The Influences of Gender, Sexual Orientation, and Social Self-Concept on Depression

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Given the negative effects of depression for women and sexual minorities, it is critical to identify mediators in the relationships among gender, sexual orientation and depression. Mediators in this relationship may help prescribe areas in which universities may intervene in preventing depression. To test our hypotheses, we administered questionnaires to 964 first-year students at a university on the West Coast of the United States. We found that women and sexual minorities reported greater levels of depression than men and heterosexuals. In addition, we found that social self-concept, individuals' perceptions regarding their competencies and confidence in social scenarios, mediated the influence of gender on depression for heterosexual individuals, but not for sexual minorities. Social self-concept served as a buffer in preventing depression in women. But it was not sufficient to prevent depression in sexual minorities, who may require different intervention methods, due to the unique challenges experienced by this population such as family rejection, homelessness, stigmatization, minority stress, self-esteem, and marginalization.

Keywords: sexual orientation, gender, self-concept, depression, student perceptions

INTRODUCTION

The World Health Organization (2020) has reported that depression accounts for ten percent of all non-fatal diseases, and affects more women than men; yet, it is rarely treated, due to social stigma, misdiagnoses, a lack of trained health care providers, and inadequate funding. Given these challenges, prevention is preferred to the treatment of depression. In addition, because of the high costs of depression in terms of quality of life and productivity, it is important to understand the roles that individual factors play in rates of depression. Research has identified both demographic (c.f. Salk et al., 2017) and perceptual factors (Haugen & Lund, 2002; Nolen-Hoeksema, 2001) thought to make the incidence of depression more likely. Two key demographic factors that have received attention in the depression literature include gender and sexual orientation.

Considerable research has found that women tend to suffer from depression at significantly greater rates than men (e.g., Bebbington et al., 1998; Nolen-Hoeksema, 2001; Salk, Hyde, & Abramson, 2017; Weissman & Klerman, 1977). Comparatively less research has been conducted on the relationship between sexual orientation and depression. Although most of the existing research has been conducted using non-random convenience samples, recent research reveals that sexual minorities tend to suffer from depression

at significantly greater rates than heterosexuals (Coker et al., 2010; King et al., 2008; Lucassen et al., 2017; Plöderl & Tremblay, 2015). The issue is particularly timely, as the LGBTQ+ communities have endured higher levels of mental health disorders since the start of the COVID-19 pandemic, some of whom haven't struggled with these conditions before (Flentje et al., 2020).

One important gap in the existing gender differences literature concerns the timing of depression onset under examination. Salk et al. (2017) observed that most research on gender differences in depression has focused on their emergence in early adolescence without attention to their adulthood development. The researchers called for future research to examine gender differences in depression in early adulthood. Our study responds to this call by examining gender differences in depression in a university student sample. Our study also addresses a gap in the sexual orientation literature. Coker et al. (2010) noted that little research has compared the negative health outcomes of heterosexual vs. sexual minority individuals. Most earlier research on the topic used non-random, convenience samples drawn from sexual minority organizations and events (Lucassen, 2017). Such samples present challenges in determining whether sexual minority individuals suffer from greater rates of depression, compared with their heterosexual peers.

Given the negative effects of depression for women and sexual minorities in particular, it is important to identify mediators in the relationship between gender, sexual orientation and depression. Potential mediators in this relationship may help prescribe areas in which universities may intervene in preventing depression. In this study, we propose that social self-concept (Byrne & Shavelson, 1996; Shavelson et al., 1976; Zorich & Reynolds, 1988), students' perceptions about their competencies and confidence in social situations, serves as a buffer in preventing depression in women. Further, we propose that it will not be sufficient to prevent depression in sexual minorities, who may require different intervention methods. In summary, the aim of the current study is to offer and empirically examine a framework that identifies social self-concept as a mediator in the relationship among gender, sexual orientation, and self-reported depression in college students.

Gender and Depression

Hallmark research by Weissman and Klerman (1977) was among the first to identify how the incidence of depression differs by sex. A large body of studies followed, confirming their assertion that females are about twice as likely to become depressed as males (e.g., Bebbington et al., 1998; Nolen-Hoeksema, 2001; Salk et al., 2017). A meta-analysis on data from more than ninety countries found that women experience a greater incidence of depression than men at roughly a two to one ratio from age twelve through adulthood (Salk et al., 2017). The greatest gender differences were found in individuals between the ages of thirteen and fifteen. For major depression, larger gender differences were detected in countries with greater gender equity. The researchers explained this finding by suggesting that, in greater gender-equity countries, boys and girls interact more because they attend school together. This makes girls more likely to compare themselves to boys and self-stereotype (Guimond et al., 2007). In contrast, in low gender-equity countries, boy-girl interactions are minimized, and gender differences in depression are smaller due to a focus more on intragroup comparisons.

Two key reasons have been offered explaining gender differences in depression. First, due to females having lower levels of status and power than males in most cultures, they suffer from more traumas, such as sexual assault, and strains, such as harassment or poverty, more frequently than their male counterparts (Nolen-Hoeksema, 2001). Second, even when women and men endure shared stressors, biological differences in responses to self-concepts, stressors, and coping styles make women more likely to become depressed (Nolen-Hoeksema, 2001). These biological differences may stem from the hypothalamic-pituitary-adrenal (HPA) axis, which manages responses to stress. People with major depression generally exhibit higher levels of the stress hormone cortisol, indicating dysregulation of the HPA response. Nolen-Hoeksema (2001) suggested that, due to their greater likelihood to have suffered from trauma, females are more likely to undergo a dysregulated HPA response to stress response, which makes them more susceptible to experience depression as a stress response (Weiss et al., 1999).

Hypothesis 1: *Women will report greater depression levels than men.*

Sexual Orientation and Depression

Whereas the majority of the research on gender and depression has examined heterosexual samples, research on non-heterosexuals' depression rates has begun to emerge, indicating that sexual minorities are more likely to experience depression (Coker et al., 2010; King et al., 2008; Lucassen et al., 2017; Plöderl & Tremblay, 2015). LGBQ college students also indicate higher levels of loneliness and suicidal thoughts than heterosexual undergraduates (Westefeld et al., 2001). Depression among sexual minorities is thought to be particularly dangerous, because this group is two to four times as likely to try suicide than heterosexuals (King et al., 2008; Marshal et al., 2011).

The reasons offered for why non-heterosexuals appear to be more likely to become depressed include family rejection, homelessness, stigmatization, minority stress, self-esteem, marginalization (Coker et al., 2010; Purvis, 2017), and interpersonal microaggressions (Woodford et al., 2018), everyday slights that communicate negative messages based only on one's marginalized group membership. Coker et al. (2010) noted that stigmatization can be external or internal. External stigmatization involves violence, social exclusion, victimization, anti-sexual minority hatred, institutionalized prejudice, and discrimination. Internal stigmatization involves internalizing society's stigmatization of sexual minorities, and can include a sense of shame about one's sexuality (King et al., 2008). Other scholarly work has found that greater openness about one's sexual orientation was connected with greater depression among sexual minorities with low rates of social support (van der Star et al., 2019). The researchers posited that sexual minorities likely require social support for navigating the stress of being out.

Hypothesis 2: *Non-heterosexuals will report higher levels of depression than heterosexuals.*

Hypothesis 3: *Non-heterosexual women will report higher levels of depression than heterosexual women.*

Hypothesis 4: *Non-heterosexual men will report higher levels of depression than heterosexual men.*

Social Self-Concept

A person's self-concept is thought to be composed of general, social, physical, academic, and emotional, parts (Shavelson et al., 1976). Some research has started to explore how these components of the self affect depression. In an investigation of teacher students, general and academic self-concept were shown to be negatively correlated with teacher students' depression, whereas attributional perceptions such as pessimism only minimally affected depression (Haugen & Lund, 2002).

Other research has examined the link between perceptions of the social component of the self and depression. As noted earlier, social self-concept is an integrated assessment of people's perceptions regarding their confidence and competencies in social circumstances. It is thought to serve as a buffer during stressful times (Au et al., 2009). For example, an investigation of elementary-aged girls found that social self-concept was connected with lower levels of homesickness at a residential summer camp (Kerns et al., 2008). Similarly, a recent study of adolescents in 9^{th} – 11^{th} grade revealed that teachers' social support predicted declines in depression symptoms for girls (Rubach et al., 2020). Poor social self-concepts are thought to cause individuals to internalize their problems (Spilt et al., 2014). In a longitudinal study involving primary school subjects, Spilt et al. (2014) reported that children scorned by their peer group were more likely to internalize their problems because being spurned by their colleagues had a negative effect on their social self-concept. The authors cautioned that their results may not be generalizable beyond middle childhood due to changes in the stability of social concept and changes in the importance afforded to various peer groups over various developmental stages. We respond to the researchers' call for future research to examine social self-concept in samples that include different age ranges.

Previous studies have revealed that girls have lower self-concepts than boys (Nolen-Hoeksema, 2001). In research on children, poor self-concepts have been demonstrated to be associated with increases in depression (Nolen-Hoeksema & Girgus, 1994). Blomfield Neira (2014) found that high school boys who used social networking sites had a significantly higher social self-concept , whereas girls who used such sites had a lower social self-concept and higher rates of depressed mood. The authors speculated that girls

use such sites to receive feedback about themselves, and when they perceive that the feedback is negative, they believe that this reflects on themselves, resulting in a depressed mood. Nolen-Hoeksema (2001) suggested that females are more likely than males to be worried about the status of their relationships and what others think about them. This may lead females to treat their own needs as secondary to others' needs, and to become dependent on others' good graces, which puts them at risk for depression when relationships end or endure conflict. Nolen-Hoeksema (2001) called for future researchers to empirically test these ideas.

Other research on heterosexual couples has pointed to adverse life events involving the home, child rearing, reproductive problems as contributing factors in women's greater propensity for depression (Piccinelli & Wilkinson, 2000). These life events are thought to have a significant negative effect on women partners who adhere to strict gender role distinctions. Thus, it is possible that for females whose social self-concept is defined more by the roles expected of their gender, they are more susceptible to depression when these roles experience stressors.

Although we believe social self-concept will mediate the effect of gender on depression for heterosexual individuals, we do not expect it to exhibit a mediating effect for sexual minorities. Given the extreme level of the depression symptoms experienced by sexual minorities, and their association with suicide attempts, family rejection, marginalization, etc., social self-concept is not likely to be sufficient to mitigate the sexual orientation-depression relationship.

Hypothesis 5: *Social self-concept will mediate the effect of gender on depression for heterosexual individuals.*

Hypothesis 6: *Social self-concept will not mediate the effect of gender on depression for non-heterosexual individuals.*

METHODS

Sample

We administered the Cooperative Institutional Research Program (CIRP) questionnaire at the beginning of the academic year to 964 first-year undergraduates (30.4% white/Caucasian; 51.8% women; 90% heterosexual) at a small, private university on the West Coast of the U.S. This questionnaire has been used by other academic institutions for over fifty years to uncover beginning students' background characteristics, beliefs, behaviors, high school experiences, and perceptions about university life. Managed by UCLA's Higher Education Research Institute (HERI), the questionnaire has been completed by over fifteen million undergraduates at more than 1,900 universities. Its purpose is to guide educational policy and encourage continuous improvement by revealing how higher education affects undergraduates. The questionnaire items, developed by the HERI, are frequently used to compare students' attitudes and behaviors across universities. As such, we were not able to change the wording of the questionnaire items. After human subjects research training, the institutional review board of the university allowed the CIRP survey to be used in this research. Our investigation was executed in keeping with the ethical guidelines from the 1964 Declaration of Helsinki and its later amendments or equivalent ethical guidelines. We obtained informed consent to take part in the research before the study began. Although the CIRP questionnaire does not contain an item regarding participants' age, 87.6% of our sample became high school graduates in 2018, the year we collected the data.

Measures

Gender

Gender was measured by "What is your current gender identity?" (1 = "Man," 2 = "Woman").

Sexual Orientation

Sexual orientation was assessed by "What is your sexual orientation?" Options included "heterosexual/straight," "gay," "lesbian," "bisexual," "queer," "pansexual," "asexual," and "not listed

above." Given the low amount of subjects in each of the non-heterosexual groupings, responses were merged into two groups (1 = "heterosexual/straight," 2 = "non-heterosexual") in order to allow for sufficient statistical power to empirically examine our framework.

Social Self-Concept

Social self-concept is an integrated assessment of students' perceptions concerning their confidence and competencies in social scenarios. A three-item scale ($\alpha = 0.80$) similar to that used by Au et al. (2009) was developed to assess social self-concept. For example, "Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself: Self-confidence (Social)." Items were assessed on a scale of: 1 = "lowest 10%," 2 = "below average," 3 = "average," 4 = "above average," and 5 = "highest 10%."

Depression

Depression was measured by asking students the following: "In the past year, how often have you felt depressed?" The item was assessed on a scale of: 1 = "frequently," 2 = "occasionally," 3 = "not at all."

RESULTS

We present means, standard deviations, correlations, and reliability coefficients in Table 1. Recall that Hypothesis 1 postulated that females would have higher self-perceptions of depression than males. For all subjects, self-reported depression was found to be significantly different between men and women, F (2, 950) = 9.608, $p < .001$. Women exhibited higher self-perceptions of depression (M = 1.89, SD = .68) than men (M = 1.69, SD = .68); thus, support was found for Hypothesis 1.

TABLE 1
PEARSON CORRELATIONS[A]

Variables	Means	s.d.	1	2	3
1. Gender					
2. Sexual orientation			.09**		
3. Social self-concept	1.88	0.81	-.27**	-.16**	(0.80)
4. Depression	1.80	0.71	.14**	.24**	-.38**

Alpha reliability coefficients are reported in parentheses. N = 964.
* p < .05
** p < .01

In Hypothesis 2, we expected that non-heterosexuals would have greater perceptions of depression than heterosexuals. For all study participants, self-reported depression was found to be significantly different between heterosexuals and non-heterosexuals, F (2, 945) = 32.12, $p < .001$. Non-heterosexuals exhibited greater self-perceptions of depression (M = 2.32, SD = .684) than heterosexuals (M = 1.74, SD = .69), offering support for Hypothesis 2.

Hypothesis 3 postulated that non-heterosexual women would have greater perceptions of depression than heterosexual women. For all study participants, self-reported depression was found to be significantly different between heterosexual and non-heterosexual women, F (2, 487) = 18.48, $p < .001$. Non-heterosexual women exhibited higher self-perceptions of depression (M = 2.39, SD = .675) than heterosexual women (M = 1.82, SD = .70), so Hypothesis 3 was supported.

In Hypothesis 4, we expected that non-heterosexual men would have greater perceptions of depression than heterosexual men. For all participants, depression was found to be significantly different between heterosexual and non-heterosexual men, F (2, 453) = 7.03, $p < .001$. Non-heterosexual men exhibited

greater perceptions of depression (M = 2.14, SD = .693) than heterosexual men (M = 1.66, SD = .672), providing support for Hypothesis 4.

Hypothesis 5 stated that, for heterosexual subjects only, after controlling for social self-concept, gender would not affect depression (the positive relationship between gender and depression would be non-significant and low in magnitude). In order to empirically examine this hypothesis, we proceeded with testing three regression equations. First, social self-concept was regressed on gender. Our analysis revealed that gender affected social self-concept (β = -.272, p < .001). Self-reported depression was next regressed on gender. It was found that gender influenced depression (β = .116, p < .01). Third, depression was regressed on both social self-concept and gender. The analysis showed that social self-concept influenced depression (β = -.359, p < .001). The results also demonstrated that the relationship of depression with gender was significantly attenuated in the final regression equation (β = .028, *ns*), in comparison with the second equation (β = .116, p < .01; please see Figure 1 in the Appendix).

Using Hayes' (2018) test for mediation, the results indicated a significant indirect effect of gender on depression through social self-concept, *ab* = .182, *BCa CI* [.136, .231]. The bootstrapping confidence interval for social self-concept did not include zero, which provided support for social self-concept mediating the association between gender and depression. In sum, the analyses supported Hypothesis 5, which postulated that social self-concept would mediate the effect of gender on depression for heterosexual study participants (Figure 1).

In Hypothesis 6, it was expected that, for sexual minorities only, when taking into account social self-concept, gender would not affect depression (the positive link depression and gender would be non-significant and low in magnitude). Once again, we estimated three regression equations. First, the regression of social self-concept on gender indicated that gender did not have an empirical effect on social self-concept (β = -.142, *ns*). Next, we regressed depression on gender. This analysis revealed that gender influenced depression (β = .172, *ns*). Third, depression was regressed on social self-concept and gender together. The analysis indicated that social self-concept influenced depression (β = -.377, p < .001). Finally, it was not found that the association of gender with depression was significantly attenuated in the last regression equation (β = .120, *ns*), in comparison with the second equation (β = .172, *ns* < .01; please see Figure 2 in the Appendix).

Hayes' (2018) mediation test did not uncover a significant indirect effect of gender on depression through social self-concept, *ab* = .073, *BCa CI* [-.02, .240]. The bootstrapping confidence interval for social self-concept includes zero, which means that there was no support for social self-concept mediating the relationship between gender and depression. These results offer support for Hypothesis 6 that social self-concept did not mediate the effect of gender on depression for sexual minority participants only (Figure 2).

DISCUSSION

Our study found that women and sexual minorities reported higher levels of depression than men and heterosexuals. In addition, our analyses revealed that social self-concept mediated the influence of gender on depression for heterosexual individuals, but not for sexual minorities. The gender-depression finding may be due to the fact that, because women experience lower levels of power and status than men, they suffer from more sexual abuse and harassment than their male counterparts (Nolen-Hoeksema, 2001), which can contribute to depression. Other research has suggested that college women have often been socialized to prioritize interpersonal relationships; as such, the college experience of separating from their parents while expecting them to maintain ties can be particularly stressful for them (Gutzwiller et al., 2003). Those with a robust social self-concept may be better skilled at managing these challenges.

Our finding of higher rates of depression for sexual minorities may be due to the unique challenges experienced by this population such as family rejection, homelessness, stigmatization, minority stress, self-esteem, and marginalization (Coker et al., 2010; Purvis, 2017). Given the extreme nature of these challenges, social self-concept does not appear to be sufficient to mitigate the impact of sexual orientation on depression.

Our study builds on the existing literature on gender differences and depression. As noted earlier, Salk et al. (2017) observed that most research on gender differences in depression has focused on their emergence in early adolescence without attention to their adulthood development. The researchers called for future research to examine gender differences in early adulthood. We respond to this call by using a sample of college students.

Our study also extends the existing literature on sexual orientation differences and depression. As mentioned previously, Coker et al. (2010) noted that little research has compared the negative health outcomes of heterosexual vs. sexual minority individuals. Most earlier research on the topic used non-random, convenience samples drawn from sexual minority organizations and events (Lucassen et al., 2017). Such samples present challenges in determining whether sexual minority individuals suffer from greater rates of depression, compared with their heterosexual peers.

Our study also has implications for practice. Given that depression is a recurring disorder, episodes during the college years can predispose the individual to later episodes. Some research has found that women who experience conflicts with their parents are at particular risk for depression recurrence later in life (Lewinsohn et al., 2000). Preventive interventions are key. Our results indicate that helping female heterosexual students enhance their social self-concept can prevent the occurrence of depression. Some research has found that one way to boost students' social self-concept is to introduce opportunities for them to interact with their peers both inside and outside of the classroom and form a "group identity" when they do not know anyone (Rinn, 2006).

The fact that social self-concept did not mediate the relationship between sexual orientation and depression suggests that interventions at preventing depression should instead be aimed at preventing the direct causes of depression in sexual minorities such as marginalization, social exclusion, victimization, anti-sexual minority hatred, institutionalized prejudice, and discrimination. Efforts should be focused on creating a campus environment that celebrates differences and does not tolerate prejudice, discrimination or violence against sexual minorities. Positive sexual minority role models that do not internalize society's stigmatization of sexual minorities may be helpful as well. Hossain and Ferreira's (2019) review of the relationship between self-concept and sexual orientation revealed that, although gay-straight alliances in schools have a slight positive association with sexual minorities' self-esteem, their presence are not enough to support the development of a healthy self-concept. Schools should train teachers and adopt inclusive curricula in order to create conditions where negative health outcomes such as depression are less likely to emerge. In addition, some research has found that creating opportunities for students to be around like-minded peers helps them to explore the importance of relationships with their peers and boost their social self-concept (Rinn, 2006).

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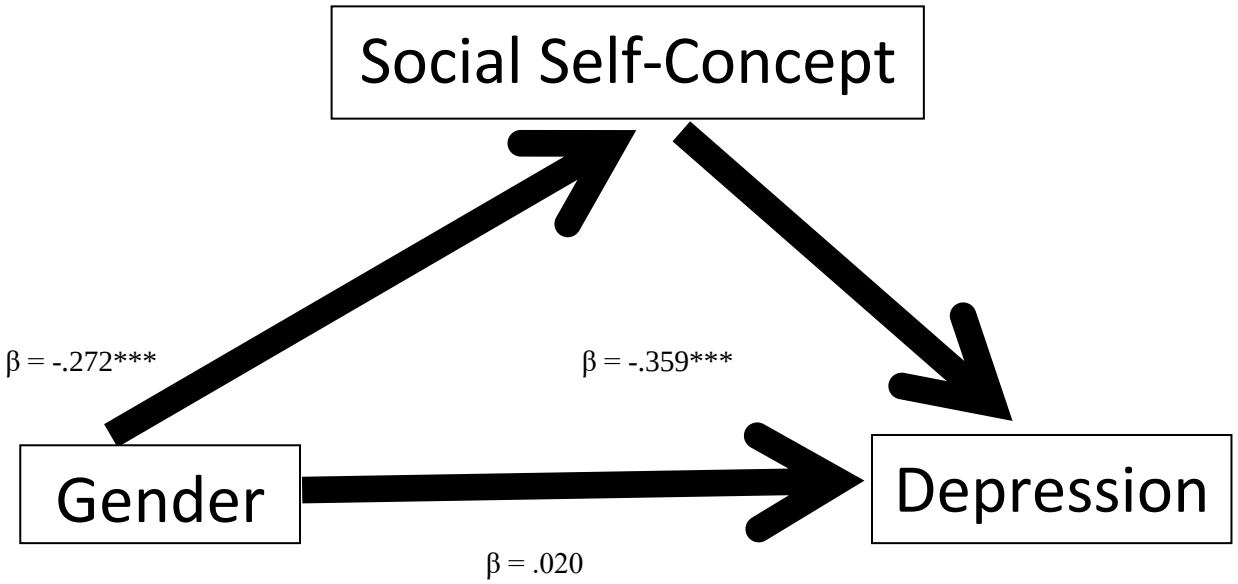
APPENDIX

FIGURE 1
MEDIATIONAL ANALYSES FOR GENDER, SOCIAL SELF-CONCEPT, AND DEPRESSION FOR HETEROSEXUALS



(attenuated from β = .116**)

R2 = .130 F (2, 847) = 62.92***

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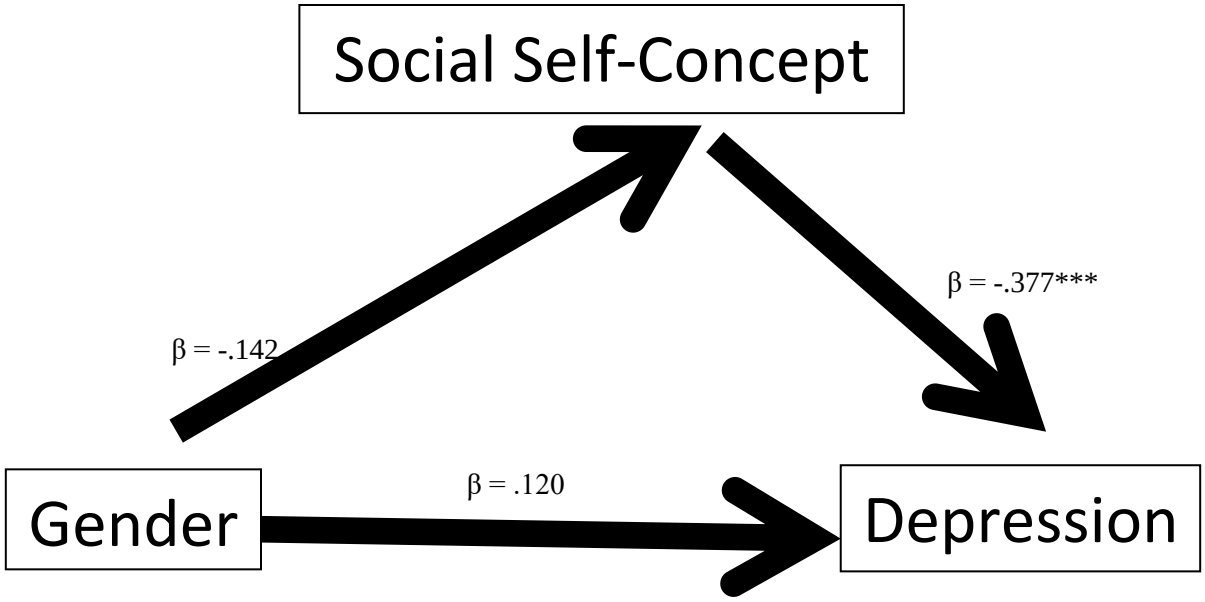
*= p < .05 ** = p < .01 *** = p < .001

FIGURE 2
MEDIATIONAL ANALYSES FOR GENDER,
SOCIAL SELF-CONCEPT, AND DEPRESSION FOR NON-HETEROSEXUALS



(attenuated from β = .172)

R2 = .143 F (2, 85) = 6.93

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*= p < .05 ** = p < .01 *** = p < .001