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How Much Should We Trust Non-Probabilistic Web-Based Surveys on LGBTI+ People? Evidence From Mexico

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How much should we trust non-probabilistic web-based surveys on LGBTI+ people? Evidence from Mexico[♦]

Ercio A. Muñoz[♦]

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Abstract

Although many web-based non-probabilistic surveys are the only source of data on gender and sexual diversity in many countries, there is little evidence of their accuracy in characterizing LGBTI+ people. This paper studies how precisely the experiences of LGBTI+ people are captured by web-based non-probabilistic surveys. We compare several statistics about LGBTI+ people obtained from a web-based non-probabilistic survey with over 14,000 respondents to statistics derived from a large-scale, nationally representative survey with more than 44,000 respondents that was specifically designed to characterize this population. We find important differences in the relative sizes of the subgroups that are part of the LGBTI+ population and in their characteristics. Our results illustrate how the self-selection inherent in non-probabilistic web-based surveys can result in a characterization of LGBTI+ people that assigns them higher educational attainment and better labor market outcomes than the probabilistic benchmark while, at the same time, significantly overstating life dissatisfaction, mental health issues, and the prevalence of self-reported experiences of bullying and harassment. These results suggest that while we can learn something about the direction of the gaps between LGBTI+ people and the general population on self-reported indicators, researchers and policymakers need to be careful in interpreting the levels of such gaps.

Keywords: Non-probabilistic surveys, LGBTQ+, sexual orientation, gender identity, survey methodology, Mexico

JEL: J15, J16, J71, C83

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1. Introduction

There is an increasing interest in the generation of statistical information and in research on the extent, causes, and effects of violence, discrimination, and other harms based on sexual orientation, gender identity, gender expression, and sex characteristics, as well as the effectiveness of measures to prevent, prosecute, and remedy such harms (Badgett et al., 2024).¹ However, the collection of accurate and representative data on LGBTI+² people has been limited due to the non-inclusion of questions asking about these identities in household surveys or censuses and the inexistence of specialized surveys with a focus on this population. This information gap has left researchers and policymakers with an incomplete understanding of the social, labor, and health conditions faced by these groups.

Given the absence of official statistics, several organizations in developing countries (e.g., Bolivia, the Dominican Republic, and Peru) have generated statistical information about LGBTQ+ people by conducting non-probabilistic web-based surveys. These exercises aim to shed light on the personal characteristics, experiences, and living conditions of LGBTI+ people in the hope that public authorities and civil society can inform policies, actions, and strategies that affect this group (see, e.g., Defensoría del Pueblo, 2023; INEI, 2018; PNUD, 2021). However, while it is recognized that the results of these data collection exercises cannot be generalized to the overall population, there is little evidence on the reliability of non-probabilistic web-based surveys in characterizing the LGBTI+ population.

This paper studies how accurate the characterization of the LGBTI+ population is when derived from a web-based non-probabilistic survey. Given that the non-probabilistic survey does not allow the size of the LGBTI+ population to be estimated as a percentage of the full population, we investigate instead whether the relative size of different subgroups is accurate and, more importantly, whether the characteristics of each subgroup, as well as their self-reported experiences and well-being, can shed light on the disparities that LGBTI+ people face compared to heterosexual, cisgender, and endosex people.

To do so, we compare several statistics about each group within the LGBTI+ people obtained from a web-based non-probabilistic survey with approximately 14,000 respondents (of whom nearly 7,000 self-identify as LGBTI+) in Mexico to statistics derived from a large-scale, nationally representative survey with more than 44,000 respondents specifically designed to characterize this population in the country. Mexico offers a unique opportunity to explore this research question, as the National Survey on Sexual and Gender Diversity (ENDISEG) conducted by the National Institute of Statistics and Geography (INEGI) of Mexico in 2021

¹ For example, the “Yogyakarta Principles plus 10” on the application of international human rights law in relation to sexual orientation, gender identity, gender expression, and sex characteristics emphasize the importance of ensuring the rights of LGBTQ+ individuals.

² The abbreviation LGBTI+ refers to individuals who identify as lesbian, gay, bisexual, transgender, and queer, as well as to other sexual and gender minorities. Individuals with same-sex attraction and/or same-sex sexual activity – as well as those who identify with certain categories such as lesbian women, gay men, bisexual and queer individuals – are generally referred to as sexual minorities. Gender minority individuals (trans+, as defined by the National Institute of Statistics and Geography (INEGI) of Mexico) are individuals whose current gender does not match their sex assigned at birth. In contrast, cisgender individuals are people whose current gender aligns with their sex at birth. Gender minority individuals include transgender and nonbinary individuals. Importantly, the abbreviation LGBTQ+ refers to sexual orientation and gender identities, while intersex refers to sex traits. For this reason, some researchers and activists use the abbreviation LGBTIQI+.

had a complementary statistical operation in 2022 with the same questionnaire based on a non-probabilistic web-based survey called ENDISEG Web.³

Our results show important differences in the relative size of the different subgroups that are part of the LGBTI+ population. ENDISEG Web finds a larger share of individuals assigned male at birth who are part of the LGB population and the trans+ population. In contrast, the share of individuals assigned female at birth as part of the intersex population is larger in the web-based survey. Regarding their characteristics, we find that all subgroups in the web-based survey show a larger share of those with tertiary education, in line with previous work showing that non-probabilistic web-based surveys tend to attract more educated respondents (Jäckle et al., 2024). Similarly, all groups show higher labor force participation in the web-based survey. However, they report a higher prevalence of experiences of bullying and harassment and lower levels of well-being.

These findings illustrate how the self-selection inherent in non-probabilistic web-based surveys can result in a characterization of LGBTI+ people that assigns higher educational attainment and better labor market outcomes than the benchmark while, at the same time, significantly overstating the prevalence of self-reported experiences of rejection, life dissatisfaction, and mental health issues. This result suggests that while we can learn something about the direction of the gaps relative to the general population in self-reported experiences, researchers and policymakers need to be careful in interpreting the levels of such gaps.

We contribute to two strands of literature. The first is the literature on disparities based on gender identity, sexual orientation, and intersex status, which is mostly focused on developed countries (Badgett et al., 2024; NASEM, 2020). Our study shows some of the potential problems of using non-probabilistic web-based surveys to fill the information gaps in developing countries. Second, our paper adds to the literature on survey methodology related to the use of web-based data collection tools as well as non-probabilistic sampling (see, e.g., Cornesse et al., 2020; Dassonneville et al., 2020; Dewaele et al., 2020; Houtenville et al., 2021; MacInnis et al., 2018). We contribute by providing novel evidence obtained from this case study in Mexico that highlights important aspects that can be misleading when web-based non-probabilistic data collection methods are used to study LGBTI+ people, as well as things that can be learned from them.

The rest of this paper is organized as follows. Section 2 describes the datasets used in the analysis. Section 3 presents the main results of comparing the web-based survey and the large-scale, nationally representative survey. Finally, section 4 offers a discussion of the main results, and section 5 closes with some concluding remarks.

2. Data

This paper uses data collected from two complementary statistical operations (ENDISEG and ENDISEG Web) conducted by INEGI in Mexico, which used the same questionnaire but different sampling methods. The dual approach of these surveys provides a unique opportunity to explore the concordance in the demographic, socioeconomic, and mental

³ INEGI is very clear in stating that this exercise is qualitative in nature and that statistical inference for the entire Mexican population should not be drawn.

health profiles obtained from those who participated in the in-person probabilistic survey and those who participated in the web-based non-probabilistic version.

2.1 National Survey on Sexual and Gender Diversity (ENDISEG) 2021

ENDISEG 2021 was a statistical operation conducted by INEGI in Mexico. It was specifically designed to provide accurate and representative information on the sexual orientation, gender identity, and sexual characteristics of the population aged 15 years and older (INEGI 2021). To the best of our knowledge, it was the first statistical operation of its kind developed by a national statistics office in a developing country. Fieldwork was performed from August 2021 to January 2022, collecting information from approximately 44,000 households nationwide, representing 97.2 million people. The sample was randomly selected to ensure representativeness at the national level. Furthermore, from the household roster of each household, one member was randomly chosen to complete the questionnaire. The interviews were conducted face to face, but the questionnaire modules related to sexuality, sexual orientation, gender identity, emotional health, and experiences of social rejection were gathered through an audio-assisted interview using a tablet, rather than directly gathered by enumerators, thus ensuring the respondents' privacy and comfort in disclosing sensitive information.

Given the nature of this statistical operation, in this paper, we use the characterization of the LGBTI+ population utilizing information obtained from ENDISEG as a benchmark to compare the information collected by web-based non-probabilistic methods.

2.2 National Survey on Sexual and Gender Diversity Web (ENDISEG WEB) 2022

ENDISEG Web 2022 was a statistical operation conducted by INEGI in Mexico. It used the same questionnaire as ENDISEG 2021 to collect information using a web-based survey (INEGI 2022). The general aim of ENDISEG Web was to provide an accessible platform for LGBTI+ individuals to share their experiences and living conditions anonymously and without geographic restrictions. Unlike ENDISEG 2021, ENDISEG Web 2022 did not rely on a random sample of households; instead, it allowed voluntary participation from individuals interested in issues of sexual and gender diversity, with a particular focus on those who self-identify as LGBTI+. INEGI presented ENDISEG Web 2022 as a qualitative exercise, making it very clear that inference about the full Mexican population cannot be drawn from it. The web-based survey was available between February and April 2022 and was completed by more than 14,000 respondents, of whom nearly 7,000 self-identified as LGBTI+.

2.3 Sample size

Our main analysis focuses on the working-age population (respondents aged 15-64 years). We divide the full population based on their sexual orientation (LGB vs. heterosexual), gender identity (trans+ vs. cisgender), and intersex status (intersex vs. endosex). For the groups within the LGBTI+ population (i.e., lesbian, gay, bisexual, trans+, intersex), we consider statistics generated from both ENDISEG and ENDISEG Web. In contrast, from ENDISEG Web, we only keep those identified as LGB, trans+, and intersex, as this survey was targeted to that population.

Although our focus is to compare statistics for LGBTI+ people obtained from different sources, we also generate statistics for people not identified as LGBTI+ using ENDISEG to allow a comparison and assess how the gaps affecting LGBTI+ are impacted. We use the following reference groups: heterosexual respondents are used as the reference group when analyzing data by sexual orientation; cisgender respondents serve as the reference group when analyzing data by gender identity; and endosex respondents (those who are not intersex) are considered when analyzing data by intersex status.

Table 1 presents the sample size based on the number of observations (N) for ENDISEG and ENDISEG Web. Specifically, for ENDISEG, the observations include survey weights to ensure national representativeness. Examining sexual orientation within the LGB+ group (Panel A), we observe that there is a notable disparity in the representation of AMAB (assigned male at birth) and AFAB (assigned female at birth) individuals between the web survey and face-to-face survey. Within the LGB+ category, AMAB individuals constitute 41.23% (N = 885) of the ENDISEG sample, compared to the significantly higher 60.71% (N = 4,183) in ENDISEG Web. Conversely, AFAB individuals compose 58.77% (N = 1,242) of the ENDISEG sample, but in the web survey, they are less represented, accounting for 39.29% (N = 2,707). The distribution within the LGB+ group also reveals significant differences between the two survey methods. In ENDISEG Web, 57.39% (N = 3,954) of LGB+ respondents identify as gay or lesbian, compared to 36.41% (N = 815) in ENDISEG. Conversely, bisexual individuals are more represented in the face-to-face survey (52.36%, N = 1,094), compared to only 29.46% (N = 2,030) in the web survey. Additionally, while smaller, the “other” category is slightly higher in the web survey (13.15%, N = 906) than in the face-to-face survey (11.23%, N = 218).

Analyzing gender identity (Panel B), we observe that 98.95% of respondents in ENDISEG identify as cisgender (N = 37,310) and that 1.05% (N = 432) fall under the trans+ category, whereas ENDISEG Web has 1,336 trans+ respondents.⁴ Within the trans+ group, in the web survey, 51.95% of respondents (N = 694) are AMAB, while 48.05% (N = 642) are AFAB. In contrast, in the face-to-face survey, 57.68% (N = 238) of trans+ individuals were AFAB, and 42.32% (N = 194) were AMAB. The distribution of identities within the trans+ group also reveals marked differences between the two surveys. In ENDISEG Web, 32.11% (N = 429) of trans+ individuals identify as “neither male nor female,” compared to only 11.22% (N = 47) in the face-to-face survey. Conversely, the category “both male and female” is more common in the face-to-face survey (32.89%, N = 143) than in the web survey (23.58%, N = 315).

Finally, in the face-to-face survey, 1.61% of respondents (N = 608) identify as intersex, which is consistent with previous medical literature estimates placing the prevalence of the intersex population at approximately 1.7% (Panel C). In ENDISEG Web, 227 individuals identify as intersex. The gender distribution within the intersex population presents a more significant variation: in the web survey, 53.74% of respondents (N = 122) identify as male, compared to 59.01% (N = 358) in the face-to-face survey. Conversely, 46.26% of respondents (N = 105) identify as female in the web survey, versus 40.99% (N = 250) in the face-to-face survey.

⁴ We do not report what percentage of the full population each subgroup within LGBTI+ people represent in the case of ENDISEG Web, as this survey is non-probabilistic and was focused on capturing LGBTI+ people.

Table 1: Sample size in ENDISEG vs. ENDISEG Web, individuals aged 15-64

Panel A: Sexual orientation

Sexual orientation	ENDISEG			ENDISEG Web	
	N	Observations	Percentage	N	Percentage
Heterosexual	35,615	80,965,747	94.70%		
AMAB	16,414	38,582,016	47.65%		
AFAB	19,201	42,383,731	52.35%		
LGB+	2,127	4,528,804	5.30%	6,890	100%
AMAB	885	1,867,452	41.23%	4,183	60.71%
AFAB	1,242	2,661,352	58.77%	2,707	39.29%
LGB+ distribution	N	Observations	Percentage	N	Percentage
Bisexual	1,094	2,371,456	52.36%	2,030	29.46%
Gay/Lesbian	815	1,648,945	36.41%	3,954	57.39%
Other	218	508,403	11.23%	906	13.15%

Panel B: Gender identity in ENDISEG

Gender identity	ENDISEG			ENDISEG Web	
	N	Observations	Percentage	N	Percentage
Cisgender	37,310	84,594,868	98.95%		
AMAB	17,105	40,068,699	47.37%		
AFAB	20,205	44,526,169	52.63%		
Trans+	432	899,683	1.05%	1,336	100%
AMAB	194	380,769	42.32%	694	51.95%
AFAB	238	518,914	57.68%	642	48.05%
Trans+ distribution	N	Observations	Percentage	N	Percentage
Female	101	238,935	26.56%	176	13.17%
Male	82	154,216	17.14%	213	15.94%
Both	143	295,913	32.89%	315	23.58%
Neither	47	100,930	11.22%	429	32.11%
Other	59	109,689	12.19%	203	15.19%

Panel C: Intersex

	ENDISEG			ENDISEG Web	
	N	Observations	Percentage	N	Percentage
Endosex	34,596	78,602,929	98.39%		
Male	15,730	37,053,134	47.14%		
Female	18,866	41,549,795	52.86%		
Intersex	608	1,282,296	1.61%	227	100%
Male	358	756,650	59.01%	122	53.74%
Female	250	525,646	40.99%	105	46.26%

Note: AFAB denotes individuals assigned female at birth, while AMAB denotes individuals assigned male at birth. In Panel B, both means male and female, neither means neither male nor female, and other means other gender classifications. In Panel C, 4.71% of the respondents did not understand the question, and 2.01% did not select an option.

3. Results

In this section, we compare a set of statistics computed using ENDISEG Web 2022 (web-based non-probabilistic survey) to those obtained from ENDISEG 2021 (in-person survey with random sampling). We divide these statistics into three groups: 1) descriptive statistics including demographic and labor market information; 2) self-reported rejection experiences throughout the life cycle; and 3) indicators of well-being. These indicators are computed by splitting the population by sexual orientation (heterosexual vs. bisexual, gay/lesbian, other), gender identity (cisgender vs. trans+), and intersex status (endosex vs. intersex).

3.1 Descriptive statistics

Table 2 presents the overall descriptive statistics. It highlights key differences across groups categorized by sexual orientation (heterosexual, bisexual, gay/lesbian, other), gender identity (cisgender, trans+), and sex characteristics (endosex, intersex). Detailed tables for AFAB and AMAB individuals are provided in the appendix.

We focus on the differences in the groups self-identified as bisexual, gay/lesbian, other, trans+, and intersex between ENDISEG and ENDISEG Web, rather than comparing these groups to individuals self-identified as heterosexual, cisgender, and endosex, which has been already studied in previous papers (Munoz et al. 2024a, 2024b). Moreover, we refrain from testing whether these differences are statistically significant as standard inference methods are not applicable to the non-probabilistic sample.

First, individuals with sexual orientation classified as bisexual, gay/lesbian, and other tend to be older in ENDISEG Web. In contrast, individuals classified as trans+ and intersex are, on average, younger. For instance, in ENDISEG, bisexual individuals have an average age of 23.9 years, which increases to 26.8 years in ENDISEG Web. These trends suggest that there are different patterns of selection by age in completing the survey among those who self-identify as LGBTI+.

The representation of indigenous individuals is lower among all sexual and gender minorities in ENDISEG Web than among these groups in ENDISEG. This finding suggests that people who self-identify as indigenous are less likely to participate in web-based surveys. Similarly, the proportion of individuals of African descent is lower across all groups except for trans+ and intersex people.

Marriage or partnership rates are generally lower in ENDISEG Web for most groups, particularly among intersex individuals. Regarding gay/lesbian and other sexual orientations, the overall rates do not differ significantly between the two surveys. However, when the results are broken down by sex assigned at birth, the web survey shows a higher proportion of partnered individuals among those AFAB and a lower proportion among those AMAB (see Tables B1 and B2 in the appendix for details).

There are considerable differences in educational attainment between the surveys. For bisexual individuals, the rate of those with post-secondary education increases significantly from 24.0% in the face-to-face survey to 71.5% in the web survey. Similarly, for gay/lesbian individuals, this rate rises from 27.3% in the face-to-face survey to 86.5% in the web survey, with a similar trend observed for other sexual orientations. These results suggest a potential

selection bias in the web-based survey, in which individuals with higher educational levels may be more likely to participate.

Importantly, in some cases, when the results are analyzed by sex assigned at birth, the differences in post-secondary education reverse the direction of the gap relative to the heterosexual, cisgender, or endosex categories. For example, bisexual AFAB individuals (see Table B1 in the appendix) show a lower rate of post-secondary education than heterosexual individuals in the face-to-face survey (20.8% vs. 23.9%), but this gap reverses in the web survey, where bisexual individuals have a higher rate of post-secondary education (68.3% vs. 23.9%). Similarly, in Table 2, we observe that compared to cisgender individuals, trans+ individuals have lower educational attainment in the face-to-face survey (18.6% vs. 24.2%) but higher attainment in the web survey (64.7%). For intersex individuals, a similar pattern is observed.

Among LGBTI+ respondents, labor force participation is generally higher in the web survey than in the face-to-face survey. This result may reflect differences in socioeconomic engagement or the characteristics of individuals who choose to participate in web-based surveys. For instance, bisexual individuals' participation increases from 57.9% in the face-to-face survey to 74.5% in the web survey. Similarly, in the face-to-face survey, intersex individuals have a participation rate of 68.6%, which increases to 83.3% in the web survey. However, for AMAB individuals, the gaps are less pronounced; for instance, the participation rate for gay/lesbian individuals rises only slightly, from 87.4% to 87.9% in the web survey (see Table B2 in the appendix for details).

Unemployment rates are higher in the web survey for all groups. For example, for gay/lesbian individuals, the unemployment rate increases from 3.8% in the face-to-face survey to 6.5% in the web survey.

Overall, the trends observed in Table 2 are consistent with the patterns identified in the specific sex assigned at birth tables (appendix, Table B1 for AFAB and Table B2 for AMAB). This result indicates that web-based surveys tend to attract more educated individuals among sexual and gender minorities, while indigenous representation decreases. These findings underscore the importance of considering potential selection biases introduced by different survey methodologies when interpreting demographic data about sexual and gender minorities.

Table 2: Descriptive statistics

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	37.803	23.960 (26.867)	30.871 (31.461)	24.324 (26.199)	37.305	27.826 (26.562)	37.341	36.375 (30.978)
Indigenous	0.118	0.093 (0.037)	0.119 (0.028)	0.074 (0.038)	0.117	0.126 (0.035)	0.109	0.170 (0.070)
African descendant	0.027	0.044 (0.039)	0.039 (0.031)	0.035 (0.034)	0.028	0.033 (0.037)	0.027	0.036 (0.079)
Married or partnered	0.591	0.223 (0.229)	0.397 (0.301)	0.180 (0.196)	0.577	0.309 (0.200)	0.576	0.542 (0.339)
Post-secondary education	0.240	0.240 (0.715)	0.273 (0.865)	0.341 (0.696)	0.242	0.186 (0.647)	0.252	0.109 (0.661)
Labor force participation	0.711	0.579 (0.745)	0.781 (0.879)	0.483 (0.751)	0.708	0.651 (0.745)	0.712	0.686 (0.833)
Unemployment	0.027	0.055 (0.062)	0.038 (0.065)	0.010 (0.082)	0.027	0.076 (0.099)	0.028	0.026 (0.074)
Observations	35,615	1,094 (2,030)	815 (3,954)	218 906	37,310	432 (1,336)	34,596	608 227

Note: The table reports average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. The results for the ENDISEG are presented in the first row of each variable, while the results for the ENDISEG Web are shown in parentheses in the second row corresponding to each variable.

3.2 Rejection experiences throughout the life cycle

Figure 1 illustrates that when categorizing respondents by sexual orientation, gender identity, and sex characteristics, the face-to-face survey results for the prevalence of rejection experiences range from 0% to 40%. In contrast, the web survey reveals that responses from LGBTI+ individuals typically start at 40% and approach nearly 80%. This significant difference underscores the heightened vulnerability of LGBTQI+ individuals to stigma, bullying, and harassment (Bontempo & D'Augelli, 2002; Humphries et al., 2021), particularly as evidenced by the web survey data.

When responses are analyzed by sexual orientation, heterosexual individuals surveyed face-to-face exhibit a lower proportion of experiences with stigma and bullying during childhood and adolescence, ranging between 9% and 15%. In contrast, all LGB+ groups report higher proportions of such experiences, with notable differences between the face-to-face and online surveys. For instance, while most groups show relatively low percentages of childhood bullying, in the face-to-face survey, gay and lesbian individuals report a 20% incidence, which increases to 50% in the web survey. Additionally, in the face-to-face survey, individuals with other sexual orientations report the highest levels of adolescent stigma, at 31%, compared to 72% in the web survey.

It is important to distinguish between different types of experiences. Stigma experiences include feelings of being different from peers due to one's way of dressing or grooming, tastes

or interests, manner of speaking or self-expression, and general behavior. Bullying experiences encompass being rejected or excluded from social activities, being insulted or mocked, having belongings stolen or damaged, being threatened or blackmailed, and experiencing physical assault.

Regarding experiences of rejection and harassment, a similar pattern emerges. Heterosexual individuals report the lowest percentages, with 13% experiencing harassment and violence. This percentage increases to 21% for gay and lesbian individuals and to 58.8% for individuals with other sexual orientations in the web survey.

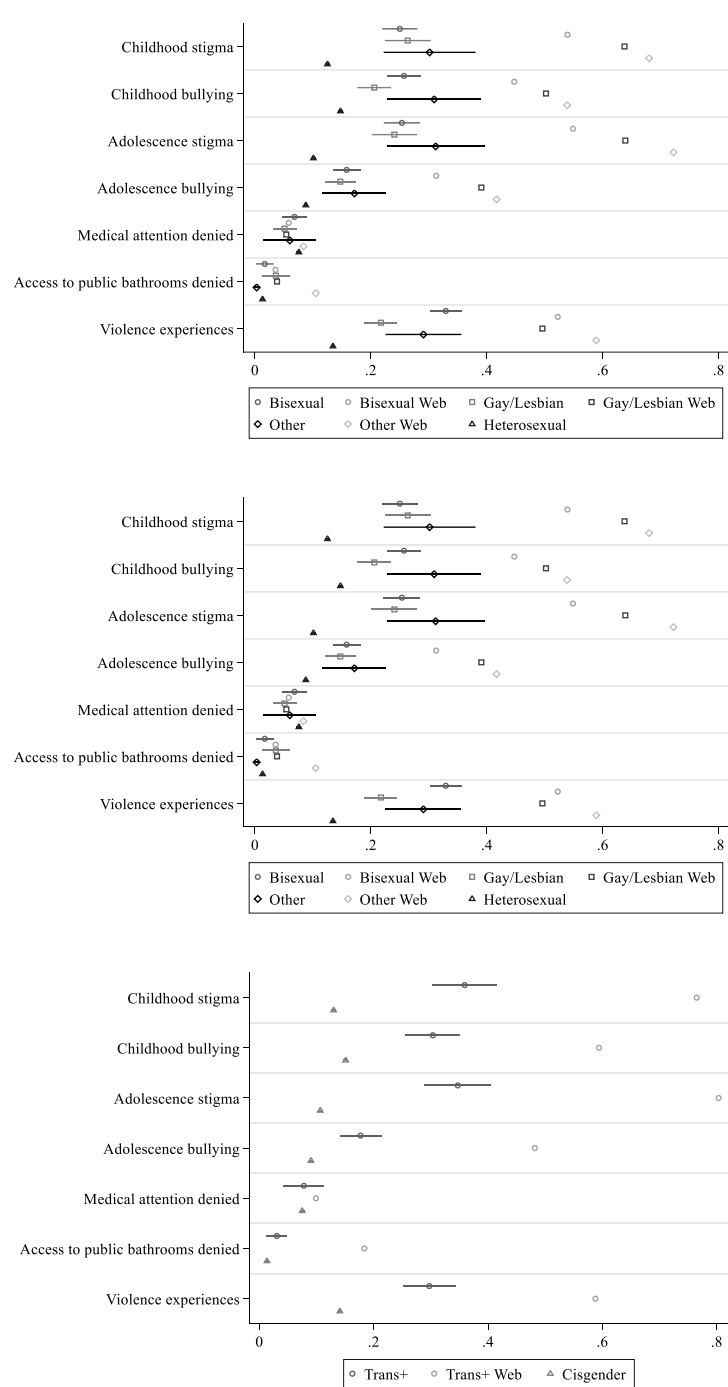
When responses are analyzed by gender identity, cisgender individuals report the lowest percentages of stigma and bullying, similar to heterosexual individuals, with values ranging between 9% and 15%. Trans+ individuals, however, report higher percentages than those reported by the LGB+ group, ranging from 17% for bullying experiences during adolescence to 35% for childhood stigma experiences. These values more than doubled in the web survey, with 48% of respondents reporting bullying during adolescence and 76% experiencing childhood stigma.

Experiences of rejection and harassment among cisgender individuals are comparable to those among heterosexual individuals, with the lowest reported percentages. Among trans+ individuals, 29% in the face-to-face survey report experiences of harassment and violence, and this percentage increases to 58% in the web survey.

Finally, when responses are analyzed by sex characteristics, endosex individuals report percentages similar to those reported by heterosexual and cisgender individuals, ranging between 9% and 15%. Intersex individuals report higher percentages, ranging from 16% to 24%, but these percentages are still lower than those reported by trans+ and other LGBT+ groups. Consistent with other categories, these percentages increase in the web survey; for example, 71% of intersex individuals report experiencing adolescent stigma.

Regarding experiences of rejection and harassment, endosex individuals report percentages similar to those reported by heterosexual and cisgender individuals, which increase for intersex individuals, although to a lesser extent than for trans+ and LGB+ groups. Specifically, 19% of intersex individuals experience harassment and violence, which rises to 60% in the web survey, creating a larger disparity than those observed in other groups.

Figure 1: Rejection experiences



Note: Average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. In the case of ENDISEG, 95% confidence intervals are included.

3.3 Well-being

Figure 2 examines various aspects of well-being among adults, highlighting significant disparities between LGBTQI+ individuals and their heterosexual counterparts. Similar to Figure 1, there is a substantial gap between responses from the face-to-face and web surveys, with the latter consistently indicating poorer well-being outcomes for LGBTQI+ groups (Humphries et al., 2021; Marcotte & Hansen, 2024).

When well-being is analyzed by sexual orientation, heterosexual individuals consistently report the lowest levels of adverse outcomes. Specifically, in the face-to-face survey, among heterosexual respondents, 4.3% report suicidal intentions, and 39% report mental health issues. In comparison, in the face-to-face survey, gay and lesbian individuals report higher rates, with 8.9% experiencing suicidal intentions and 44% facing mental health issues. These figures escalate significantly in the web survey, where suicidal intentions among gay and lesbian individuals increase to 18% and mental health issues soar to 75%.

Mental health issues present the highest prevalence across sexual orientations. The percentage of bisexual individuals reporting mental health issues is 62% in the face-to-face survey and 81% in the web survey, while among individuals with other sexual orientations, the percentage is 58% and 84%, respectively. Across most categories, there are notable gaps between the face-to-face and web survey results, with web surveys consistently revealing worse well-being outcomes for all LGB+ groups.

Examining well-being by gender identity, we observe that cisgender individuals exhibit outcomes similar to those of heterosexual individuals, with 4.7% reporting suicidal intentions and 40% experiencing mental health issues. In contrast, trans+ individuals report significantly higher rates of well-being challenges. In the face-to-face survey, 21% of trans+ respondents report suicidal intentions, and 52% experience mental health issues. These numbers increase dramatically in the web survey, with 36% of trans+ individuals reporting suicidal intentions and 83% facing mental health issues.

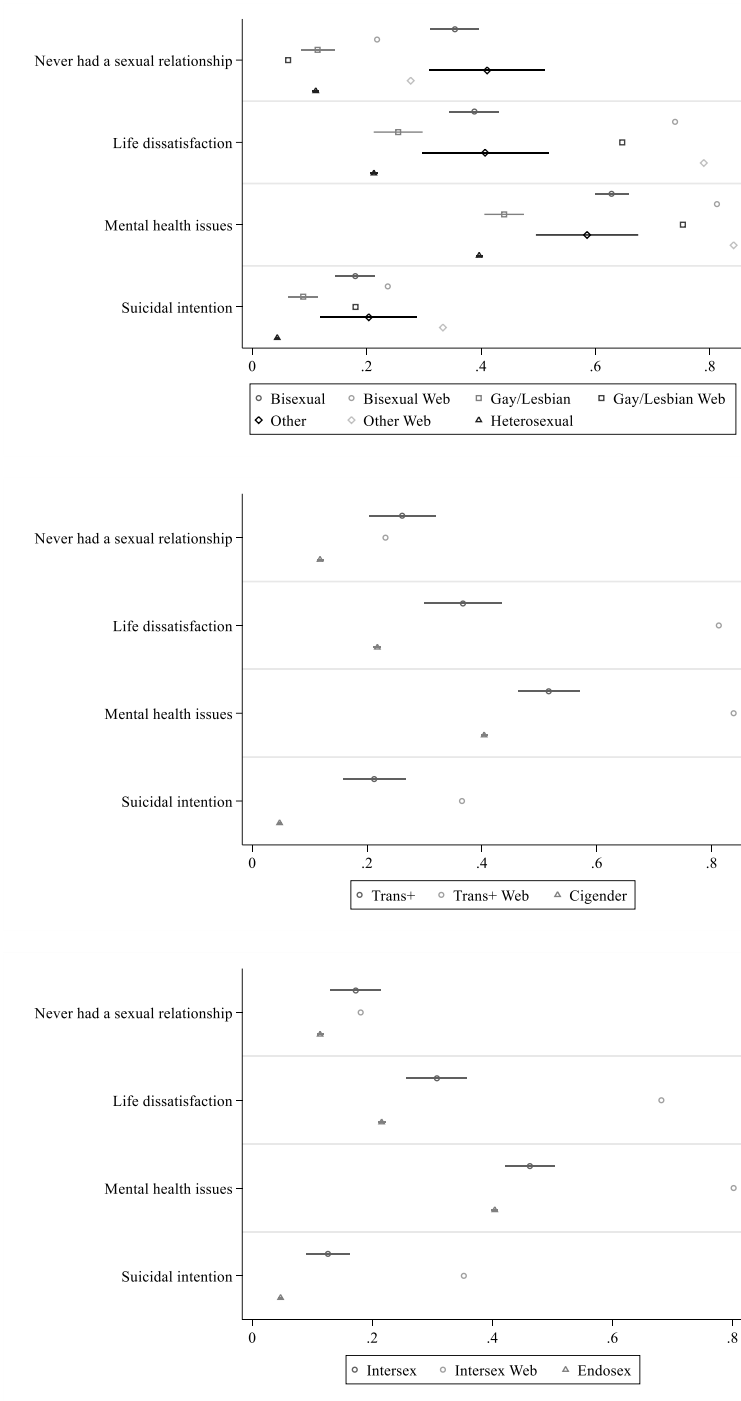
Life dissatisfaction is a widespread problem across all groups, with over 20% of respondents affected. This problem is particularly acute in the web survey, where 81% of trans+ individuals report life dissatisfaction.

When well-being is analyzed by sex characteristics, endosex individuals report outcomes similar to those of heterosexual and cisgender individuals, with 4.7% of endosex individuals experiencing suicidal intentions and 40% experiencing mental health issues. However, compared to endosex individuals, intersex individuals report higher rates of well-being issues, although these rates are still lower than those reported by other LGB+ groups. In the face-to-face survey, 12% of intersex respondents report suicidal intentions, which increases to 35% in the web survey. Among intersex individuals, mental health issues are reported by 46% in the face-to-face survey, and this percentage rises to 80% in the web survey. Additionally, 21% of endosex individuals report life dissatisfaction, but among intersex individuals, this percentage rises to 30% in the face-to-face survey and to 68% in the web survey.

The challenges in forming intimate relationships faced by LGBTQI+ are closely intertwined with overall life satisfaction. Figure 2 demonstrates that LGBTQI+ individuals report higher levels of life dissatisfaction, particularly among web survey respondents. Mental health

issues are more prevalent among LGBTQI+ individuals, with intersex and trans+ individuals showing notably high rates of suicidal intentions. The interconnected nature of barriers to forming intimate relationships, elevated levels of life dissatisfaction, and widespread mental health challenges underscore the significant obstacles to achieving well-being that LGBTQI+ individuals face (Perales & Todd, 2018; Drydakis, 2020).

Figure 2: Well-being



Note: Average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. In the case of ENDISEG, 95% confidence intervals are included.

4. Discussion

In this section, we discuss key issues that need to be considered when analyzing the results of our comparison and their external validity for other contexts.

First, the comparison presented in this paper does not allow us to separate the impact of the sampling strategy (non-probabilistic vs. probabilistic) on the characterization of LGBTI+ people and the interview mode effects (self-administered web-based survey vs. the audio-assisted interview with the help of a tablet). Nonetheless, both operations offered enhanced respondent privacy relative to the standard in-person statistical operation, and there is some evidence in the literature that the mode may not have substantial effects (Dahlhamer et al. 2019).

Second, it is possible that the voluntary nature of the web-based survey encouraged the participation of individuals who had more adverse experiences to disclose, thereby intensifying the observed disparities. However, it is also possible that the sampling methodology, the survey dissemination campaign, and the objective of the survey may have resulted in demand effects, where respondents change their responses to what they infer constitutes an appropriate response (there is a large literature related to survey experiments in various fields such as economics, political science, and psychology).

5. Final Remarks

Our study highlights that non-probabilistic web-based surveys have the potential to identify some of the challenges faced by LGBTI+ individuals, which include discrimination and barriers to accessing healthcare and public accommodations, lifetime experiences of stigma and minority stress, and a higher incidence of mental health issues and suicide attempts (Badgett et al., 2024; NASEM, 2020). However, the differences between survey methodologies underscore the importance of a critical perspective on the utilization of probability sampling versus web-based non-probabilistic approaches to study LGBTI+ people.

Our paper reveals substantial differences between a web-based non-probabilistic survey and a large-scale, nationally representative survey in capturing the experiences of LGBTI+ individuals in Mexico. Specifically, the ENDISEG Web survey identified a larger proportion of individuals assigned male at birth within the LGB population and among trans groups, in addition to higher educational attainment and labor force participation rates across all subgroups. Conversely, despite having a group of respondents with better outcomes in these dimensions (education and the labor market), it significantly overstated the prevalence of self-reported experiences of rejection, life dissatisfaction, and mental health issues compared to the ENDISEG survey. These discrepancies highlight the potential impact of self-selection bias inherent in non-probabilistic web-based surveys.

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Online Appendix (NOT MEANT FOR PUBLICATION)

Appendix A. Variable description (all respondents aged 15 years or more).

A.1 Sex, sexual orientation, and gender identity

Sex reports whether the person was assigned male or female at birth. The original ENDISEG variable is available for all respondents. The original question is as follows:

What is your sex assigned at birth?

1. Man
2. Women

Intersex reports whether the person was born with primary or secondary sex characteristics which do not fit binary notions of male and female bodies. The original ENDISEG variable is available for all respondents. The original question is as follows:

Were you born with any variation in your body related to your sex, such as in genitals, hormonal levels, or other?

1. Yes
2. No
3. Did not understand the question

We use the term *Intersex* to refer to respondents who answered ‘Yes’ to the above question, while we use the term *Endosex* to refer to respondents who answered ‘No’ to the above question.

Sexual orientation and attraction report the respondent’s sexual orientation and attraction. The original ENDISEG variable is available for all respondents. The original sexual attraction and sexual orientation questions are as follows:

Before proceeding with the following questions, it is necessary for you to consider the following:

“Sexual orientation” refers to a person's capacity to feel attracted, romantically or sexually, to women, men, individuals of both sexes, or others, or to not feel attracted.

Please remember that your information is confidential. Feel free to respond with confidence.

According to the above, do you consider yourself...

1. a woman who is only attracted to women? (answer next question)
2. a man who is only attracted to men? (answer next question)
3. a person who is attracted to both men and women? (answer next question)
4. a woman who is only attracted to men?

5. a man who is only attracted to women?
6. with another orientation? (answer next question)

Do you consider your orientation to be:

1. Lesbian
2. Gay or homosexual
3. Bisexual
4. Other, for example: pansexual, asexual

We have coded as *Heterosexual* the respondents who considered themselves attracted to individuals of a different gender than their own, as indicated by options 4 and 5 of the sexual attraction question. We have coded as *sexual minority individuals* the respondents who considered themselves attracted to individuals of the same gender, or of more than one gender, as indicated by options 1-3 and 6 of the sexual attraction question. We then use the responses to the sexual orientation question to further divide sexual minority respondents into three categories: *Bisexual*, *Gay/Lesbian*, and *Other*.

Gender Identity reports the respondent's gender identity. The original ENDISEG variable is available for all respondents. The original question is as follows:

Before proceeding, please consider the following:

“Gender identity” is the way each person, based on their mannerisms, thoughts, feelings, and actions, considers themselves as male, female, or another gender, which may or may not correspond to their assigned sex at birth.

You consider yourself:

1. male
2. female
3. both male and female
4. neither male nor female
5. another gender

We consider a person as *Cisgender* when their gender identity aligns with their sex assigned at birth, while we consider a person as *Trans+* when their gender identity does not correspond to their sex assigned at birth. According to INEGI,⁵ *Trans+* gender identity is a social construct arising from an individual's internal experience of a gender that diverges from the traditional roles assigned at birth based on their sex. In other words, the way they live and experience their body from a personal standpoint, and how they navigate it in public, does not conform to societal norms. We follow the choice of language in INEGI and use the abbreviation “Trans+” throughout the paper when referring to gender minority individuals.

⁵ https://en.www.inegi.org.mx/contenidos/programas/endiseg/2021/doc/endiseg_2021_nota_tecnica.pdf

A.2 Additional variables

Age reports the respondent's age in years at the time of the interview (top coded for 96 years or older). The original ENDISEG variable is available for all respondents. This variable has been coded as missing for respondents who did not provide their age (11 respondents in the relevant sample). The main analysis is restricted to respondents aged 15-64.

Indigenous affiliation is an indicator that equals one if the respondent speaks an indigenous dialect or language. If the person identifies as indigenous because they belong to an indigenous community or because their mother or father speak or spoke an indigenous language, the indicator also equals one. If none of these conditions are met, the indicator equals zero, including for those who consider themselves indigenous solely because of their skin tone or because they are Mexican. The original ENDISEG variable is available for all respondents. The original questions are as follows:

Do you speak any indigenous dialect or language?

- Yes
- No

Do you consider yourself Indigenous...

- because you belong to an Indigenous community?
- because your father or mother speak or spoke an Indigenous language?
- because of your skin tone?
- because you are Mexican?
- Other

African descendant is an indicator equal to one if the respondent self-identified as African descendant, zero otherwise. The original ENDISEG variable is available for all respondents. The original question is as follows:

By your ancestry and in accordance with your customs and traditions, do you consider yourself Afro-Mexican, Black, or of African descent?

- Yes
- No

Marital status is a series of indicator variables, each representing one of the following statuses: (1) married or living with a partner, (2) single, and (3) separated, divorced or widowed. The original ENDISEG variable is available for all respondents.

Education is a series of indicator variables, each representing one of the following education levels: less than upper secondary (no schooling or if preschool, primary, or lower secondary

education was completed), upper secondary (if teachers' college, technical career with completed lower secondary education, or high school diploma was obtained), and postsecondary (technical career with completed high school, bachelor's degree or professional degree, specialization, master's, or doctorate). The original ENDISEG variable is available for all respondents. The original question is as follows:

Until what year and grade did you pass in school?

- None
- Preschool
- Primary
- Lower Secondary
- Teachers' college (Normal básica)
- Technical career with completed lower secondary education
- High school or equivalent (preparatoria o bachillerato)
- Technical career with completed high school
- Bachelor's degree or professional
- Specialization
- Master's or doctorate

Childhood Stigma quantifies the perceived stigma experienced during childhood, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception of stigma, while a value closer to 1 indicates a higher perception of stigma. This measure is equal to the average of responses to the following questions, where 1 corresponds to “Yes” and 0 corresponds to “No”:

During your childhood (up to 11 years old), did you ever feel different from most other girls or boys your age because...

1. of your way of dressing or grooming?
2. your tastes or interests?
3. your way of speaking or expressing yourself?
4. your manners or way of behaving?

Childhood Bullying quantifies the perceived bullying experienced during childhood, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception of bullying, while a value closer to 1 indicates a higher perception of bullying. This measure is equal to the average of responses to the following questions, where 1 corresponds to “Yes” and 0 corresponds to “No”:

During your childhood (up to 11 years old), in order to hurt you or make you feel bad, did anyone ever...

1. reject or exclude you from social activities?
2. insult you, mock you, or say things that offended you?
3. steal, hide, or break your belongings?
4. threaten or blackmail you?
5. push, pull, or hit you?

Adolescence Stigma quantifies the perceived stigma experienced during adolescence, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception of stigma, while a value closer to 1 indicates a higher perception of stigma. This measure is equal to the average of responses to the following questions, where 1 corresponds to “Yes” and 0 corresponds to “No”:

From ages 12 to 17, were you ever made to feel different from most other girls or boys your age because of...

1. your way of dressing or grooming?
2. your tastes or interests?
3. your way of speaking or expressing yourself?
4. your manners or way of behaving?

To ensure comprehensive data analysis, we combined questions directed at different age groups. For instance, we combined questions “Were you ever made to feel different from most girls/boys because...” directed at minors between 15 and 18 years old, with questions “From ages 12 to 17, were you ever made to feel different from most girls/boys because...” directed at adults over 18 years old.

Adolescence Bullying quantifies the perceived bullying experienced during adolescence, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception of bullying, while a value closer to 1 indicates a higher perception of bullying. It is equal to the average of responses to the following questions, where 1 corresponds to “Yes” and 0 corresponds to “No”:

From 12 to 17 years old, in order to hurt you or make you feel bad, did anyone ever...

1. reject or exclude you from social activities?
2. insult you, mock you, or say things that offended you?
3. steal, hide, or break your belongings?
4. threaten or blackmail you?
5. push, pull, or hit you?

To ensure comprehensive data analysis, we combined questions directed at different age groups. For instance, we combined questions “Since age 12 to date in order to hurt you or make you feel bad, did anyone ever...” directed at minors between 15 and 18 years old, with

questions “From ages 12 to 17, in order to hurt you or make you feel bad, did anyone ever...” directed at adults over 18 years old.”

Discrimination experiences correspond to the responses to the following questions, where 1 represents “Yes”, 0 represents “No”, and “I don't know” or “Does not apply” responses have been coded as missing:

In the last five years, from August 2016 to date, have you been unjustifiably denied medical attention or medication?

In the last five years, from August 2016 to date, have you been unjustifiably denied access to public bathrooms?

Violence experiences quantify the perceived harassment and violence experienced by individuals, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception, while a value closer to 1 indicates a higher perception of those experiences. This measure is equal to the average of responses to the following questions, where 1 corresponds to “Yes” and 0 corresponds to “No”:

At some point in your life...

1. have you been threatened or sexually assaulted?
2. have you been bothered by someone making sexual propositions in exchange for payment?
3. have you been forced to have sexual relations?
4. have you been humiliated, embarrassed, or verbally abused?
5. have you received offensive messages?
6. have you been touched or groped without your consent?

Sexual experiences are determined by responses to the following questions:

How old were you when you had your first encounter with someone where there was kissing or cuddling, and you agreed?

At what age did you have your first sexual relationship?

We consider a response of “Never” as 1 and any other value as 0. Based on this, we generate the following variables:

People who have never had their first encounter with someone where there was consensual kissing or cuddling.

People who have never had their first sexual relationship.

Mental health issues quantifies the perceived prevalence of mental health challenges, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception of mental health issues, while a value closer to 1 indicates a higher perception of mental health issues. This measure is equal to the average of responses to the following questions, where 1 corresponds to “Yes” and 0 corresponds to “No”:

In the last 12 months, from August 2020 to date, have you had...

1. insomnia?
2. stress?
3. depression?
4. a loss or increase in appetite or weight?
5. anguish, fear or anxiety?

Suicidal ideation is an indicator that takes the value of 1 if the response to the question: Have you ever thought about suicide? is “Yes” and 0 if the response is “No”.

Suicidal intention is an indicator that takes the value of 1 if the response to the question: Have you ever attempted suicide? is “Yes”, and 0 if the response is “No”.

If the respondent answers yes to either suicidal ideation or suicidal intention, they were asked the following questions to determine the reasons behind their suicidal thoughts or actions:

Was this mainly due to...

1. financial problems?
2. family or relationship problems?
3. health problems?
4. problems at school?
5. problems at work?
6. problems because of your orientation? (Applies only if sexual orientation is different from heterosexual)
7. problems due to your gender? (Applies only if sex at birth different than gender identity)
8. other reasons?

Labor force participation rate is an indicator equal to 1 if the respondent was actively engaged in the labor force, including scenarios where they worked (for at least an hour), had a job but did not work, or were actively looking for work. This indicator is also equal to one for respondents who were retired or pensioned, students, engaged in household chores or caregiving, or in a situation different from the aforementioned ones but performed activities such as helping in a business (either family-owned or not), selling or producing goods for

sale, assisting with farming or animal husbandry, undertaking paid tasks, serving as an apprentice, or completing social services. In all other cases, it is set to 0. The original ENDISEG variable is available for all respondents. The original questions are as follows:

Last week, did you...

- work (at least one hour)
- have a job but didn't work?
- look for work?
- Are you retired or pensioned?
- Are you a student?
- Are you engaged in household chores or caregiving for your household members?
- Do you have a permanent physical or mental limitation that prevents you from working?
- Were you in a different situation than the ones above?

Although you already told me about your condition, last week did you...

- helped in a business (family or non-family)?
- sold or made any products to sell?
- helped with farming or animal husbandry?
- performed other activities for payment? (For example: washing clothes or ironing for others, caregiving)
- were you an apprentice or doing your social service?
- Did not help or work

Unemployment rate is an indicator equal to 1 if the respondent was in the labor force but was looking for a job, and 0 otherwise. Individuals not in the labor force have been coded as missing.

Life satisfaction corresponds to the responses to the following questions, where 1 represents “A lot”, 0 represents “Something”, “Little” or “Nothing”, and “Does not apply” had been coded as missing:

How satisfied are you with your...

1. economic situation?
2. job situation?
3. family relationship?
4. physical appearance?
5. way of being?
6. life in general?

Appendix B. Additional tables and figures.

Table B1: Descriptive statistics for individuals Assigned Female at Birth.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	38.313	23.140	29.432	24.308	37.636	25.576	37.610	35.920
		(25.931)	(31.408)	(25.089)		(24.570)		(28.695)
Indigenous	0.112	0.085	0.084	0.066	0.111	0.101	0.103	0.212
		(0.034)	(0.034)	(0.027)		(0.034)		(0.067)
African descendant	0.022	0.046	0.037	0.031	0.023	0.025	0.021	0.035
		(0.034)	(0.033)	(0.029)		(0.017)		(0.057)
Married or partnered	0.588	0.241	0.391	0.222	0.572	0.329	0.570	0.534
		(0.234)	(0.435)	(0.178)		(0.192)		(0.333)
Post-secondary education	0.239	0.208	0.262	0.361	0.240	0.152	0.248	0.128
		(0.683)	(0.819)	(0.670)		(0.598)		0.705
Labor force participation	0.563	0.537	0.577	0.356	0.561	0.504	0.566	0.473
		(0.721)	(0.878)	(0.713)		(0.707)		(0.781)
Unemployment	0.019	0.049	0.040	0.000	0.020	0.086	0.021	0.019
		(0.055)	(0.071)	(0.070)		(0.084)		(0.073)
Observations	19,201	828	268	146	20,205	238	18,866	250
		(1,387)	(735)	(585)		(642)		(105)

Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B2: Descriptive statistics for individuals Assigned Male at Birth.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	37.243	26.621	31.527	24.354	36.937	30.893	37.040	36.691
		(28.885)	(31.473)	(28.221)		(28.405)		(32.943)
Indigenous	0.123	0.120	0.134	0.088	0.123	0.160	0.116	0.141
		(0.044)	(0.026)	(0.056)		(0.036)		(0.074)
African descendant	0.033	0.039	0.040	0.044	0.034	0.045	0.034	0.037
		(0.050)	(0.030)	(0.044)		(0.055)		(0.098)
Married or partnered	0.593	0.162	0.400	0.102	0.583	0.283	0.584	0.548
		(0.218)	(0.271)	(0.231)		(0.207)		(0.344)
Post-secondary education	0.241	0.344	0.278	0.301	0.244	0.232	0.256	0.096
		(0.784)	(0.876)	(0.745)		(0.692)		(0.623)
Labor force participation	0.875	0.713	0.874	0.721	0.872	0.851	0.875	0.833
		(0.798)	(0.879)	(0.819)		(0.780)		(0.877)
Unemployment	0.033	0.069	0.038	0.018	0.033	0.068	0.034	0.029
		(0.076)	(0.064)	(0.103)		(0.113)		(0.075)
Observations	16,414	266	547	72	17,105	194	15,730	358
		(643)	(3,219)	(321)		(694)		(122)

Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B3: Rejection experiences.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Childhood stigma	0.125	0.250	0.264	0.301	0.130	0.359	0.128	0.248
		(0.539)	(0.638)	(0.680)		(0.765)		(0.663)
Childhood bullying	0.148	0.257	0.206	0.309	0.151	0.304	0.149	0.257
		(0.447)	(0.502)	(0.539)		(0.594)		(0.572)
Adolescence stigma	0.101	0.254	0.241	0.312	0.107	0.347	0.106	0.227
		(0.549)	(0.639)	(0.722)		(0.803)		(0.708)
Adolescence bullying	0.088	0.158	0.147	0.172	0.090	0.177	0.089	0.160
		(0.313)	(0.391)	(0.417)		(0.482)		(0.500)
Medical attention denied	0.076	0.068	0.051	0.060	0.075	0.078	0.074	0.123
		(0.058)	(0.054)	(0.084)		(0.099)		(0.167)
Access to public bathrooms denied	0.013	0.017	0.036	0.003	0.013	0.031	0.013	0.031
		(0.036)	(0.038)	(0.105)		(0.184)		(0.159)
Violence experiences	0.135	0.329	0.217	0.291	0.141	0.297	0.142	0.195
		(0.522)	(0.496)	(0.589)		(0.588)		(0.605)
Observations	35,615	1,094	815	218	37,310	432	34,596	608
		(2,030)	(3,954)	(906)		(1,336)		(227)

Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B4: Rejection experiences for individuals Assigned Female at Birth.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Childhood stigma	0.138	0.245	0.249	0.302	0.143	0.319	0.140	0.267
		(0.533)	(0.613)	(0.676)		(0.775)		(0.724)
Childhood bullying	0.141	0.255	0.175	0.271	0.146	0.279	0.145	0.254
		(0.433)	(0.400)	(0.505)		(0.548)		(0.560)
Adolescence stigma	0.111	0.246	0.217	0.312	0.117	0.282	0.116	0.239
		(0.552)	(0.617)	(0.713)		(0.813)		(0.726)
Adolescence bullying	0.079	0.146	0.123	0.143	0.082	0.128	0.081	0.147
		(0.294)	(0.285)	(0.367)		(0.424)		(0.453)
Medical attention denied	0.081	0.063	0.049	0.066	0.080	0.081	0.080	0.118
		(0.059)	(0.054)	(0.068)		(0.079)		(0.173)
Access to public bathrooms denied	0.012	0.020	0.028	0.000	0.013	0.021	0.013	0.012
		(0.033)	(0.075)	(0.094)		(0.199)		(0.175)
Violence experiences	0.168	0.355	0.254	0.326	0.177	0.313	0.178	0.252
		(0.555)	(0.501)	(0.594)		(0.576)		(0.646)
Observations	19,201	828	268	146	20,205	238	18,866	250
		(1,387)	(735)	(585)		(642)		(105)

Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B5: Rejection experiences for individuals Assigned Male at Birth.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Childhood stigma	0.111	0.266	0.270	0.300	0.116	0.413	0.113	0.234
		(0.552)	(0.643)	(0.686)		(0.755)		(0.611)
Childhood bullying	0.154	0.264	0.220	0.381	0.157	0.337	0.153	0.259
		(0.479)	(0.525)	(0.600)		(0.637)		(0.582)
Adolescence stigma	0.090	0.279	0.251	0.312	0.095	0.435	0.094	0.219
		(0.542)	(0.644)	(0.739)		(0.795)		(0.693)
Adolescence bullying	0.097	0.198	0.158	0.226	0.100	0.244	0.097	0.169
		(0.353)	(0.415)	(0.508)		(0.536)		(0.539)
Medical attention denied	0.070	0.086	0.052	0.049	0.069	0.073	0.068	0.127
		(0.056)	(0.054)	(0.112)		(0.118)		(0.161)
Access to public bathrooms denied	0.014	0.008	0.040	0.009	0.014	0.043	0.014	0.043
		(0.041)	(0.030)	(0.125)		(0.169)		(0.145)
Violence experiences	0.097	0.246	0.201	0.223	0.101	0.275	0.101	0.156
		(0.452)	(0.495)	(0.580)		(0.598)		(0.570)
Observations	16,414	266	547	72	17,105	194	15,730	358
		(643)	(3,219)	(321)		(694)		(122)

Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B6: Well-being.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Never had a sexual relationship	0.111	0.354	0.114	0.411	0.118	0.261	0.113	0.172
		(0.218)	(0.063)	(0.277)		(0.232)		(0.181)
Life satisfaction	0.787	0.612	0.745	0.593	0.782	0.633	0.784	0.692
		(0.261)	(0.353)	(0.211)		(0.188)		(0.319)
Mental health issues	0.397	0.628	0.440	0.585	0.404	0.516	0.404	0.462
		(0.812)	(0.753)	(0.842)		(0.838)		(0.802)
Suicidal intention	0.044	0.180	0.089	0.204	0.048	0.212	0.047	0.126
		(0.237)	(0.181)	(0.333)		(0.365)		(0.352)
Observations	35,615	1,094	815	218	37,310	432	34,596	608
		(2,030)	(3,954)	(906)		(1,336)		(227)

Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B7: Well-being for individuals Assigned Female at Birth.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Never had a sexual relationship	0.109	0.373 (0.257)	0.238 (0.105)	0.385 (0.344)	0.121	0.299 (0.322)	0.117	0.164 (0.210)
Life satisfaction	0.778	0.604 (0.238)	0.808 (0.406)	0.552 (0.183)	0.771	0.656 (0.154)	0.774	0.653 (0.181)
Mental health issues	0.454	0.659 (0.840)	0.485 (0.767)	0.646 (0.868)	0.463	0.548 (0.879)	0.464	0.553 (0.893)
Suicidal intention	0.052	0.180 (0.265)	0.102 (0.203)	0.195 (0.345)	0.057	0.220 (0.414)	0.057	0.130 (0.400)
Observations	19,201	828 (1,387)	268 (735)	146 (585)	20,205	238 (642)	18,866	250 (105)

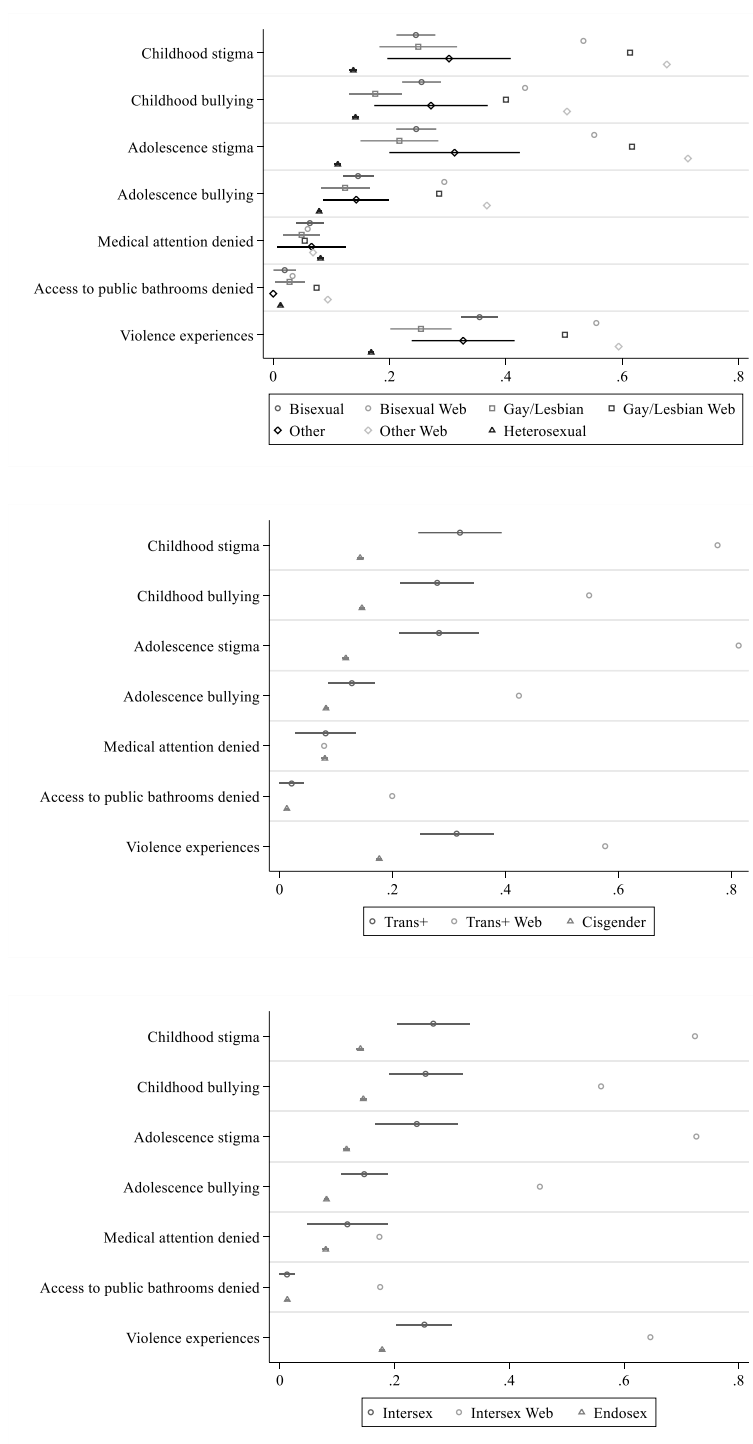
Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Table B8: Well-being for individuals Assigned Male at Birth.

	Sexual Orientation				Gender Identity		Sex Characteristics	
	Heterosexual	Bisexual	Gay/Lesbian	Other	Cisgender	Trans+	Endosex	Intersex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Never had a sexual relationship	0.114	0.295 (0.135)	0.058 (0.053)	0.459 (0.156)	0.115	0.209 (0.148)	0.109	0.178 (0.156)
Life satisfaction	0.798	0.637 (0.311)	0.716 (0.341)	0.669 (0.261)	0.795	0.602 (0.219)	0.796	0.720 (0.438)
Mental health issues	0.333	0.528 (0.752)	0.420 (0.749)	0.470 (0.793)	0.338	0.473 (0.801)	0.336	0.399 (0.723)
Suicidal intention	0.035	0.180 (0.177)	0.083 (0.176)	0.221 (0.312)	0.037	0.202 (0.320)	0.036	0.123 (0.311)
Observations	16,414	266 (643)	547 (3,219)	72 (321)	17,105	194 (694)	15,730	358 (122)

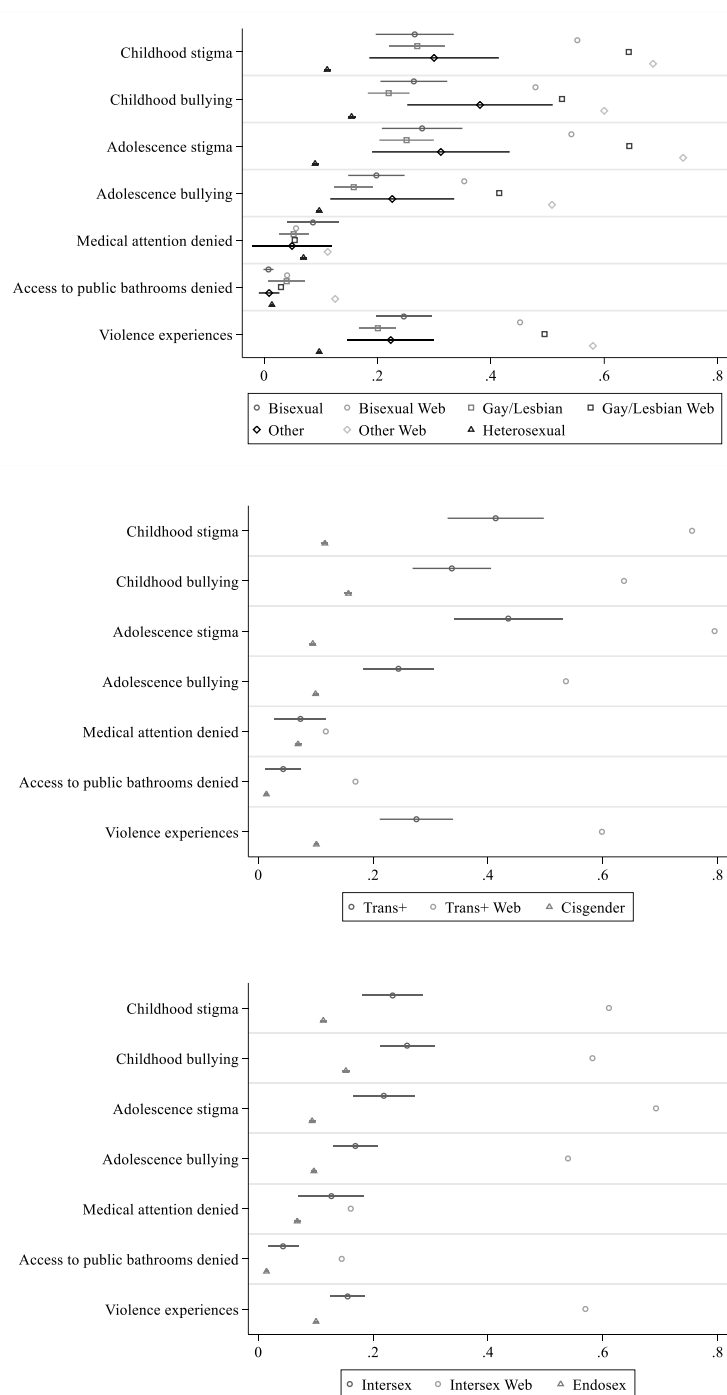
Note: Results for the ENDISEG face-to-face survey are presented in the first row of each variable, while results for the ENDISEG Web survey are shown in parentheses in the second row corresponding to each variable. Columns (1) to (4) correspond to sexual orientation, columns (5) and (6) correspond to gender identity, and columns (7) and (8) correspond to sex characteristics.

Figure B1: Rejection experiences for individuals Assigned Female at Birth.



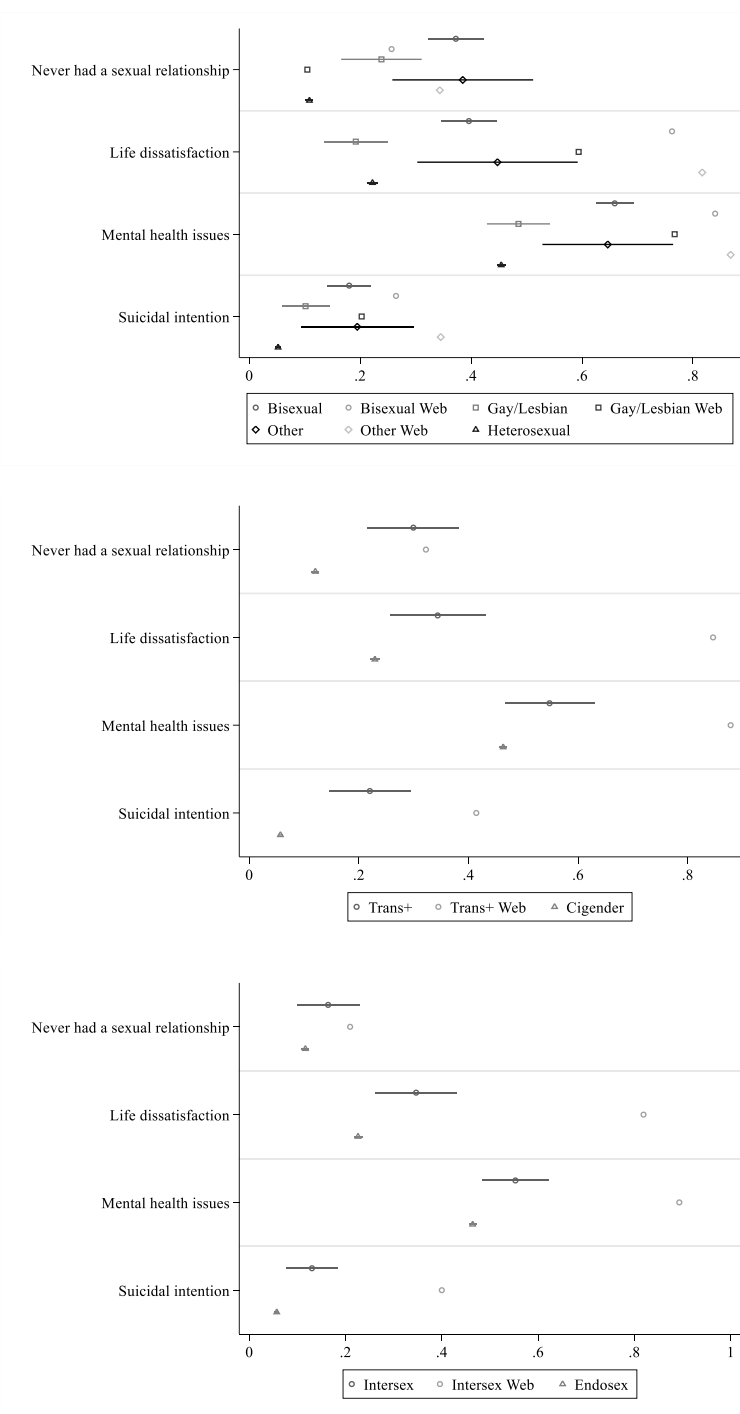
Note: Average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. In the case of ENDISEG, 95% confidence intervals are included.

Figure B2: Rejection experiences for individuals Assigned Male at Birth.



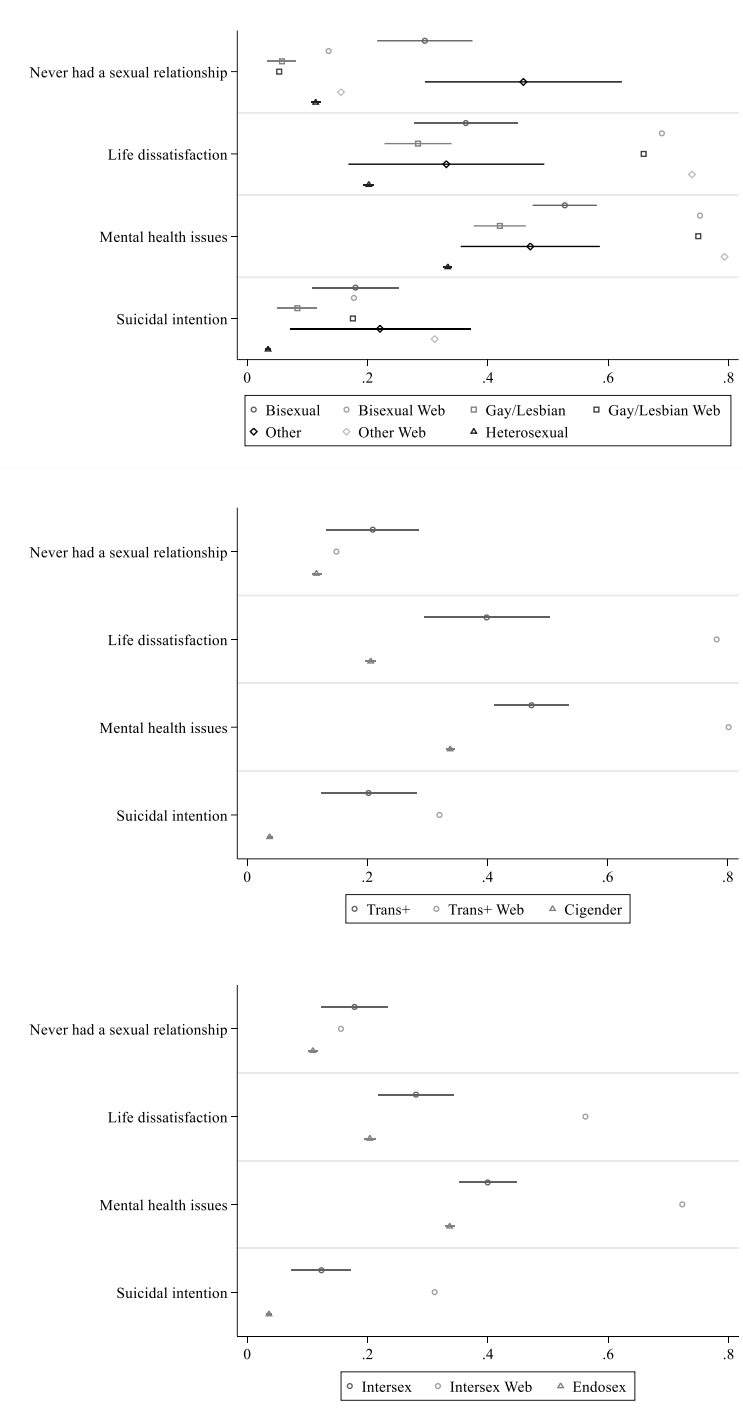
Note: Average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. In the case of ENDISEG, 95% confidence intervals are included.

Figure B3: Well-being for individuals Assigned Female at Birth.



Note: Average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. In the case of ENDISEG, 95% confidence intervals are included.

Figure B4: Well-being for individuals Assigned Male at Birth.



Note: Average levels by group obtained from ENDISEG and ENDISEG Web. The ENDISEG estimates use sample weights. In the case of ENDISEG, 95% confidence intervals are included.