

**SEX ASSIGNED AT BIRTH AND GENDER EXPRESSION: THEIR  
IMPLICATIONS AND CONSEQUENCES FOR DEPRESSIVE SYMPTOMS  
AND TENDENCY TO SEEK HELP**

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## **ABSTRACT**

In this study, I expand upon existing literature on the relationship that exists between gender and mental health, both in terms of symptom frequency and tendency to seek help. By evaluating gender based on one's perceived gender expression, this study more distinctly separates sex assigned at birth from gender and allows them to be analyzed individually and in conjunction. To explore the interaction of gender and mental health symptoms and outcomes, data from Wave V of the National Longitudinal Study of Adolescent to Adult Health (Add Health) was analyzed using linear and logistic regressions. Respondents who indicated male sex assigned at birth were found to have lower frequency of depressive symptoms and decreased frequency of seeking help. Those with masculine gender expression were less likely to seek mental health treatment, whereas those with neutral gender expression were found to have higher frequency of symptoms of depression. Those whose sex assigned at birth and gender expression do not align according to social norms were found to have higher frequency of depressive symptoms, most notably, females with masculine gender expression indicated higher frequency of depressive symptoms. Lastly, females regardless of their gender expression were more likely to seek mental health treatment compared to their counterparts. These results demonstrate the growing need for gender-inclusive research, particularly in the field of mental health symptoms and outcomes. As suicide rates and mental health adversities continue to climb as a consequence of the COVID-19 pandemic, these patterns should continue to be investigated. Future work may include smaller, qualitative studies to better understand individual experiences, quantitative studies that include a more gender-inclusive dataset, and investigations into other mental health outcomes or avenues of seeking help.

## INTRODUCTION

Although gender and sex are two distinctly different concepts, society and research both tend to lump the two together into one category, or describe them as variables that depend on one another. As we study gender more and more, it has become apparent that gender is its own entity, comprised of many different dimensions. Gender expression is generally what is thought to make up gender, however gender identity, gender roles and gender stereotypes also play into the complex definition of gender. For this reason, gender is better understood as a continuous spectrum instead of a binary composed of male and female.

Both sex and gender differences in mental health have been studied to describe variances in prevalence, outcomes, severity, and tendency to seek help. However, many of these studies focus on gender as a binary. Granted, because gender is complex and multifaceted, measuring gender on a continuous spectrum can be a difficult task. Gender is frequently reduced to masculinity versus femininity, but many studies still limit masculinity as an evaluation of men, and femininity as an evaluation of women. In reality, men and women may have properties of both that contribute to their gender expression, identity, and ideas on gender roles and stereotypes. For this reason, my aim is to evaluate how the combination of sex assigned at birth and gender expression influences an individual's willingness to seek mental health help, while not limiting the evaluation to solely men or women.

This project will analyze how sex assigned at birth, gender expression and the concordance or discordance of the two influences individuals' symptoms of depression and willingness to seek mental health treatment by using Wave V of the National Longitudinal Study of Adolescent to Adult Health (Add Health) data collected by the Carolina Population Center at UNC Chapel Hill. The terms 'concordance' and 'discordance' are used to illustrate whether or

not an individual's sex assigned at birth and their gender expression align according to social norms: males being masculine and females being feminine. This study will contribute to the overall understanding of gender's effect on depressive symptom frequency and tendency to seek mental health treatment as it considers both demographics and measures of sex and gender separately, then combines them to observe how they act in conjunction. First, summary statistics were examined for the most applicable constructs. Secondly, models were constructed to observe the relationship between sex assigned at birth, gender expression and concordance or discordance of the two and (1) likelihood of seeking mental health treatment based on whether or not the respondent reported receiving psychological or emotional counseling in the past 12 months and (2) frequency of depression symptoms based on the reported CESD score (0-20), while controlling other important background variables.

## **LITERATURE REVIEW**

### *SEX AND GENDER*

Even though sex and gender are two distinctly different concepts, in research they are rarely analyzed separately (Hart et al. 2019). Sex, being “the social structure that categorizes bodies using biological criteria such as genitals and chromosomes”, when compared to gender, “behaviors that are culturally associated with sex categories” (West and Zimmerman 1987), are not interchangeable terms. Measuring gender purely as a binary that matches sex assigned at birth leaves out those whose gender expression does not conform with their sex assigned at birth and those whose gender identity lies outside of the binary. This results in the generalization of gender as one dimensional (that is, it is composed of a singular factor, biology), and the lack of differentiation between gender identification and sexual orientation (Hart et al. 2019, Lindqvist et al. 2020).

Gender, like many other socially constructed phenomena, has been a system of oppression in which people are separated into categories and placed into a hierarchy to maintain order in society. Gender inequality stems from the cultural perception that there are only two genders, derived from biology, and such a hierarchy is created based on power relations in society between men and women. The expectation that masculine men “do dominance” and feminine women “do submission” not only places men in a more powerful position in society, but also creates expectations of how men and women should act, coined gender norms (West and Zimmerman 1987). This understanding of gender, based on the assumption that sex assigned at birth and gender should align and accurately reflect one another, creates a cisnormative society, continuously reinforcing such gender norms of concordance. These issues demonstrate the importance of measuring gender expression separately from sex assigned at birth. As we grow to understand gender separate from sex, it is essential that we evaluate masculinity and/or masculine traits, and femininity and/or feminine traits presented by both males and females to better understand gender as an influential variable.

### *GENDER EXPRESSION*

Scholars have more recently begun to understand gender as not merely a trait or aspect of an individual, but something that an individual performs on a daily basis (West and Zimmerman 1987). Doing gender, a term coined by West and Zimmerman, describes the practice of performing or presenting your gender through practices that are culturally deemed masculine or feminine. This idea demonstrates the importance of outside perceptions in creating one’s gender identification (West and Zimmerman 1987, Schilt and Westbrook 2009). This further demonstrates the importance of gender in one’s identity, as it is embedded into everyday lives and interactions, and is dictated by social perspectives on sex, sex category and gender.

Because gender is a multidimensional, non-binary variable, it must be critically measured and evaluated as such (Lagos and Compton, 2021; Hart et al. 2019; Schilt and Westbrook 2009; West and Zimmerman 1987). The challenge of operationalizing gender arises when attempting to ensure that gender diversity is accounted for, while also having the ability to sort individuals into categories that can be statistically analyzed (Lindqvist et al. 2020). A recent study identifies four main facets in which gender should be analyzed: “physiological or bodily aspects, self-defined gender identity, legal gender, and gender expression” (Lindqvist et al. 2020). Most commonly, gender expression is used to evaluate gender outside of the binary, taking into account an individual’s masculine and feminine traits, and how they adhere or deviate from gender norms (Tabler, et al. 2021; Priess, et al. 2009; Waedle, et al. 1994).

Inventories have been established and used to aid in this evaluation, including Bem’s sex-role inventory (BSRI; Bem, 1974), the Australian Sex Roles Scale (ASRS; Antill et al. 1981), and the Male Role Norms Inventory (MRNI; Levant, et al. 2007, 2010). Additionally, 2018 General Social Survey data utilizes a two-step gender identity measure to provide a more well-rounded evaluation of respondents’ gender identity. Respondents are allowed to report their gender according to their own understanding instead of as a one-worded variable (Lagos and Compton, 2021). Lagos and Compton’s in-depth evaluation of this measure unveiled that there were many discrepancies with what the respondent intended as their sex, what the interviewer coded as their sex, and self-reported sex and gender identity. They advised added a final check question to make sure what was recorded is what the respondent intended.

Wylie et al. developed two 7-point Likert scales to evaluate individuals self-[erception of their gender expression based on their appearance and manerisms, ranging from 1, very feminine, to 7, very masculine. Cognitive interviewing was used to assess the reliability of the

scales and understand more thoroughly why participants responded the way they did (Wylie 2010). When gender expression, evaluated in this manner, is considered by race, 83% of white respondents indicated gender expression concordant with their sex assigned at birth, whereas only 66% of people of color (POC) respondents indicated gender expression concordant with their sex assigned at birth (Anderson 2016). When considering only appearance as an evaluation of gender expression, 82% of white respondents indicated concordant gender expression, whereas 74% of POC respondents indicated concordant gender expression. Finally, when considering only mannerisms as an evaluation of gender expression, 74% of white respondents indicated concordant gender expression, whereas 61% of POC respondents indicated concordant gender expression (Anderson 2016).

#### *GENDER AND MENTAL HEALTH*

These advances in methods to evaluate gender expression are important in order to accurately measure gender inequalities in a variety of outcomes. One particular outcome of interest in relationship to gender is mental health, including gender differences in the prevalence of depressive symptoms and in the tendency to seek mental health help. There is great stigma associated with seeking mental health help, in both informal and formal manners, which may prevent individuals from pursuing treatment (Chandra and Minkovitz 2006). Vogel et al. established a self-stigma of seeking help scale, which unified the concepts of stigma and changes in self-esteem when seeking mental health treatment. They found that respondents with higher stigma of seeking help had a decreased intent of seeking help, even if they believed that they may benefit from it (Vogel et al. 2006). Chandra and Minkovitz found in their research of 8<sup>th</sup> graders that gender differences in stigma of mental health treatment develops as early as adolescence, and that parental attitudes may strongly influence the attitudes of children. Boys

were found to have a higher stigma and less knowledge of mental health issues. (Chandra and Minkovitz 2006).

Leaf and Livingston (1987) reported that amongst a group of individuals with a mental health disorder, out of those who have positive attitudes towards mental health treatment, women report a higher frequency of consulting a physician for problems related to their mental health. The same trend is observed amongst individuals who have negative opinions towards mental health treatment (Leaf and Livingston 1987). Leong and Zachar's studies on gender and opinions of mental health treatment confirm these trends, stating that women are better at recognizing the need for help and have an increased confidence in physicians (Leong and Zachar 1999). While this article captures an important pattern between men and women, gender is evaluated in a way that most scholars would consider evaluating sex: if the respondent male or female. This evaluation of gender is unidimensional, and as such does not differ from what we commonly understand as sex. Addis and Mahalik (2003) assume a social psychological approach to this topic, establishing that men exhibiting help-seeking behaviors are influenced by "perceptions of the formativeness of problems, the perceived ego centrality of problems, characteristics of potential helpers, characteristics of the social groups to which individual men belong, and perceived loss of control". This lays a foundational framework for how masculinity influences help-seeking behaviors, but only evaluates help-seeking behaviors as seeking help from a medical professional even though there are several informal ways of seeking help (Wendt and Shafer, 2015; Chandra and Minkovitz, 2016). Wendt and Shafer use 2006 GSS data to evaluate patterns in gender and attitudes towards formal and informal mental health help-seeking behaviors, but this paper has limitations because the data set comes from hypothetical vignettes, and they are unable to determine if the observed patterns arise from perceived stigma or actual



attitudes (Wendt and Shafer, 2015). Additionally, the vignettes present hypothetical individuals with symptoms, and the respondents may not be knowledgeable enough to know if such symptoms correspond with mental health issues.

All of these studies evaluate gender and its role in mental health help-seeking behavior, but for the most part fail to assess gender in a modern sense. As previously discussed, gender must be measured in a way that accounts for its origin in socialization (Lagos and Compton, 2021; Hart et al. 2019; Schilt and Westbrook 2009; West and Zimmerman 1987). The culturally established gender norms that men are masculine and women are feminine are all but what they are said to be: norms (West and Zimmerman 1987). This approach that only men are masculine and women are feminine masks excludes the individuals for whom sex and gender don't perfectly align (Hart et al. 2019). It is important to not only study how masculinity in men and femininity in women influences mental health help-seeking behaviors, but also how masculinity in females and femininity in males may influence mental health help-seeking behaviors. Additionally, it is important to periodically re-evaluate gender differences in mental health help-seeking behaviors not only because of the intricacies of gender itself (Cepeda-Benito and Short 1998), but also because the population of transgender and genderqueer individuals may expand over time allowing for an increase in reliability in measures of mental health (Lagos and Compton 2021).

I intend to evaluate how gender influences mental health help-seeking behavior on the basis of masculinity and femininity measures in order to eliminate the tendency to combine the labels of sex and gender as Hart et al. (2019) suggests frequently occurs in gendered research. Furthermore, men will not be exclusively evaluated on the basis of masculinity, and females will not be exclusively evaluated on the basis of femininity, to step away from the assumption that all

men are masculine, and all women are feminine (West and Zimmerman 1987). In evaluating the tendency or willingness to seek mental health treatment, I plan to evaluate respondents frequency of depressive symptoms, along with their tendency to utilized psychological and/or emotional counseling as a form of mental health help. I believe that this will produce a comprehensive understanding of how masculine and feminine traits of individuals influence mental health help-seeking behaviors.

## **RESEARCH QUESTIONS & HYPOTHESES**

This study intends to analyze the influence that three aspects of sex and gender have on individuals reported frequency of depressive symptoms and consequentially their willingness to seek mental health treatment. The three aspects at the forefront of this study are sex assigned at birth, gender expression, and the concordance or discordance of an individual's sex assigned at birth with their reported gender expression. I hypothesize that people whose sex assigned at birth is male will have a lower CESD score and also less frequently seek counseling for psychological or emotional reasons compared to females. Additionally, it is hypothesized that individuals who report more masculine gender expression will be less likely to seek mental health treatment compared to their counterparts, whereas those who indicate their gender expression as neutral will have higher average CESD scores. Finally, it is hypothesized that when gender and sex assigned at birth are considered in conjunction, those whose sex assigned at birth and gender expression do not align according to societal norms will have higher average CESD scores compared to their counterparts, whereas individuals whose gender expression is indicated as masculine (regardless of their sex assigned at birth) will have lower frequencies of seeking counseling.

## **DATA & METHODS**

### *SAMPLE*

This study uses data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) administered through the Carolina Population Center at UNC Chapel Hill. These data were collected from 1994 to 2019 in five separate waves, following a cohort of individuals from adolescence to adulthood. These individuals were randomly selected to complete in-home interviews from a sample of grades 7-12 students who completed a school-administered questionnaire. Wave I data were collected in 1994-95 when the respondents were ages 11-18, whereas wave V data were collected in 2016-18 when the respondents were ages 33-43. This study will be restricted to use data from wave V, collected between 2016-2018 via mixed mode survey design. Subjects were asked to participate via internet and mail, then followed up with in-person and via phone call should there be no response (UNC Chapel Hill Carolina Population Center, 2020).

Wave V contains data during the respondents fourth decade of their life, and contains questions that evaluate both sex and gender expression, and several mental health indicators. The full sample from Wave V of Add Health was 12,300. After accounting for missing or erroneous responses on key or controlling variables, the sample size was reduced to 10,591, approximately 86% of the original Wave V sample. Response options for sex and gender in the final dataset were identical. There were 28 respondents indicted 'unspecified' as their gender on the survey, however the cell size was too small so the responses were suppressed to preserve respondent anonymity. As a result, all valid gender responses were restricted to a dichotomy: either male or female. Moreover, this sample represents only cisgender individuals, as all valid responses

indicated that their sex assigned at birth is the same as the gender that they identify with. A general profile of the sample can be seen in Table 1.

#### *DEPENDENT VARIABLES*

Variables H5SS0A-E came from the CESD-5, a shortened version of the CESD-20, which captures an individual's frequency of depressive symptoms. The 5 variables were reconstructed to be one continuous scale, summing to a number between 0-20, where 0 indicates no depressive symptoms, and 20 indicates severe depressive symptoms. Variable H5SS0C was reverse coded such that this summation would be accurate as it asked "during the past 7 days, I was happy" whereas the remainder of the questions pertained to symptoms correlating with depression. Individual's tendency to seek counseling was derived from variable H5ID13 which asked "in the past 12 months, have you received psychological or emotional counseling" and respondents chose yes, or no.

#### *INDEPENDENT VARIABLES*

Because all respondents within the subsample indicated they are cisgender (their response for sex and gender were the same), sex assigned at birth is used as one of the main independent variables instead of gender (Figure 1). Gender expression was measured based on variable H5OD3, which asks "on average, how do you think people would describe your appearance, style, or dress?" and the available response options were very feminine, mostly feminine, somewhat feminine, equally masculine and feminine, somewhat masculine, mostly masculine, and very masculine (Figure 1), similar to the scale developed by Wylie et al. (2010). In order to attempt to make the response sizes more equal, said variable was recoded into 5 categories instead of 7: very feminine, mostly feminine, neutral (comprised of somewhat feminine, equally masculine and feminine, and somewhat masculine), mostly masculine, and very masculine.

Figure 1. Variables and corresponding questions asked pertaining to sex assigned at birth, gender, and gender expression from Add Health Wave V, in the order that they appear on the survey.

**H5OD2A** What sex were you assigned at birth, on your original birth certificate? <sup>a</sup>

**H5OD2B** What is your gender? <sup>b</sup>

**H5OD3** On average, how do you think people would describe your appearance, style, or dress? <sup>c</sup>

NOTE: <sup>a</sup>response options are male, female; <sup>b</sup>response options are male, female; <sup>c</sup>response options are very feminine, mostly feminine, somewhat feminine, equally masculine and feminine, somewhat masculine, mostly masculine, and very masculine.

To be able to consider the interaction of sex and gender expression and the implications that arose from the interaction, a new variable was coded that combined the two. Respondents were placed into four different categories according to their response of sex assigned at birth and gender expression: Male with masculine gender expression, male with feminine gender expression, female with masculine gender expression, and female with feminine gender expression. Each category was composed as follows:

	H5OD2A/H5OD2B	
H5OD3	Female	Male
Very feminine	Concordant	Discordant
Mostly feminine		
Somewhat feminine		
Equally masculine and feminine	Discordant	Concordant
Somewhat masculine		
Mostly masculine		
Very masculine		

## *APPROACH*

Several demographics outside of the main independent and dependent variables were taken into account when considering regressions to analyze the effect of the independent variables on the dependent variables. These demographics included race, age, health insurance, marital status, geographic location in the US, household income, and highest level of education completed. These demographics were chosen because of their potential to be mediating or confounding variables. Race was coded such that if the respondent indicated more than one race, the one they most identified with was recorded as their race. American Indian/Alaskan Native, Pacific Islander, and Other were coded into Native/Other. Multiracial resulted if the respondent did not indicate identifying with one race over the other, but responded with two or more races.

Health insurance was reduced to a dichotomous variable based on whether the respondent has health insurance (response options 1-14) or does not (response option 15). Marital status was made a dichotomous variable by combining response options 2-5 to 'single' and maintaining response option 1 as married. Geographic location in the US was derived from variable w5region, and responses outside of the United States were not included in the sample (international or no location). Household income brackets were maintained as coded in the codebook: (1) less than \$5,000, (2) \$5,000 to \$9,999, (3) \$10,000 to \$14,999, (4) \$15,000 to \$19,999, (5) \$20,000 to \$24,999, (6) \$25,000 to \$29,999, (7) \$30,000 to \$39,999, (8) \$40,000 to \$49,999, (9) \$50,000 to \$74,999, (10) \$75,000 to \$99,999, (11) \$100,000 to \$149,999, (12) \$150,000 to \$199,999, and (13) \$200,000 or more. Highest level of education completed was recoded into 5 brackets: high school or below (responses 1-4), incomplete associate degree (responses 5-6), associate degree or some bachelor (7-9), completed bachelor degree (response 10), and post graduate education (responses 11-15).

The relationship between the three independent variables and CESD score was analyzed using linear regression models, because it is a continuous outcome. The relationship between the three independent variables and tendency to seek counseling was analyzed using logistic regression models, because this outcome is dichotomous.

## **RESULTS**

### *SAMPLE DESCRIPTION*

After accounting for missing responses in all demographics considered, the overall sample size was 10,591. Summary statistics are reported in Table 1. Approximately 14.50% of respondents indicated that they had received psychological or emotional counseling in the past 12 months. The average CESD score of the population was 2.38 (sd = 2.56). All respondents were found to be cisgender, consisting of 50.41% males and 49.59% females. When considering gender expression via perceived physical appearance, 16.49% responded very feminine, 23.42% responded mostly feminine, 13.86% responded neutral, 20.15% responded mostly masculine, and 26.08% responded very masculine. Considering sex assigned at birth and reported gender expression in conjunction, 49.90% of the sample reported male as their sex with their gender expression ranging from somewhat masculine to very masculine, 1.01% of the population reported male as their sex with their gender expression ranging from equally masculine/feminine to very feminine, 2.78% of the sample reported their sex as female with their gender expression ranging from equally masculine/feminine, to very masculine, and 46.81% of the sample reported female as their sex with their gender expression ranging from somewhat feminine to very feminine.

When considering other demographics that were controlled for, the racial makeup of the sample, 71.46% identified as White, 14.68% identified as Black, 9.00% identified as Hispanic,

3.13% identified as Asian, 1.53% identified as Native/Other, and 0.20% identified as Multiracial. The average age of the sample was 37.38 years (sd = 1.96). 90.99% of the sample reported having health insurance, and 59.85% responded that they are married, whereas 40.15% responded they are not currently married. Based on the region reported on the US census, approximately 16.17% of respondents represent the West, 32.18% represent the Midwest, 38.36% represent the Northeast, and 13.29% represent the South. The mean household income of the sample was 8.88 (sd = 3.00), based on a scale from 1-13. Response values for the income variable ranged from <\$5,000 to >\$200,000. In terms of highest level of education completed, nearly 20.31% reported completing high school or less, 12.99% reported having an incomplete associate degree, 28.34% reported having an associate degree or some bachelor education, 20.36% reported completed bachelor degree, and 18.01% reported completed post graduate education (Table 1).

Table 2 presents the distribution of the concordance variable for different demographic groups. When concordance and discordance of sex assigned at birth and gender expression is broken down by race, White, Black and Hispanic respondents all demonstrate at least 96% concordance, compared to 94% of Asian respondents and 92.5% Native/Other/Multiracial respondents indicating concordance. Additionally, married individuals indicated a higher rate of concordance, 97.4%, compared to non-married individuals who indicated 93.4% concordance. Concordance appears to increase with increasing amounts of education: 94.3% for high school or below, 93.7% for incomplete associate degree, 96.8% for associates degree or some bachelor degree, 97.7% for completed bachelor degree, and 97.5% fo post graduate education (Table 2).

In Table 3 the depression and counseling variables are presented. On average, more females (16.8%) reported having received psychological or emotional counseling in the past 12



months than men (12.2%). However, the average CESD score between males and females was nearly the same, 2.3 (sd = 2.5) for males, and 2.5 (2.7) for females. Individuals self-identifying as mostly feminine or neutral had the highest frequencies of receiving counseling in the past 12 months (18.8% and 18.2, respectively), whereas individuals self-identifying as very masculine had the lowest frequency of receiving counseling in the past 12 months (11.0%). The highest mean CESD score out of the gender expression demographic came from those identifying as neutral (3.0, sd = 2.8). Individuals whose sex assigned at birth did not align with the socially “correct” gender expression (Male/Feminine, Female/Masculine) had higher frequencies of receiving counseling than those whose sex assigned at birth matches the socially “correct” gender expression (Male/Masculine, Female/Feminine). Alternatively, Males with feminine gender expression and females with masculine gender expression average higher CESD scores than males with masculine gender expression and females with feminine gender expression (Table 3).

#### *SEX, GENDER AND COUNSELING*

The logistic regression comparing sex assigned at birth and seeking counseling confirms the trends observed in Table 3 as odds for females seeking counseling are 34.9% higher than the odds for males. The patterns from Table 3 are further supported in Model 2, where those with neutral gender expression have 64.5% higher odds and mostly feminine respondents have 65.1% higher odds than very masculine respondents. Finally, females with masculine gender expression have 66.1% higher odds than males with masculine gender expression, and females with feminine gender expression have 34.4% higher odds than males with masculine gender expression of seeking counseling. Males with feminine gender expression were found to have 53.2% higher odds than males with masculine gender expression, although these results are not

statistically significant. It is interesting to note that in models 1-3, multiracial individuals have over 4 times the odds than White individuals in all three models (Table 4). This is likely because of the small sample size that represents multiracial individuals.

### *SEX, GENDER AND DEPRESSIVE SYMPTOMS*

The linear regression model comparing sex assigned at birth and CESD score indicating frequency of depression symptoms demonstrates that on average, females have a CESD score 0.17 points higher than males. Model 5 demonstrates 3 categories for which depressive symptoms are significantly higher when compared to very masculine respondents. Compared to very masculine individuals, mostly masculine individuals have a CESD score which is on average 0.426 higher. On average, individuals with neutral gender expression have a 0.742 higher CESD, whereas individuals with mostly feminine gender expression have a CESD score that is 0.535 higher. It is important to note is that compared to males with masculine gender expression, females with masculine gender expression have 1.076 higher CESD score. When taking health insurance coverage into account, those with health insurance coverage have lower CESD scores than individuals without health insurance (Models 4-6). Conversely, single individuals have higher CESD scores than married individuals (Models 4-6).

### **DISCUSSION & CONCLUSION**

In this thesis, I analyzed how sex assigned at birth, gender expression, and the two considered together pose implications for tendency to seek mental health treatment and extent of depressive symptoms. Based on the literature, I expected that when considering sex assigned at birth, females would be more likely to seek counseling compared to males, that more feminine individuals would be more likely to seek counseling than masculine individuals, and that those with masculine gender expression, regardless of whether this aligns with their sex assigned at

birth, will have lower frequencies of seeking counseling than their counterparts. Moreover, it was thought that males would have lower CESD scores compared to females, those with neutral gender expression would have higher CESD scores compared to both masculine and feminine individuals, and that those whose gender expression does not match the social expectation of their sex assigned at birth would have higher CESD scores than those whose gender expression aligns with the societal norm of their sex assigned at birth.

As discussed in the results, I found that females had higher odds of seeking counseling compared to males (Table 5). Similarly, more females reported seeking counseling in the past year than males (Table 3). These results support the findings of Leaf and Livingston (1987). Additionally, individuals with neutral and mostly feminine gender expression had higher odds of seeking counseling than very masculine individuals. This pattern is demonstrated as well in Table 3, where at least 18% of individuals with mostly feminine and neutral gender expression reported seeking counseling, compared to their counterparts which have at least 5% less of the population reporting having sought counseling. Females with masculine gender expression and females with feminine gender expression had higher odds of seeking counseling than men with masculine gender expression (Table 5).

Interestingly, a higher percentage of the populations of individuals whose gender expression does not align with the social norms of their sex assigned at birth (both males with feminine gender expression and females with masculine gender expression) reported seeking counseling compared to those whose gender expression aligns with the social norm of their sex assigned at birth. The odds of seeking counseling for females with masculine gender expression were slightly higher than those of females with feminine gender expression (Table 4). Two notable areas that appear to affect an individual's willingness to seek counseling are health

insurance coverage and marital status. Individuals with health insurance coverage, and individuals who are single had higher odds of seeking counseling than their counterparts (Table 4).

When considering the frequency of depressive symptoms, Females were observed to have higher CESD scores, on average. When considering gender expression, mostly masculine, neutral and mostly feminine were all found to have higher CESD scores than very masculine individuals. Furthermore, females with masculine gender expression were found to have significantly higher CESD scores than males with masculine gender expression (Table 3, 5). Both health insurance coverage and marital status appear to contribute heavily to individuals average CESD score, wherein those with health insurance had lower CESD scores, and those who are not married had higher CESD scores, on average, when considering all three primary independent variables (Table 5).

Looking at the hypotheses pertaining to seeking emotional and/or psychological counseling, the hypothesis that individuals whose sex assigned at birth is male will be less likely to seek mental health treatment is supported by the results (Table 5). The hypothesis that more masculine individuals will seek mental health treatment is supported in that mostly feminine and gender neutral individuals have about 65% higher odds than very masculine individuals, however the results for very feminine individuals does not demonstrate a significant difference in odds (Table 5). Lastly, the hypothesis that masculine individuals, regardless of their sex assigned at birth will have lower frequencies of seeking counselling is supported in that the percent of individuals who report male/masculine and female/masculine is lower than their concurring counterparts (Table 3).

Furthermore, the hypotheses that those whose sex assigned at birth is male would have lower CESD scores, neutral gender expressing individuals would have higher CESD scores than masculine or feminine gender expressing individuals are supported by the findings in this study (Table 3, 5). The hypothesis that individuals whose sex assigned at birth and gender expression do not align according to societal norms would have higher CESD scores on average is supported by the findings of this study given that females with masculine gender expression have a CESD score 1.08 points higher on average than males, and males with feminine gender expression have a CESD score 0.35 points higher on average (Table 3, 5). The difference between these two results is significant, which makes it difficult to make a conclusion about individuals whose sex assigned at birth and gender expression don't align as a whole. These results indicate that masculinity may play a more significant role in determining the frequency of depressive symptoms than femininity. This is interesting given that males were found to have lower CESD scores than females, and social norms assume males are masculine. These statistics may indicate that sex assigned at birth is a stronger driver of depressive symptom frequency than gender expression based on appearance. An alternative explanation may be that females with masculine characteristics don't express said masculine characteristics as strongly as males with masculine characteristics, resulting in higher frequency of depressive symptoms.

One methodological limitation of this study was that all respondents were cisgender individuals, which limited the potential scope of this project as no non-binary, genderqueer or gender non-conforming individuals are represented in the sample (Hart et al. 2019). Another limitation was the inability to determine whether respondents sought counseling pre-emptive to depressive symptoms, or after noticing the symptoms. On the same note, we are unable to determine if the respondent sought emotional/psychological counseling purely on their own

volition. Lastly, it is important to note that there are other mental health help seeking behaviors that are not traditional medical help, which are not evaluated in this study (Wendt and Shafer, 2015; Chandra and Minkovitz, 2016).

This thesis builds upon the methods of Tabler et al. (2021) which used Wave V of Add Health to examine the impact of gender expression and sex assigned at birth on depressive symptoms separately. However, this study moves to use Wave V of Add Health data to analyze how the interaction of sex and gender expression, whether they align or diverge with social norms that females are feminine and males are masculine (West and Zimmerman 1987), influences an individual's frequency of depressive symptoms as well as their tendency to seek emotional/psychological counseling. In doing so, this thesis moves beyond the traditional approach that assumes only men are masculine and women are feminine (Hart et al. 2019). I am able to analyze if individuals whose gender expression does not align with social norms puts them at higher risk for experiencing symptoms of depression, and subsequently if they are inclined to seek mental health treatment. Choosing to evaluate sex assigned at birth, and gender expression allows for gender to be measured in a way that accounts for its basis in socialization (Lagos and Compton, 2021; Hart et al. 2019; Schilt and Westbrook 2009; West and Zimmerman 1987).

Future work could be done using a more gender inclusive dataset which offers other gender identities outside of male or female and that considers more dimensions of gender expression than appearance. It is essential that we continue to evaluate these concepts as non-binary, genderqueer or gender non-conforming individuals become more prevalent (Lagos and Compton, 2021). It may be valuable to pursue smaller or more qualitative studies to understand the intricacies of gender expression, as done by Wylie et al. (2010), and the implications for

mental health problems. Additionally, it would prove useful to analyze patterns of other mental health outcomes such as anxiety or hyperactivity, or other help seeking behaviors such as seeking support from loved ones, or analyzing patterns of destructive responses to mental health struggles (Wendt and Shafer, 2015; Chandra and Minkovitz, 2016).

This research has important contributions towards the progression of gender research, including understanding the mental health implications of individuals whose gender expression does not conform to their sex assigned at birth. As gender becomes more and more conceptualized as a continuum and not a binary, highlighting these individuals is imperative. With rising suicide rates and increased mental health struggles as a consequence of the COVID-19 pandemic, it is key that we continue to investigate these patterns.

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Table 1. Characteristics of sample (Add Health Wave V, 2016-18, N=10,591)

	<b>Percent or Mean(SD)</b>
<b>Received psychological or emotional counseling in the past year</b>	
No	85.5%
Yes	14.5%
<b>Index of Depression (0-20)<sup>a</sup></b>	2.4 (2.6)
<b>Sex Assigned at Birth</b>	
Male	50.4%
Female	49.6%
<b>Gender Expression Through Perceived Appearance</b>	
very feminine	16.5%
mostly feminine	23.4%
Neutral	13.9%
mostly masculine	20.2%
very masculine	26.1%
<b>Concordance/Discordance of Sex Assigned at Birth and Gender Expression</b>	
Male/Masculine	49.4%
Male/Feminine	1.0%
Female/Masculine	2.8%
Female/Feminine	46.8%
<b>Race and Ethnicity</b>	
White	71.5%
Black	14.7%
Hispanic	9.0%
Asian	3.1%
Native/Other	1.5%
Multiracial	0.2%
<b>Age (33-43)</b>	37.4 (2.0)
<b>Health Insurance</b>	
Does Not Have Health Insurance	9.0%
Has Health Insurance	91.0%
<b>Marital Status</b>	
Not Married	40.2%
Married	59.9%
<b>Geographic Location</b>	
West	16.2%
Midwest	32.2%
Northeast	38.4%
South	13.3%
<b>Annual Household Income (1-13)<sup>b</sup></b>	8.9 (3.0)
<b>Highest Level of Education</b>	
High School or Below	20.3%
Incomplete Associate Degree	13.0%
Associates Degree or Some Bachelor	28.3%
Completed Bachelor Degree	20.4%
Post Graduate Education	18.0%

NOTE: Descriptive statistics produced via grand sampling rates (gsw5), using Stata 15.1 special edition svy command. <sup>a</sup>Index of depression based on the CESD-5; higher scores indicate higher prevalence of depressive symptoms. <sup>b</sup>Annual Household Income brackets starting at 1 (less than \$5,000/year) and going to 13 (\$200,000 or more).



Table 2. Tabulation of concordance or discordance of sex assigned at birth and gender expression demonstrating the distribution of such individuals within the demographics considered for the sample in percent or mean(sd)

	Concordance	Discordance	N
<b>Race and Ethnicity</b>			
White	96.1	3.9	6540
Black	97.0	3.0	1981
Hispanic	97.3	2.7	1266
Asian	94.0	6.0	580
Native/Other/Multiracial <sup>a</sup>	92.5	7.5	224
<b>Age (33-43)</b>	37.4(1.95)	37.3(1.99)	
<b>Marital Status</b>			
Not Married	93.4	5.6	4003
Married	97.4	2.6	6588
<b>Geographic Location</b>			
West	96.1	3.9	2392
Midwest	95.3	4.7	2847
Northeast	96.6	3.4	3869
South	97.3	2.7	1483
<b>Household Income (1-13)<sup>b</sup></b>	8.9(2.97)	7.5(3.27)	
<b>Highest Level of Education</b>			
High School or Below	94.3	5.7	1816
Incomplete Associate Degree	93.7	6.3	1262
Associates Degree or Some Bachelor	96.8	3.2	2988
Completed Bachelor Degree	97.7	2.3	2296
Post Graduate Education	97.5	2.5	2229

NOTE: <sup>a</sup>Multiracial and Native/Other categories of race were combined to preserve cell size and protect the anonymity of respondents. <sup>b</sup>Annual Household Income brackets starting at 1 (less than \$5,000/year) and going to 13 (\$200,000 or more).

Table 3. Tabulation of sex assigned at birth, gender expression through perceived appearance and concordance or discordance of sex and gender expression demonstrating the % of individuals within each demographic who have received counseling in the past 12 months, and mean CESD scores (0-20) with standard deviation in parentheses.

	<b>Received Counseling</b>	<b>CESD</b>	<b>N</b>
<b>Sex Assigned at Birth</b>			
Male	12.2	2.3 (2.5)	4624
Female	16.8	2.5 (2.7)	5967
<b>Gender Expression Through Perceived Appearance</b>			
Very feminine	12.3	2.1 (2.4)	2104
Mostly feminine	18.8	2.6 (2.7)	2756
Neutral	18.2	3.0 (2.8)	1430
Mostly masculine	13.4	2.4 (2.5)	1878
Very masculine	11.0	2.1 (2.4)	2423
<b>Concordance/Discordance of Sex and Gender Expression</b>			
Male/Masculine	12.1	2.3 (2.4)	4543
Male/Feminine	17.5	3.2 (2.9)	81
Female/Masculine	20.7	3.7 (3.0)	348
Female/Feminine	16.6	2.4 (2.6)	5619

Table 4. Logistic regression models of counseling in the past 12 months and sex assigned at birth (model 1), gender expression (model 2), and concordance or discordance of the two (model 3) (Add Health Wave V, 2016-18).

	Model 1	Model 2	Model 3
	Sex Assigned at Birth	Gender Expression	Concordance/Discordance
<b>Sex Assigned at Birth (ref. Male)</b>			
Female	1.35 (0.11)***		
<b>Gender Expression (ref. Very Masculine)</b>			
Mostly Masculine		1.15 (0.15)	
Neutral		1.65 (0.23)***	
Mostly Feminine		1.65 (0.17)***	
Very Feminine		1.07 (0.13)	
<b>Discordance (ref. Male/Masculine)</b>			
Male/Feminine			1.53 (0.73)
Female/Masculine			1.66 (0.32)**
Female/Feminine			1.34 (0.10)***
<b>Race (ref. White)</b>			
Black	0.66 (0.09)**	0.73 (0.10)*	0.67 (0.09)**
Hispanic	0.72 (0.12)	0.76 (0.13)	0.73 (0.12)
Asian	0.53 (0.15)*	0.52 (0.15)*	0.53 (0.15)*
Native/Other	0.66 (0.16)	0.68 (0.16)	0.66 (0.16)
Multiracial	4.82 (3.05)*	5.23 (3.36)*	4.89 (3.10)*
<b>Age</b>	0.99 (0.02)	0.99 (0.02)	0.99 (0.02)
<b>Health Insurance Coverage (ref. No)</b>			
Yes	1.45 (0.23)*	1.488 (0.236)*	1.442 (0.231)*
<b>Marital Status (ref. Married)</b>			
Not Married	1.29 (0.13)**	1.289 (0.125)**	1.283 (0.123)*
<b>Region (ref. Northeast)</b>			
West	1.31 (0.13)**	1.28 (0.13)*	1.31 (0.13)**
Midwest	1.17 (0.13)	1.13 (0.13)	1.17 (0.13)
South	1.28 (0.14)*	1.25 (0.14)	1.28 (0.15)*
<b>Household Income</b>	0.94 (0.02)***	0.95 (0.02)***	0.94 (0.02)***
<b>Education (ref. Assc. Degree or Some Bach.)</b>			
High School or Below	0.62 (0.08)***	0.61 (0.08)***	0.62 (0.08)***
Incomplete Associate Degree	0.93 (0.13)	0.91 (0.13)	0.92 (0.13)
Completed Bachelor Degree	0.90 (0.11)	0.89 (0.11)	0.90 (0.11)
Post Graduate Education	1.33 (0.15)*	1.32 (0.15)*	1.33 (0.15)*
<b>Population</b>	10,591	10,591	10,591

NOTE: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05. Results shown in odds ratios, with standard errors in parentheses.

Table 5. Linear regression models of CESD score (0-20) and sex assigned at birth (model 4), gender expression (model 5), and concordance or discordance of the two (model 6) (Add Health Wave V, 2016-18).

	Model 4	Model 5	Model 6
	Sex Assigned at Birth	Gender Expression	Concordance/Discordance
<b>Sex Assigned at Birth (ref. Male)</b>			
Female	0.17 (0.08)*		
<b>Gender Expression (ref. Very Masculine)</b>			
Mostly Masculine		0.43 (0.10)***	
Neutral		0.74 (0.13)***	
Mostly Feminine		0.54 (0.11)***	
Very Feminine		-0.09 (0.11)	
<b>Discordance (ref. Male/Masculine)</b>			
Male/Feminine			0.35 (0.41)
Female/Masculine			1.08 (0.20)***
Female/Feminine			0.12 (0.08)
<b>Race (ref. White)</b>			
Black	-0.23 (0.11)*	-0.065 (0.11)	-0.21 (0.11)
Hispanic	-0.25 (0.13)	-0.147 (0.12)	-0.23 (0.13)
Asian	-0.25 (0.16)	-0.263 (0.16)	-0.27 (0.16)
Native/Other	-0.54 (0.23)*	-0.509 (0.22)*	-0.57 (0.21)**
Multiracial	1.12 (0.65)	1.247 (0.70)	1.15 (0.65)
<b>Age</b>	0.02 (0.02)	0.024 (0.02)	0.02 (0.02)
<b>Health Insurance Coverage (ref. No)</b>			
Yes	-0.63 (0.16)***	-0.59 (0.16)***	-0.64 (0.16)***
<b>Marital Status (ref. Married)</b>			
Not Married	.57 (0.08)***	0.56 (0.08)***	0.55 (0.08)***
<b>Region (ref. Northeast)</b>			
West	0.08 (0.11)	0.03 (0.11)	0.08 (0.11)
Midwest	0.08 (0.09)	0.02 (0.09)	0.08 (0.09)
South	0.35 (0.08)***	0.31 (0.08)***	0.35 (0.08)***
<b>Household Income</b>			
	-0.19 (0.02)***	-0.18 (0.02)***	-0.18 (0.02)***
<b>Education (ref. Assc. Degree or Some Bach.)</b>			
High School or Below	-0.04 (0.11)	-0.05 (0.11)	-0.06 (0.11)
Incomplete Associate Degree	0.26 (0.13)	0.23 (0.13)	0.24 (0.13)
Completed Bachelor Degree	-0.15 (0.09)	-0.12 (0.09)	-0.14 (0.09)
Post Graduate Education	-0.02 (0.17)	-0.03 (0.10)	-0.01 (0.11)
<b>Population</b>	10,591	10,591	10,591

NOTE: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05. Results shown in variances, with standard errors in parentheses.

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