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## The Lives of Intersex People: Socio-Economic and Health Disparities in Mexico

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DISCUSSION PAPER SERIES

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# The Lives of Intersex People: Socio-Economic and Health Disparities in Mexico

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## ABSTRACT

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# The Lives of Intersex People: Socio-Economic and Health Disparities in Mexico\*

This paper reports socio-economic and health outcomes for intersex people in Mexico using data collected between 2021 and 2022. This is the first study relying on a large nationally representative survey including information on sex variations to document substantial negative outcomes for intersex individuals. Around 1.6% of individuals aged 15-64 are intersex. There are significant disparities in mental, physical, and sexual health when comparing intersex individuals to the general population, including higher rates of bullying, stigmatization, harassment, and violence throughout the life cycle, as well as higher rates of suicidal intention. Additionally, intersex individuals have lower education levels and face substantial barriers in the workplace and healthcare environments.

**JEL Classification:** I14, J15, J16, J71

**Keywords:** intersex, stigma, suicide, Mexico, LGBTQ+

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## 1. Introduction

Intersex individuals are individuals whose sex characteristics do not fit the typical binary notion of male and female bodies. These sex variations have been recognized since ancient history, as clear for instance, in the Hippocratic/Galenic model viewing sex as a spectrum (DeVun, 2018) or from epic figures such as Hermaphroditus in Greek mythology or Ardhanarishvara in Hinduism. And yet, the mere existence of intersex individuals challenges the widespread notion of sex as binary. Because of that, intersex individuals are often bullied, stigmatized, and subject to unnecessary – or even harmful – surgery without their consent during childhood. Medical practitioners have historically tried to correct these “shameful aberrations” and erase any evidence of sex diversity, while social scientists have remained largely oblivious to such groups (NASEM, 2022). Even if research on LGBTQ+ issues has recently benefited from an increase in the available data on sexual orientation and gender diversity in many countries (Badgett et al., 2024), including in Latin America (Muñoz, Sansone, et al., 2024; Muñoz & Sansone, 2024; Nettuno, 2024; Nettuno et al., 2024; Tampellini, 2024), intersex status is still not routinely measured in population surveys, in health care settings, or administrative datasets (NASEM, 2022).<sup>1</sup> As concluded in a report from the National Academies (NASEM, 2020), intersex populations “have been almost wholly ignored.”

This paper exploits a nationally representative survey conducted in Mexico between 2021 and 2022 to provide estimates of the size of the intersex population: the weighted estimates indicate that around 1.6% of individuals aged 15-64 are intersex. This is in line with previous estimates of 1.7% from the medical literature (Blackless et al., 2000). In addition, the main analysis documents key challenges faced by intersex individuals in childhood, adolescence, and adulthood, as well as mental, physical, and sexual health disparities compared to both non-intersex (or endosex) men and women. In particular, intersex individuals are more likely to be bullied and face stigmatization as well as social exclusion while growing up, they are more likely to face sexual violence and harassment, they encounter barriers and discrimination in accessing health care and public accommodations, and they have much higher rates of suicidal ideation and intention. Consistent with these disparities, intersex individuals achieve lower education levels, face challenging and toxic workplace environments, and are less satisfied with their lives. To our knowledge, this is the first study in the world on intersex individuals using a nationally representative dataset.

These findings are policy-relevant and timely as international organizations, states, and civil society organizations are increasingly worrying about human rights violations and discrimination faced by intersex individuals (EQUINET, 2020; ILGA, 2023a). For instance, intersex medical interventions are now often seen as controversial, especially when conducted

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<sup>1</sup> LGBTQ+ refers to individuals who identify as lesbian, gay, bisexual, transgender, 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 Statistical Office in Mexico) are individuals whose current gender does not match their sex assigned at birth. Cisgender individuals are people whose current gender aligns with their sex at birth. Gender minority individuals include transgender and nonbinary individuals. It is important to note that LGBTQ+ refers to sexual orientation and gender identities, while intersex refers to sex traits. For this reason, some researchers and activities use the acronym LGBTQI+.

without consent during infancy and childhood (Council of Europe, 2015; WHO, 2015). Several reports and policy initiatives have also focused on discrimination against intersex athletes (ILGA, 2019; UN, 2020). In addition, the United Nations adopted a historical resolution in 2024 specifically targeting discrimination, violence, and harmful practices against intersex persons (OII, 2024). Despite these initiatives, the lack of data on intersex individuals has largely allowed policymakers to ignore the socio-economic and health disparities affecting this group given their invisibility: intersex individuals are not counted in national statistics, and thus they end up not counting in policy. This paper, therefore, provides practitioners, activists, and stakeholders with strong evidence to advocate for increased support and protection in favor of intersex individuals.

In this context, the case of Mexico is particularly interesting as this country has recently made significant strides in advancing LGBTQI+ rights. For instance, the Mexican Senate passed a bill in 2024 banning conversion therapy nationwide (Lavers, 2024). Additionally, same-sex marriage has achieved legal recognition across the entire country, starting from Mexico City in 2009 (the first jurisdiction to do so in Latin America), with Tamaulipas being the latest state to legalize it in 2022 (Reuters, 2022). Intersex individuals are also likely to have benefited from the change in 2023 on Mexican passports allowing the option “X” to be selected instead of male or female (Reuters, 2022). At the same time, there is evidence of socio-economic disparities by sexual orientation in Mexico, in line with the literature from Latin America and high-income countries (Badgett et al., 2021; Muñoz, Sansone, et al., 2024; Muñoz & Sansone, 2024).

This paper builds on a very small set of studies focused on intersex individuals (NASEM, 2020). Most of these analyses are based on non-representative samples (Jones, 2016; Suen et al., 2022), rely on a limited number of respondents (Meyer-Bahlburg et al., 2018; Meyer-Bahlburg, Reyes-Portillo, et al., 2017), and use only data from medical records (NASEM, 2020). Nevertheless, the past literature supports the main findings in this paper, documenting the high levels of stigma and discrimination that impact various aspects of intersex people’s lives, influencing romantic relationships, social interactions, well-being, and socio-economic outcomes (De Vries et al., 2019; Kreukels et al., 2019). For instance, the respondents in Meyer-Bahlburg, Khuri, et al. (2017) recall the stigmatizing experience of having their genitalia painfully and intrusively examined in childhood and adolescence, often by groups of trainees. None of these studies focuses on Latin American countries, although a few studies used data from other middle-income countries such as India (Joseph et al., 2017) or Indonesia (Ediati et al., 2017).

In addition, this research expands the LGBTQ+ literature by focusing on a sub-group that has often been excluded in LGBTQ+ organizations and events, as well as in LGBTQ+ studies.<sup>2</sup> In

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<sup>2</sup> It is worth noting that not all intersex individuals identify as part of the LGBTQ+ populations. Nevertheless, following the approach adopted in NASEM (2020), while we recognize the risk of obfuscating the unique individualities of intersex bodies, we also acknowledge that recent LGBTQ+ research has illuminated the diversity of those populations. Therefore, we believe it is important to place this research within the LGBTQ+ literature.

particular, as a large share of intersex individuals identify as transgender or non-binary (as later reported in the empirical analysis), it is interesting to note that several – but not all – of the challenges faced by intersex individuals are in line with those faced by gender minorities (Badgett et al., 2024; NASEM, 2020): discrimination and barriers to access health care and public accommodation, lifetime experience of stigma and minority stress, as well as higher incidence of mental health issues and suicide attempts.

More generally, this paper is linked to the large number of studies analyzing discrimination and disparities by gender or among other marginalized groups. For instance, one could argue that the invisibility, social exclusion, and stigma experienced by intersex individuals would resonate with some of the challenges faced by Native Americans and other Indigenous populations. Indeed, Indigenous populations tend to be undercounted in national surveys – or not counted at all – and they are often being collapsed into “other” categories due to small sample sizes: American Indians and Alaska Natives have been described as the “Asterisk Nation” because an asterisk is often used in data displays to suppress statistics instead of a data point (NASEM, 2020). Indigenous individuals have also suffered from the unintended effects of well-meaning paternalistic policies (Doyle et al., 2022). Similarly, as intersex people, Black individuals are also more likely to be victims of bullying, and they face barriers to health care access, as well as widespread discrimination in health settings and in the labor market (Lang & Spitzer, 2020). Relatedly, intersex individuals have a similar incidence of mental health issues as women. Furthermore, while intersex individuals have lower educational levels than endosex individuals, their labor force participation rate is between the labor force participation rates of men and women. These results are likely to be affected by gender norms, as highlighted in several studies in gender economics (Blau & Kahn, 2017).

In conclusion, this paper documents large disparities and challenges faced by intersex individuals during their life cycle and in key health and socio-economic outcomes. Importantly, these findings are based on a nationally representative survey, thus enhancing the reliability of the results, and providing stronger arguments to increase the policy and legislative actions by international organizations and national governments aimed at intersex people. Finally, this paper builds on the literature on LGBTQ+ individuals, women, racial and ethnic minorities, providing evidence of common challenges and laying the foundations for future research and data collection in this area.

## **2. Brief background information on intersex characteristics**

Intersex people are individuals born with a diverse range of sex characteristics, including variations in genitals, gonads, chromosomes, and hormone patterns that diverge from the typical binary definition of female and male anatomy. These variations may be visible at birth, become evident during puberty, or not be physically apparent at all. It is important to understand that intersex is distinct to a person’s sexual orientation or gender identity (NASEM, 2020; UN, 2024).

As mentioned in the introduction, intersex children have historically been subjected to unnecessary surgical interventions to alter their physical appearance to conform to binary sex stereotypes. Some of the most frequent surgical and other harmful interventions have been

categorized as ‘masculinizing’ surgery, ‘feminizing’ procedures, ‘sterilizing’ procedures, and other unnecessary and harmful medical and non-medical practices. Nevertheless, these non-consensual medical interventions often result in irreversible harm, including infertility, pain, and psychological distress, without providing strong evidence of medical benefits or alternative solutions (HRW, 2017). In response to growing awareness of these harms, the Constitutional Court of Colombia restricted the age for surgical interventions on intersex children in 1999, while countries like Malta in 2015, Portugal in 2018, Germany and Iceland in 2021, Greece in 2022, and Spain in 2023 have implemented bans on such surgeries for minors (Guilbert, 2018; ILGA, 2023b; Maltezos & Heinrich, 2022). Leading practitioners in patient-centered care now recommend against immediate surgical intervention upon the birth of an intersex child. Instead, they advocate for implementing a long-term management strategy that emphasizes the importance of informed consent and respect for individual autonomy in medical decisions, thus involving a range of pediatric subspecialists, including intersex-affirming mental health providers, pediatricians, and the parent(s) (Lambda Legal, 2020).

The legal status of intersex individuals varies considerably across the world. While some countries have made significant progress in recognizing and protecting intersex rights, many others still lack specific legal protections against discrimination and non-consensual medical procedures. For example, the Gender Identity, Gender Expression and Sex Characteristics Act of 2015 makes Malta one of the most progressive countries in terms of intersex rights. Germany has also taken significant steps towards comprehensive protection of intersex children by making surgeries performed solely to align the child's body to a normative appearance without the child's fully informed consent unlawful. Additionally, Germany established a family court approval procedure for interventions aimed at eliminating a perceived functional disorder. In contrast, in the United States, legal protections are inconsistent and vary by state, with some states lacking any specific protections for intersex individuals. In addition, countries like China and India still struggle with deeply ingrained societal norms and lack comprehensive legal frameworks to protect intersex individuals from discrimination and harmful practices.

In Mexico, at the federal level, one of the most protective instruments is the protocol for non-discriminatory access to medical services for LGBTQI+ individuals, which aims to ensure effective and equitable access to health services by establishing guiding criteria and specific actions. However, there is still a long way to go to improve informed, timely, and quality care for intersex individuals, with the aim of allowing them to define the course of their treatments and interventions. In Mexico City, intersex individuals are constitutionally recognized as a priority group for attention (CDHCM, 2024). Additionally, some local movements and LGBTQI+ advocacy efforts have contributed to gradual improvements in awareness and legal protection. For instance, Brújula Intersexual is a voluntary organization for intersex people that promotes the human rights and bodily autonomy of intersex people in Mexico, and across Latin America.



### 3. Data and sample size

#### 3.1 National Survey on Sexual and Gender Diversity (ENDISEG)

We use data from ENDISEG (INEGI, 2021), the first nationally representative survey run by a National Statistics Office in a developing country, with the objective of identifying, from the population aged 15 years and over, those who recognize themselves with non-normative or non-conventional sexual orientation and/or gender identity, that is, the LGBTQI+ population. The survey was carried out between August 23<sup>rd</sup>, 2021, and January 16<sup>th</sup>, 2022.

One respondent was randomly selected from each household roster to answer the entire questionnaire. Interviews were conducted face-to-face. However, the questions about sexuality, sexual orientation, gender identity, emotional health, and experiences of social rejection were collected through an audio interview with a tablet rather than asked directly by enumerators, thus ensuring respondents' privacy and comfort in disclosing sensitive information. The sample size is 44,189 people aged 15 and over, representing 97.2 million people. Our main analysis is focused on the working-age population (respondents aged 15 to 64). All variables are described and summarized in Section A of the Online Appendix. This dataset has already been used to study LGBTQ+ disparities (Muñoz, Saavedra, et al., 2024).

In the survey, individuals were identified as intersex if they responded affirmatively to whether they were born with any variations in their body related to their sex (see Section A.1 in the Online Appendix).<sup>3</sup> In line with recommendations from NASEM (2022), the survey did not add intersex as a third sex category since most intersex people identify their sex within the binary, and thus, introducing a third response category to binary measures of sex is unlikely to identify the intersex population. One may worry about measurement errors, particularly regarding the possibility that some endosex respondents incorrectly identified themselves as intersex. However, the survey allows respondents to indicate whether they did not understand the question, and individuals could decide to skip it entirely. Furthermore, the estimates do not vary substantially when including older individuals (Appendix Table B1), who may be more prone to misunderstand the question. Finally, the large disparities and specific experiences documented in the empirical analysis reassure us that the sample includes individuals who are truly intersex. If anything, this type of measurement error should imply that the estimated gaps are a lower bound for the actual challenges intersex individuals face.

#### 3.2 Sample size by sex at birth and intersex status

In our weighted sample (Table 1), intersex individuals represent approximately 1.6 percent of the population aged 15 to 64 years. This is strikingly similar to findings from other research studies: depending on the criteria for defining intersex traits, methods of data collection, and timing of diagnosis, between 0.05 percent and 4 percent of the population is born with intersex traits (Blackless et al., 2000; NASEM, 2020). Biologically, intersex variations are highly heterogeneous and may not be apparent from an external examination; those with obvious

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<sup>3</sup> There is considerable variation in preferred terminology for this population, with no consensus among people with intersex traits. For instance, a study of a support group for androgen insensitivity syndrome found that respondents' preferences were split between the words 'intersex' and 'differences of sex development' (NASEM, 2022).

external anatomical diversity account for about 0.05 percent of births (Blackless et al., 2000). Many intersex traits are only detected later in life, often in adolescence or adulthood, or through prenatal testing, and some may go undiagnosed entirely (NASEM, 2022). The most expansive estimates, including any variation in sex markers, suggest that up to 1.7-4 percent of the population has an intersex trait (Fausto-Sterling, 2000; Zeeman & Aranda, 2020), while more conservative estimates based on clinically identifiable variations suggest a prevalence closer to 0.5 percent (Nordenvall et al., 2014). Cultural, medical, and societal factors influence the recognition and reporting of intersex traits, contributing to the variation in these estimates. Nevertheless, our estimates are also in line with those obtained in other countries, such as the 1.8% estimated in China by Suen et al. (2022).

As also shown in Table 1, there is a higher presence of male individuals (assigned male as sex at birth), accounting for almost 60 percent of the total intersex population, while female (assigned female as sex at birth) individuals make up only 40 percent of intersex people. In contrast, among endosex individuals, there is a more balanced distribution between the two groups, with 52 percent being female individuals.

Previous research has also highlighted that intersex traits are not uniformly distributed between those assigned male and female at birth. Studies, such as those by Blackless et al. (2000), have documented variations in the prevalence and types of intersex conditions across different populations. Moreover, the higher proportion of individuals assigned male at birth within the intersex population could reflect the specific medical and social contexts in which these traits are recognized and diagnosed in Mexico. This aligns with findings from India, where parents often prefer male gender assignment for intersex children since it is challenging to arrange marriages for infertile girls and due to social advantages of growing up male in a patriarchal society (Joseph et al., 2017).

## **4. Results**

### *4.1 Descriptive statistics*

Table 2 provides an overview of the sociodemographic characteristics of endosex female individuals (assigned female at birth), endosex male individuals (assigned male at birth), and intersex individuals. In terms of age, intersex individuals are, on average, 36.4 years old, while endosex individuals are slightly over 37 years old. There is a statistically significant difference in the proportion of indigenous people, which is higher in intersex (17 percent) compared to endosex female individuals (10.3 percent) and male individuals (11.6 percent). Similarly, the percentage of African descendants is marginally higher among intersex individuals (3.6 percent), but this difference is only statistically significant when compared to endosex female individuals (2.1 percent). Intersex individuals have a significantly lighter average skin tone compared to female endosex individuals but not compared to male endosex individuals.

Regarding marital status, intersex individuals are less likely to be married or partnered, though these differences do not reach statistical significance. Relatedly, divorce, widowhood, or separation rates are significantly lower for intersex individuals (8.9 percent) compared to endosex female individuals (14.2 percent). In education, while secondary education levels are

comparable across all groups at approximately 26-28 percent, significant disparities are apparent in post-secondary education. Only 10.9 percent of intersex individuals have attained this level of education, significantly less than the 24.8 percent for endosex female individuals and 25.6 percent for endosex male individuals, highlighting potential barriers to educational access and achievement for intersex individuals.

Household composition varies slightly, with intersex individuals reporting smaller household sizes (4.11 household members) and fewer living with children at home (50.2 percent) compared to endosex groups. These differences are statistically significant compared only to endosex female individuals. In this context, it is worth noting that some intersex traits lead to infertility, but this is not true for all intersex individuals (NASEM, 2020).

Lastly, the statistics from Table 2 show significant differences in sexual orientation and gender identity between intersex and endosex individuals. Indeed, there is a higher proportion of individuals identifying as bisexual, gay, or lesbian, and with another sexual orientation category among intersex participants compared to endosex groups, with significant differences especially in bisexual orientation compared to endosex male individuals (4.7 percent versus 1.3 percent). Additionally, the proportion of individuals identifying as a gender minority (trans+) is markedly and significantly higher among intersex participants (8.3 percent) compared to endosex individuals. This aligns with evidence in NASEM (2022) suggesting that people with intersex traits are less likely to have cisgender experiences compared to those without intersex traits. Supporting this, Babu & Shah (2021) found in their systematic review and meta-analysis that the rate of gender dysphoria among individuals with intersex variations was 15 percent, significantly higher than in the general population.

#### *4.2 Adverse events over the life cycle*

Figure 1 shows that intersex individuals faced significantly higher rates of stigma and bullying compared to their endosex counterparts during childhood. Specifically, 24.8 percent of intersex individuals reported experiencing stigma during childhood, notably higher than the 14 percent reported for endosex female individuals and 11.3 percent reported by male individuals. As shown in Appendix Table B2, stigma experiences include feeling different from most other girls or boys their age because of their way of dressing or grooming, their tastes or interests, their way of speaking or expressing themselves, and their manners or way of behaving. Intersex individuals were more likely to report having felt different during childhood in all these sub-categories.

Similarly, 25.7 percent of intersex individuals reported being bullied during childhood, compared to around 15 percent of endosex female and male individuals, highlighting a troubling disparity in early social experiences. Bullying experiences, as shown in Appendix Table B2, include being rejected or excluded from social activities, being insulted or mocked, having belongings stolen or damaged, being threatened or blackmailed, and being physically assaulted. Intersex individuals were more likely to report having been bullied during childhood in all these sub-categories.

Adolescence experiences continue the trend of heightened stigma and bullying for intersex individuals. During these years, 22.7 percent of intersex individuals experienced

stigmatization, significantly more than the 11.6 percent for endosex female individuals and 9.4 percent for endosex male individuals. Bullying also remains a persistent issue, with 16 percent of intersex individuals reporting such experiences in adolescence, which is higher than 8.1 and 9.7 percent for endosex female and male individuals respectively. The construction of these averages for stigma and bullying during adolescence, as shown in Appendix Table B3, follows the same aforementioned criteria used for childhood (Appendix Table B2) but considers the age range from 12 to 17 years. Also in this case, intersex individuals were more likely to have felt different and been bullied during adolescence in all sub-categories.

Moreover, Figure 1 illustrates the experiences of discrimination, harassment, and violence that intersex individuals face throughout their lives. For instance, 12.3 percent of intersex individuals were unjustifiably denied medical attention or medication in the last five years, compared to 8 percent of endosex female individuals and 6.8 percent of endosex male individuals. Discrimination also extended to access to public bathrooms: 3.1 percent of intersex individuals faced denials, more than double the rate reported by endosex individuals (around 1.3-1.4 percent). Almost 20 percent of intersex individuals reported harassment and violence experiences. These events, as shown in Appendix Table B4, include being threatened or sexually assaulted, being bothered by someone making sexual propositions in exchange for payment, being forced to have sexual relations, being humiliated, embarrassed, or verbally abused, receiving offensive messages, and being touched or groped without consent. Intersex individuals were more likely to have experienced harassment and violence than male endosex individuals in all these sub-categories, and more likely to have been humiliated, embarrassed, or verbally abused and have received offensive messages than male and female endosex individuals.

The consistent and higher experiences of stigma, bullying, discrimination, and violence throughout the life cycle reflect broader societal issues – corroborating earlier discussions about systematic challenges and human rights violations – and they are similar to those documented in the previous literature (Meyer-Bahlburg, Khuri, et al., 2017; Zeeman & Aranda, 2020). For instance, Meyer-Bahlburg et al. (2018) found that women with certain sex variations faced significant stigma in romantic and sexual contexts, leading to social avoidance and internalization of negative perceptions. Likewise, Joseph et al. (2017) highlighted the severe impact of social stigma on children with sex variations in India, exacerbated by misinformed medical practices and delayed diagnoses. Ediaty et al. (2017) further supports these findings, reporting that patients with visible physical atypicality and those who changed gender experienced significant social stigmatization, leading to ostracism, depressive symptoms, and social isolation.

#### *4.3 Well-being*

Figure 2 illustrates various aspects of well-being among adults, revealing significant disparities between intersex and endosex individuals. First, there are notable differences in sexual experiences. Specifically, 17.2 percent of intersex individuals had not had yet their first sexual relationship, compared to 11.7 percent of endosex female individuals and 10.9 percent of endosex male individuals. However, this percentage drops to 3 percent for intersex individuals when considering only individuals aged 25 to 64, which is similar to the 3.1 percent among

endosex female individuals but higher than the 1.8 percent among endosex male individuals in that age group. This suggests potential barriers to forming intimate relationships for intersex individuals, since the complexities of intersex experiences extend into personal relationships and sexuality. These findings are in line with those in Kreukels et al. (2019), who found that many intersex individuals are dissatisfied with their sexual relationships and experience numerous challenges, including reduced sexual activity. These issues are not only significant for personal and psychological reasons but also have social implications, potentially affecting relationship dynamics and overall social integration.

These challenges in forming intimate relationships are closely intertwined with overall life satisfaction. Figure 2 also shows that 30.8 percent of intersex individuals reported being dissatisfied with their life, compared to 22.6 percent of endosex female individuals and 20.4 percent of endosex male individuals. Appendix Table B8 reports satisfaction levels in certain sub-domains: intersex individuals are significantly less satisfied with their physical appearance than both endosex male and female individuals. Similarly, they have worse family relationships, and they are less satisfied with their way of being.

The cumulative impact of the adverse experiences documented so far in Figures 1-2 and Table 2 can have significant repercussions on mental health. Indeed, mental health issues are more prevalent among intersex individuals, with 46.2 percent reporting such issues, a rate comparable to the 46.4 percent of endosex female individuals but significantly higher than the 33.6 percent of endosex male individuals. When looking at specific mental health components, intersex individuals reported substantially higher levels of insomnia, stress, anxiety, weight issues, and depression when compared to endosex male individuals, while they report more insomnia and depression than endosex female individuals, but lower stress levels (Appendix Table B5).

These mental health challenges can often be traced back to stigmatizing experiences from childhood and adolescence. These issues are also highlighted in the previous literature: De Vries et al. (2019) documented that intersex adults exhibit higher rates of anxiety, depression, and other psychiatric symptoms compared to the general population (although some survey items had significant numbers of missing values, which may affect the robustness of these findings). The stigma and frequent medical interventions, often conducted without proper consent, contribute to a sense of body dissatisfaction and shame, exacerbating mental health issues (NASSEM, 2020). These mental health challenges not only diminish individual well-being but may also imply greater economic costs due to increased demand for mental health services and potential losses in productivity.

Furthermore, the severity of mental health issues among intersex individuals is underscored by the high rates of suicidal intentions. Approximately 12.6 percent of intersex individuals had suicidal intentions, significantly higher than the 5.7 percent of endosex female individuals and 3.6 percent of endosex male individuals. Similarly, 16.4 percent of intersex individuals reported suicidal ideation, compared to 10.2 percent of endosex female individuals and 7.2 percent of endosex male individuals (Appendix Table B6). Additionally, intersex individuals were more likely to cite their gender (34.5 percent) and sexual orientation (33.6 percent) as reasons for their suicidal ideation and intentions compared to endosex female individuals. The

interrelated nature of issues such as barriers to forming intimate relationships, high levels of life dissatisfaction, and prevalent mental health challenges, shows the significant obstacles intersex individuals face in achieving well-being in life.

#### *4.4 Labor market disparities*

Figure 3 presents the labor market outcomes for intersex and endosex groups. Intersex individuals had a labor force participation rate of 68.6 percent, which is significantly lower than that of endosex male individuals (87.5 percent) but higher than that of endosex female individuals (56.6 percent). Additionally, the unemployment rate for intersex individuals was 2.6 percent, which is slightly higher than the 2.1 percent for endosex female individuals and lower than the 3.4 percent for endosex male individuals. However, these differences are not statistically significant, indicating that unemployment rates are relatively similar across these groups.

Related to the workplace environment, a significant disparity is observed in Figure 3 in workplace rejection rates, with 14.8 percent of intersex individuals reporting having experienced rejection in the workplace. This rate is considerably higher compared to both endosex female individuals (6.8 percent) and endosex male individuals (5.8 percent). Among the different experiences of workplace rejections, it is worth highlighting that intersex individuals reported receiving more offensive comments or teasing at work, they are more likely to feel excluded from events and social activities, they have higher rates of unequal treatment regarding benefits, labor benefits, or promotions, and they are more likely to be harassed, hit, assaulted, or threatened than endosex male and female workers (Appendix Table B7). Similarly, Suen et al. (2020) found that more than one-fifth of LGBTI participants (recruited through targeted and snowball sampling) in China reported negative treatment in the workplace due to their sexual orientation, gender identity, and sex characteristics, with intersex individuals being particularly affected.

When asked about their economic situation, 27.5 percent of intersex individuals reported a positive economic situation, compared to 30.4 percent of endosex female individuals and 32.7 percent of endosex male individuals. Regarding their job situation, 43.5 percent of intersex individuals were satisfied with their job, compared to 46.7 percent of endosex female individuals and 48.2 percent of endosex male individuals. In both cases differences are not statistically significant but are in line with the previous statistics, thus overall suggesting that intersex individuals face challenging workplace environments and may be economically vulnerable.

The findings from labor market outcomes echo the broader challenges documented earlier in the paper regarding stigma, bullying, and discrimination faced by intersex individuals throughout their lives. These labor market outcomes are likely to be partly driven by the lower educational achievements of intersex individuals, as noted in Table 2 and in Jones (2016): intersex variations significantly disrupt educational trajectories, with many students facing bullying and exclusion, leading to higher dropout rates. This diminished educational attainment

may restrict future employment opportunities and earning potential, reinforcing economic disparities, and limiting social mobility.

## **5. Discussion and concluding remarks**

The findings of our study reveal significant and deep disparities faced by intersex individuals in various aspects of their lives, from childhood through adulthood, impacting their well-being and labor market outcomes. Intersex individuals face significantly worse rates of stigma and bullying compared to their endosex counterparts, both in childhood and adolescence. These early adverse experiences become a base for ongoing discrimination and harassment into adulthood. Intersex individuals are more likely to experience denial of medical attention and access to public bathrooms, reflecting severe systemic challenges and human rights violations. These persistent experiences of stigma and bullying are consistent with the later results of significant disparities in well-being among adults.

In addition, intersex individuals encounter substantial barriers to forming intimate relationships. These issues extend to overall life satisfaction, with intersex individuals reporting higher levels of life dissatisfaction. Mental health challenges are notably more prevalent among intersex individuals, including higher rates of insomnia and depression. Even more worrying, intersex individuals have extremely high rates of suicidal ideation and intention. Labor market outcomes further highlight the challenges faced by intersex individuals. Despite similar unemployment rates across groups, intersex individuals report significantly higher rates of workplace rejection, harassment, and violence. Overall, this study underscores how vital it is to collect data on intersex individuals and the need for policymakers to recognize and address these socioeconomic and health disparities.

Regarding external validity, it is important to acknowledge that the results from this study are specific to Mexico. One may argue that intersex people may have different experiences and socio-economic outcomes in other countries. Nevertheless, throughout the world, the medical and psychological historical approach to intersex infants has been one aimed at concealing any sex variation and surgically altering intersex bodies whenever possible, often without consent. With a few exceptions, this is still the current procedure (ILGA, 2023a). Therefore, it is likely that intersex individuals around the world suffer from stigma, social exclusions, are victims of harassment and violence, and have lower levels of well-being, as shown for the Mexican intersex individuals considered in this paper.

The main limitation of this study is the lack of data on wages or income. Without such information, it is not possible to test whether intersex individuals are paid less on average than endosex workers, in line with the previous literature documenting gender pay gaps, as well as wage disparities for racial minorities and LGBTQ+ individuals. The analysis of labor market outcomes is further complicated in middle-income countries with high levels of informality and an underground economy. In addition, while the available sample of intersex individuals is large enough to show that most disparities are statistically significant, the inclusion of information on sex variations in administrative data would allow researchers to analyze bigger samples of intersex individuals, to follow people over time, and to answer additional questions, such as estimating mortality rates and life expectancy for intersex and endosex groups

separately. Initial attempts in Nordic countries show the potential of this approach (Berglund et al., 2018).

As highlighted in NASEM (2022), future research should test alternative ways to measure the prevalence of intersex conditions. For instance, the current wording of the question used in Mexico does not explicitly include the word ‘intersex’: it could be useful to know whether respondents may prefer to just identify themselves as intersex instead of using medicalized language such as ‘disorder of sex development’. Additional guidelines are also required on how to minimize the risk of endosex respondents misunderstanding the question and incorrectly identifying themselves as intersex, and how to detect such false positives.

In addition, future research comparing endosex women and men with intersex individuals may provide valuable insights about the role of gender norms. In particular, researchers could investigate potential explanations for the female advantage in educational achievements while at the same time observing low female labor force participation rates. It is rather striking that intersex individuals face substantial stigma, social exclusion, violence, and discrimination – often to a larger degree than endosex women – but they still have higher labor market attachment. This clearly suggests that strong factors are at play in this context and drive women’s employment outcomes.



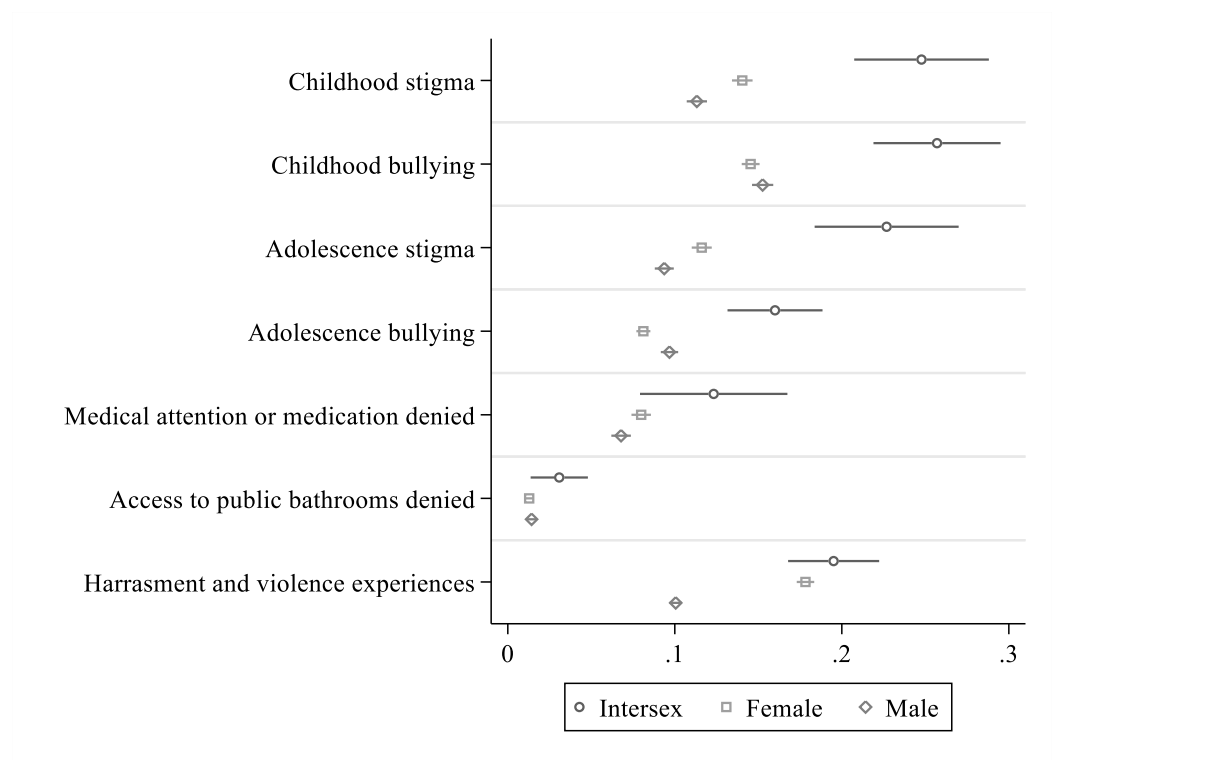
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**Figure 1: Rejection experiences.**



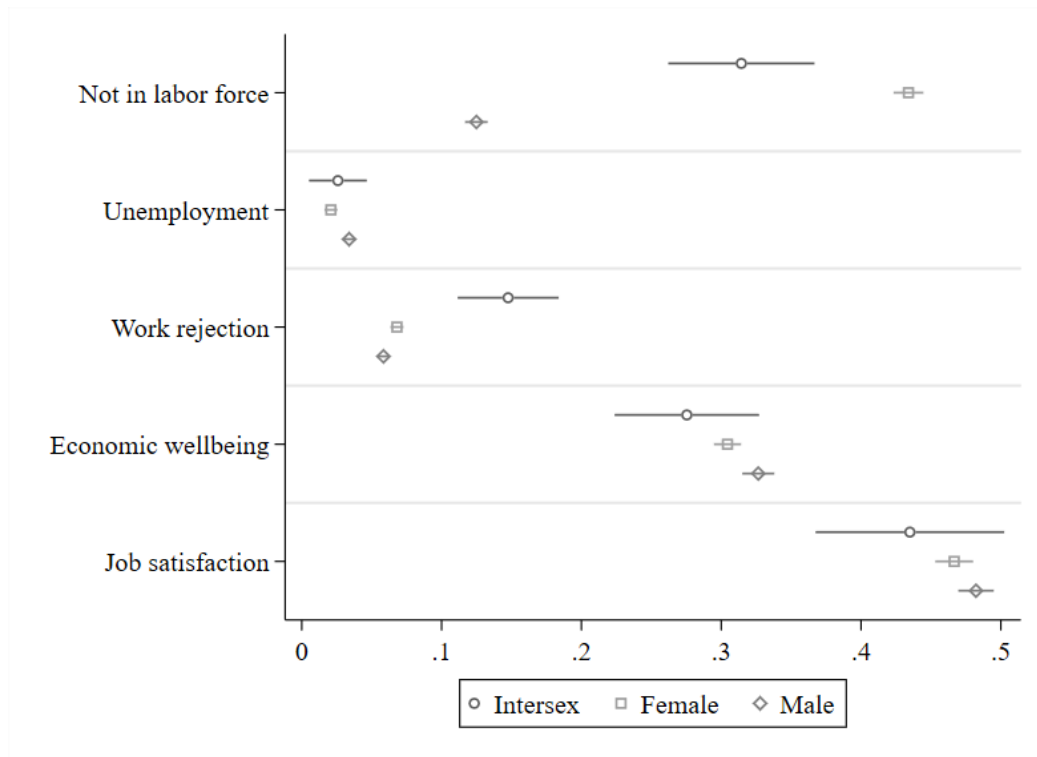
Note: All estimates are derived from OLS models, with no controls, no constant, with robust standard errors, and using ENDISEG sample weights. 95% confidence intervals included. Male corresponds to assigned male at birth endosex individuals, and Female corresponds to assigned female at birth endosex individuals. See the detailed variable description in Section A of the Online Appendix and the notes in Appendix Tables B2, B3 and B4.

**Figure 2: Well-being.**



Note: All estimates are derived from OLS models, no controls, no constant, with robust standard errors, and using ENDISEG sample weights. 95% confidence intervals included. Male corresponds to assigned male at birth endosex individuals, and Female corresponds to assigned female at birth endosex individuals. See the detailed variable description in Section A of the Online Appendix and the notes in Appendix Table B5, B6, and B8.

**Figure 3: Labor market outcomes.**



Note: All estimates are derived from OLS models, no controls, no constant, with robust standard errors, and using ENDISEG sample weights. 95% confidence intervals included. Male corresponds to assigned male at birth endosex individuals, and Female corresponds to assigned female at birth endosex individuals. See the detailed variable description in Section A of the Online Appendix and the notes in Appendix Table B7 and B8.

**Table 1: Sample size, individuals aged 15 – 64.**

		Unweighted		Weighted	
		Observations	Percentage	Observations	Percentage
Intersex		608	1.73%	1,282,296	1.61%
	Male	358	58.88%	756,650	59.01%
	Female	250	41.12%	525,646	40.99%
Endosex		34,596	98.27%	78,602,929	98.39%
	Male	15,730	45.47%	37,053,134	47.14%
	Female	18,866	54.53%	41,549,795	52.86%

Note: 4.71% of the sample size did not understand the question and 2.01% did not select an option. These individuals were not included in our sample. Male corresponds to assigned male at birth individuals, and Female corresponds to assigned female at birth individuals.

**Table 2: Descriptive statistics.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
<i>Sociodemographic Characteristics</i>					
Age	37.610 (13.818)	37.040 (14.046)	36.375 (14.824)	-1.235 [0.159]	-0.665 [0.451]
Indigenous	0.103 (0.303)	0.116 (0.321)	0.170 (0.376)	0.067*** [0.002]	0.054** [0.016]
African descendant	0.021 (0.145)	0.034 (0.181)	0.036 (0.187)	0.015* [0.081]	0.002 [0.801]
Skin tone	6.878 (1.223)	6.538 (1.343)	6.543 (1.484)	-0.336*** [0.000]	0.005 [0.960]
Married or partnered	0.570 (0.495)	0.584 (0.493)	0.542 (0.499)	-0.028 [0.340]	-0.042 [0.148]
Divorced, widowed, or separated	0.142 (0.349)	0.072 (0.258)	0.089 (0.284)	-0.053*** [0.000]	0.017 [0.242]
Secondary	0.264 (0.441)	0.277 (0.448)	0.265 (0.442)	0.001 [0.956]	-0.012 [0.665]
Post secondary	0.248 (0.432)	0.256 (0.436)	0.109 (0.312)	-0.139*** [0.000]	-0.147*** [0.000]
Household size	4.329 (1.984)	4.255 (1.906)	4.109 (1.752)	-0.220** [0.041]	-0.145 [0.176]
Children at home	0.569 (0.495)	0.509 (0.500)	0.502 (0.500)	-0.068** [0.020]	-0.007 [0.805]
<i>Sexual Orientation and Gender Identity</i>					
Bisexual	0.039 (0.194)	0.013 (0.114)	0.047 (0.212)	0.008 [0.492]	0.034*** [0.002]
Gay/Lesbian	0.011 (0.105)	0.026 (0.160)	0.042 (0.201)	0.031*** [0.001]	0.016* [0.085]
Other sexual orientation	0.007 (0.083)	0.004 (0.063)	0.021 (0.145)	0.014* [0.072]	0.017** [0.029]
Trans+	0.010 (0.099)	0.008 (0.088)	0.083 (0.277)	0.073*** [0.000]	0.076*** [0.000]
Observations	18,866	15,730	608		

Weighted means for female, male and intersex individuals aged 15-64 years, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). Male corresponds to assigned male at birth individuals, and female corresponds to assigned female at birth individuals. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



## Online Appendix

### 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 refers to respondents who answered ‘Yes’ to the above question, while we use the term *Endosex* to refers 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,<sup>4</sup> *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.

## 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

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<sup>4</sup> [https://en.www.inegi.org.mx/contenidos/programas/endiseg/2021/doc/endiseg\\_2021\\_nota\\_tecnica.pdf](https://en.www.inegi.org.mx/contenidos/programas/endiseg/2021/doc/endiseg_2021_nota_tecnica.pdf)

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

*Skin tone* reports the respondent's self-recognition of skin tone on a color scale from A to K. The skin tone is coded from 1 to 11, from lighter to darker skin tone.

*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

*Household size* is a variable that reports the number of individuals living in each household.

*Child in the household* is an indicator that equals one if there are children living in each household who are less than 15 years old, zero otherwise.

*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?

*Harassment and 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 one 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 zero. 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 one if the respondent was in the labor force but was looking for a job, zero otherwise. Individuals not in the labor force have been coded as missing.

*Workplace rejection* quantifies the perceived rejection at work, with values ranging from 0 to 1. A value closer to 0 indicates a lower perception of rejection, while a value closer to 1 indicates a higher perception of rejection. This measure is equal to the average of responses to the following questions, where 1 corresponds to “Yes”, 0 corresponds to “No”, and “I don't know” responses have been coded as missing:

During the last 12 months, from August 2020 to date, at work...

1. have you received offensive comments or teasing?
2. have you been excluded from events or social activities?
3. have you been bothered or harassed?
4. have you received unequal treatment regarding benefits, labor benefits, or promotions?
5. have you been hit, assaulted, or threatened?

*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?

*Personal well-being* corresponds to the responses to the following questions, where 1 represents “A lot”, 0 represents “Something”, “Little” or “Nothing”, and “Not specified” had been coded as missing:

How much you agree with each sentence:

1. What I do in my life is worthwhile.
2. I have a purpose or mission in life.
3. I feel good about myself.
4. I am a fortunate person.
5. I am free to decide my own life.
6. I am very satisfied with my life.
7. So far, I have achieved the things that are important to me.

**Table A1: Descriptive statistics, individuals aged 15 – 64****Panel A: Sociodemographic**

	N	Mean	SD	Min	Max
Age	37,742	37.205	14.030	15	64
Indigenous	37,742	0.117	0.321	0	1
African descendant	37,742	0.028	0.165	0	1
Skin tone	37,742	6.702	1.300	1	11
Married or partnered	37,742	0.574	0.494	0	1
Divorced, widowed or separated	37,742	0.107	0.309	0	1
Secondary	37,742	0.268	0.443	0	1
Post secondary	37,742	0.241	0.428	0	1
Household size	37,742	4.308	1.952	1	26
Children at home	37,742	0.543	0.498	0	1

**Panel B: Sexual orientation and gender identity**

	N	Mean	SD	Min	Max
Bisexual	37,742	0.028	0.164	0	1
Gay/Lesbian	37,742	0.019	0.138	0	1
Other	37,742	0.006	0.077	0	1
Trans+	37,742	0.011	0.102	0	1

**Panel C: Childhood rejection**

	N	Mean	SD	Min	Max
Childhood stigma	37,742	0.132	0.281	0	1
During your childhood (up to 11 years old), did you ever feel different from most other girls or boys your age because of...					
your way of dressing or grooming?	37,742	0.161	0.367	0	1
your tastes or interests?	37,742	0.122	0.327	0	1
your way of speaking or expressing yourself?	37,742	0.118	0.322	0	1
your manners or way of behaving?	37,742	0.129	0.335	0	1
Childhood bullying	37,742	0.153	0.265	0	1
During your childhood (up to 11 years old), in order to hurt you or make you feel bad, did anyone ever...					
reject or exclude you from social activities?	37,742	0.127	0.333	0	1
insult you, mock you, or say things that offended you?	37,742	0.239	0.426	0	1
steal, hide, or break your belongings?	37,742	0.155	0.362	0	1
threaten or blackmail you?	37,742	0.074	0.262	0	1
push, pull, or hit you?	37,742	0.168	0.374	0	1

**Panel D: Adolescence rejection**

	N	Mean	SD	Min	Max
Adolescence stigma	37,742	0.109	0.266	0	1
From ages 12 to 17, were you ever made to feel different from most other girls or boys because of...					
your way of dressing or grooming?	37,742	0.126	0.332	0	1
your tastes or interests?	37,742	0.106	0.307	0	1
your way of speaking or expressing yourself?	37,742	0.099	0.299	0	1
your manners or way of behaving?	37,742	0.106	0.308	0	1
Adolescence bullying	37,742	0.091	0.215	0	1
From 12 to 17 years old, in order to hurt you or make you feel bad, did anyone ever...					
reject or exclude you from social activities?	37,742	0.085	0.279	0	1
insult you, mock you, or say things that offended you?	37,742	0.143	0.350	0	1
steal, hide, or break your belongings?	37,742	0.083	0.276	0	1
threaten or blackmail you?	37,742	0.053	0.224	0	1
push, pull, or hit you?	37,742	0.092	0.289	0	1

**Panel E: Discrimination, harassment and violence experiences**

	N	Mean	SD	Min	Max
In the last five years, from August 2016 to date, have you been unjustifiably denied...					
medical attention or medication?	35,490	0.075	0.263	0	1
access to public bathrooms?	35,658	0.014	0.116	0	1
Harrasment and violence experiences	37,742	0.142	0.223	0	1
At some point in your life...					
Have you been threatened or sexually assaulted?	37,742	0.087	0.283	0	1
Have you been bothered by someone making sexual propositions in exchange for payment?	37,742	0.085	0.279	0	1
Have you been forced to have sexual relations?	37,742	0.047	0.212	0	1
Have you been humiliated, embarrassed, or verbally abused?	37,742	0.282	0.450	0	1
Have you received offensive messages?	37,742	0.198	0.399	0	1
Have you been touched or groped without your consent?	37,742	0.155	0.362	0	1

**Panel F: Well-being**

	N	Mean	SD	Min	Max
<i>Sexual experiences</i>					
People who have never had their first meeting with someone where there was kissing or cuddling and they agreed	37,742	0.057	0.232	0	1
People who have never had their first sexual relationship	37,742	0.120	0.324	0	1
Mental health issues	37,742	0.405	0.342	0	1
In the last 12 months, from August 2020 to date, have you had...?					
insomnia	37,742	0.398	0.490	0	1
stress	37,742	0.635	0.481	0	1
depression	37,742	0.273	0.446	0	1
loss or increase in appetite or weigh	37,742	0.362	0.481	0	1
anguish, fear or anxiety?	37,742	0.357	0.479	0	1

**Panel G: Suicide ideation and intention**

	N	Mean	SD	Min	Max
Suicidal Ideation	37,742	0.091	0.288	0	1
Suicidal Intention	37,742	0.049	0.217	0	1
Was this mainly due to...?					
financial problems	4,241	0.193	0.394	0	1
family or relationship problems	4,241	0.640	0.480	0	1
health problems	4,241	0.177	0.382	0	1
problems at school	4,241	0.106	0.307	0	1
problems at work	4,241	0.057	0.231	0	1
problems because of your orientation	614	0.135	0.342	0	1
problems due to your gender	133	0.141	0.349	0	1
other	4,241	0.061	0.239	0	1

**Panel H: Labor market outcomes**

	N	Mean	SD	Min	Max
Labor force participation	37,742	0.708	0.455	0	1
Unemployment	27,379	0.028	0.165	0	1
Workplace rejection	19,055	0.064	0.154	0	1
During the last 12 months, from August 2020 to date, at work...					
have you received offensive comments or teasing?	21,909	0.094	0.292	0	1
have you been excluded from events or social activities?	20,746	0.049	0.216	0	1
have you been bothered or harassed?	21,948	0.057	0.232	0	1
Have you received unequal treatment regarding benefits, labor benefits, or promotions?	20,181	0.109	0.312	0	1
Have you been hit, assaulted, or threatened?	21,878	0.024	0.154	0	1

**Panel I: Life satisfaction**

	N	Mean	SD	Min	Max
How satisfied are you with your...					
economic situation?	37,686	0.313	0.464	0	1
job situation?	27,802	0.474	0.499	0	1
family relationship?	37,701	0.807	0.395	0	1
physical appearance?	37,726	0.720	0.449	0	1
way of being?	37,729	0.807	0.394	0	1
life in general?	37,732	0.781	0.414	0	1
How much you agree with each sentence...					
What I do in my life is worthwhile	37,741	0.868	0.338	0	1
I have a purpose or mission in life	37,741	0.838	0.368	0	1
I feel good about myself	37,741	0.841	0.366	0	1
I am a fortunate person	37,741	0.873	0.333	0	1
I am free to decide my own life	37,741	0.888	0.316	0	1
I am very satisfied with my life	37,741	0.837	0.369	0	1
So far, I have achieved the things that are important to me	37,741	0.706	0.456	0	1

## Appendix B. Additional figures and tables.

**Table B1: Sample size, individuals aged 15+.**

Intersex		Unweighted		Weighted	
		Observations	Percentage	Observations	Percentage
Intersex		745	1.81%	1,494,559	1.65%
	Male	449	60.27%	893,090	59.76%
	Female	296	39.73%	601,469	40.24%
No Intersex		40,364	98.19%	89,328,294	98.35%
	Male	18,193	45.07%	41,851,443	46.85%
	Female	22,171	54.93%	47,476,851	53.15%

Note: 5.06% of the sample size did not understand the question and 1.91% did not select an option. These individuals were not included in our sample. Male corresponds to assigned male at birth endosex individuals, and Female corresponds to assigned female at birth endosex individuals.

**Table B2: Childhood rejection.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
Childhood Stigma	0.140	0.113	0.248	0.107***	0.135***
	(0.290)	(0.259)	(0.361)	[0.000]	[0.000]
During your childhood (up to 11 years old), did you ever feel different from most other girls or boys your age because of...					
your way of dressing or grooming?	0.177	0.131	0.290	0.113***	0.159***
	(0.381)	(0.337)	(0.454)	[0.000]	[0.000]
your tastes or interests?	0.133	0.100	0.236	0.103***	0.136***
	(0.340)	(0.300)	(0.425)	[0.000]	[0.000]
your way of speaking or expressing yourself?	0.119	0.106	0.228	0.109***	0.122***
	(0.324)	(0.308)	(0.420)	[0.000]	[0.000]
your manners or way of behaving?	0.133	0.116	0.237	0.104***	0.121***
	(0.339)	(0.320)	(0.426)	[0.000]	[0.000]
Childhood Bullying	0.145	0.153	0.257	0.112***	0.104***
	(0.258)	(0.267)	(0.328)	[0.000]	[0.000]
During your childhood (up to 11 years old), in order to hurt you or make you feel bad, did anyone ever...					
reject or exclude you from social activities?	0.132	0.112	0.234	0.101***	0.122***
	(0.339)	(0.316)	(0.424)	[0.000]	[0.000]
insult you, mock you, or say things that offended you?	0.237	0.230	0.366	0.129***	0.136***
	(0.425)	(0.421)	(0.482)	[0.000]	[0.000]
steal, hide, or break your belongings?	0.143	0.160	0.256	0.113***	0.096***
	(0.350)	(0.367)	(0.437)	[0.000]	[0.000]
threaten or blackmail you?	0.068	0.076	0.149	0.080***	0.073***
	(0.253)	(0.265)	(0.356)	[0.000]	[0.001]
push, pull, or hit you?	0.146	0.185	0.280	0.134***	0.096***
	(0.353)	(0.388)	(0.449)	[0.000]	[0.000]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth, and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). *Childhood Stigma* corresponds to the average of the four questions related to “During your childhood (up to 11 years old), did you ever feel different from most other girls or boys your age because of...” as reported in the table. *Childhood Bullying* corresponds to the average of the five questions related to “During your childhood (up to 11 years old), in order to hurt you or make you feel bad, did anyone ever...” as reported in the table. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B3: Adolescence rejection.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
Adolescence Stigma	0.116 (0.274)	0.094 (0.246)	0.227 (0.367)	0.111*** [0.000]	0.133*** [0.000]
From ages 12 to 17, were you ever made to feel different from most other girls or boys because of...					
your way of dressing or grooming?	0.141 (0.348)	0.100 (0.300)	0.270 (0.444)	0.129*** [0.000]	0.170*** [0.000]
your tastes or interests?	0.113 (0.317)	0.091 (0.287)	0.214 (0.410)	0.101*** [0.000]	0.123*** [0.000]
your way of speaking or expressing yourself?	0.099 (0.299)	0.090 (0.287)	0.193 (0.395)	0.094*** [0.000]	0.103*** [0.000]
your manners or way of behaving?	0.111 (0.314)	0.094 (0.292)	0.230 (0.421)	0.119*** [0.000]	0.136*** [0.000]
Adolescence Bullying	0.081 (0.201)	0.097 (0.225)	0.160 (0.262)	0.079*** [0.000]	0.063*** [0.000]
From 12 to 17 years old, in order to hurt you or make you feel bad, did anyone ever...					
reject or exclude you from social activities?	0.088 (0.283)	0.076 (0.265)	0.199 (0.400)	0.112*** [0.000]	0.123*** [0.000]
insult you, mock you, or say things that offended you?	0.133 (0.339)	0.146 (0.353)	0.238 (0.426)	0.106*** [0.000]	0.093*** [0.000]
steal, hide, or break your belongings?	0.068 (0.251)	0.095 (0.294)	0.146 (0.353)	0.078*** [0.000]	0.051** [0.011]
threaten or blackmail you?	0.046 (0.209)	0.058 (0.234)	0.073 (0.261)	0.027** [0.028]	0.015 [0.233]
push, pull, or hit you?	0.072 (0.259)	0.109 (0.311)	0.143 (0.351)	0.071*** [0.000]	0.034* [0.089]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). *Adolescence Stigma* corresponds to the average of the four questions related to “From ages 12 to 17, were you ever made to feel different from most other girls or boys because of...” as reported in the table. *Adolescence Bullying* corresponds to the average of the five questions related to “From 12 to 17 years old, in order to hurt you or make you feel bad, did anyone ever...” as reported in the table. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B4: Discrimination, harassment, and violence experiences.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
<i>Discrimination experiences</i>					
In the last five years, from August 2016 to date, have you been unjustifiably denied...					
medical attention or medication?	0,080 (0,271)	0,068 (0,251)	0,123 (0,329)	0,043* [0,055]	0,055** [0,014]
access to public bathrooms?	0,013 (0,112)	0,014 (0,119)	0,031 (0,173)	0,018** [0,041]	0,017* [0,061]
<i>Harassment and violence experiences</i>					
Harassment and violence experiences	0,178 (0,253)	0,101 (0,172)	0,195 (0,257)	0,017 [0,233]	0,095*** [0,000]
At some point in your life...					
have you been threatened or sexually assaulted?	0,134 (0,341)	0,035 (0,183)	0,129 (0,336)	-0,005 [0,792]	0,094*** [0,000]
have you been bothered by someone making sexual propositions in exchange for payment?	0,111 (0,314)	0,054 (0,227)	0,125 (0,331)	0,015 [0,410]	0,071*** [0,000]
have you been forced to have sexual relations?	0,073 (0,260)	0,015 (0,124)	0,092 (0,290)	0,019 [0,232]	0,077*** [0,000]
have you been humiliated, embarrassed, or verbally abused?	0,308 (0,462)	0,247 (0,432)	0,376 (0,485)	0,067** [0,019]	0,128*** [0,000]
have you received offensive messages?	0,215 (0,411)	0,177 (0,382)	0,263 (0,440)	0,047* [0,056]	0,085*** [0,001]
have you been touched or groped without your consent?	0,228 (0,420)	0,074 (0,262)	0,185 (0,389)	-0,043** [0,048]	0,111*** [0,000]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). *Harassment and violence experiences* corresponds to the average of the six questions related to “At some point in your life...” as reported in the table. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table B5: Well-being.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
<i>Sexual experiences</i>					
People who have never had their first meeting with someone where there was consensual kissing or cuddling	0,055 (0,228)	0,047 (0,211)	0,102 (0,302)	0,047*** [0,006]	0,055*** [0,001]
People who have never had their first sexual relationship	0,117 (0,321)	0,109 (0,312)	0,172 (0,378)	0.056** [0,010]	0.063*** [0,004]
Mental health issues	0.464 (0.348)	0.336 (0.321)	0.462 (0.362)	-0.002 [0.936]	0.126*** [0.000]
In the last 12 months, from August 2020 to date, have you had...?					
insomnia	0.449 (0.497)	0.337 (0.473)	0.500 (0.500)	0.050* [0.084]	0.163*** [0.000]
stress	0.697 (0.460)	0.571 (0.495)	0.631 (0.483)	-0.066** [0.019]	0.060** [0.031]
depression	0.325 (0.468)	0.211 (0.408)	0.375 (0.485)	0.050* [0.081]	0.164*** [0.000]
loss or increase in appetite or weight	0.417 (0.493)	0.298 (0.457)	0.378 (0.485)	-0.039 [0.172]	0.080*** [0.005]
anguish, fear or anxiety	0.433 (0.495)	0.266 (0.442)	0.428 (0.495)	-0.005 [0.870]	0.162*** [0.000]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). *Mental health* corresponds to the average of the five questions related to “In the last 12 months, from August 2020 to date, have you had...?” as reported in the table. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B6: Suicide ideation and intention.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
Suicidal Ideation	0.102 (0.303)	0.072 (0.259)	0.164 (0.371)	0.062*** [0.002]	0.092*** [0.000]
Suicidal Intention	0.057 (0.232)	0.036 (0.186)	0.126 (0.332)	0.069*** [0.000]	0.090*** [0.000]
Was this mainly due to...?					
financial problems	0.164 (0.370)	0.228 (0.419)	0.310 (0.464)	0.147*** [0.009]	0.083 [0.149]
family or relationship problems	0.684 (0.465)	0.587 (0.492)	0.463 (0.501)	-0.222*** [0.000]	-0.125** [0.044]
health problems	0.175 (0.380)	0.172 (0.377)	0.242 (0.430)	0.066 [0.257]	0.070 [0.236]
problems at school	0.095 (0.293)	0.120 (0.325)	0.153 (0.362)	0.059 [0.179]	0.034 [0.452]
problems at work	0.039 (0.194)	0.083 (0.276)	0.088 (0.284)	0.048* [0.063]	0.005 [0.862]
problems because of your orientation	0.070 (0.255)	0.272 (0.446)	0.336 (0.480)	0.266** [0.046]	0.064 [0.647]
problems due to your gender	0.034 (0.184)	0.187 (0.395)	0.345 (0.486)	0.310** [0.027]	0.158 [0.349]
other	0.058 (0.234)	0.071 (0.256)	0.057 (0.233)	-0.001 [0.974]	-0.014 [0.638]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). Suicide reason ("Was this mainly due to...?") only asked to respondents who answered affirmatively when asked about suicidal ideation or intention. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B7: Labor market outcomes.**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
Labor force participation	0.566 (0.496)	0.875 (0.331)	0.686 (0.465)	0.120*** [0.000]	-0.190*** [0.000]
Unemployment	0.021 (0.143)	0.034 (0.181)	0.026 (0.159)	0.005 [0.644]	-0.008 [0.456]
Workplace Rejection	0.068 (0.157)	0.058 (0.147)	0.148 (0.215)	0.080*** [0.000]	0.089*** [0.000]
During the last 12 months, from August 2020 to date, at work...					
have you received offensive comments or teasing?	0.093 (0.291)	0.090 (0.286)	0.205 (0.404)	0.111*** [0.003]	0.115*** [0.002]
have you been excluded from events or social activities?	0.051 (0.219)	0.045 (0.208)	0.126 (0.332)	0.075*** [0.002]	0.080*** [0.001]
have you been bothered or harassed?	0.074 (0.262)	0.041 (0.198)	0.117 (0.322)	0.043* [0.079]	0.076*** [0.002]
have you received unequal treatment regarding benefits, labor benefits, or promotions?	0.111 (0.314)	0.104 (0.306)	0.236 (0.425)	0.125*** [0.002]	0.132*** [0.001]
have you been hit, assaulted, or threatened?	0.021 (0.145)	0.025 (0.156)	0.068 (0.252)	0.047*** [0.004]	0.043*** [0.008]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). *Workplace rejection* corresponds to the average of the five questions related to “During the last 12 months, from August 2020 to date, at work...” as reported in the table.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B8: Life Satisfaction**

	Endosex female	Endosex male	Intersex	(3)-(1)	(3)-(2)
	(1)	(2)	(3)	(4)	(5)
How satisfied are you with your...					
economic situation?	0.304 (0.460)	0.327 (0.469)	0.275 (0.447)	-0.029 [0.278]	-0.051* [0.058]
job situation?	0.467 (0.499)	0.482 (0.500)	0.435 (0.496)	-0.032 [0.365]	-0.047 [0.175]
family relationship?	0.807 (0.395)	0.817 (0.387)	0.721 (0.449)	-0.086*** [0.001]	-0.096*** [0.000]
physical appearance?	0.704 (0.456)	0.746 (0.435)	0.633 (0.482)	-0.072*** [0.009]	-0.114*** [0.000]
way of being?	0.806 (0.395)	0.817 (0.386)	0.724 (0.447)	-0.082*** [0.002]	-0.093*** [0.000]
life in general?	0.774 (0.418)	0.796 (0.403)	0.692 (0.462)	-0.082*** [0.002]	-0.104*** [0.000]
How much you agree with each sentence...					
What I do in my life is worthwhile	0.878 (0.327)	0.867 (0.339)	0.766 (0.424)	-0.112*** [0.000]	-0.101*** [0.000]
I have a purpose or mission in life	0.839 (0.367)	0.850 (0.357)	0.782 (0.414)	-0.058** [0.012]	-0.069*** [0.003]
I feel good about myself	0.822 (0.382)	0.867 (0.339)	0.772 (0.420)	-0.050* [0.051]	-0.095*** [0.000]
I am a fortunate person	0.887 (0.316)	0.868 (0.339)	0.773 (0.420)	-0.115*** [0.000]	-0.095*** [0.000]
I am free to decide my own life	0.886 (0.318)	0.901 (0.299)	0.775 (0.418)	-0.110*** [0.000]	-0.125*** [0.000]
I am very satisfied with my life	0.832 (0.374)	0.851 (0.356)	0.785 (0.411)	-0.048* [0.051]	-0.067*** [0.006]
So far, I have achieved the things that are important to me	0.728 (0.445)	0.691 (0.462)	0.650 (0.477)	-0.078*** [0.004]	-0.040 [0.142]
Observations	18,866	15,730	608		

Weighted means for individuals aged 15-64 years assigned female as sex at birth, male as sex at birth and intersex, using ENDISEG sample weights. Standard deviation reported in parenthesis for columns (1) to (3). P-value reported in square brackets for columns (4) to (5). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1