prominent social inequities in epidemiologic patterns of mental health relates to sexual minority status, defined by individuals who: (a) identify as lesbian, gay, bisexual or another sexual identity, (b) are attracted to or (c) engage in sexual behaviour with individuals of the same sex or gender (i.e., the three dimensions of sexual orientation) [3]. A large body of evidence indicates that sexual minority youth experience substantially higher levels of mental health problems (e.g., depression, anxiety, trauma/stressor-related disorders, suicidality) compared with their heterosexual counterparts [4,5]. These disparities are largely attributed to oppressive social conditions, including stigmatization of sexual minority identities and related experiences of minority stress [6,7]. However, these findings are based on data that collected sexual orientation at one single timepoint, thereby disregarding the dynamic nature of sexuality across early phases of the life course. These limitations are particularly troublesome given the growing body of evidence generated since the early 2000s demonstrating that sexuality can be fluid over time, including with regard to changes in sexual attractions, identities, and/or behaviour [8].

Nevertheless, a small but growing body of evidence has begun to investigate the relationship between sexual fluidity and mental health [9]. We define sexual fluidity as a temporal change in sexual attraction (i.e., same-sex or other-sex desire), which may in turn lead to changes in the other dimensions of sexual orientation, including behaviours and identities [10]. Over the past decade, several studies have developed various measures to account for the dynamic nature of sexual fluidity, ranging from a change in sexual identity label over time to a more complex approach examining different patterns of change across a continuum of sexual identities [9]. In this essay, our aim is to identify critical knowledge gaps in existing research exploring sexual fluidity and mental health among young adults and discuss strategies to advance epidemiological research in the fields of sexual and mental health. While there is also emerging research examining gender fluidity among youth [11,12], our essay focuses on sexual fluidity.

***Gap #1 – Sexual fluidity measures that accurately and inclusively reflect young adults' sexual experiences and identities are needed.***

Recent studies have examined fluidity across multiple dimensions of sexual orientation, including sexual attractions, identities, or behaviour (i.e., sex or gender of sexual partners)

[13,14]. For example, a study with three years of longitudinal data (2014-2016) collected among US adolescents found that the prevalence of fluidity varied within and across these core dimensions; this research found that 26% of girls and 11% of boys reported identity fluidity (shift in *self-labeled identity* at one-year interval) whereas 31% of girls and 10% of boys reported attraction fluidity (shift in *romantic attraction* at one-year interval) [13]. Previous cohort studies also reveal key demographic variations in sexual fluidity, including a higher prevalence of fluidity among young women, youth who self-identified as bisexual at baseline and gender minority youth (i.e., non-binary) [15–17]. Although most sexual fluidity research focuses on only one dimension (mainly changes in sexual identity), these findings illustrate that sexual fluidity research needs to account for the multiple intertwining constructs of sexual orientation. For example, little is known about how or whether different dimensions of sexual orientation may simultaneously or sequentially interact with other dimensions.

There is also a great deal of variation with the different definitions and measures currently used to assess sexual fluidity. In large health surveys conducted in the late 90s and early 2000s, three main categories (i.e., heterosexual, bisexual and homosexual) were used to assess sexual identity and changes in sexual identity across two or three waves were observed at rates of 2%-3% (between 9 and 14 years) [18,19]. Using data collected in the past 10-15 years, several population surveys, mostly among young women, assessed sexual attraction or identity using a Likert scale based on Kinsey's continuum (from "exclusively heterosexual" to "exclusively gay/lesbian") [17,20–22]. In these studies, higher prevalence estimates of sexual fluidity were reported ranging from about 10% in national surveys of US adolescents (two waves over 7 years) to more than 30% in a longitudinal study with more than 10 000 Australian young women (four waves over 4 years) [21,22]. Given that studies that use more inclusive sexual orientation measures tend to be more likely to observe sexual fluidity, we and others hypothesize that providing more nuanced sexual identity categories are critical for measuring fluidity accurately [23]. In addition, some studies examined patterns of sexual fluidity such as directionality (e.g., towards more or less same-gender-oriented direction, or multidirectional) [24], magnitude (i.e., difference in the degree of sexual identities along a continuum of identities) [20], or frequency (i.e., the number of times individuals change their identity) [25], leading researchers to develop new approaches to capture the diversity in fluidity [24,26]. More recently, cross-sectional studies have been conducted to assess retrospective changes in sexual identities or attractions [15]. Further research comparing retrospective and prospective survey

responses is needed to examine the reliability of measures that collect perceptions and experiences of sexual fluidity over time. As different approaches to measuring and classifying sexual fluidity emerge, it will also be important to identify and use comparable measures of sexuality (e.g., to facilitate meta-analyses or cross-contextual comparisons).

***Gap #2 – There are limited understandings regarding the relationship between sexual fluidity and mental health.***

Several studies in the USA show that youth who had indicated changes in their sexual identities or attractions had higher odds of reporting adverse mental health-related outcomes, including depression, anxiety, substance use (e.g., binge drinking) and suicidal attempts [27–30]. These findings have been interpreted using existing theories, including identity control theory and minority stress theory. For example, identity control theory posits that changes in identity are often precipitated by psychological distress when a person’s internal experiences do not match external expectations (e.g., if their sexual attractions are not consistent with expectations about their sexual identity) [31]. Applying minority stress theory [32], the changes that can occur with the process of sexual fluidity (including stages of questioning, understanding and internalizing) may represent an additional sexual minority stressor. For example, experiences with sexual fluidity inherently transgress heteronormative norms and expectations that can result in stigmatization and discrimination, thereby leading to mental health distress [33]. From an intersectionality perspective where different forms of discrimination may intersect with each dimension of sexuality, young adults who are experiencing sexual fluidity may be confronted to multiple forms of minority stress that interact to create health inequities [34,35]. For example, young adults who are attracted to same-sex partners and self-identify as a sexual and/or gender minority may experience more discrimination, and therefore, report more mental health distress, than those who are attracted to same-sex partners but do not identify as a sexual and/or gender minority.

However, research findings examining the association between sexual fluidity and mental health are equivocal. For example, some studies have reported different results from those described above in which US adolescents who changed their sexual attraction or identity (versus those who reported consistent attraction/identity) have a lower odds of reporting mental health problems [36,37]. A study from Australia found no evidence that identity fluidity uniformly predicts psychological distress among young women [21]. Rather, in this study, the

association was dependent on the direction in which young women were changing their identities, with women who changed their identity in a more same-sex-oriented direction reporting higher psychological distress than those who had not changed [21]. In addition, previous studies reported no negative effects on mental health among youth who transitioned to less same-sex-oriented identities or attractions over time compared to those whose sexual attraction/identity remained unchanged [20,37]. Other findings also suggest that mental health challenges may be higher for those who have undergone substantial changes along the continuum of sexual identities (e.g., from an exclusively “heterosexual” to a mostly “lesbian” identity) [20] and for those who changed their sexual identity many times [25]. These findings highlight a more complex relationship between sexual fluidity and mental health, underscoring the need for more research on the nature of this relationship (e.g., causal inference, bidirectionality) and highlighting the important role that time may play. For instance, viewed through a life course lens, sexual fluidity may have a negative effect on mental health in early adulthood, which in turn may impact trajectories of socioeconomic position in later adulthood that subsequently results in negative mental and other health outcomes.

Furthermore, there is limited evidence on whether and how sexual fluidity may improve mental health-related outcomes. Findings from an online survey among US students highlighted the importance of investigating the nature of identity change more broadly [38]. In this study, it was found that those who self-perceived that the direction of their identity change is progressive (development “into” an identity) were less likely to report depressive symptoms compared to those reporting an experience of regressive identity change (development “out” of an identity) [38].

***Gap #3 – Limited research has assessed how contextual factors influence sexual fluidity and its relationship with mental health.***

Over the past decade, the socio-political and -cultural contexts surrounding young adults’ sexuality has shifted. For example, general public attitudes in ‘western’ countries have become increasingly supportive of same-sex sexuality and the rights of same-sex couples [39]. This greater social acceptance of sexual diversity has been fostered by significant legislative shifts, such as the adoption of laws to allow same-sex marriage, protect against discrimination and violence, and support the inclusion of sexual minorities across social institutions more broadly [40]. Previous studies have also documented how sexual attitudes and relationships (e.g.,

considerations of pleasure and desire), sources of sex information (e.g., mostly informed from the internet rather than from family or youth clinics) and sexual behaviours (e.g., earlier age at first intercourse) among youth have changed in recent years [41,42]. Other studies using repeated cross-sectional data have documented significant changes in the composition of sexual identity among youth populations more broadly, particularly increases in non-heterosexual identification among girls and women [43,44]. At this juncture, we hypothesize that these kinds of contextual shifts may impact how young adults perceive, express and experience their sexuality in ways that we do not heretofore understand.

While many researchers focusing on sexual fluidity have acknowledged the role of contextual factors (such as normative gender roles, levels of stigma and support) to interpret their findings, there is limited research that explains, describes or predicts how contemporary contextual factors impact how young adults perceive and experience sexual fluidity. For example, in a recent qualitative study, while young adults described how individual (e.g., awareness of sexual desires) and interpersonal factors (e.g., involvement with sexual minority communities) were important to their experiences with sexual fluidity, they also emphasised that societal factors influenced fluidity trajectories [45]. Specifically, attending academic classes that provided opportunities to interrogate heteronormative assumptions and to discuss sexual exploration represented contexts in which sexual fluidity can more safely occur [45]. Conversely, other studies have demonstrated that exposure to unsupportive or homophobic social environments may increase experiences of internalized stigma and have important implications for the timing and patterns of sexual fluidity, as well as on mental health outcomes [46,47]. However, most research on youth sexual fluidity is based on data collected in a single setting (mainly in the USA), which limits opportunities to investigate the role context plays in shaping experiences of sexual fluidity and its relationship with mental health. We suggest that multi-site research approaches that have the capacity to assess how socio-political and -cultural contexts influence the experiences of young adults questioning their sexuality are needed. For instance, it will be important to characterise and identify contextual factors (e.g., policies) that may alleviate stress associated with the process of changes in sexual orientation.

### **Considerations for future epidemiological research studies**

While emerging trends indicate that young adults are experiencing changes in their sexuality in their early adulthood, limited evidence on sexual fluidity is available, largely because these



measures are not measured across time. For example, most epidemiological research tends to collect data on sexual orientation only at baseline, thereby missing the opportunity to account for sexual fluidity and potentially leading to inaccurate, imprecise and non-inclusive findings about youth well-being. Innovative research approaches are needed to appropriately capture and assess how youth sexuality is evolving in contemporary contexts, including how experiences of fluidity relate to mental health.

### ***Increasing precision in measures of sexual orientation across all three dimensions***

Changes in sexuality and sexual experiences over time are seen as complex and dynamic processes where multiple dimensions of sexuality can interact (i.e., sexual attractions, identities, and/or behaviour). However, there are limited epidemiological studies that collect these core dimensions together, raising questions on how these dimensions evolve and interact over time during early adulthood. For example, a recent systematic review of sexuality measurements in transgender and gender-diverse populations found that only 2% of the 179 selected studies asked about all three dimensions of sexual orientation [48]. There is a critical need to develop sexual fluidity research approaches that accounts for longitudinal changes in sexual attractions, identities and behaviour.

Our essay also emphasises the importance to improve accuracy ascertaining measures of sexual orientation in youth populations. This is particularly relevant in our current context where young adults use a range of diverse and more nuanced terms to characterise their sexual identities and experiences (including new identity labels such as queer, fluid and pansexual) that have not been accounted for within most health surveys [49]. A qualitative study also indicates that current measures to assess sexual and gender identities did not allow for identity fluidity, limiting inclusion and representation [50]. Recently, some settings have purposefully sought to address this by developing and/or using more inclusive measures to better capture the diversity of sexual and gender identities in their census data. For example, in 2021, UK Census collected data on sexual identity for the first time while the Canada Census included a question on gender and the precision of "at birth" on a biological sex question, allowing all cisgender, transgender and non-binary individuals to have their gender identities more precisely recorded. While these initiatives are encouraging, a greater inclusion of sexual orientation data in health administrative records and population-based health surveys is needed

to advance our understanding on sexual and gender minority health inequities and guide development of interventions to reduce these inequities.

Developing measures of sexuality with more diverse options is not only a strategy to identify sexual minority groups more accurately and inclusively, these approaches also provide opportunities to better understand how today's generation of young adults perceive and experience their sexuality over their life course and to examine how this affects their health. For example, a study among US youth showed that the use of a more diverse approach to sexual orientation measurement (offering a five-option approach instead of three options) significantly improved accuracy and reduced non-responses [51]. While we recognize that our essay does not address research on gender fluidity, we acknowledge that gender fluidity may influence sexual orientation fluidity, which adds another level of methodological complexity that should be explored in the future—acknowledging that emerging research on gender fluidity is not yet integrated with the research we have reviewed regarding sexual fluidity [52,53].

As we move away from conventional measures of sexual orientation to more diverse and inclusive measures, it is critically important to involve young adults in the design to ensure that the measurements reflect their perceptions and experiences with sexuality. While models of participatory-based research may be particularly relevant in this case [54], we anticipate that these measures may vary across contexts, underscoring the need for context-sensitive approaches. To adapt and validate these measures in specific contexts, the integration of qualitative research approaches (e.g., cognitive interviews, focus groups) will also be helpful. While the use of context-specific terms may provide more diverse and inclusive measures of sexual orientation, we acknowledge how this approach may also bring some analytical challenges that have been described elsewhere with regard to ethnicity measures [55]. For example, to optimize statistical power, quantitative analyses may need to reduce the number of categorical options (e.g., collapsing “similar” categories into broader categories or dropping categories with insufficient sample sizes). Several strategies (e.g., providing a clear definition for each category, reporting details on the recoding process, involving youth in the data analysis plan) and statistical methods (e.g., single/combined categorisation, sensitivity analyses) may help to account for the diversity of sexual orientation measures in youth surveys. As different approaches to measuring and classifying sexual fluidity emerge, it will also be important to

identify and use comparable measures of sexual fluidity (e.g., to facilitate meta-analyses or cross-contextual comparisons).

### ***Engaging equity-seeking populations to address mental health inequities***

Given that sexual fluidity can occur over a long interval, research studies require a relatively long period of time (ranging from 5 to 10 years) with repeated data collection points to observe changes in sexuality over time. Consequently, a large body of evidence on sexual fluidity among young adults is coming from the analysis of secondary data from national health surveys conducted in the USA and Australia [9]. While these studies provide emerging evidence on sexual fluidity among young adults, these are focused on specific populations (e.g., adolescents involved in a school-based survey, children of registered nurses enrolled in a cohort study) that generate only a partial understanding of sexual fluidity.

More recently, some studies in the USA and UK examine sexual fluidity among groups with more diverse identities and social positions (e.g., transgender, non-binary, racialized groups, low-income populations), and reported a higher prevalence of changes in sexual attractions and identities among these subgroups [56,57]. To distil and interpret how sexual fluidity varies within and across populations of young adults, it is essential to develop epidemiological research with equity-seeking populations often under-represented in national surveys (such as young men, sexual and gender minority groups, youth who experience financial difficulties, and racialized groups). Integrating intersectionality into sexual fluidity research may help provide a better understanding on how diverse and interrelated social positions and identities (e.g., based on sexuality, ability, gender, social class or ethnicity) combine to shape sexual health experiences and mental health outcomes of young adults [58].

### ***Pushing the pendulum towards interdisciplinary research and human sexual rights***

While most research on sexual fluidity has been conducted through the lens of sociology, psychology and demography, sexual fluidity has relevance for researchers working across many disciplines and domains of research, notably including epidemiology. In our second and third knowledge gaps, for example, we describe how understanding underlying processes and contextual factors that influence changes in sexual orientation necessitates interdisciplinary approaches that are able to disentangle how mental health inequities are structurally embedded within specific subgroups of youth (e.g., those who change towards more same-sex-oriented

identities report greater risk of depression). It is, therefore, critically important to study sexual fluidity beyond the individual and consolidate the bridge between social sciences research and population health approaches to develop new conceptual frameworks that account for the multidimensional aspects of sexual fluidity.

Finally, we need to acknowledge that research on sexual fluidity is situated in a contemporary context where research on sex and gender is still subject to debate. Despite greater acceptance and visibility of sexual diversity over the past several decades, some settings are currently experiencing an increase in political discourses and public attitudes against research focusing on issues pertaining to sex, gender and sexuality. For example, recent laws have been passed within different jurisdictions in Canada that may have a critical impact on mental health of students with diverse gender identities [59]. Advancing science in this area should remain dedicated to the promotion of human sexual rights for everyone.

## **Declarations**

## **Competing interests**

None declared.

## **Funding**

PJC is supported by a Postdoctoral Fellowship Award from the Canadian Institutes of Health Research (Grant # MFE-176609). MKI receives funding from the Gendhi project (Horizon 2020 European research Council, Gendhi-Synergy Grant Agreement SGY2019-856478). RK holds a Junior 2 research scholar award from the Fonds de Recherche du Québec – Santé (2023-2024 CB 330116).

## **Data availability statement**

There are no data in this work.

## **Contributorship statement**

All authors contributed conceptually to this essay. PJC wrote the first draft with insights and contributions from TS, NA, WB, JL, MKI, and RK. All authors reviewed and approved the final version of the essay.

## References

- 1 Bommersbach TJ, Mckean AJ, Olfson M, *et al.* National Trends in Mental Health-Related Emergency Department Visits Among Youth, 2011-2020. *JAMA*. 2023;329:1469–77.
- 2 Kauhanen L, Wan Mohd Yunus WMA, Lempinen L, *et al.* A systematic review of the mental health changes of children and young people before and during the COVID-19 pandemic. *Eur Child Adolesc Psychiatry*. 2023;32:995–1013.
- 3 Sell RL. Defining and Measuring Sexual Orientation for Research. *The Health of Sexual Minorities*. Boston, MA: Springer US 2007:355–74. [https://doi.org/10.1007/978-0-387-31334-4\\_14](https://doi.org/10.1007/978-0-387-31334-4_14)
- 4 Marshal MP, Dietz LJ, Friedman MS, *et al.* Suicidality and depression disparities between sexual minority and heterosexual youth: A meta-analytic review. *Journal of Adolescent Health*. 2011;49:115–23. <https://doi.org/10.1016/j.jadohealth.2011.02.005>
- 5 Hottes TS, Bogaert L, Rhodes AE, *et al.* Lifetime Prevalence of Suicide Attempts Among Sexual Minority Adults by Study Sampling Strategies: A Systematic Review and Meta-Analysis. *Am J Public Health*. 2016;106:921–921.
- 6 Argyriou A, Goldsmith KA, Rimes KA. Mediators of the Disparities in Depression Between Sexual Minority and Heterosexual Individuals: A Systematic Review. *Arch Sex Behav*. 2021;50:925–59.
- 7 Salway T, Plöderl M, Liu J, *et al.* Effects of Multiple Forms of Information Bias on Estimated Prevalence of Suicide Attempts According to Sexual Orientation: An Application of a Bayesian Misclassification Correction Method to Data From a Systematic Review. *Am J Epidemiol*. 2019;188:239–49.
- 8 Diamond LM. Development of sexual orientation among adolescent and young adult women. *Dev Psychol*. 1998;34:1085–95.
- 9 Srivastava A, Winn J, Senese J, *et al.* Sexual Orientation Change among Adolescents and Young Adults: A Systematic Review. *Arch Sex Behav*. 2022;51:3361–76.
- 10 Katz-Wise SL. Sexual fluidity in young adult women and men: associations with sexual orientation and sexual identity development. *Psychol Sex*. 2015;6:189–208.
- 11 Katz-Wise SL, Ranker LR, Kraus AD, *et al.* Fluidity in Gender Identity and Sexual Orientation Identity in Transgender and Nonbinary Youth. *The Journal of Sex Research*. 2023;1–10.
- 12 Diamond LM. Gender Fluidity and Nonbinary Gender Identities Among Children and Adolescents. *Child Dev Perspect*. 2020;14:110–5.
- 13 Stewart JL, Spivey LA, Widman L, *et al.* Developmental patterns of sexual identity, romantic attraction, and sexual behavior among adolescents over three years. *J Adolesc*. 2019;77:90–7.
- 14 Kaestle CE. Sexual Orientation Trajectories Based on Sexual Attractions, Partners, and Identity: A Longitudinal Investigation From Adolescence Through Young Adulthood Using a U.S. Representative Sample. *J Sex Res*. 2019;56:811–26.
- 15 Katz-Wise SL, Ranker LR, Gordon AR, *et al.* Sociodemographic Patterns in Retrospective Sexual Orientation Identity and Attraction Change in the Sexual Orientation Fluidity in Youth Study. *Journal of Adolescent Health*. 2023;72:437–43.
- 16 Srivastava A, Hall WJ, Krueger EA, *et al.* Sexual identity fluidity, identity management stress, and depression among sexual minority adolescents. *Front Psychol*. 2023;13. doi: 10.3389/fpsyg.2022.1075815
- 17 Savin-Williams RC, Joyner K, Rieger G. Prevalence and stability of self-reported sexual orientation identity during young adulthood. *Archives of Sexual Behavior*. *Arch Sex Behav* 2012:103–10. <https://doi.org/10.1007/s10508-012-9913-y>

- 18 Burns RA, Butterworth P, Jorm AF. The long-term mental health risk associated with non-heterosexual orientation. *Epidemiol Psychiatr Sci.* 2018;27:74–83.
- 19 Charlton BM, Corliss HL, Spiegelman D, *et al.* Changes in reported sexual orientation following US States recognition of same-sex couples. *Am J Public Health.* 2016;106:2202–4.
- 20 Everett B. Sexual Orientation Identity Change and Depressive Symptoms: A Longitudinal Analysis. *J Health Soc Behav.* 2015;56:37–58.
- 21 Campbell A, Perales F, Hughes TL, *et al.* Sexual Fluidity and Psychological Distress: What Happens When Young Women’s Sexual Identities Change? *J Health Soc Behav.* 2022;63:577–93.
- 22 Silva T. A Quantitative Test of Critical Heterosexuality Theory: Predicting Straight Identification in a Nationally Representative Sample. *Sexuality Research and Social Policy.* 2018;15:353–66.
- 23 Campbell A. Operationalizing Sexual Identity Change. *Sexual Fluidity Among Millennial Women.* Cham: Springer International Publishing 2022:51–70. [https://doi.org/10.1007/978-3-031-13650-4\\_3](https://doi.org/10.1007/978-3-031-13650-4_3)
- 24 Campbell A, Perales F, Baxter J. Changes in Sexual Identity Labels in a Contemporary Cohort of Emerging Adult Women: Patterns, Prevalence and a Typology. *J Sex Res.* 2021;58:612–24.
- 25 Feinstein BA, Rhew IC, Hodge KA, *et al.* Changes in sexual identity and associations with alcohol use and depression among young adult sexual minority women. *J Stud Alcohol Drugs.* 2019;80:623–30.
- 26 van Anders SM. Beyond Sexual Orientation: Integrating Gender/Sex and Diverse Sexualities via Sexual Configurations Theory. *Arch Sex Behav.* 2015;44:1177–213.
- 27 Everett BG, Talley AE, Hughes TL, *et al.* Sexual Identity Mobility and Depressive Symptoms: A Longitudinal Analysis of Moderating Factors Among Sexual Minority Women. *Arch Sex Behav.* 2016;45:1731–44.
- 28 Ott MQ, Wypij D, Corliss HL, *et al.* Repeated changes in reported sexual orientation identity linked to substance use behaviors in youth. *Journal of Adolescent Health.* 2013;52:465–72.
- 29 Fish JN, Pasley K. Sexual (Minority) Trajectories, Mental Health, and Alcohol Use: A Longitudinal Study of Youth as They Transition to Adulthood. *J Youth Adolesc.* 2015;44:1508–27.
- 30 Katz-Wise SL, Reisner SL, White Hughto JM, *et al.* Self-Reported Changes in Attractions and Social Determinants of Mental Health in Transgender Adults. *Arch Sex Behav.* 2017;46:1425–39.
- 31 Burke PJ. Identity change. *Soc Psychol Q.* 2006;69:81–96.
- 32 Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychol Bull.* 2003;129:674–97.
- 33 Goldbach JT, Schrage SM, Mamey MR. Criterion and divergent validity of the sexual minority adolescent stress inventory. *Front Psychol.* 2017;8. doi: 10.3389/fpsyg.2017.02057
- 34 Bowleg L. The Problem With the Phrase *Women and Minorities*: Intersectionality—an Important Theoretical Framework for Public Health. *Am J Public Health.* 2012;102:1267–73.
- 35 Bowleg L, Huang J, Brooks K, *et al.* Triple Jeopardy and Beyond: Multiple Minority Stress and Resilience Among Black Lesbians. *J Lesbian Stud.* 2003;7:87–108.
- 36 Srivastava A, Hall WJ, Krueger EA, *et al.* Sexual Identity Fluidity and Depressive Symptoms: Findings From a National Longitudinal Study of Sexual Minority Adolescents. *Journal of Adolescent Health.* 2023;73:873–9.

- 37 Needham BL. Sexual Attraction and Trajectories of Mental Health and Substance Use During the Transition from Adolescence to Adulthood. *J Youth Adolesc.* 2012;41:179–90.
- 38 Carter MJ. How Self-Perceptions of Identity Change in Person, Role, and Social Identities Relate to Depression. *Identity.* 2017;17:282–96.
- 39 Twenge JM, Sherman RA, Wells BE. Changes in American Adults’ Reported Same-Sex Sexual Experiences and Attitudes, 1973–2014. *Arch Sex Behav.* 2016;45:1713–30.
- 40 OECD. *Over the Rainbow? The Road to LGBTI Inclusion.* OECD 2020. <https://doi.org/10.1787/8d2fd1a8-en>
- 41 Hogben M, Harper C, Habel MA, *et al.* Attitudes to sexual health in the United States: results from a national survey of youth aged 15–25 years. *Sex Health.* 2017;14:540.
- 42 Borneskog C, Häggström-Nordin E, Stenhammar C, *et al.* Changes in sexual behavior among high-school students over a 40-year period. *Sci Rep.* 2021;11:1–9.
- 43 Fish JN, Watson RJ, Porta CM, *et al.* Are alcohol-related disparities between sexual minority and heterosexual youth decreasing? *Addiction.* 2017;112:1931–41.
- 44 Richters J, Altman D, Badcock PB, *et al.* Sexual identity, sexual attraction and sexual experience: the Second Australian Study of Health and Relationships. *Sex Health.* 2014;11:451.
- 45 Katz-Wise SL, Hyde JS. Facilitative Environments Related to Sexual Orientation Development and Sexual Fluidity in Sexual Minority Young Adults Across Different Gender Identities. *J Bisex.* 2017;17:141–71.
- 46 Dyar C, Feinstein BA, Eaton NR, *et al.* The Mediating Roles of Rejection Sensitivity and Proximal Stress in the Association Between Discrimination and Internalizing Symptoms Among Sexual Minority Women. *Arch Sex Behav.* 2018;47:205–18.
- 47 Birkett M, Espelage DL, Koenig B. LGB and questioning students in schools: The moderating effects of homophobic bullying and school climate on negative outcomes. *J Youth Adolesc.* 2009;38:989–1000.
- 48 Puckett JA, Glozier K, Kimball D, *et al.* A systematic review of sexuality measurement in transgender and gender diverse populations. *Psychol Sex Orientat Gend Divers.* 2021;8:276–91.
- 49 Krueger EA, Fish JN, Hammack PL, *et al.* Comparing National Probability and Community-Based Samples of Sexual Minority Adults: Implications and Recommendations for Sampling and Measurement. *Arch Sex Behav.* 2020;49:1463–75.
- 50 Suen LW, Lunn MR, Katuzny K, *et al.* What Sexual and Gender Minority People Want Researchers to Know About Sexual Orientation and Gender Identity Questions: A Qualitative Study. *Arch Sex Behav.* 2020;49:2301–18.
- 51 Young WJ, Bover Manderski MT, Ganz O, *et al.* Examining the Impact of Question Construction on Reporting of Sexual Identity: Survey Experiment Among Young Adults. *JMIR Public Health Surveill.* 2021;7:e32294.
- 52 Expósito-Campos P. A Typology of Gender Detransition and Its Implications for Healthcare Providers. *J Sex Marital Ther.* 2021;1–11.
- 53 MacKinnon KR, Kia H, Gould WA, *et al.* A typology of pathways to detransition: Considerations for care practice with transgender and gender diverse people who stop or reverse their gender transition. *Psychol Sex Orientat Gend Divers.* Published Online First: 30 November 2023. doi: 10.1037/sgd0000678
- 54 Bach M, Jordan S, Hartung S, *et al.* Participatory epidemiology: the contribution of participatory research to epidemiology. *Emerg Themes Epidemiol.* 2017;14:2.
- 55 Burton J, Nandi A, Platt L. Measuring ethnicity: challenges and opportunities for survey research. *Ethn Racial Stud.* 2010;33:1332–49.



- 56 Katz-Wise SL, Williams DN, Keo-Meier CL, *et al.* Longitudinal associations of sexual fluidity and health in transgender men and cisgender women and men. *Psychol Sex Orientat Gend Divers.* 2017;4:460–71.
- 57 Flentje A, Brennan J, Satyanarayana S, *et al.* Quantifying Sexual Orientation Among Homeless and Unstably Housed Women in a Longitudinal Study: Identity, Behavior, and Fluctuations Over a Three-Year Period. *J Homosex.* 2020;67:244–64.
- 58 Bowleg L. When Black + Lesbian + Woman ≠ Black Lesbian Woman: The Methodological Challenges of Qualitative and Quantitative Intersectionality Research. *Sex Roles.* 2008;59:312–25.
- 59 Sask.'s new law creates complications for support staff, gender-diverse students: mental health experts | CBC News.  
<https://www.cbc.ca/news/canada/saskatchewan/sask-support-workers-students-bill-137-1.7003848> (accessed 7 November 2023)