
Biological Data in the National Couples' Health and Time Study (NCHAT): Linking Chronic Stress, Inflammation, and Epigenetic Aging

Lisa M. Christian, PhD

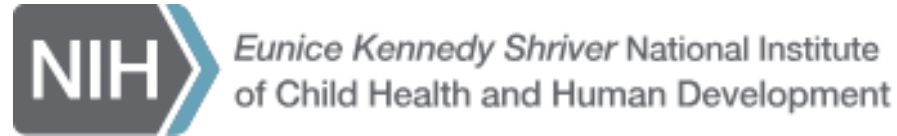
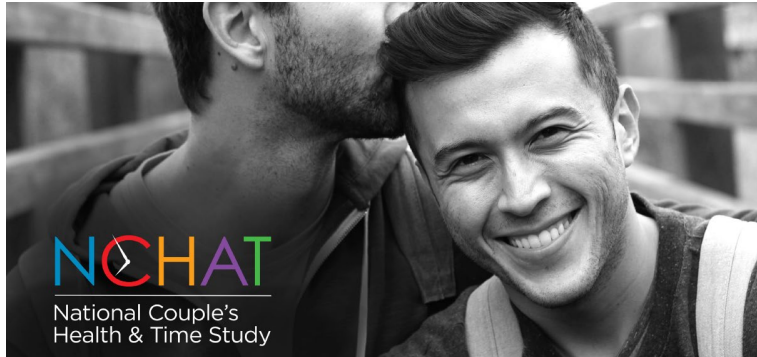
Director – Stress, Health, and Aging Lab
Professor of Psychiatry & Behavioral Health
Institute for Behavioral Medicine Research
The Ohio State University Wexner Medical Center





NCHAT
National Couple's
Health & Time Study





Claire Kamp Dush, PhD
University of Minnesota

- The first fully powered, population-representative study of couples in the US with statistically well-powered samples of individuals spanning the different couple compositions experienced by Americans.
- Drawn from the Gallup Panel. When weighted, the data are population representative of married or cohabiting individuals in the US.
- Wave 1 Data were collected between September 2020 and April 2021 in the midst of a global pandemic as well as racial and political upheaval.
- NCHAT includes surveys of 3,642 main respondents and 1,515 partners along with time diaries.

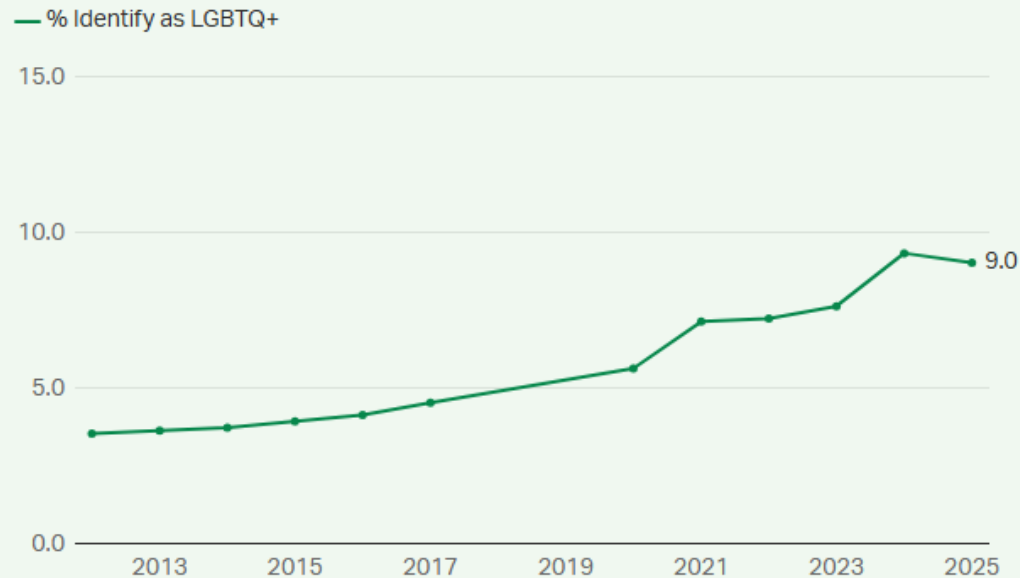


Wendy Manning, PhD
Bowling Green State University

Growth in LGBTQ+ identity

Americans' Self-Identification as Lesbian, Gay, Bisexual, Transgender or Something Other Than Heterosexual, 2012-2025

Which of the following do you consider yourself to be? You can select as many as apply. Straight or heterosexual, Lesbian, Gay, Bisexual, Transgender



Respondents who volunteer another identity (e.g., queer, same-gender-loving, pansexual) are recorded as "Other LGBTQ+" by interviewers. These responses are included in the LGBTQ+ estimate. Data were not collected in 2018 and 2019.

2012-2017 wording: Do you, personally, identify as lesbian, gay, bisexual or transgender?

[Get the data](#) • [Download image](#)

GALLUP

LGBTQ+ Identity Among U.S. Adults, by Subgroup, 2025

Which of the following do you consider yourself to be? You can select as many as apply. Straight or heterosexual, Lesbian, Gay, Bisexual, Transgender

| | Total LGBTQ+ % | Lesbian % | Gay % | Bisexual % | Transgender % |
|---------------|-------------------|--------------|----------|---------------|------------------|
| Age | | | | | |
| 18-29 years | 23.0 | 2.9 | 2.5 | 16.1 | 3.0 |
| 30-49 years | 10.4 | 1.5 | 2.1 | 5.6 | 1.3 |
| 50-64 years | 3.1 | 1.0 | 0.8 | 1.1 | * |
| 65+ years | 2.3 | 0.7 | 0.9 | 0.7 | * |
| Gender | | | | | |
| Men | 5.6 | * | 2.5 | 2.5 | * |
| Women | 10.5 | 2.3 | * | 7.2 | 0.9 |
| Nonbinary | 86.2 | 17.6 | 10.1 | 39.7 | 34.8 |

- The percent of Americans identifying as LGBTQ+ has more than doubled from 3.5% in 2012 to 9% of the US population
- Growth is highest among Gen Z – of whom 21.5% now identify as LGB

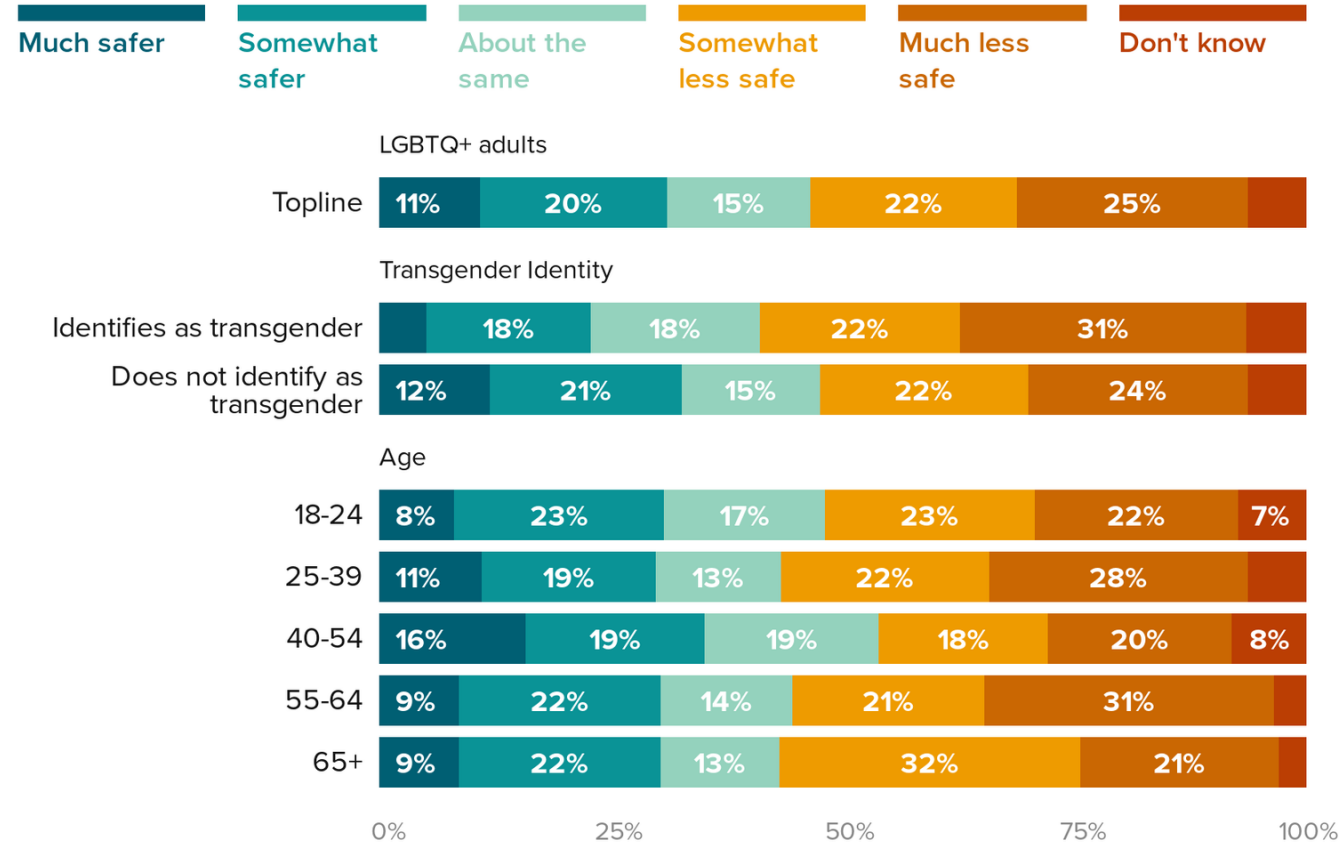
Advances in LGBTQ+ rights and acceptance

- 2015: Supreme Court recognition of marriage equality
- Public opinion on LGBTQ+ rights improved more rapidly than any other attitude in the history of American opinion polling
- LGBTQ+ youth coming out at younger ages, and in greater numbers



A Plurality of LGBTQ+ Adults Believe That Society Has Become Less Safe for the LGBTQ+ Community

Do you think that society has become more safe or less safe for the LGBTQ+ community in the past few years?



May 19-22, 2023 survey of 1,036 LGBTQ+ adults nationally

Health Differences among LGBTQ+ Adults

- Heightened Risk for:
 - Cardiovascular disease
 - Depressive disorders
 - Substance use disorders
 - Anxiety disorders
 - Suicidal ideation
 - Breast and cervical cancers
 - Obesity and eating disorders
- In 2016, NIMHD identified this community as a health disparity population

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The Ohio State University



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University of Minnesota

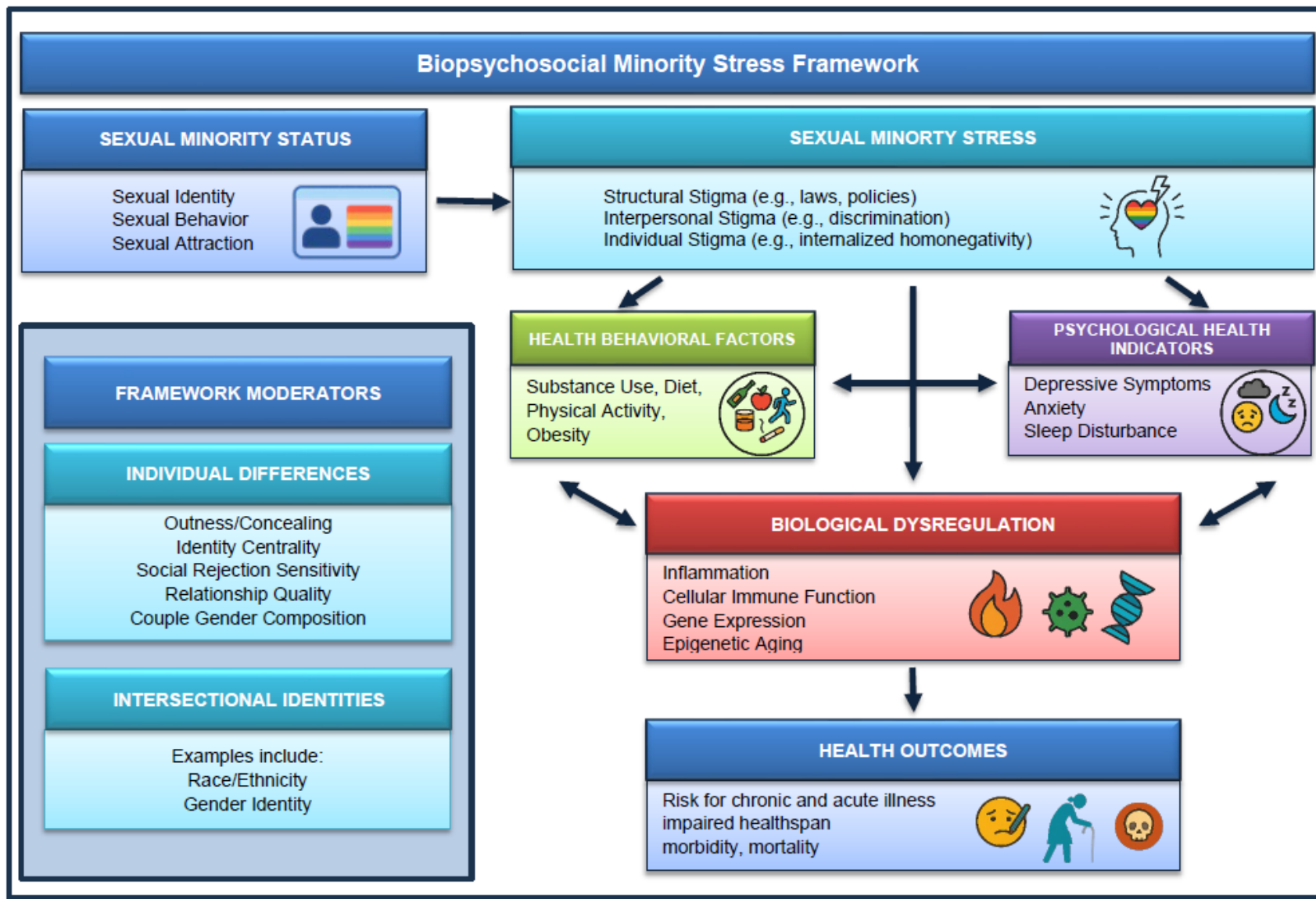
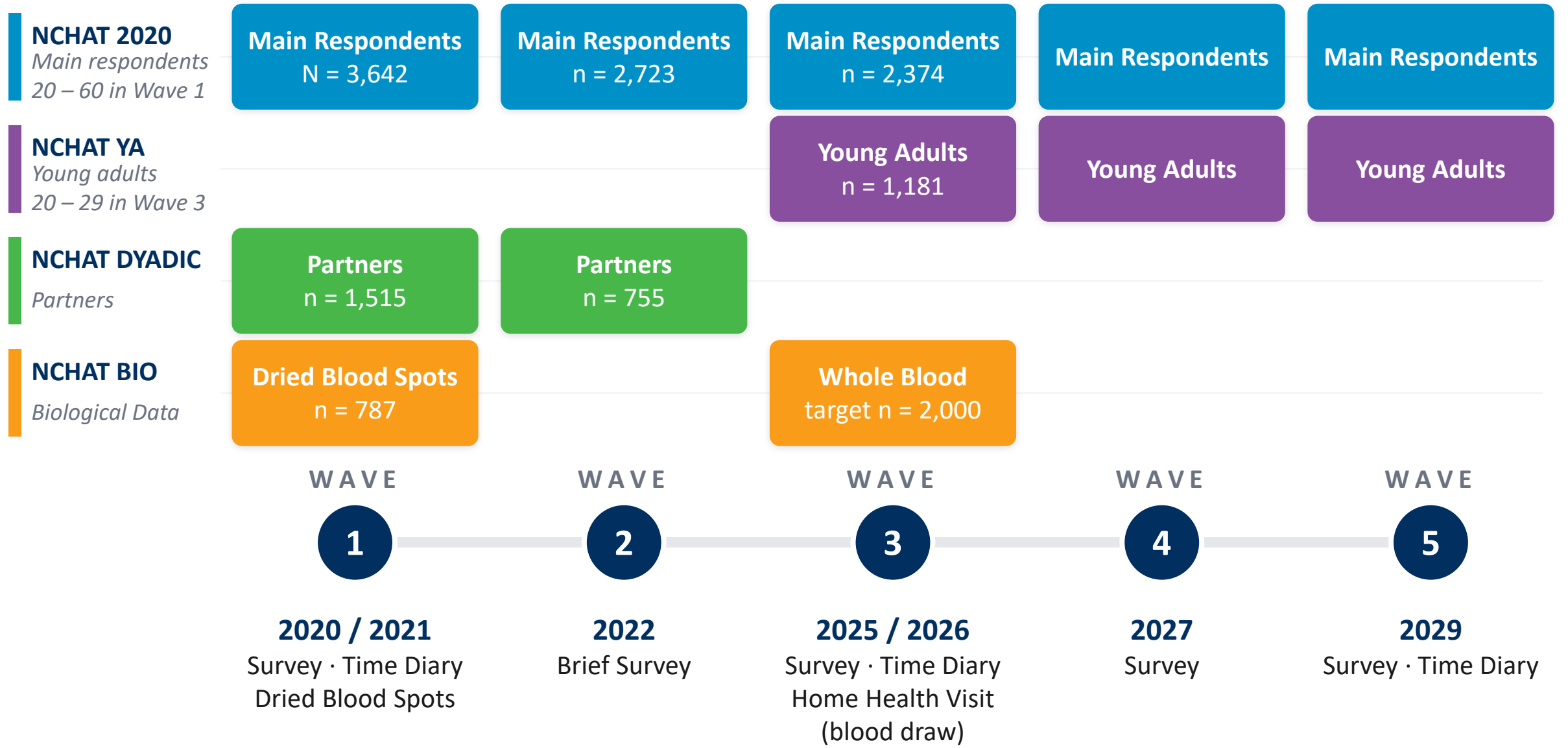


Fig1. Model depicting key proposed variables and pathways linking identity, stress, and health. These including social, behavioral, and biological factors and both mediating and moderating effects.

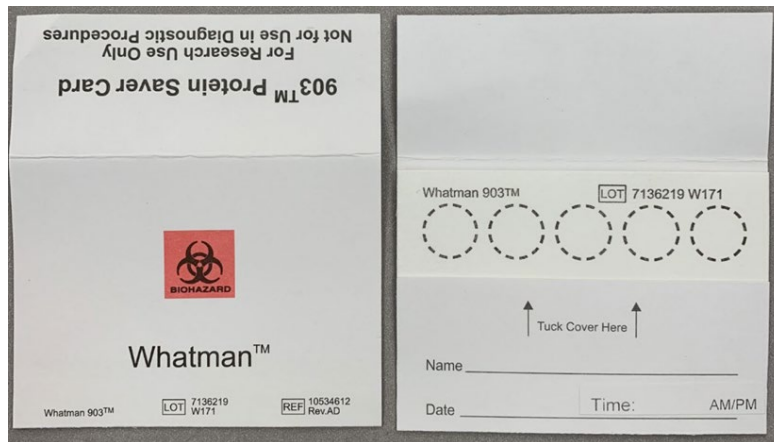
Current and Planned Study Design

National Couples' Health and Time Study



NCHAT-BIO Wave 1

- Established a biorepository of dried blood spots from 950 NCHAT participants
- Have completed assays for IL-6, CRP, and EBV antibody levels in 787 after exclusions/insufficient blood volume



Christian, L.M., Morgan, E., Andridge, R.R., Peng., J., Marlar, J., Manning, W.D., Cole, S.W., McDade, T.W & Kamp Dush, C.M. (2026) The National Couples' Health and Time Stress Biology Study (NCHAT-BIO): Wave 1 Methodology Report and Wave 3 Preview. PsyArXiv. osf.io/preprints/psyarxiv/rzfv3_v1

| Characteristic | N | Overall N = 787 ¹ |
|---------------------------------|-----|------------------------------|
| Age | 787 | 42.69 (10.19) |
| Body Mass Index | 752 | 29.58 (7.62) |
| Health Conditions | 785 | 1.33 (1.69) |
| Depressive Symptoms | 766 | 8.80 (6.19) |
| Sleep Quality | 786 | 2.68 (0.92) |
| IL-6 | 452 | 0.83 (1.99) |
| CRP | 663 | 1.54 (2.76) |
| EBV Antibody Levels | 563 | 197.27 (287.45) |
| EBV Seropositive Status | 647 | |
| Negative | | 13.0 (84) |
| Positive | | 87.0 (563) |
| Self-Rated Health | 786 | 3.33 (0.94) |
| Tobacco Use | 784 | |
| Current Smoker | | 15.6 (122) |
| Current Non-Smoker | | 84.4 (662) |
| Alcohol Use | 786 | |
| 1 or more day per week | | 41.3 (325) |
| 1-3 times a month | | 29.6 (233) |
| non-drinker | | 29.0 (228) |
| Sex | 787 | |
| Male | | 43.1 (339) |
| Female | | 56.9 (448) |
| Marital Status | 787 | |
| Married | | 76.9 (605) |
| Unmarried/Cohabiting | | 23.1 (182) |
| Education | 787 | |
| High School or less | | 15.5 (122) |
| Some college/Associate's degree | | 25.0 (197) |
| Bachelors degree or greater | | 59.5 (468) |
| Nonbinary | | 2.9 (23) |
| Race | 787 | |
| Non-White | | 25.0 (197) |
| White | | 75.0 (590) |
| Household Income | 783 | |
| <60k | | 21.5 (168) |
| 60k-90k | | 20.7 (162) |
| 90k-120k | | 16.7 (131) |
| 120k-180k | | 23.1 (181) |
| 180k+ | | 18.0 (141) |

¹ Mean (SD); % (n)

Table 2: NCHAT-BIO Wave 1 Published Manuscripts and Preprints Prior to Public Data Release

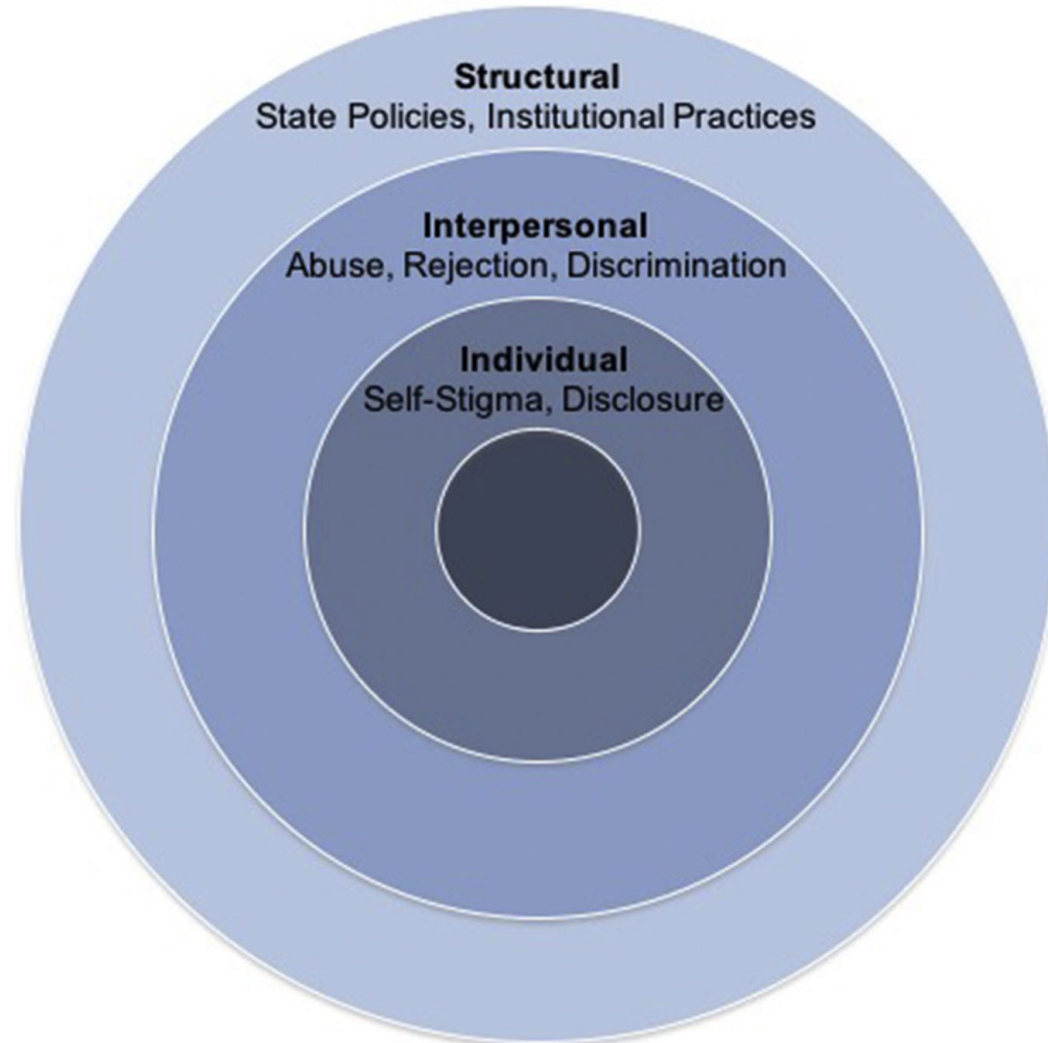
| Focus Area | Key Psychosocial Variables | Biological Variables | Citation |
|--|---|------------------------------------|---|
| LGBTQ+ Identity Valence | LGB identity scale (LGBIS) ¹²⁷ | IL-6 CRP EBV antibodies | Morgan E, Kamp Dush CM, McDade TW, Peng J, Andridge RR, Cole SW, Manning W, & Christian LM. (2025). LGBTQ+ identity and its association with inflammation and cellular immune function. <i>Brain, Behavior, and Immunity</i> . 126, 333-341. |
| Anxiety and Depressive Symptoms | Generalized Anxiety Disorder (GAD-7) scale; ¹²⁸ Center for Epidemiologic Studies Depression (CES-D 10) scale ¹²⁹ | IL-6 CRP | Christian, L.M., Kasibhatla, N., McDade, T.W., Blevins, T., Peng, J., Andridge, R.R., Cole, S.W., Manning, W.D., & Kamp Dush, C.M. (2026) Sexual Minority Adults Exhibit Greater Inflammation than Heterosexual Adults in the Context of Depressive Symptoms and Anxiety: Pathways to Health Disparities. <i>Brain, Behavior, and Immunity</i> , 133, 106202. |
| Coping Behaviors | Positive and Negative Coping ¹³⁰ | IL-6 CRP EBV antibodies | Christian, L.M., Andridge, R.R., Peng, J., Blevins, T., McDade, T.W., Manning, W.D., & Kamp Dush, C.M. (2025, November 19). Positive and Negative Coping Behaviors: Associations with Immune Function in a Sexually Diverse US Sample. <i>PsyArXiv</i> . osf.io/preprints/psyarxiv/3uefs_v1 |
| Social Support | Perceived Social Support Scale ¹³¹ assessing emotional support from spouse/partner, family, and friends. | IL-6 CRP EBV antibody levels | Madison, A. Kamp Dush, C.M., McDade, T.W., Peng, J., Andridge, R.R., Cole, S.W., Blevins, T., Kasibhatla, N., Christian, L.M., (in press) Social Support, Loneliness & Inflammation in LGB+ Subgroups: Health Disparities in a Partnered U.S. Cohort. <i>Biopsychosocial Science and Medicine</i> . |
| Self-Rated Health | Global single-item measure of Self-Rated Health from the RAND Health Survey ¹³² | IL-6 CRP | Christian, L.M., Andridge, R., Peng, J., McDade, T.W., Manning, W.D., & Kamp Dush, C.M. (2026). Self-Rated Health and Inflammation: Associations among Sexual Minority and Heterosexual Adults. <i>Health Psychology</i> . https://dx.doi.org/10.1037/hea0001594 |
| Marijuana Use PrEP Use | Health behaviors: marijuana & pre-exposure prophylaxis (PrEP) use | IL-6 CRP EBV antibodies | Morgan, E., McDade, T.W., Manning, W., & Kamp Dush, C.M. (2025). Assessing Inflammatory Biomarkers at the Intersection of Marijuana and PrEP Use: Preliminary Findings from the NCHAT-BIO Study. <i>JAIDS</i> . 100(5), 407-414. |
| Sexual Minority Stress | LGB identity scale (LGBIS); ¹²⁷ Generalized Anxiety Disorder (GAD-7) scale; ¹²⁸ Center for Epidemiologic Studies Depression (CES-D 10) scale ¹²⁹ | Epigenetic Aging* | Christian, L.M., Wilson, S., Madison, A.A., Kamp Dush, C.M., McDade, T.W., Peng, J., Andridge, R., Morgan, E., Manning, W., Cole, S.W., (2025). Sexual Minority Stress and Epigenetic Aging. <i>Brain, Behavior, and Immunity</i> , 126, 24-29. |

Christian, L.M., Morgan, E., Andridge, R.R., Peng, J., Marlar, J., Manning, W.D., Cole, S.W., McDade, T.W & Kamp Dush, C.M. (2026) The National Couples' Health and Time Stress Biology Study (NCHAT-BIO): Wave 1 Methodology Report and Wave 3 Preview. *PsyArXiv*. osf.io/preprints/psyarxiv/rzfv3_v1

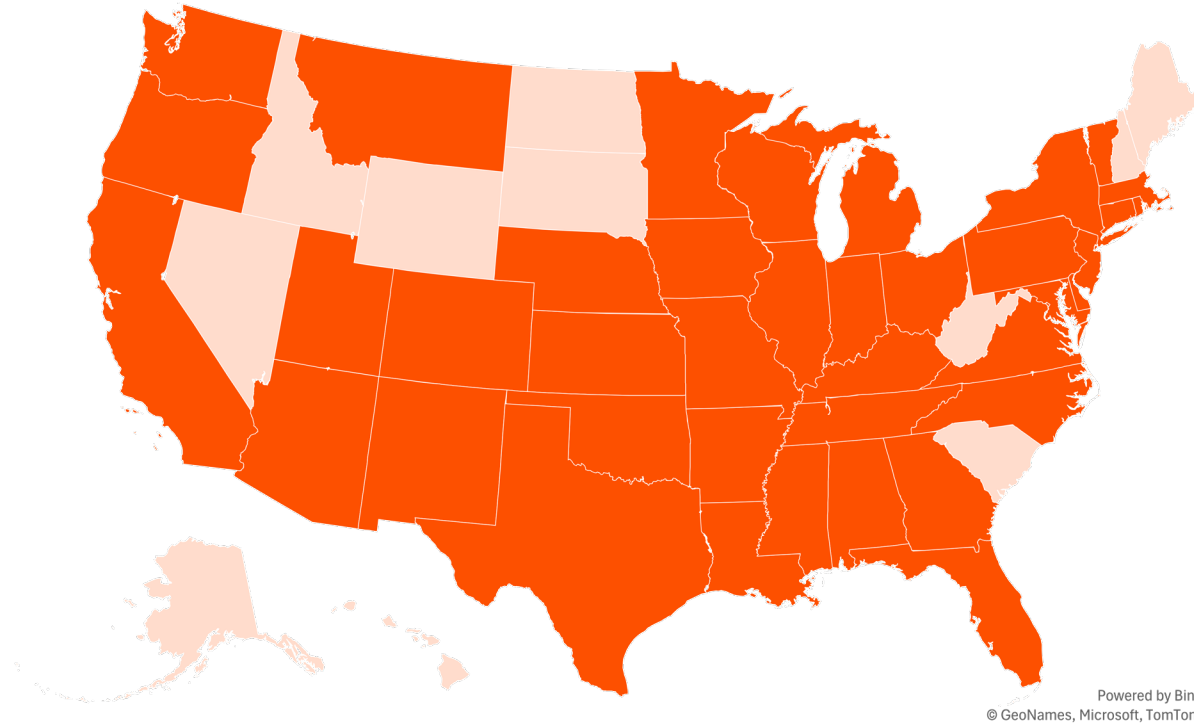
Link & Phelan (2001) Annu Rev Sociol

- Labeling:
Distinguish and label difference
- Stereotyping:
Link labeled person to undesirable characteristics (negative stereotypes)
- Separation:
Distinct categories of “us” versus “them”
- Exclusion/discrimination:
status loss, discrimination, unequal social, economic, political power

Stigma as a multilevel construct



NCHAT's Growing Impact in Research & Policy



15076 total downloads since 6/22

140 total member institutions

81 At least presentations and publications including top tier journals – *American Journal of Public Health, Demography, Journal of Marriage and Family*

NCHAT has been downloaded in *at least* **39** states

NCHAT has also been used in at least **6** countries, with institutions including:

Hong Kong University of Science and Technology, McMaster University, Peking University, Seoul National University, Simon Fraser University, Trent University, University College London, University of Alberta, University of Amsterdam, University of British Columbia, University of Guelph, University of La Verne, University of Montreal, Western University

Publicly Available Data

- Data from NCHAT-BIO Wave 1 are in the process of being released through ICPSR (will be available Summer 2026).

The screenshot displays the Data Sharing for Demographic Research (DSDR) website interface. At the top, the logo for DSDR and the text "Data Sharing for Demographic Research" and "A Population Health Data Archive" are visible. A search bar is located in the top right corner. The main heading of the page is "National Couples' Health and Time Study (NCHAT), United States, 2020-2022 (ICPSR 38417)". Below the heading, the version date is listed as "Mar 25, 2025" with links to "Cite this study" and "Share this page". The principal investigator(s) are listed as "Claire M. Kamp Dush, University of Minnesota; Wendy D. Manning, Bowling Green State University". A DOI link is provided: "https://doi.org/10.3886/ICPSR38417.v8". The version is identified as "Version V8 (see more versions)".

Four action buttons are present: "Explore Data", "Analyze Online (SDA)", "Download", and "Access Restricted Data".

On the right side, there are two statistics boxes: "15,076 Downloads *" with a link to "Usage Report" and "65 Data-related Publications" with a link to "Publications". A note below these statistics states "* past three years".

At the bottom, there is a "Notes" section with a bullet point: "The public-use data files in this collection are available for access by the general public. Access does not require affiliation with an ICPSR member".

On the left side, there is a "Project Description" section with a "Summary" sub-section. The summary text reads: "The National Couples' Health and Time Study (NCHAT) is a population-based study of couples in America that contains representative samples of racial and ethnic diverse and sexual and gender diverse individuals. NCHAT entered the field on September 1, 2020, and data collection completed in April 2021. A follow-up survey (Wave 2) was fielded in 2022. The Wave 1 sample includes 3,642 main respondents. The sample frame included adults in".

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WAVE 3

- Goal: addition of whole blood data collection from 2,000 NCHAT participants in Wave 3
- Assays for **inflammation** and **epigenetic aging**

Entered the field on 04/03/2026!

Data will eventually be publicly available



Lisa Christian, PhD
The Ohio State University



Claire Kamp Dush, PhD
University of Minnesota



Rebecca Andridge, PhD
The Ohio State University



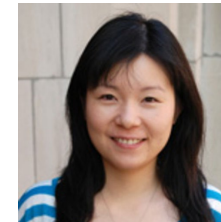
Steve Cole, PhD
UCLA



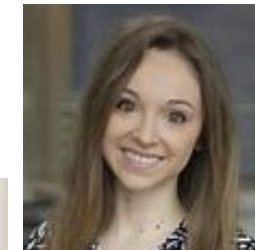
Wendy Manning, PhD
Bowling Green State University



Jessica Faul, PhD
University of Michigan



Juan Peng, MA
The Ohio State
University



Stephanie Wilson, PhD
University of Alabama



Tara McKay, PhD
Vanderbilt University



Annelise Madison, PhD
Univ of Michigan



Thomas McDade, PhD
Northwestern
University

Current and Planned Study Design

National Couples' Health and Time Study

