THE IMPACT OF ATTRACTION AND IDENTITY FLUIDITY ON DEPRESSIVE

SYMPTOMS IN YOUNG ADULTS:

EXPLORING GENDER AS A MODERATOR

by

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A dissertation submitted to the

Graduate School-New Brunswick

Rutgers, The State University of New Jersey

In partial fulfillment of the requirements

For the degree of

Doctor of Philosophy

Graduate Program in Social Work

Written under the direction of

Dr. N. Andrew Peterson

And approved by

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New Brunswick, New Jersey

May, 2016

ABSTRACT OF THE DISSERTATION

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Depression is a serious problem that can negatively impact emerging adults and may have a lasting effect on their health and development. Depression is the leading cause of suicidal ideation, suicide attempts, and other health problems. This study tested a path model in order to examine the impact of attraction and identity fluidity (i.e., reported changes in attraction or sexual orientation identity over time) on depressive symptoms, the mediating effects of stress, anxiety, support, and the moderating effect of gender on these relationships. First, the results showed that a substantial number of participants reported attraction and identity fluidity over the four waves of this study. Second, the findings showed the path model was an acceptable fit to the data. Third, sexuality factors like sexual orientation identity, fluid identity and fluid attraction, have unique contributions to depression, satisfaction with partner, stress and anxiety and should be evaluated separately. For example, fluid identity and fluid attraction led to significantly higher rates of depression while a sexual minority identity did not significantly impact depression for all participants. Finally, gender moderated the relationship

between sexuality factors, support and mental health. Gender played a significant role in this study showing the clear difference between how men and women respond to stress, anxiety, support, and depression.

These results suggest an urgent need to reevaluate how sexuality is viewed and that clinicians and scholars should be aware of the impact identity and attraction fluidity on mental health issues. Sexual minorities may feel anxiety about being stigmatized and rejected, then conceal their authentic identities or display behavioral incongruence, thereby increasing their stress and risk for mental health issues. Intervention strategies reducing vulnerability to mental health issues should focus on improving support factors (relationship satisfaction), to increase awareness of the prevalence of fluidity, reduce the impact of change stigma, even among heterosexuals who are fluid, and should address how gender impacts these relationships. Social workers, parents, and mental health professionals should consider sexuality, support, and other mental health factors in order to prevent or reduce the negative effects of depression.

Keywords: fluidity, sexual orientation, sexual minority status, depression

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Introduction

Nearly 8% of Americans report current symptoms associated with a diagnosis of depression (CDC, 2012). Lifetime prevalence of depression diagnoses ranges between 10 to 17% within the general population (Lepine and Briley, 2011; Kessler and Bromet, 2013). Depressive symptoms include depressed mood, diminished pleasure, weight loss or gain, sleep problems, psychomotor agitation, loss of energy, lack of concentration, indecision, recurrent thoughts of death, suicidal ideation, and feelings of emptiness, hopelessness, worthlessness and inappropriate guilt (DSM-V APA, 2013). Depression has also been linked to significant health (Kessler and Bromet, 2013; Moscicki et al., 2001; Penninx et al., 2013; Van Gool et al., 2007) and financial consequences (Greenberg, et al., 2003; Kessler and Bromet, 2013). Health consequences include higher mortality rates due to a substantially increased risk of suicide (more than 20 times) as well as chronic physical conditions (e. g., heart attack, stroke, cancer, etc.) (Kessler & Bromet, 2013). The annual economic cost of adult depression in the United States due to lost work performance ranges from $30 to 105 billion (Greenberg, et al., 2015; Kessler and Bromet, 2013) but the total cost including direct medical costs and suicide related mortality cost is approximated at $211 billion (Greenberg, et al., 2015). This does not include the cost of depression for children under the age of 18. Depression is a public health priority for sexual minorities, or non-heterosexuals, because they are at higher risk for depression and its consequences than their heterosexual peers due to stressors that are unique to sexuality minorities.

Population-based studies demonstrate that individuals with a sexual minority status have an increased prevalence of mood disorders compared to heterosexuals

(Cochran & Mays, 2000; Cochran, Sullivan, & Mays, 2003; Fergusson et al. 1999; Gilman et al., 2001; King et al., 2008; Marshal et al, 2011; Meyer, 2003). Sexual minorities are up to 5.9 times more likely to report high levels of depression and up to 8.4 times more likely to report a previous suicide attempt particularly when faced with additional stressors such as rejection from family members (Ryan et al, 2009). Researchers have reported that certain groups within sexual minorities, such as bisexual individuals, have an increased risk of greater mental health issues compared to other sexual minorities (Jorm et al., 2002; Marshal et al., 2011). Bisexual individuals have higher rates of psychological distress, anxiety, depression, internalized negativity, less community involvement, less sexual minority friends, and less openness to family (Bostwick et al., 2010; Jorm et al., 2002; Kuyper and Bos, 2015), and are nearly five times more likely to report suicide ideation and attempts (Kuyper and Bos, 2015, Marshal et al., 2011). Very little information is known regarding the risk for depression among individuals who have a sexual minority status who change their reported attraction or sexual orientation identity over time (Fish and Pasley, 2015; Kuyper and Bos, 2015). The phenomenon of identity and attraction fluidity consists of individuals who change their reported attraction (attraction fluidity or fluid attraction) or identity (identity fluidity or fluid identity) over time (Diamond, 2003). For this thesis, changes in reported attraction will be labeled as "attraction fluidity" or "fluid attraction" and changes in sexual orientation identity will be considered "identity fluidity" or "fluid identity." Minority stress theory explains why individuals with a sexual minority status have higher rates of mental health issues. A brief introduction of Minority Stress Theory (MST) follows.

Minority Stress Theory

Minority Stress Theory (MST) proposes that sexual minorities have higher rates of mental and physical health problems due to increased negative social stressors that are unique to non-heterosexuals (Meyer, 2003). Scholars can partially explain increased mood disorders among sexual minorities due to stress (Figure 1; Herek & Garnets, 2007). For example, sexual minorities face ongoing stress due to prejudice, discrimination, and homophobic, or heterosexist stressful social conditions (Meyer, 2003). These stressors can increase hopelessness, helplessness, and other depressive symptoms (Marshal et al., 2011) while protective factors such as support can moderate the risk of depression (Meyer, 2003). Family acceptance (Ryan, et al, 2010), rejection (Ryan, et al, 2009), peer support, and positive school climate (Birkett et al, 2009), and collective action (DeBlaere, et al., 2014) related can significantly moderate depressive symptoms and psychological distress for adolescents and young adults with a sexual minority status. As the research detailed above alludes to, factors such as stress and support are highly influential in the appearance and maintenance of depressive symptoms. Minority Stress Theory (MST) also proposes that factors such as stress and support can influence depressive symptoms.

Minority Stress Theory (MST) suggests that sexual minorities experience stress along a continuum from distal to proximal stressors (Meyer, 2003). Distal stressors are objective circumstances and conditions whereas proximal stressors are subjective experiences, as they rely on the individual's perceptions and appraisals. As shown in figure 1, the minority stress model contains 1 distal and 3 proximal processes: a) chronic and acute prejudice-related events (distal stress); b) the expectation of minority stress and the vigilance this expectation requires (proximal stress); c) the internalization of negative

societal attitudes (proximal stress); and d) concealment of sexual orientation (proximal stress) ([Figure 1](#)).

Figure 1 Minority Stress Theory (MST) Model simplified (Meyer, 2003)
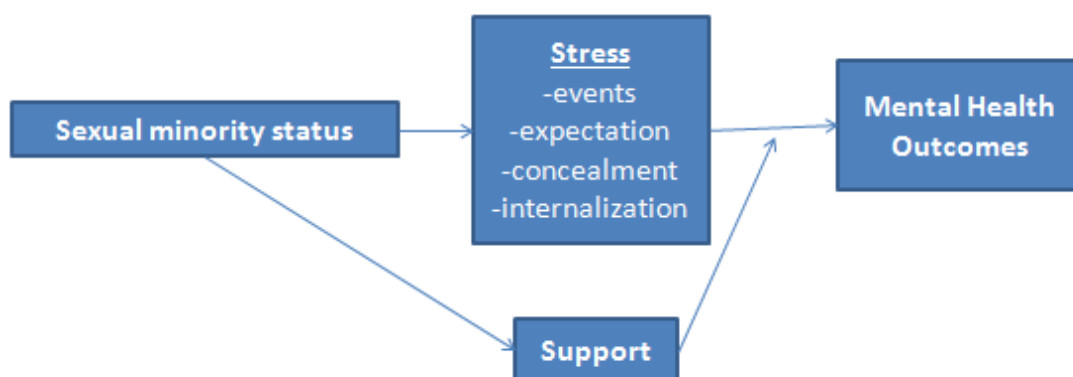
Chronic and acute prejudice-related events or conditions (distal stressor) are external and objective. Some examples of prejudice-related events or conditions (e.g., victimization) are bullying, discriminatory state or federal laws, discriminatory employment or housing policies, and verbal or physical assaults. These events or conditions can occur one time (e.g., physical assault) or can be chronic (e.g., bullying). Prejudice-related events can be independent of sexual orientation identity or attraction (Meyer, 2003). For example, a male who is heterosexual and effeminate may be perceived as gay due to effeminate behavior. This male may be subject to bullying (e.g., victimization) and perceived to be gay (non-heterosexual) regardless of the fact that he does not identify as a gay male. Distal stressors can increase negative mental health outcomes because prejudice or discrimination can create challenges uniquely experienced by the sexual minority such as eviction, loss of employment, denial of marriage or adoption of one's child due to sexual orientation. Sexual minorities who are victims of

discrimination and violence may view the world as meaningless and chaotic, which reduces the individual's security and creates a sense of vulnerability (Meyer, 2003). In an attempt to resolve the view of a meaningless and unsafe world, the individual may question why she experienced the event and respond with self-devaluation or self-recrimination (e.g., 'the event was my fault,' or 'I deserved the violence,'), which increases negative mental health consequences (Meyer, 2003). These events or conditions increase the ongoing stress and without sufficient coping resources, they increase the risk of depression (Wong et al, 2014).

Expectation (proximal stressor; Figure 1) of a prejudice related event or condition is an internal response, thought, or feeling (e.g., anxiety) that a threat will occur. For example, sexual minority individuals may fear and worry (e.g., anxiety) that their employer will terminate them imminently due to their sexual orientation. The fear of a prejudicial event can be constant or intermittent. If the stressful anticipation results in constant vigilance to be aware, alert, and protect against prejudice, then this stress can increase the risk of mental health issues (Almeida et al., 2009). If the prejudicial event is intermittent, it can force the individual to readjust constantly to homophobic social conditions (Alessi, 2014). The expectation of discrimination, prejudice, or stigma can increase stress with or without an actual event occurring (Meyer, 2003). For example, a lesbian youth may expect to be bullied because she has awareness that other youth are bullied for identifying as a sexual minority. This expectation of a negative experience can increase stress regardless if the expected event ever occurs. Therefore, the lesbian youth does not need to be bullied to experience an increase in stress. It follows that sexual minority individuals who expect discrimination, bullying, assault, or denial of

equal rights may experience an increase in stress and negative mental health outcomes because the chronic stress, fear, and worry produced by the expectation are not alleviated through sufficient support mechanisms.

Concealment (proximal stressor; Figure 1) involves the intentional disguising, withholding, hiding, or lying about one's sexual minority status to others. Concealment of sexual orientation can involve monitoring speech, clothing, gait, and content of conversation to avoid exposure. For example, a gay male may refer to his husband as his "partner," or even tell an outright falsification by referring to his husband as his "wife," to avoid detection. He may also deepen his voice, strengthen his walk, and wear masculine clothes similar to the stereotypical heterosexual male. Concealment may be related to anxiety regarding physical, social, or financial harm (e.g., assault, loss of support, loss of employment). Individuals may hide their sexual orientation identity, which research has shown may cause constant stressful and intrusive thoughts and a preoccupation, or anxiety, related to the risk of exposure (Meyer, 2003). Individuals engaged in a constant process of deception to hide and keep one's sexual orientation hidden for fear one may be "discovered" results in continuous stress and anxiety (Herek, Gillis & Cogan, 2009). It is possible that this stress and anxiety increases the risk of mental health issues because sexual minorities are not able to reveal their identity and in addition they may also be deprived of the mediating effects of identifying with and affiliating with other sexual minorities.

Internalization (proximal stressor; Figure 1) is the sexual minority's acceptance (internalization) of the negative societal attitudes about sexual minorities (Carter et al., 2014; Herek, Gillis, Cogan, 2009; Michaels, Parent, Moradi, 2013; Newcomb and

Mustanski, 2010). Internalization has also been called internalized heterosexism (Herek, Gillis, Cogan, 2009), internalized negativity (Kuyper and Bos, 2015), internalized homophobia (Morandini et al., 2015; Newcomb and Mustanski, 2010) or internalized homonegativity (Morandini et al. 2015). This process can occur when society views gay males as weak or less of a "real man" if they are effeminate. The gay male may internalize the belief that he is weak if he displays effeminate behavior which causes stress and may increase a devaluation of self, intrapsychic conflict, self-hatred, and decrease in positive self-regard (Carter et al., 2014; Meyer, 2003; Michaels, Parent, Moradi, 2013; Morandini, et al., 2015). The gay male may try to conceal his effeminate nature or attempt to become more aggressive or "macho" to avoid the expected stigmatizing response. The internalization of this type of stress is internal, becomes insidious, and can exacerbate overall levels of stress and anxiety (Meyer, 2003). Internalization is more prominent during early coming-out experiences, but may never be fully resolved since early socialization experiences are difficult to change and the possible ongoing nature of discriminating events, conditions and attitudes (Meyer, 2003). Internalization can increase negative mental health outcomes because sexual minorities who accept negative societal attitudes experience an increase in negative self-regard. MST explains stress and anxiety as potential causes for the disproportionate rate of mental health issues among sexual minorities. In order to explore the theory further with individuals who have fluid identity or attraction, these terms will be defined in the following section.

Limitations of theory

Minority stress theory (MST) explains why sexual minorities have greater rates of mental health problems, like depression, when compared to heterosexual peers (Meyer, 2003). However, the mental health outcomes among sexual minorities who report changes in attraction or identity have not been explicitly addressed within MST. MST relates to a static concept of sexuality and does not describe the unique affect of fluidity. Therefore, this thesis will use a modified MST model. Very few research articles discuss mental health outcomes of sexual minorities who are fluid (Everett, 2015). For this thesis, attraction is conceptualized as a romantic attraction to males, females, both, none, or not sure. Changes in reported attraction over time will be labeled as "attraction fluidity." Sexual orientation identity is the label that individuals use to describe their overall sexual orientation towards others such as gay, lesbian, bisexual, asexual, questioning, and heterosexual. Diamond (2008) defined sexual identity as "a culturally organized conception of the self, usually, 'lesbian/gay,' 'bisexual,' or 'heterosexual'" (pg. 12; Diamond, 2008). Moser (2015) adds that sexual identity may or may not describe the individuals, "sexual behavior, fantasy content, or to which sexual stimuli they respond." Discordance, which describes individuals who report one identity (heterosexual) but report incongruent attraction or behavior (same-sex), has become increasing common as scholars have begun to assess sexual orientation by multiple dimensions (Chandra, Mosher, Copen and Sionean, 2011; Mustanski et al., 2014; Nield et al., 2015). Changes in sexual orientation identity will be considered a state of "identity fluidity." For this thesis, individuals who report attraction and identity fluidity and persons who deny 100% exclusivity in heterosexual attraction, relationships, or sexual

behavior will be considered sexual minorities or as having a sexual minority status. Scholars have examined fluidity in attraction and sexual orientation identity (Baumeister, 2000; Diamond, 2008; Everett, 2015; Fish and Pasley, 2015; Hu, Xu, and Tornello, 2015; Katz-Wise, 2014; Katz-Wise, 2015; Manley, Diamond, and van Anders; 2015; Mock & Eibach, 2012; Ott et al., 2011; Savin-Williams & Ream, 2007; Savin-Williams et al., 2012; Talley et al., 2015; Vrangalova, & Savin-Williams, 2012). However, very few studies have examined the risk of mental health issues for sexual minorities who are fluid in attraction or identity (Everett, 2015; Fish and Pasley, 2015; Morandini, 2015).

 Research has examined the mental health rates, particularly depression, among sexual minorities but few research articles discussed the depression rates among individuals who had identity fluidity or "mobility," however it did not review attraction fluidity (Everett, 2015). Previously in this thesis, the discussion has focused on a broader conversation of minority stress theory. Following is a brief review of the literature regarding the relationship between sexual orientation and depression, the mediators of stress, anxiety, and satisfaction with partner, as well as the potential role of gender as a moderator in the relationships between sexual orientation identity, identity fluidity, attraction fluidity and depression.

Background

Sexual minority status and depression

 Individuals with a sexual minority status are at higher risk for 12-month and lifetime prevalence of depressive symptoms compared to heterosexuals (Cochran & Mays, 2000; Cochran, Sullivan, & Mays, 2003; Gilman et al., 2001; King et al., 2008;

Marshal et al, 2011; Meyer, 2003). Two meta-analysis studies revealed that non-heterosexuals have more than twice the risk for depressive symptoms when compared to heterosexuals (King et al., 2008; Meyer, 2003). Meyer (2003) found that non-heterosexual males and females have significantly higher rates of lifetime mood disorders. King et al., (2008) also completed a meta-analysis of the prevalence of depression by extracting data on nearly 12,000 non-heterosexuals and over 200,000 heterosexuals in 25 international and national studies. Non-heterosexuals had a significantly higher risk ratio for depression in both males and females. Several other studies also support the conclusion that non-heterosexuals have higher rates of depressive symptoms when compared to heterosexuals (Cochran & Mays, 2000; Cochran, Sullivan, & Mays, 2003; Gilman et al., 2001; Marshal et al, 2011). Due to limited accessibility to this population and the small numbers of individuals with a sexual minority status, research usually combines all non-heterosexuals into one group. Few research articles examine the risk of depressive symptoms between sexual minority groups (lesbian, gay males, bisexual males and females) by dimension of sexual orientation (attraction, identity, sexual behavior) (King et al., 2008; Meyer, 2003) or in relation to fluidity (Everett, 2015).

Most of the research that has examined the relationship between sexual orientation and depressive symptoms examined non-heterosexuals as a homogenous group. Combining all non-heterosexual groups may limit researchers' ability to detect subtle differences in risk for negative mental health consequences like depression. For example, it is important to consider the research regarding bisexuality and depression because of the similar nature of bisexuality to fluidity. Bisexual individuals change the

gender of their partner while individuals who are fluid in attraction or identity change their reported attraction or reported sexual orientation identity over time. A few studies have examined the risk of depression within sexual minority groups such as bisexual individuals (Bostwick et al., 2010; Fish and Pasley, 2015; Jorm et al., 2002; Lhomond, Saurel-Cubizolles, Michaels, 2014; Perales, 2015; Roi et al., 2016; Rothblum and Factor 2001).

Individuals with a bisexual identity may have higher rates of depression and other mental health issues when compared to gay and lesbian individuals, but this relationship has not been fully studied (Bostwick et al., 2010; Fish and Pasley, 2015; Jorm et al., 2002; Lhomond, Saurel-Cubizolles, Michaels, 2014; Perales, 2015; Roi et al., 2016; Rothblum and Factor 2001). One Australian community survey, adjusting for age and gender, examined the differences in depressive symptoms among heterosexual, non-heterosexual (not including bisexual), and bisexual individuals (Jorm et al., 2002). Researchers randomly selected participants from electoral rolls, sent them a letter informing them about the survey and that an interviewer would contact them and more than half agreed to be interviewed (N=4824). However, this study was cross-sectional and the participant response rate was low (59% to 65%). This study found a significant difference in depression between non-bisexuals (homosexual and heterosexuals) and bisexual individuals (Jorm et al., 2002). They did not find a significant difference for depression between non-bisexual homosexuals and heterosexual individuals. Another study found no significant differences in depression comparing lesbian and heterosexual sisters (Rothblum and Factor 2001). This study recruited participants by placing ads in the "Gayellow Pages" which is a periodical targeted at lesbians and gay men. They also

mailed letters and announcements of the survey to all the organizations that were listed in the Gayellow Pages requesting participants. If participants requested to participate, researchers sent two copies of the questionnaire for the participant and their sister with a response rate of 60% (N=762). This study also compared the depressive symptoms of all participants by sexual orientation they found that bisexual females had significantly higher rates of depression when compared to heterosexual or lesbian women controlling for age, education, and income (Rothblum and Factor 2001). This research also found that bisexual individuals may have higher rates of depression when compared to heterosexuals and non-bisexual homosexuals but the research has not used large-scale population data. Types of sexual minority status (e.g., fluid attraction, identity) may influence depression differently. Research that considers the differences in depression rates between sexual minority groups is limited.

Certain groups within sexual minorities, such as bisexual individuals, have an increased risk of anxiety and depression when compared with gay or lesbian peers (Bostwick et al., 2010; Fish and Pasley, 2015; Jorm et al., 2002; Lhomond, Saurel-Cubizolles, Michaels, 2014; Perales, 2015; Roi et al., 2016; Rothblum and Factor 2001). Therefore, it is reasonable to consider whether fluidity may also affect depression rates differently when compared to other sexual minorities (Diamond, 2003; Fish and Pasley, 2015). For example, bisexual individuals who may change the gender of their partner over time have higher rates of stress, anxiety, and depression even when controlling for age, education, and income (Bostwick et al., 2010; Jorm et al., 2002; Rothblum and Factor 2001). Therefore, a question still unaddressed by the research literature is, would changes in reported attraction or identity result in higher rates of stress, anxiety, and

depression as well? Researchers have reported that individuals with a bisexual identity face biphobia, unique stigma, stereotypes, and negative attitudes compared to lesbians and gay males (Bostwick et al, 2010; Burke and LaFrance, 2015; Rothblum and Factor 2001; Scherrer, 2013). In addition, lesbians and gay males may stigmatize those with a bisexual identity which can decrease the protective value of collective identity, threaten group affiliation within sexual minority communities, and increase the mental health risk (Bostwick et al., 2010; Burke and LaFrance, 2015; Herek and Garnets, 2007; Meyer, 2003; Rothblum and Factor 2001). Mental health practitioners may also display negative attitudes, stereotypes, and a bias disposition towards bisexuality as unhealthy, lacking stability, and problematic (Scherrer, 2013). Bisexual individuals may utilize concealment more often than other sexual minorities which may increase the risk of mental health issues (Rothblum and Factor 2001). Individuals may struggle with societal pressure to conceal their authentic feelings or face social rejection which increases stress and risk for mental health issues (Levitt et al., 2016). Discordance between identity, attraction and sexual behavior may also lead to increase in stress and other health factors like increased rates of substance abuse (Nield, et al., 2015; Talley, A., 2015). Finally, males who report some level of identity uncertainty had significantly higher levels of depression and internalized negative attitudes about being a sexual minority and had significantly lower self esteem and life satisfaction (Morandini et al., 2015). The culmination of these risk factors may result in a higher risk of stress and mental health issues for individuals who identify as bisexual. Similarly, individuals who report changes in attraction and identity over time may experience like displays of negative attitudes from sexual minority

communities and mental health practitioners about their status as unhealthy, lacking stability, and problematic.

Minority stress theory indicates that sexual minorities experience factors (e.g., concealment, internalization, expectation, and actual events) that increase stress and thus increase rates of depression (Meyer, 2003). Perhaps individuals who report changes in attraction (fluidity), identity (fluidity), or gender of partner (bisexual) experience higher rates of these factors, which in turn results in higher rates stress and higher rates of depression. It follows that individuals who report fluid attraction and fluid identity may confer an additional risk of greater mental health issues similar to what bisexual individuals have reported previously. The similarity between bisexual (gender of partner) and fluid (attraction, identity) individuals is change. This change may increase the minority stress which results in higher rates of depression. In addition, more changes may cause increased stress. Very few research articles have examined the degree of fluidity on mental health outcomes ((Everett, 2015; Fish and Pasley, 2015; Morandini, 2015). Everett (2015) examined whether change in sexual orientation identity increased depression over time using multivariate regression and propensity score matching. This study used the Add Health data which is a large nationally represented dataset but the research did not include data from all four waves (N=11,727). Everett (2015) found that women were more likely to report changes in their sexual orientation identity, but both men and women who reported initial heterosexuality but later a sexual minority status had significantly higher depression rates than compared to individuals with a static identity over time (Everett, 2015). This research supports the idea that changes in sexual orientation identity increase psychological strain on the individual and may increase

stress, anxiety, and depression. Everett (2015) also discussed how cognitive dissonance during identity change times periods may also add to the risk of mental health issues. However, this research did not examine how repeated changes or attraction fluidity impacted depression rates. For example, do subjects who report more attraction fluidity (more changes) also report more depression compared to participants who report no changes? Large percentages of the population have reported changes in attraction and identity over time and yet there is very little information regarding the depression rates for fluid individuals (Savin-Williams, Joyner & Rieger 2012).

Research that examines sexual orientation dimensions (identity, attraction, sexual behavior) and depression is rare (Bostwick et al., 2010). The general population has a 10% 12 month prevalence of depression but up to 17% for life prevalence of depression (Kessler and Bromet, 2013). Bostwick et al., (2010) found significant differences in mood disorders, including depression in the last year and lifetime rates by dimension of sexual orientation including identity, attraction, and sexual behavior. Using adjusted odds ratios (AOR), Bostwick (2010) found significantly high mood disorders. The highest rate of mood disorders in the past year were among males who had an "unsure" identity (4.0 AOR) compared to males who report a gay (1.8), bisexual (1.7) or heterosexual (1.0) identity. The second highest rate of mood disorders were males who were attracted to both males and females (2.5 AOR) compared to males who were attracted to only males (1.1), mostly males (2.2), mostly females (2.2), or only females (1.0). Females, who had a bisexual identity (2.1 AOR), were attracted to mostly females (2.1), or had sexual behavior with both males and females (2.2), had high rates of a mood disorder in the past year. However, females who reported only attraction to other females (0.8) or sexual

behavior with only females (0.7) had the lowest rates of mood disorders when compared

to all other groups including heterosexuals (Bostwick et al., 2010). Therefore, it is

important to examine the individual impact of sexual orientation identity and attraction

on depressive symptoms. Some research has revealed that depressive symptoms can vary

widely among sexual minorities depending on whether identity, attraction, or behavior is

examined (Bostwick et al., 2010). The risk for depression among sexual minorities who

change their reported attraction or sexual orientation identity over time is unknown. It is

important to briefly review literature on fluidity before moving on to factors that mediate

the relationship between sexual minority status and depressive symptoms.

Previous work on fluidity

Individuals with a sexual minority status can report fluidity in attraction, gender

of a partner, sexual behavior, and reported sexual orientation identity (Diamond, 2008;

Everett, 2015; Mock and Eibach, 2012; Savin-Williams & Ream, 2007). Individuals who

report a heterosexual identity can also report some aspect of fluidity in attractions,

identity, or behavior as well. Everett (2015) conceptualized sexual identity "mobility[1]"

as the "process of changing sexual orientation identity over time." She found that 12% of

participants changed their sexuality orientation identity over a seven year period (Everett,

2015). An example of changing sexual orientation identity over time would be

identifying as one identity (heterosexual) and then reporting a different identity later in

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[1] Diamond primarily uses the term fluidity while other authors prefer to use the term
mobility to describe the movement from one attraction or identity state to another (e.g.
attraction to only males to attraction to both males and females or Lesbian to
heterosexual).

time (lesbian). However, Everett (2015) did not provide a definition for attraction

fluidity or attraction "mobility." Diamond (2008) defines "sexual fluidity" for women

(not for men) as, "situation-dependent flexibility in women's sexual responsiveness"

(Diamond, 2008, pg. 3). Diamond (2008) studied fluidity in attraction, identity, and

behavior among 89 women over 10 years (Diamond, 1998, 2000 & 2008). She found

that up to 67% of participants shifted identity and sexual behavior, but not attraction, over

a 10-year period. Diamond concludes that all individuals may have the capacity for

fluidity that is context specific (Diamond, 2008). For the purpose of this thesis, fluidity

will merely indicate at least one change in either attraction or identity over time.

Researchers expanded attraction and identity fluidity research by using large scale

nationally represented data (Add Health data), considering non-western cultures, and

examining gender differences. One large scale nationally represented study showed that

only 70% of participants reported no changes in attraction over time (Savin-Williams &

Ream, 2007). Another reported that nearly 18% of females and more than 6% of males

changed identities (Savin-Williams, Joyner & Rieger 2012). Internationally, Wekker

(2006) discussed the sexual culture of women in the Afro-Surinamese diaspora but no

other non-western studies about fluidity are known. Gender has been an important

consideration when looking at fluidity. Research initially reported that fluidity was

mostly a female phenomenon (Diamond, 2008), while others found that males reported a

similar or greater degree of fluidity than females (Katz-Wise, 2014; Rosario,

Schrimshaw, Hunter & Braun, 2006). Katz-Wise (2014) found that males reported 52%

fluid attractions and 36% fluid identity whereas females reported 64% fluid attraction and

49% fluid identity. Another study found that 70% of females and 59% of males reported

consistent gay/lesbian status and 29% of males and 10% of females reported a different status over time (Rosario, Schrimshaw, Hunter & Braun, 2006). At least one study examined specific cognitions about how they were related to fluidity (Katz-Wise and Hyde, 2015). Katz-Wise and Hyde (2015) found that females and males differed in their "cognitions" or beliefs about sexuality. Females were more likely than males to have positive beliefs about fluidity and to believe that the environment influences sexuality (Katz-Wise and Hyde, 2015). Research regarding fluidity has begun to increase to include larger scale studies, to consider non-western cultures, to examine gender and how beliefs impact sexuality in greater detail.

However, as described above, very little research has examined the mental health risk or protective factors for individuals who are fluid in attraction or identity. The majority of studies have considered types, degree and origins of fluidity but very few have examined the impact of fluidity on aspects of mental health or other factors. One study found that sexual orientation identity fluidity (mobility) led to increased depression (Everett, 2015). This study differentiated between the direction of identity change from same sex orientated (lesbian) to less same sex orientated (bisexual) or from less same sex orientated (heterosexual) to more same sex orientated (bisexual). The research showed that conformity to heterosexuality decreased depression in participants. For example, participants who reported heterosexuality in the first wave and then later reported bisexuality, they reported higher depression rates. While, participants who reported being gay in the first wave examined and then later reported heterosexuality, they reported lower depression rates. However, sexual minority and heterosexual individuals who did not report identity change, or fluidity, reported no difference in depression

scores. Everett (2015) made it clear that it is the fluidity aspect to sexuality that increased the depression rates not merely the sexual orientation, which expands previous research that has indicated that a sexual minority status alone increases depression rates. Everett (2015) only examined identity and did not consider the impact of attraction on mental health. Therefore, it is essential to assess the risk for depression among individuals who report attraction and identity fluidity. However, no research has examined the relationship of fluidity on depression while considering other factors such as stress, anxiety, satisfaction with a partner and gender.

Model for this thesis

For this thesis, Minority Stress Theory (MST) will be applied (Figure 2) in order to test the relationship between sexual minority status, fluidity, and depression. The model for this thesis will differ from the original minority stress theory model (Figure 1) in that this thesis does not test explicitly for concealment, internalized homophobia, specific stressful life events, or the expectation of stress. However, this thesis will extend the model (Figure 2) by expanding sexual minority status from merely sexual orientation to include attraction and identity fluidity. In addition, this thesis will examine anxiety as a proxy for concealment and internalized homophobia, and overall feeling of stress and partner satisfaction as a proxy for support. Anxiety, stress, and partner satisfaction will be examined as mediators for the impact of sexual minority status on depression. The mediator is a variable that helps to explain or that intervenes in the relationship between the independent (e.g. attraction and identity fluidity) and dependent (e.g. depression) variables. In addition, this thesis will also examine gender as a moderator. A moderator is

a categorical variable (e.g. gender) which affects the direction or strength of the

relationship between two variables (e.g. stress and depression).

Mediators between sexual orientation and depressive symptoms

Stress

As illustrated in Figure 2, stress was used as a mediator between sexual minority

status and depressive symptoms. Stress is a condition or event that causes bodily or

mental tension (Merriam Dictionary, 2014). The National Institute of Mental Health

(NIMH) defines stress as the brain's response to a demand such as a change (e.g., new

relationship), a loss (e.g., job, death), or an event (e.g., violence) (Meyer, 2003; NIMH,

no date). Stress is also the degree by which an individual's life is perceived as

unpredictable, uncontrollable, and overloading (Cohen, 1983). Sexual minorities have

greater rates of stress when compared to their heterosexual peers (Burton et al., 2013;

Figure 2 Applied Minority Stress Theory Model

Note: Gender is assessed as a moderator by a multi-group analysis

Katz-Wise et al., 2012; Meyer, 2003). In the research literature presented above, stress

has consistently been associated with a depression diagnosis (Meadows et al., 2006) and depressive symptoms (Burton et al., 2013; Cohen, 1983; Hammen, 2005). In addition, stress can mediate the relationship between sexual orientation and depression (Burton et al., 2013). Minority stress theory indicates that sexual minorities are at greater risk for stressful social conditions which in turn increases the risk for depressive symptoms (Figure 1, Meyer, 2003). Stress has also been associated with increased rates of anxiety (Heilig et al., 2004; Judah et al., 2013; Rusli et al., 2008).

Anxiety

As illustrated in Figure 2, anxiety can be seen as a mediator between sexual minority status and depressive symptoms. Anxiety has been defined as excessive worry or apprehensive expectations about events or activities (DSM-V, APA, 2013). Anxiety has been associated with depression (Rusli et al., 2008) and depressive symptoms (Judah et al., 2013) among heterosexual (Rusli et al., 2008) and sexual minorities (Cochran et al., 2003; Gilman et al., 2001; King et al., 2008; Zakalik et al., 2006). Sexual minorities have greater rates of anxiety when compared to heterosexual peers (Cochran et al., 2003; Herek & Garnets, 2007; King et al., 2008). The minority stress model can also integrate anxiety in that concealment of sexual orientation, internalization of societal attitudes, expectation of prejudice/stigma, and actual prejudicial or stigmatizing events may lead to anxiety as well as stress (Figure 1, Meyer, 2003). Some researchers have discussed anxiety as associated with minority stress factors (Meyer, 2003) such as internalized homophobia (Newcomb and Mustanski, 2010), expectation of rejection (Walsh and Hope, 2010), perceived discrimination (Burns et al., 2012), concealment (Pachankis,

Cochran, and Mays, 2015) and actual state level discriminatory policies (Hatzenbuehler et al., 2009). Both anxiety and stress are associated with and can mediate the risk of depression among sexual minorities. In addition to anxiety and stress, other factors like satisfaction with a partner may mediate the risk of depression for adults (Rosand et al., 2012).

Satisfaction with partner

As illustrated in Figure 2, satisfaction with a partner can be seen as a mediator between sexual minority status and depressive symptoms. Satisfaction with one's partner is a commonsense evaluation of a global sense of happiness (Heyman et al., 1994). Satisfaction with partner has been operationalized to include perceived support, trust, enjoyment of ordinary activities together, feeling listened to, expression of love, quality sex life, and contentment with how problems and finances are handled (Kroeger and Williams, 2011). Research has shown that support has moderated depressive symptoms (Birkett et al, 2009; Meyer, 2003; Ryan, et al, 2009; Ryan, et al, 2010). The minority stress model shows support as a moderating factor for depression but for this thesis satisfaction with partner will be examined as a mediator. Research has also shown that support has mediated depressive symptoms and emotional distress (Bauermeister et al., 2010; Meyer, 2003; Rosand et al., 2012; Teasdale and Bradley-Engen, 2010).

Few articles describe the mediating effect of satisfaction with a partner in the relationship between sexual minority status and depression. Among heterosexual adults, lower satisfaction with a romantic partner or marital disruption has been associated with increased depression (Kendler and Gardner, 2014; Kessler et al., 2005; Kroeger and

Williams, 2011; Rosand et al., 2012; St. John and Montgomery, 2009) and anxiety

(Kessler et al., 2005; Rosand et al., 2012). Support from peers, teachers, and parents can

significantly mediate and explain approximately 25% of the relationship between sexual

minority status and depressed mood (Bauermeister et al., 2010; Teasdale and Bradley-

Engen, 2010). Increased support has been associated with lower rates of anxiety,

psychological distress, and higher relationship quality for adolescents with a sexual

minority status (Bauermeister et al., 2010; Starks, Newcomb, and Mustanski, 2015).

Minority stress theory indicates that support moderates the impact of stress on mental

health for sexual minorities but other research suggests that support may also mediate

mental health issues (Bauermeister et al., 2010; Meyer, 2003; Teasdale and Bradley-

Engen, 2010). This thesis will examine support as a mediator to further add to this key

area of research (Figure 2). Research has examined the mediating relationship between

supportive parental relationships and depression for adolescents with a sexual minority

status. As the sexual minority youth transitions from adolescence to adulthood,

supportive parental relationships may have less of an impact on depression (Meadows et

al., 2006). Sexual minority adults who are satisfied with their romantic partners may

have lower rates of depression in a similar way to adolescents and supportive parental

relationships. Mediating factors such as stress, anxiety, and satisfaction with a partner

can influence the risk of depression. This thesis will examine satisfaction with partner as

a mediator between sexual minority status and depressive symptoms.

Moderating factor for depression

Gender

As illustrated in Figure 2, gender is being presented as a moderator between sexual minority status, stress, anxiety, satisfaction with partner, and depressive symptoms. Gender plays a unique role in depression as females have higher rates of depression than males nationally (Kendler et al., 2001, Kendler et al., 2014) and internationally (Van de Velde et al., 2010). Females are 1.7 times more likely than males to report depression in their lifetime (Kessler, 1993). Female and male sexual minorities have higher depression rates than their female (Gilman et al., 2001; King et al., 2008; Rothblum and Factor, 2001) and male heterosexual peers (Cochran et al., 2003; Gilman et al., 2001; King et al., 2008). However, few articles have described the differences in depression rates among male and female sexual minorities (Almeida et al., 2009; Bostwick et al., 2010). Sexual minorities in this study are expected to have higher depression when compared to heterosexuals. If the unique contribution of gender on depression continues among sexual minorities, then female sexual minorities are expected to have higher depression than male sexual minorities. However, some research has shown that male sexual minorities have higher rates of depression when compared to female sexual minorities (Bostwick et al., 2010).

Bostwick et al., (2010) found that sexual minority males had higher lifetime and past year rates of mood disorders compared to female sexual minorities with one exception. Broadly, when males were compared to females, males had higher rates of mood disorders among subpopulations defined by minority status in sexual identity, attraction, and sexual behavior (Bostwick et al., 2010). The only exception was in

females who reported a bisexual identity as they had higher rates of mood disorders than males who reported a bisexual identity. In addition, females who reported only attraction to other females and sexual behavior with only females had the lowest rates of mood disorders even when compared to females who never had sex or who only had sex with males. Based on this research, it would appear that sexual minority males in this study should have rates of depression until fluidity is factored. Bisexuality is different from fluidity in that bisexual individuals do not report changes over time while fluid individuals do report changes in attraction or identity over time but for this study attraction or identity fluidity may increase rates of depression for women significantly more than males who report fluid identity or attraction. Gender may moderate the relationship between identity or attraction fluidity and depression in that fluid women may have higher rates of depression when compared to men who report fluid attraction or identity. In addition to sexual orientation identity, attraction fluidity, and identity fluidity, gender may moderate the relationship between other variables and depression.

Gender may moderate the relationship between stress, anxiety and depression. Among heterosexuals, women tend to have significantly higher chronic and daily stress when compared to men (Matud, 2004). In addition, female stress is significantly associated with higher anxiety and depression. Gender moderates the relationship between stress, anxiety and depression in that heterosexual females have significantly higher stress and thus higher anxiety and depression when compared to heterosexual males. Often times, the literature reports that traditional female and male roles in heterosexual relationships lead to women having higher stress whereas males tend to be avoidant or disengaged (Matud, 2004). However, among sexual minorities, traditional

gender roles may have less of an impact on stress, anxiety, and depression. Two males who are married are able to assign roles that do not conform to societal expectations for men.

In contrast to the traditional role theory that supports higher stress for heterosexual women when compared to men, neuroimaging research suggests that the difference in male and female stress is related to a neurobiological mechanism (Neumann and Landgraf, 2012; Wang, et al., 2007). Among heterosexuals, the female stress response primarily activates the limbic system whereas the male stress response primarily activates the prefrontal cortex (Wang, et al., 2007). The limbic system is related to the endorphin, oxytocin, vasopressin, and dopamine receptors and these neurotransmitters are related to depression, anxiety, and relationships (Neumann and Landgraf, 2012; Wang, et al., 2007). On a neurobiological level, the heterosexual female stress response impacts depression, anxiety and how they feel about relationships. This also supports other research that indicates that women are more likely to have higher rates of stress, anxiety, and depression when compared to men (Wang, et al., 2007). However, Wang et al., (2007) is unclear if gender would moderate the relationship between partner satisfaction and depression because as female stress increases, females may tend to cultivate and nurture relationships more as this will decrease negative emotions. However, relationship dissatisfaction may lead to an increase in stress as well. Finally, the majority of this research does not distinguish between the heterosexual and sexual minorities response to stress. Therefore, it is unclear if gender would moderate the relationship between stress, anxiety, and depression for sexual minorities in the same way as heterosexuals.

Sexual minority males tend to have higher rates of anxiety and depression when compared to sexual minority females (Pachankis, Cochran, and Mays, 2015). Males who recently disclosed their sexual minority status had significantly higher rates of anxiety and depression as compared to males who kept their status a secret from others (i.e. closeted). In contrast, sexual minority females who were "closeted" (i.e. keeping her sexual orientation a secret) reported significantly higher depression than females who were open about their sexual minority status. Gender moderated the relationship between sexual orientation identity and anxiety and depression in that males who were open about their identity had higher rates of depression and anxiety whereas females who were open had lower rates of depression and anxiety (Pachankis et al., 2015). Other research has indicated that sexual minority males may experience higher rates of anxiety due to minority stress, greater fear of rejection from others due to having a stigmatized identity (i.e. being gay), lower self-esteem, and increased dissatisfaction with their physical body when compared to heterosexual males (Michaels, Parent, and Moradi, 2013; Pachankis, and Goldfried, 2006). Stress for the sexual minority may be more often related to minority stress factors such as the fear of being rejected for having a sexual minority identity, which is a fear and type of stress unknown to heterosexuals.

Almeida et al., (2009) also found gender differences in the relationship between stress and depression for youth. Male and female sexual minorities had similar rates of depression until they factored in a minority stress factor, perceived discrimination. Male sexual minorities (including transgender males) who reported perceived discrimination reported significantly higher levels of depression when compared to heterosexual and non-transgender males. For this study, if stress is a proxy for the minority stress of

perceived discrimination, males who report higher stress may also report higher

depression. However, female sexual minorities (including transgender females) reported

significantly less depression when compared to heterosexual and transgender females

(Almeida et al., 2009). This suggests that the interaction between perceived

discrimination and depression may differ based on gender as the increase in stress leads

to greater depression for males but not females. This is in contrast to the earlier study

among heterosexuals that females have higher stress, which leads to higher depression.

Minority stress theory would indicate the stress, including perceived discrimination,

would increase depression but the theory does not address the difference in gender (Burns

et al., 2012). It is clear that gender moderates the relationship between stress, anxiety,

and depression but it is unclear for this study which gender will have higher rates. Gender

may moderate, while stress and anxiety mediates, the relationship between sexual

orientation identity and depression.

Gender may also moderate the relationship between satisfaction with a partner

and depression. Some research has indicated that gender moderates the relationship

between satisfaction with partner and depression among heterosexuals (Fincham, Beach,

Harold, and Osborne, 1997). Fincham et al (1997) found that marital satisfaction

significantly influenced depression for women but not for males. Females who had

higher marital satisfaction had significantly lower depression rates whereas martial

satisfaction had no impact on depression for males. It is unclear from the research

literature and on a neurobiological level, whether gender would moderate the relationship

between partner satisfaction and depression. Gender plays a unique role in stress, anxiety,

depression, and partner satisfaction for heterosexuals and sexual minorities as detailed

above, but more research is needed to fully under the complex relationship between sexuality factors (sexual orientation identity, fluid attraction, fluidity identity), mental health and support.

Purpose of the Thesis

The purpose of this thesis is to explore (1) how sexual orientation identity, fluid identity, fluid attraction, stress, anxiety, and satisfaction with a partner may contribute to depression and (2) whether these contributions would be significantly moderated by participant gender.

Research Questions and Hypotheses

This research used a theory generating approach since there is a lack of literature on the impact of fluid attraction and fluid identity on depression and other mental health factors. Attraction and identity fluidity were included in the study to explore the relationship between fluidity and other variables in the study. An exploratory approach allows the study to examine all the relationships in the model despite the lack of literature to provide clear direction of the causality of the impact on depression. The study had two main questions: 1) Does the hypothesized path model provide a good fit to the Add Health data?; and 2) Do the relationships in the hypothesized model differ as of a function of gender?

- Hypothesis 1: The path model will have a good model-to-data fit and the chi-square test will be non-significant revealing that there is no significant difference between the data and the model.

- Hypothesis 2: Individuals with a sexual minority identity will have significantly higher stress, anxiety, depression and lower satisfaction with partner when compared to individuals who report a heterosexual identity.

- Hypothesis 3: Stress, anxiety, and relationship satisfaction will mediate the relationship between sexual orientation identity and depression.

- Hypothesis 4: The model comparison test will show that the non-restricted model (examines females and males separately) will have a significantly better fit then the restricted model (examines females and males together) because the relationships between variables in the hypothesized model differed as function of gender.

Methods

This thesis is utilizing a model generating path analysis approach to consider the interactional relationships between sexual orientation, attraction and identity fluidity, stress, anxiety, satisfaction with partner, gender, and depression. We are interested in whether our proposed model fits the data (Figure 2). Some relationships have been shown consistently in the research literature (e.g., sexual orientation, stress, anxiety, and depression) while others are suggested (e.g., satisfaction with partner, gender, and depression) and still others are limited (e.g., fluidity and depression). Therefore, this thesis used a model generation approach, as the nature of this thesis is exploratory.

Thesis Design and Data

The National Longitudinal Study of Adolescent Health (Add Health) is a probability based representative sample of United States adolescents over four waves of

data. Add Health is a longitudinal study that collected data about social, economic, psychological, and physical well-being with contextual data on the family, neighborhood, community, school, friendships, peer groups, and romantic relationships. The Add Health study began when youth were in 7th - 12th grade (1994-95, wave one) and followed the youth into young adulthood with three follow-up in-home interviews (1996, 2001-2002, 2007-2008) yielding approximately 15,000 youth from all four waves in the confidential database. The initial sample frame consisted of N=100,000+ participants and 26,666 eligible high schools. High schools were eligible if they included 11th grade and had a minimum of 30 students enrolled. Prior to sampling, researchers sorted high schools by size, school type, census region, level of urbanization, and percentage of Caucasian students. The publically accessible dataset restricts the number of the participants in the data; therefore, the final sample size for the current thesis came from the restricted and limited number of participants. The initial number of participants included for this thesis was 6,504. However, only participants who were currently in a relationship either via marriage, cohabitation, pregnancy, or dating and answered the relationship satisfaction questions, were included which reduce the current projects sample size to 4,758.

Current Sample

Participants in wave four ranged in age from 25 years to 34 years old, specifically 7% were 32-34 years old, 34% were 30-31 years old, 35% were 28-29 years old, and 23% were 25-27 years old. Participants in wave four were 54% female, 68% White (N=3220), 25% African American (N=1168), 3% Asian (N=157), 4% Native American
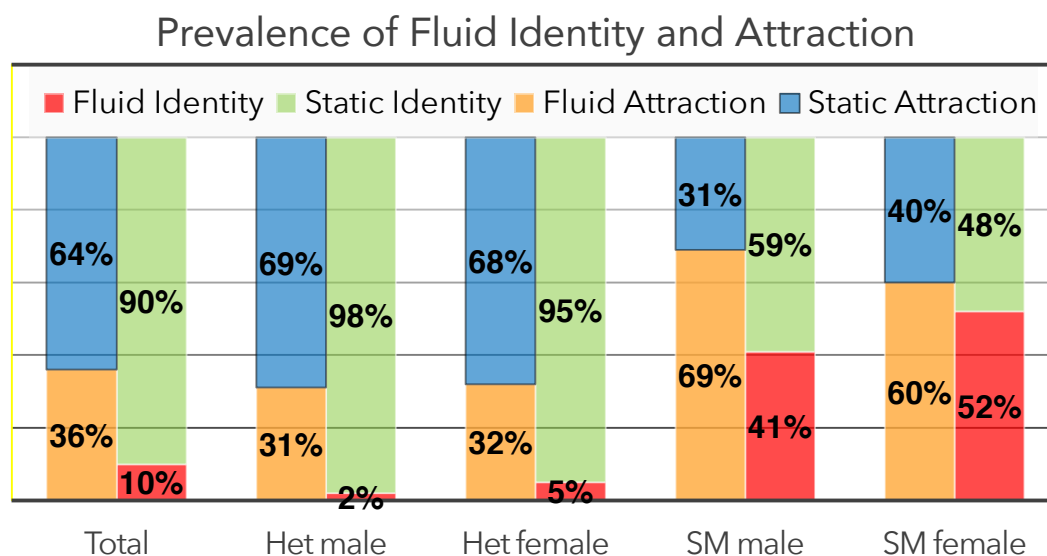
(N=167), 5% multi-racial (N=228), and 5% other race (N=255). A small percentage of participants (11% N=499) reported that they were of Hispanic origin while 89% (N=4247) reported non-Hispanic. Approximately one fourth (25% N=1165) of participants completed high school or less, 38% (N=1782) attended some vocational, technical, or college training; 26% (N=1226) completed vocational, technical, college training; and 12% (N=585) started or completed graduate school, professional education, or a doctoral degree. Participants reported a house income ranging from less than $5,000 to more than $150,000 with a mean household salary between $40,000 and $49,000; specifically, 21% (N=1011) reported household income below $29,999, 21% (N=1010) between $30,000 and $49,999, 37% (N=1766) between $50,000 and $99,000, and 14% (N=682) over $100,000. The majority of the participants (86%) reported a heterosexual identity (N=4090) while 14% (N=668) report a sexual minority status. Sexual minority status included 72% mostly heterosexual, somewhat attracted to same gender, 12% bisexual, 5% mostly homosexual, 8% gay or lesbian, 2% asexual, and 3% questioning.

Prevalence of fluidity

The prevalence of identity fluidity over waves three and four and attraction fluidity over all four waves of data was examined. Figure 5 reports the prevalence of fluid identity and fluid attraction by gender and sexual orientation. When considering the total sample, 10% (N=380) reported a fluid identity while 36% (N=1432) reported fluid attraction. Females reported fluid identity more often (15%, N=314) than males (4% N=66). Few heterosexuals (3%, N=114) but half of sexual minorities (50%, N=266) reported a fluid identity. One out of three males (33%, N=659) reported fluid attraction

compared to two out of five females (39%, N=783). Finally, one out of three heterosexuals (32%, N=1088) and more than half of the sexual minorities (62%, N=344) reported fluid attraction.

Figure 3: Prevalence of Fluid Attraction & Identity

Prevalence of Fluid Identity and Attraction

Legend: ■ Fluid Identity ■ Static Identity ■ Fluid Attraction ■ Static Attraction

Group	Fluid Identity	Static Identity	Fluid Attraction	Static Attraction
Total	10%	90%	36%	64%
Het male	2%	98%	31%	69%
Het female	5%	95%	32%	68%
SM male	41%	59%	69%	31%
SM female	52%	48%	60%	40%

Measures

The unit of observation is participants. For this thesis, the seven variables characterizing participants (attraction fluidity, identity fluidity, sexual orientation, stress, anxiety, satisfaction with partner, and depression) will be derived from different waves of the Add Health dataset and are a mix of longitudinal and cross-sectional data. For example, sexual orientation, anxiety, stress, satisfaction with partner and depression are reported at the fourth wave. However, operational definitions of attraction fluidity and identity fluidity used data from multiple waves. Attraction fluidity will be composed of data from all four waves while identity fluidity is composed of data from only the third and fourth waves. The variables are explained in detail in the following paragraphs.

Predictor or Independent Variables

  Sexual orientation identity (or just "identity") at wave four will be determined by one question in wave four, "Please choose the description that best fits how you think about yourself." Participants can answer 100% heterosexual (1), mostly heterosexual (2), bisexual (3), mostly homosexual (4), 100% homosexual (5), not sexually attracted to either males or females (6). Participants who report 100% heterosexual will be coded as "0" and all others will be coded as "1" to represent the sexual minority status. This thesis will use the identity variable as an independent, exogenous variable to examine the impact on depressive symptoms.

  Identity fluidity will be measured by two identical questions in wave three and four, "Please choose the description that best fits how you think about yourself." In both wave three and four, participants can answer 100% heterosexual (1), mostly heterosexual (2), bisexual (3), mostly homosexual (4), 100% homosexual (5), not sexually attracted to either males or females (6). Participants who reported the same identity in both waves regardless of sexual minority or heterosexual status will be coded as "0" and will be considered having a "static identity." Participants who reported two different identities in wave three and four will be coded as "1" to represent "identity fluidity" status. Therefore, identity fluid status will be coded as 0 = static (no change from wave three and four) and 1 = fluid (one change in identity between waves three and four). The purpose is to assess the impact of change in identity on depression. This thesis will use the identity fluidity variable as an independent, exogenous variable to examine the impact on depressive symptoms. Identity fluidity will be correlated with sexual orientation identity as it is assumed that non-heterosexuals will have higher rates of fluidity.

Attraction fluidity was assessed in all four waves by two essential questions, "Have you ever had a romantic attraction to a female?" and "Have you ever had a romantic attraction to a male?" Participants can answer all questions: no = 0, yes = 1, refused = 6, don't know = 8, not applicable = 9. This thesis will label participants who report the same attraction over the four waves "Static = 0." A variable called, "Attraction fluidity" will be used to represent the amount of reported attraction changes over time (0 = static, 1 = one change, 2 = two changes, 3 = three changes). This thesis will use the attraction fluidity variable as an independent, exogenous variable to examine the impact on depressive symptoms. Attraction fluidity will be correlated with sexual orientation identity and identity fluidity as it is assumed that non-heterosexuals will have higher rates of fluidity.

Mediators (Stress, Anxiety, Satisfaction with partner)

Table 1

Scales

Items	Cronbach's α	SD	Mean	N
Cohen Perceived Stress questions	0.75	2.81	8.61	4534

In the last 30 days, how often have you felt that you were unable to control the important things in your life?

In the last 30 days, how often have you felt confident in your ability to handle your personal problems (reverse coded)?

In the last 30 days, how often have you felt that things were going your way (reverse coded)?
In the last 30 days, how often have you felt that difficulties were piling up so high that you could not overcome them?

Items	Cronbach's α	SD	Mean	N
Anxious Personality Scale	0.71	2.98	12.34	4748

I worry about things (reverse coded).

I am not easily bothered by things.

I get stressed out easily (reverse coded).
I don't worry about things that have already happened.

Items	Cronbach's α	SD	Mean	N
Satisfaction with partner items	0.89	5.7	28.66	4677

We enjoy doing even ordinary, day-to-day things together.
I am satisfied with the way we handle our problems and disagreements.
I am satisfied with the way we handle family finances.
My partner listens to me when I need someone to talk to.
My partner expresses love and affection to me.
I am satisfied with our sex life.
I trust my partner to be faithful to me.

Items	Cronbach's α	SD	Mean	N
Depressive symptoms questions	0.84	4.71	6.07	4756

You were bothered by things that usually don't bother you.*#
You had trouble keeping your mind on what you were doing.*#
You felt depressed.*#
You felt that you were too tired to do things [I felt that everything I did was an effort.]*#
You were happy (reverse coded).*#
You could not shake the blues, even with help from your friends and family.#
You enjoyed life (reverse coded).#
You felt that you were just as good as other people (reverse coded).#
You felt sad.#
You felt that people disliked you.#

Note: *Represents a question on the CES-D10; # Represents a question on the CES-D

Cohen Perceived Stress Scale will be a continuous composite variable created

from a four-item shortened and validated version of the Cohen Perceived Stress scale

(Cohen et al., 1983). Participants answered each of the questions with "never" (0),

"almost never" (1), "sometimes" (2), "fairly often" (3), and "very often" (4) for a total

cumulative score ranging from 0-16 points. Higher points indicate higher levels of stress.

Stress will be assessed as a mediator between identity, identity fluidity, attraction fluidity,

and depression.

Anxiety will be a continuous composite variable created from the four-item Add Health constructed variable, "Anxious Personality Scale." Participants can answer each of the questions "strongly agree" (1), "agree" (2), "neither agree nor disagree," (3), "disagree" (4), and "strongly disagree," (5) for a total cumulative score ranging from 4-20 points. Higher points indicate higher levels of anxiety. Anxiety will be assessed as a mediator between identity, identity fluidity, attraction fluidity, and depression. Anxiety and stress error terms will be correlated due to the close association between anxiety and stress.

Satisfaction with partner will be a continuous composite variable created from seven items that have been previously used to measure partner satisfaction (Ackerman and Field, 2010). Participants can answer each of the questions "strongly agree" (1), "agree" (2), "neither agree nor disagree," (3), "disagree" (4), and "strongly disagree," (5) for a total cumulative score ranging from 7-35 points. Higher points indicate higher levels of satisfaction with their partner. Satisfaction with partner will be assessed as a mediator between identity, identity fluidity, attraction fluidity and depression, stress, and anxiety.

Dependent Variable

Depressive symptoms will be measured by creating a continuous composite depressive symptoms measure by summing the answers to ten depressive symptoms questions in wave four. The ten questions are taken from the 20 items on the Center for Epidemiologic Studies-Depression Scale (CES-D) (Radloff, 1977). Researchers based the ten depressive symptoms survey items on the 20-item CES-D. One question was

modified from "I felt that everything I did was an effort" from the CES-D original scale to "You felt that you were too tired to do things," which is the Add Health item. An abbreviated version of the CES-D contains 10 questions, but only five questions are in the Add Health depressive symptoms items in wave four. All questions had a Likert scale response from "never or rarely" (0), "sometimes" (1), "a lot of the time" (2), "most of the time or all of the time" (3). The measure created a minimum depressive symptoms score of 0 and maximum of 30 with higher scores indicating a greater degree of depressive symptoms. The original 20 item CES-D indicates that a cut-off score above 16 to indicate depression (Radloff, 1977). The CES-D10 has a recommended cut-off score of 10 to indicate depression (Andresen, Malmgren, Carter, and Patrick 1994).

Moderator

Gender will be assessed as a moderator by completing a multi-group analysis. The multi-group analysis is accomplished by creating one dataset with only female participants and another dataset with only male participants and then compare the different models simultaneously through the multi-group analysis feature in AMOS. The multiple group analysis will be used to test whether different models are operating for males and females. A path analysis tested the potential moderating effects of gender by estimating models simultaneously using multiple group analysis procedure of AMOS 21 (Arbuckle, 2012)

Data analysis

A path analysis was conducted to assess the relationships between all variables (Figure 3). Using path analysis permits an examination of complicated relationships

among variables, as it is an extension of multiple regression (Streiner, 2005). First, I examined the proposed links between identity, identity fluidity, attraction fluidity, anxiety, stress, satisfaction with partner and depression for all participants. Then, I examined whether the proposed links between identity, identity fluidity, attraction fluidity, anxiety, stress, satisfaction with partner and depression differed as a function of gender. I estimated models simultaneously using multiple group analysis procedure of AMOS 21 (Arbuckle, 2012). In the analysis, the unrestricted (unconstrained) model was compared with the restricted (structural weights) model. In each model, identity, fluid identity, and fluid attraction were considered observed exogenous variables while all other variables are observed endogenous. Paths were hypothesized between identity, fluid identity, fluid attraction, and depression, were mediated by stress, anxiety, satisfaction with partner, and were moderated by gender. I did not include a path between stress and anxiety but instead estimated the correlations between their error terms (Preacher and Hayes, 2008). There was also no path between fluid attraction and satisfaction with partner in order to have a less than fully identified model. To test the mediational effects of stress, anxiety, and satisfaction with partner factors on depression, I examined significant pathways, total, direct, indirect mediational effects and used RMediation to determine confidence intervals. RMediation has been shown to be an effective method to determine mediation (Selby, Anestis, Bender, & Joiner, 2009; Tofighi & MacKinnon, 2011). RMediation generates a confidence interval by determining the product of the unstandardized path coefficients divided by the pooled standard error of the path coefficients (Selby, et al., 2009). If the up and lower confidence interval values include a zero, then the pathway is not a statistically

significant mediation. If the confidence interval does not include a zero, then mediation
has occurred.

Figure 4 Path Model for this thesis
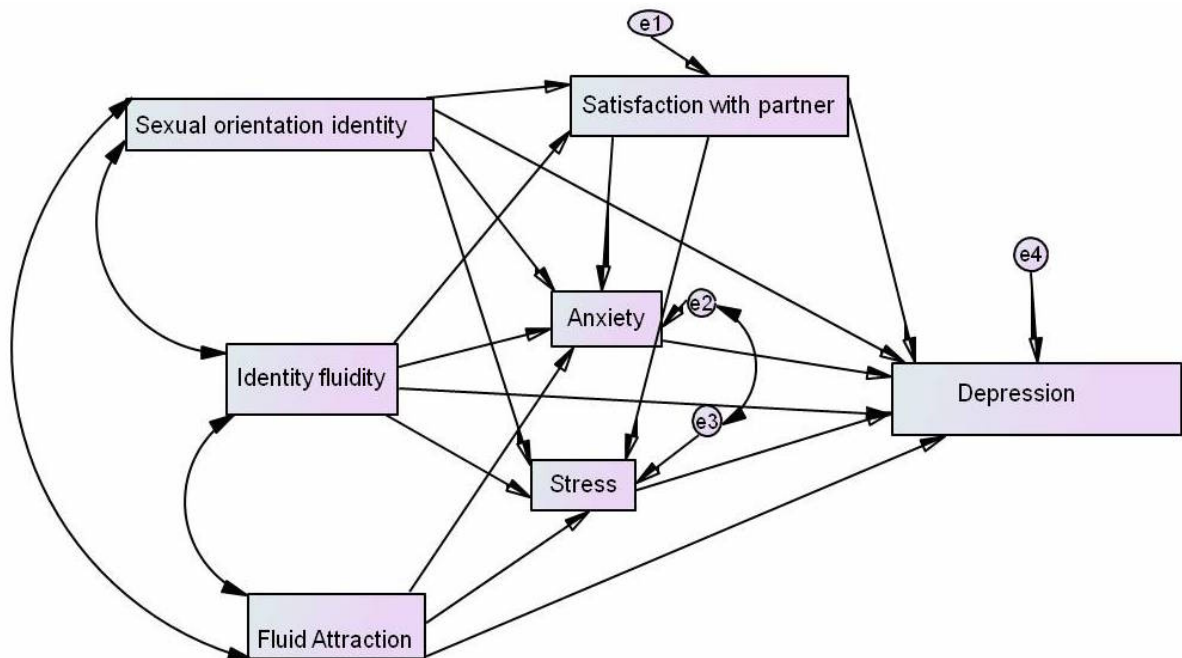
Figure 5 Mediation model
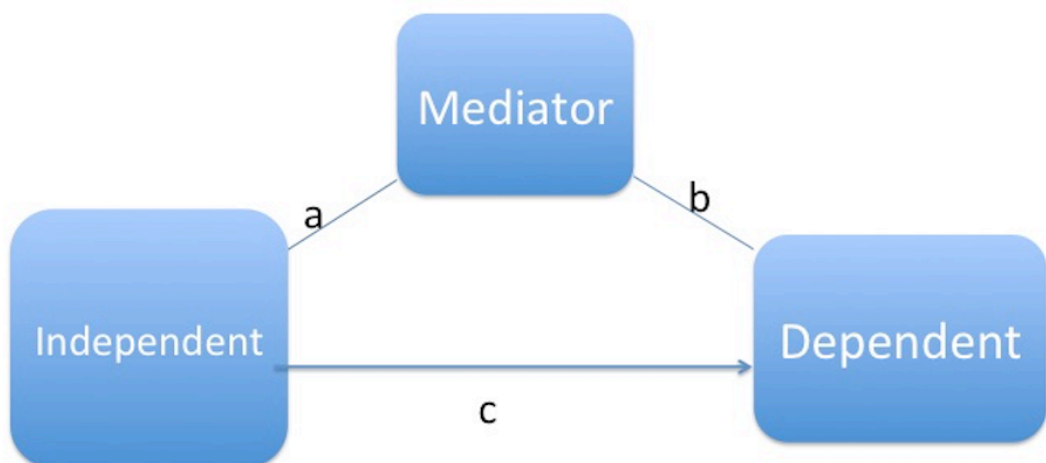
Model fit will be determined by multiple fit indices. These indices include Chi-Square (X^2), the Comparative Fit Index (CFI), the Normal Fit Index (NFI), and Root Mean Square Error of Approximation (RMSEA) (Kline, 2005). Good model-to-data fit will be seen through a non-significant Chi-Square, CFI and NFI values greater than .90, RMSEA values less than .05. In addition, the Akaike's Information Criterion (AIC) and the Browne-Cudeck Criterion (BCC) will be used to determine the most parsimonious model with smaller numbers indicating more parsimony. Maximum likelihood estimation was used to test the models.

Human subject research review

A request for exemption from a full Institutional Review Board (IRB) was submitted to Rutgers University. This research is using publically available de-identified data from Add Health. Rutgers University IRB staff, Michelle Watkinson, Senior IRB administrator reported that this project does not require IRB review.

Results

This chapter presents a path analysis describing the mediating factors for depression and a multi-group analysis examining gender as a moderator for depression. In addition, the results of the relationships between identity, identity fluidity, attraction fluidity, anxiety, stress, satisfaction with partner and depression and how they differ as a function of gender are presented. The main research questions for this study were: Does the hypothesized path model provide a good fit to the Add Health data?; and Do the relationships in the hypothesized model differ as a function of gender?

Path Model Mediation

Figure 6 presents the path model tested in this study. The hypothesized model (Hypothesis 1) was a good fit to the data (X^2 (1) =.143, p=.706, NFI=1.0, CFI=1.0, RMSEA=.000, AIC=68.143, BCC=68.257) and accounted for 49% of the variance in depression. The chi-square was non-significant which indicated that there was no significant difference between the hypothesized model and the Add Health data within this sample. In addition, the model accounted for 1% of the variance in satisfaction with partner, 4% of the variance in anxiety, and 13% of the variance in stress. The path coefficients in Figure 6 represent the standardized regression weights and significant pathways.

In addition to direct effects, or beta weights, this study examined indirect and total effects. As can be seen in Table 2, the decomposition of effects is shown through direct, indirect, and total effects in the path model. This method can be effective and a useful approach to understand the relative strength of the individual effects of each variable in a path model (Alwin & Hauser, 1975). In addition, the ratio of a variable's indirect effect to its total effects can assist when interpreting the results of the path model. This ratio is the proportion of the independent (predictor) variable's total effect on a dependent (criterion) variable that is mediated through another variable (Preacher & Kelley, 2011; Sobel, 1982). For example, stress (dependent variable) was regressed on sexual orientation identity (independent variable) and had a total effect of .121 but an indirect effect through satisfaction with partner of .018. The ratio of the indirect effect (.018) to the total effect (.121) is .15 or 15%. Therefore, 15% of the overall effect of sexual

Figure 6 Mediated Path model for all participants
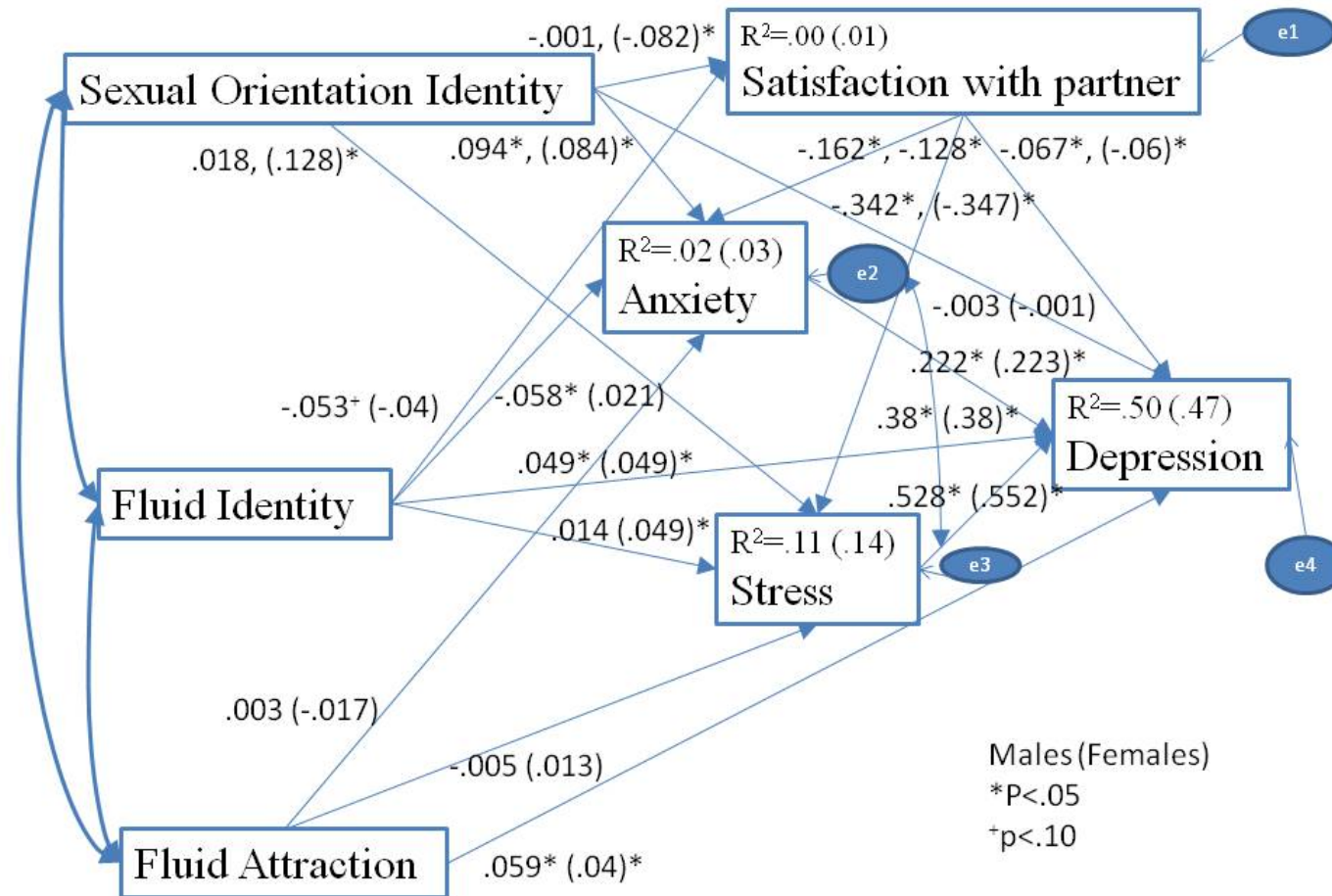
orientation identity on stress was indirect through satisfaction with partner. Ratios were calculated for all relationships in the path model and are presented below. This study examined total, direct, indirect effects, significant pathways and mediation.

The results of this study indicated several interesting and surprising outcomes. First, sexual orientation identity was unrelated to depression while fluid attraction and fluid identity were significantly related to depression. However, anxiety, stress and relationship satisfaction mediated the relationship between sexual orientation identity and depression. Fluid attraction and fluid identity were both significantly related to depression and unrelated to anxiety. Fluid attraction was unrelated to anxiety, stress, or relationships satisfaction while fluid identity was significantly related to stress and relationship satisfaction. No mediation occurred between fluid attraction and depression but stress and relationship satisfaction mediated the relationship between fluid identity and depression. Finally, gender moderated the relationship between sexual orientation identity, relationship satisfaction and stress and gender moderated the relationship between fluidity identity, relationship satisfaction, anxiety, and stress. Detailed descriptions of the results for this study follow.

This study examined the impact of sexuality factors, specifically sexual minority identity, fluid attraction, and fluid identity on depression. First, a chi-square test was performed to examine the relationship between gender, sexual orientation identity, and fluidity. There was a significant association between gender (X^2 (1) = 122.9, p <.000), sexual orientation (X^2 (1) = 1134.5, p <.000) and whether or not the participant reported fluid identity. This seems to represent that males and heterosexuals were more likely to report static identity while females and sexual minorities were more likely to report fluid

identity. There was also a significant association between gender (X^2 (1) = 12.5, p <.000), sexual orientation (X^2 (1) = 191.2, p <.000) and whether or not the participant would report fluid attraction This seems to represent that males and heterosexuals were more likely to report static attraction while females and sexual minorities were more likely to report fluid attraction. Second, the present study hypothesized that sexual minorities will have higher depressive symptoms when compared to heterosexuals (Hypothesis 2). This hypothesis was not supported in that a sexual minority status did not significantly predict (β=.000, ns) depression and there was no significant difference between sexual minority and heterosexual participants in depression. Therefore, depression was equal regardless if a participant was heterosexual or a sexual minority within this sample. This result is surprising considering the lengthy history of research supporting the idea that sexual minorities have higher rates of depression.

However, individuals who reported fluid attraction (β=.048, p<.001) and a fluid identity (β=.050, p<.001) had significantly higher depression rates compared to individuals who reported static attraction and static sexual orientation identity. Therefore, participants who reported fluid attraction were more likely to be depressed when compared to individuals who report the same attraction over time regardless of whether the participant had sex gender or other gender attraction. Fluid attraction had a direct and positive relationship to depression (β=.048, p<.001) and a total effect of 5% (Table 2) on depression. In addition, participants who reported fluid identity were more likely to be depressed when compared to individuals who reported static sexual orientation identity regardless of whether the participant was heterosexual or a sexual minority. Sexual minority identity, fluid attraction and fluid identity should be examined

further to understand if it is the static identity, regardless of sexual orientation or fluidity, that is the larger contributor to depression as opposed to merely the sexual minority identity. The relationships between sexual minority identity and fluid attraction (β=.177, p<.001), sexual minority identity and fluid identity (β=.542, p<.001), and fluid attraction and fluid identity (β=.116, p<.001) were significantly correlated and each contributed to depression differently. Therefore, in order to understand how they individually contribute to depression, they must be represented as distinct variables.

This study examined the effects of sexuality factors (sexual minority identity, fluid identity, and fluid attraction) on mental health and relationship factors such as

Table 2 Total, Direct, and Indirect effects

Predictor	Dependent	Direct Effect	Total Effect	Indirect Effect Via			Ratio of Indirect Effect to Total Effect		
				Sat with Partner	Stress	Anxiety	Sat with Partner	Stress	Anxiety
Sexual Orientation Identity	Stress	0.103	0.121	0.018	x	x	15%		
	Anxiety	0.129	0.136	0.007	x	x	5%		
	Satisfaction with Partner	-0.054	-0.054	x	x	x			
	Depression	0.000	0.099	0.003	0.056	0.034	3%	57%	34%
Identity Fluidity	Stress	0.049	0.063	0.014	x	x	22%		
	Anxiety	0.020	0.026	0.006	x	x	23%		
	Satisfaction with Partner	-0.044	-0.044	x	x	x			
	Depression	0.050	0.093	0.003	0.027	0.005	3%	29%	5%
Attraction Fluidity	Stress	0.000	0.000	x	x	x			
	Anxiety	-0.014	-0.014	x	x	x			
	Depression	0.048	0.045	x	0.000	-0.004	0%	0%	-9%
Satisfaction with Partner	Stress	-0.326	-0.326	x	x	x			
	Anxiety	-0.133	-0.133	x	x	x			
	Depression	-0.062	-0.269	x	-0.176	-0.035		65%	13%
Stress	Depression	0.541	0.541	x	x	x			
Anxiety	Depression	0.226	0.226	x	x	x			

stress, anxiety, and satisfaction with partner. First, the present study hypothesized that sexual minorities will have higher stress, higher anxiety, and lower satisfaction with their partners (2) and the results supported this hypothesis. The results showed that a sexual minority identity was a significant predictor of high stress (β=.103, p<.001), anxiety (β=.129, p<.001), and lower satisfaction with their current partner (β=-.054, p<.01). Sexual minorities reported higher stress and anxiety levels and lower satisfaction with their current partner when compared to heterosexuals. In addition to the direct and significant relationships, sexual orientation identity had an indirect relationship to stress (15%) and anxiety (5.3%) through satisfaction with partner.

Second, the present study also examined the impact of fluid attraction on stress and anxiety and the impact of fluid identity on stress, anxiety, and relationship satisfaction. The results showed that participants who reported fluid attraction did not report higher stress or anxiety. Fluid attraction was not a significant predictor of stress (β=.000, ns) or anxiety (β=-.014, ns). Participants who reported fluid attraction did not significantly differ in terms of anxiety and stress compared to participants who reported a static attraction. One interesting result was that fluid attraction was non-significantly, but negatively, related to anxiety meaning that individuals who reported fluid attraction had lower rates of anxiety when compared to individuals with static attraction. Although this result was non-significant, they present an interesting result to consider for future study. Third, this study found that a fluid identity was a significant predictor of high stress (β=.049, p<.01), a lower satisfaction with their current partner (β=-.044, p<.05) but fluid identity was unrelated to anxiety (β=.02, ns). Participants who reported fluid identity also reported significantly higher stress levels and significantly lower satisfaction with their

current partner when compared to heterosexuals. Participants who reported a fluid

identity did not significantly differ in terms of anxiety compared to participants who

reported a static identity. However, a fluid identity had a large indirect relationship to

stress (23%) and a small indirect relationship to anxiety (4.3%) through satisfaction with

partner.

This study showed that sexuality factors had a significant but unique impact on

mental health and relationship factors. Sexual orientation identity had no relationship to

depression while both fluid attraction and fluid identity had significantly higher

depression rates. Sexual orientation identity had a significant relationship to higher

anxiety, higher stress, and lower satisfaction with partner while fluid attraction had no

relationship to anxiety and stress. While sexual orientation identity and fluid attraction

had opposite significant relationships to depression, stress, anxiety and relationship

satisfaction, fluid identity had a mixed relationship in that fluid identity was significantly

related to depression, stress, relationship satisfaction but not anxiety. Each sexuality

factor had a different relationship to the mental health and support factors lending

evidence to the idea that sexual orientation identity, fluid attraction, and fluid identity are

separate variables and each have a unique impact on mental health and support that

should be explored in future study. Next, this study examined the effects of relationship

satisfaction on stress, anxiety and depression. The present study found that individuals

who had higher levels of satisfaction with their current partner would have lower levels

of stress, anxiety, and depression. Satisfaction with their current partner was a significant

negative predictor of stress ($\beta=-.326$, $p<.001$), anxiety ($\beta=-.133$, $p<.001$), and depression

($\beta=-.062$, $p<.001$). Participants who reported greater partner satisfaction had

significantly lower rates of anxiety, stress, and depression when compared to participants who reported lower partner satisfaction. The strongest direct relationship was between partner satisfaction and stress (β=-.326, p<.001) which indicates that participants' relationship satisfaction had a very strong association with stress. In addition to the direct relationship, partner satisfaction had a very strong indirect relationship with depression through stress (65%). In addition, satisfaction with partner had an indirect effect on depression through anxiety (13%) and a large indirect effect on depression through stress (65%). Anxiety (23%), satisfaction with partner (-27%) and stress (54%) had very strong total effects on depression.

To test the mediational effects of stress, anxiety, and satisfaction with partner factors on the relationship with sexual orientation identity and depression (Hypothesis 3), I examined significant pathways, total, direct, indirect mediational effects and used RMediation to determine confidence intervals (See Table 2). Since this study was exploratory, I examined if stress, anxiety, and satisfaction with a partner mediated the relationship between all sexuality factors (sexual orientation identity, fluid attraction, fluid identity) and depression. First, this study did support the hypothesis that stress [.449, .889], anxiety [.252, .452], and satisfaction with partner [.013, .073], mediated the relationship between sexual orientation identity and depression (Hypothesis 3). Mediation occurred because the RMediation showed the absence of a zero within the confidence interval despite having no direct or significant relationship between sexual orientation identity and depression (β=.000, ns). Stress, anxiety, and satisfaction with partner fully mediated the relationship between sexual minority status and depression. Sexual orientation identity had a strong indirect relationship to depression through stress

(56%), anxiety (35%), and a weak indirect relationship to satisfaction with partner (3.4%). However, the total effect of sexual orientation identity on depression was 10%.

Second, no mediation occurred between fluid attraction and depression. Fluid attraction had a total effect of 5% on depression. Stress [-.088, .086], or anxiety [-.054, .021], did not mediate the relationship between attraction fluidity and depression for all participants. Therefore, individuals who reported fluid attraction had significantly higher depression regardless of their levels of stress or anxiety. Fluid attraction had an indirect negative relationship to depression through anxiety (-8.3%). Next, stress [.449, .889] and satisfaction with partner [.005, .076] but not anxiety [-.051, .18] mediated the relationship between identity fluidity and depression. Therefore, individuals who reported fluid identity had significantly higher depression regardless of their levels of anxiety. Fluid identity had a weak indirect relationship to depression through anxiety (5%). However, stress and relationship satisfaction mediated the relationship between fluid identity and depression. Fluid identity had a strong indirect relationship to depression through stress (29%) but a weak indirect relationship through relationship satisfaction (3%). The total effect of fluid identity on depression was 10%.

Finally, this study tested the mediational effects of stress and anxiety on the relationship between satisfaction with partner and depression (See Table 2). Anxiety [.021, .043] and stress [-.141, -.116] significantly mediated the relationship between satisfaction with partner and depression. Satisfaction with partner had a moderate indirect effect on depression through anxiety (13%) and a strong indirect effect on depression through stress (65%). Satisfaction with partner (-27%) had very strong total effects on depression. The current study found several mediating relationships between

the relationships in the hypothesized model. Stress, anxiety, relationship satisfaction

mediated the relationship between sexual orientation identity and depression while only

stress and relationship satisfaction mediated the relationship between fluid identity and

depression. No mediation occurred between fluid attraction and depression. However,

both anxiety and stress mediated the relationship between satisfaction with partner and
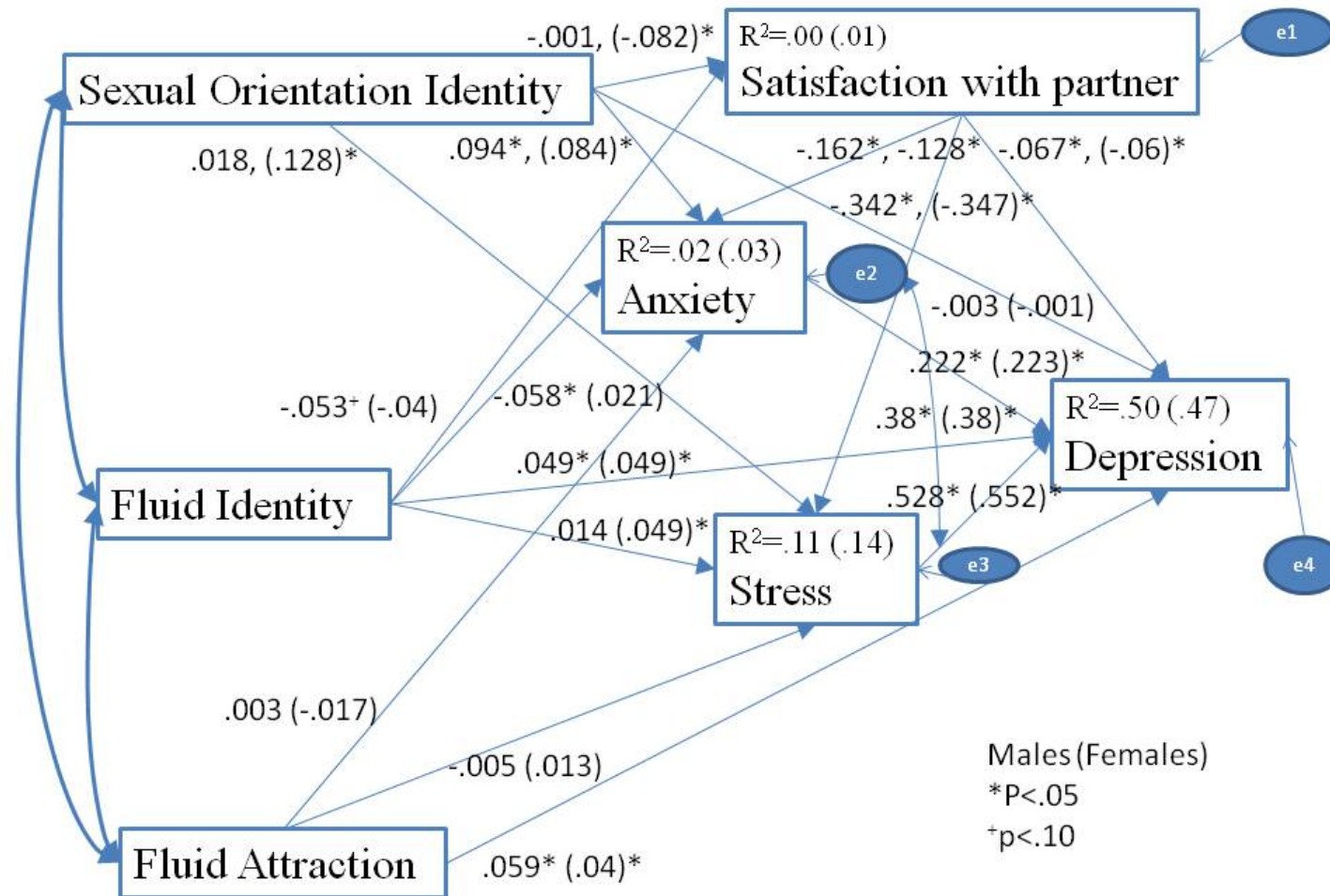
depression.

Path Model: Moderated Mediation

To test whether gender moderated the hypothesized pathways in the model, I

completed a multiple group analysis. For the multiple-group analysis, I used a model

generating approach to compare two models: a restricted model, in which all estimated

parameters were required to be equal across males and females, and a non-restricted

multiple-group model, in which these parameter estimates were allowed to differ across

the groups. The main research question regarding moderation was: Do the relationships

in the hypothesized model differ as a function of gender? The unconstrained model was

a good fit to the data (X^2 (2)=1.711, p=.425, NFI=1.0, CFI=1.0, RMSEA=.000,

AIC=137.711, BCC=138.174). The unconstrained model allows men and women to

behave differently within the model. However, the constrained model (structural

weights) constrains men and women to be equal but since males and female results

varied, this model did not fit with the data (X^2 (18)=47.610, p=.000, NFI=.992,

CFI=.955, RMSEA=.019, AIC=151.610, BCC=151.964). The constrained model did not

fit with the data because the relationships between variables in the hypothesized model

differed as function of gender. Gender served as a moderator, which confirmed the

hypothesis that males and females had different relationships to the variables in the hypothesized model (Hypothesis 4). Model comparison tests demonstrated that the constrained (restricted) model was a poor fit to the data and was significantly different from the original model (X^2 (16)=45.9, p=.000; NFI=.008). Based on these results, I concluded that males and females were different from one another in terms of the hypothesized links between identity, identity fluidity, attraction fluidity, anxiety, stress, satisfaction with partner and depression. Figure 7 shows the parameter values and their significance for each gender. The values shown are standardized regression weights.

To identify which parameters were moderated by gender, all pathways were examined to determine if path coefficients were significant for one gender but not the other gender or if the coefficients were weaker for one gender but not the other. First, I examined whether gender moderated the relationship between sexuality factors and depression. Gender did not moderate the relationship between sexual orientation identity and depression. This study found no significant relationship between sexual orientation identity and depression for both males (β=-.003, ns) and females (β=-.001, ns). Sexual minority males and females were no more likely to be depressed when compared to heterosexual males and females. Despite non-significant results, there was a small negative relationship for both males and females indicating that having a sexual minority identity was associated with lower depression for both men and women.

Figure 7 Mediated Moderator Path model for males and females

Second, fluid attraction was significantly associated with higher levels of depression for men (β=.059, p<.001) and women (β=.040, p<.05). Men had a stronger association between fluid attraction and depression but both males and females were significantly related to depression. Males who reported fluid attraction were more likely to have significantly higher depression rates than males who reported static attraction across all four waves of data. Women who reported fluid attraction had a weaker but still significant association with depression in that women who reported fluid attraction were more likely to feel depressed when compared to women who reported static attraction across all four waves of data. Third, fluid identity was positively associated with higher levels of depression for men (β=.049, p<.05) and women (β=.049, p<.01). Women who reported a fluid identity had significantly higher depression than women who reported a static identity. Men who reported a fluid identity had a weaker but still significant association with depression when compared to men with static identity. Both males and females who reported fluid attraction and identity had significantly higher rates of depression when compared to individuals who reported static attraction and identity. Males who reported fluid identity had a stronger positive association to depression compared to women while women who reported fluid attraction had a stronger positive association to depression compared to men.

This study examined whether gender moderated the relationships between sexuality factors (sexual orientation identity, fluid attraction, and fluid identity) and stress, anxiety, and satisfaction with a partner. A sexual minority identity had a significant negative association to satisfaction with partner (β=-.054, p<.01) and a significant positive association with stress (β=.103, p<.001) until gender was considered.

Women who reported a sexual minority identity had significantly lower levels of relationship satisfaction (β=-.082, p<.001) and significantly higher stress (β=.128, p<.001) than compared to women who reported a heterosexual identity. Sexual minority women reported lower satisfaction with their partner and higher stress compared to women who reported a heterosexual identity. Males who identified as a sexual minority did not differ from heterosexual males in relationship satisfaction (β=-.001, ns) and stress (β=.018, ns). Sexual minority and heterosexual males had similar levels of stress and satisfaction with their current partner. Both men (β=.094, p<.001) and women (β=.084, p<.001) who reported a sexual minority identity had significantly higher rates of anxiety compared to heterosexuals. Therefore, gender moderated the relationship between sexual minority identity and relationship satisfaction and sexual minority identity and stress but gender did not moderate anxiety. Next, I examined whether gender moderated the relationships between attraction fluidity, stress, anxiety, and satisfaction with a partner.

Fluid attraction had no significant relationship to stress or anxiety for men or women. However, women who reported fluid attraction had a non-significant (β=-.017, ns) negative association to anxiety meaning that fluid women had lower rates of anxiety compared to women who had static attraction. Men who reported fluid attraction had a non-significant (β=.003, ns) positive association to anxiety meaning they have higher rates of anxiety when compared to males who reported static attraction. Despite the non-significant association, fluid attraction for males and females had an opposite effect on anxiety. Alternatively, men who reported fluid attraction had a non-significant (β=-.005, ns) negative association to stress meaning that fluid men had lower rates of stress compared to men who had static attraction. Women who reported fluid attraction had a

non-significant (β=.013, ns) positive association to stress. Therefore, women who reported fluid attraction had higher rates of stress when compared to women who reported static attraction while men had lower rates of stress. Fluid attraction for men and women did not significant impact anxiety or stress when compared to individuals with static attraction. However, it appeared that fluid attraction impacted females to have lower anxiety and males to have lower stress. Despite non-significant results, the difference between how men and women who report attraction fluidity respond with stress versus anxiety is interesting and could be explored further in the future.

I examined if gender moderated the relationships between a fluid identity, stress, anxiety, and satisfaction with a partner. A fluid identity was significantly related to lower satisfaction with partner (β=-.044, p<.05) and stress (β=.049, p<.01) until gender was considered. For women, a fluid identity had no significant relationship to satisfaction with partner (β=-.04, ns) but for males, a fluid identity had a weak but significant association (β=-.053, p<.10) with lower partner satisfaction. Males who had a fluid identity were less likely to be happy with their partners while the fluid identity had no impact of women's satisfaction with their partner. Gender served as a moderator between fluid identity and satisfaction with partner. Women who reported a fluid identity also reported significantly higher stress (β=.049, p<.05) while males (β=.014, ns) had no relationship to stress. Gender served as a moderator between having a fluid identity and stress as women reported significantly higher levels of stress whereas male fluid identity has no relationship to stress. A fluid identity was unrelated to anxiety (β=.020, ns) until gender was considered. Males who reported a fluid identity had a negative association to anxiety. Males had significantly lower rates of anxiety (β=-.058, p<.05), but for women,

a fluid identity remained unrelated to anxiety (β=.021, ns).   For males, a fluid identity was unrelated to stress but women had significantly high stress. Where males had significantly lower anxiety, female fluid identity was unrelated to anxiety. Therefore, gender moderated the relationship between fluid identity and satisfaction with partner, fluid identity and anxiety, and fluid identity and stress. Males who reported fluid attraction reported higher stress and lower anxiety but men who reported fluid identity had unrelated stress and higher anxiety. Women who reported fluid attraction reported lower stress and higher anxiety but women who reported fluid identity reported higher stress and unrelated to anxiety. In summary, gender moderated the relationship between sexual orientation identity and satisfaction with partner, sexual orientation identity and stress, fluid identity and satisfaction with partner, fluid identity and anxiety, and fluid identity and stress. However, gender did not moderate between sexual orientation identity and anxiety, fluid attraction and anxiety, or fluid attraction and stress.

Finally, I examined whether satisfaction with partner, anxiety, stress, and depression were moderated by gender. Satisfaction with partner had a strong negative association to anxiety for males (β=-.162, p<.001) and females (β=-.128, p<.001). Both males and females who reported lower satisfaction with their partner also reported significantly higher anxiety rates when compared to individuals who had higher rates of satisfaction with their partners. Women had a slightly weaker association to anxiety but not significantly. The same was true for satisfaction with partner, stress, and depression. Males who reported lower satisfaction with their partner had significantly higher stress levels (β=-.342, p<.05) and depression (β=-.067, p<.001) while women had a slightly weaker negative relationship to stress (β=-.317, p<.05) and the same relationships to

depression (β=-.06, p<.001). Women who reported lower levels of satisfaction with their current partner also reported significantly higher stress and depression levels. Males and females who reported lower satisfaction with their current partner reported significant higher anxiety and stress although males had a stronger association to anxiety and stress when compared to females. Males (β=.222, p<.001) and females (β=.223, p<.001) who reported higher anxiety also reported significantly higher depression. Males (β=.528, p<.001) and females (β=.552, p<.001) who reported higher stress also reported significantly higher depression. Females had a stronger relationship between stress and depression than compared to males although males still had a significant relationship. Gender did not moderate any of the relationships between satisfaction with partner, anxiety, stress, and depression.

Gender moderated the relationship between fluid identity, relationship satisfaction, anxiety, and stress. Males who reported a fluid identity had significantly lower relationship satisfaction and significantly higher stress when compared to males who report a static identity while fluid identity; females had no association to relationship satisfaction or stress. Females who reported a fluidity identity had significantly higher stress when compared to females who report a static identity while fluid identity males had no relationship to stress. Gender also moderated the relationship between sexual orientation identity, relationship satisfaction, and stress. Females who reported a sexual minority identity had significantly higher stress and significantly lower relationship satisfaction when compared to heterosexual females while sexual minority males had no relationship to stress or relationship satisfaction.

When gender was examined as a moderator, sexual orientation identity remained unrelated to depression while fluid attraction and fluid identity remained significant to depression for both males and females. Males who reported fluid attraction had a stronger relationship to depression than females while females who reported fluid identity had a stronger relationship to depression than males. Gender also seemed to moderate the relationship between identity, stress, and satisfaction with partner. In general, it appeared that males and females seemed to respond to stress and anxiety differently. For example, with fluid attraction, men appeared to have higher anxiety and lower stress while women had the opposite: lower anxiety and higher stress. In addition, males (not females) with a fluid identity reported significantly lower levels of satisfaction with partner. Females (not males) with fluid identity had significantly higher stress and males (not females) with fluid identity had significantly lower rates of anxiety. Despite some non-significant differences, the difference between males and females in relationship to anxiety, stress, and satisfaction with partner should be examined in the future.

Discussion

The purpose of this study was to examine the relationships between identity, identity fluidity, attraction fluidity, anxiety, stress, satisfaction with partner and depression, to consider how they differ as a function of gender in a nationally representative sample of young adults and to utilize a model generating path analysis to consider the interactional relationships between the variables.

The results indicate that there was substantial **prevalence of fluidity in attraction** for heterosexuals (32%) and sexual minorities (62%). Approximately one out

of three heterosexuals reported different attractions over the life of the study with one in eight reporting multiple changes in attraction (13%). Two out of three sexual minorities (62%) reported different attractions over time with 7% of sexual minority males reporting changes in attraction at least three times over 13 years. Nearly 33% of males and 40% of females reported attraction fluidity. Attraction fluidity was a common occurrence for both heterosexual and sexual minority participants. Previous research has indicated prevalence rates of attraction fluidity ranged from 0% to 30% to 64% (Diamond, 2008; Katz-Wise, 2014; Savin-Williams & Ream, 2007). Diamond (2008) followed 89 bisexual and lesbian women over 10 years and found that all denied a shift in attraction but up to 67% shifted sexual orientation identity. In this study, 60% of the sexual minority women reported at least one change in attraction over the four waves of data but 52% reported a change in identity from wave three to wave four. My results regarding attraction fluidity are substantially different from what Diamond (2008) found but are comparable to Katz-Wise who found that 64% of females reported attraction fluidity. This could be due to the fact that the Add Health data has a much larger sample size of nationally represented participants whereas Diamond (2008) did not have a nationally representative dataset. Diamond examined a dataset that was not random and contained only 89 participants. Savin-Williams and Ream (2007) used only three waves of data from the Add Health data and found that 30% of all participants reported attraction fluidity versus 36% in my study, but these results are comparable, since there is a chance that additional participants reported a change in attraction in the fourth wave which would increase the percentage of participants.

In my study, **identity fluidity** was substantially less frequent among heterosexuals (3%) but among sexual minorities 50% reported a change in sexual orientation identity with a total of 10% for the entire population. Previous research has had wide variability in prevalence rates of identity fluidity ranging from 2% to 12% to 67% over time depending on the population examined (Diamond, 2008; Everett, 2015; Katz-Wise, 2014; Mock and Eibach, 2012). Diamond (2008) found that 67% of bisexual and lesbian women shifted sexual orientation identity over 10 years. In this study, I found that about half (52%) of the sexual minority women reported a change in identity from the third (e.g., gay) to fourth wave (e.g., heterosexual). Diamond reassessed her participants four times over the 10 years while my study only assessed sexual orientation identity twice in the third and fourth wave. It is possible that if the Add Health data continued for two more waves, more sexual minority women may report changes in identity increasing the number of identity fluid sexual minority women. Mock and Eibach (2012) reported that a total of 2% of the entire population changed identities but among women, approximately 64% of sexual minorities and 1% of heterosexual females reported a change in identity. Males who reported a change in identity ranged from 9% for gay men, 46% of bisexual men and less than 1% of heterosexual men. In my sample, 41% of sexual minority males and 2% of heterosexual males reported a change in identity so these rates are comparable to other research. My study did not distinguish between bisexual or gay males so the difference could not be discussed. Mock and Eibach (2012) used a national representative dataset but had a small percentage of the participants reporting a sexual minority identity with only 1.5% of the sample (N=66). The present study shows similar rates of identity and attraction fluidity compared to previous research

with the exception of the study by Diamond (2008) which indicated no attraction fluidity over 10 years among sexual minority women. In addition to prevalence rates of fluidity, this study examined the relationship between identity, attraction fluidity, identity fluidity, satisfaction with partner, stress, anxiety and depression.

A path model was used to examine the relationship between identity, attraction fluidity, identity fluidity, satisfaction with partner, stress, anxiety and depression. This study's results from the path model showed a good fit of the hypothesized model to the data. The model accounted for 1% of the variance in satisfaction with partner, 4% of the variance in anxiety, 13% in the variance in stress, and 49% of the variance in depression. The R-square value for satisfaction with partner and anxiety were small which suggests that the independent variables (i.e. sexuality factors) helped explain a fraction of the variability in the dependent variables and that there are other factors that affect anxiety and satisfaction with partner for this population. Additionally, the R-square value for stress was moderate which suggests that the stress helped explain more of the variability in the dependent variable when compared to anxiety or satisfaction with partner. The R-square value for depression was large which suggests that the independent variables helped explain half of the variability in the dependent variable but there are still some other factors that affect depression. My results, which are summarized below, suggest that significant risk and protective factors explain the relationship to depression among young adults.

First, I examined the impact of sexuality factors on depression. This analysis revealed that a sexual minority status was not directly related to depression, which is in contrast to the majority of research indicating that a sexual minority status was

significantly related to depression (Cochran & Mays, 2000; Cochran, Sullivan, & Mays, 2003; Gilman et al., 2001; King et al., 2008; Marshal et al, 2011; Meyer, 2003). In the path model, sexual minority status was indirectly related to depression through satisfaction with partner (3%), stress (57%), and anxiety (34%) despite no direct relationship. In the mediation analyses, anxiety, stress, and satisfaction with partner mediated the relationship between sexual minority status and depression. Population based, nationally-representative, and international research that examined nearly 12,000 sexual minority participants found that sexual minorities were at higher risk for 12 month, lifetime prevalence of depression and had more than twice the risk for depressive symptoms when compared to heterosexuals (King et al., 2008; Meyer, 2003). Unlike the majority of research, this study indicated there was no significant difference in depression rates between heterosexual and sexual minorities. Some research has shown that there were no differences in depressive symptoms by sexual orientation identity (Everett, 2015). Everett (2015) showed that identity fluidity had a greater impact on depression than sexual orientation identity. Everett's study also supported this study, which found that identity fluidity and attraction fluidity were significant related to depression.

Despite sexual minority status not being significantly related to depression, attraction and identity fluidity both had significant and direct relationships to depression. In addition to the direct effects, attraction fluidity was indirectly related to depression through anxiety (-9%) in an unexpected way. The negative percentage indicates that anxiety suppressed the impact of attraction fluidity on depression by 9%, meaning that participants who had more attraction fluidity, had lower anxiety, which then lowered depression rates. Likewise, identity fluidity was indirectly related to depression through

satisfaction with partner (3%), stress (29%), and anxiety (5%). Perhaps, fluidity factors had a larger impact on depression than sexual orientation identity. Previous research has suggested that individuals who are fluid may have significantly higher depression rates (Bostwick et al., 2010; Everett, 2015; Jorm et al., 2002; Rothblum and Factor, 2001). Previous research has already indicated that bisexual individuals have significantly higher depression rates when compared to gay males or lesbian women (Rothblum and Factor, 2001). Individuals reporting fluid attraction and fluid identity had higher rates of depression when compared to sexual minorities. Fluid attraction and fluid identity were significantly related to higher depression similar to that of bisexual individuals. The findings also suggest that intervention strategies for sexual minority mental health should be tailored taking fluidity into account because the risk and protective factors for depression appear to be different for the participants in this study.

Next, this study considered how sexuality factors impacted relationship satisfaction, anxiety, and stress. In this study, sexual minority status was not directly and significantly related to depression but was directly and significantly related to satisfaction with partner, stress, and anxiety. This result is partially supported by previous research that indicated that sexual minority status was related to an increase in mental health issues such as stress and anxiety when compared to heterosexuals (Bostwick et al., 2010; Jorm et al., 2002; Meyer, 2003; Rothblum and Factor, 2001). Sexual minority status had a negative relationship to satisfaction with partner, meaning that sexual minorities were more likely to be dissatisfied with their current partner. Sexual minorities were more likely to be anxious, stressed, and unhappy with their current partner but not depressed when compared to heterosexuals. Previous research has indicated that sexual minority

status is significantly related to higher anxiety rates when compared to heterosexuals and in one study anxiety rates were more than twice as high (Bostwick et al., 2010; Cochran and Mays, 2000; Fergusson et al, 1999). In addition to the direct effects, sexual minority status was indirectly related to stress, and anxiety through satisfaction with their current partner. Previous research has shown that support mediates the impact between sexual minority identity stressors and mental health outcomes (Burton et al., 2013; Meyer, 2003; Wong et al., 2014). Sexual minority status and attraction fluidity had an opposite relationship to the other variables in the study. Attraction fluidity was directly and significantly related to depression but was not directly or significantly related to satisfaction with partner, stress and anxiety. However, sexual minority status was not directly or significantly related to depression but was directly and significantly related to satisfaction with partner, stress and anxiety. In this study, individuals who reported fluid attraction did not have higher rates of anxiety, stress, or lower relationship satisfaction levels which is different from previous research on bisexual individuals (Bostwick et al., 2010; Everett, 2015; Jorm et al., 2002; Rothblum and Factor, 2001). In addition, attraction fluidity had a negative but non-significant relationship to anxiety meaning that individuals who reported attraction fluidity were less likely to be anxious compared to individuals who reported static attraction. In addition to no direct or significant relationship between attraction fluidity, satisfaction with partner, anxiety, and stress, there was no indirect relationship to anxiety and stress since the model did not include satisfaction with partner as a mediator between attraction fluidity, stress, and anxiety. Finally, identity fluidity was also directly and significantly related to stress and satisfaction with partner but was not directly and significantly related to anxiety. Identity

fluidity had a negative relationship to satisfaction with partner meaning that individuals who reported a different identity from wave three (e.g., gay) to wave four (e.g., heterosexual) were more likely to be dissatisfied with their current partner. Individuals who reported identity fluidity were more likely to be stressed and unhappy with their current partner but not anxious when compared to individuals with static identity. Few articles discuss the impact of identity fluidity on mental health and relationship factors. However, some authors have suggested having a bisexual or fluid identity may interrupt identity integration and full inclusion within the sexual minority culture preventing protective factors such as support (Everett, 2015; Meyer, 2003). This research supported the idea that identity fluidity was significantly related to stress and low rates of satisfaction with a partner. However, my study did not examine directionality of identity change whereas Everett (2015) found significant differences when an individual reported identity changes towards a sexual minority versus heterosexual status. Everett (2015) found that among individuals who reported a change in identity from heterosexual towards a sexual minority identity, depressive rates were significantly higher while participants who changed from a sexual minority identity to a heterosexual identity had lower depressive rates. Everett (2015) did not examine stress levels but stress may follow this pattern as well. In addition to the direct effects, identity fluidity was indirectly related to stress (22%) and anxiety (23%) through satisfaction with their current partner.

The direct and indirect effects of relationship and mental health factors on depression were also important to this study. Relationship satisfaction had a direct, negative, and significant relationship to stress, anxiety, and depression. Relationship

satisfaction had a negative relationship to stress, anxiety, and depression meaning that participants who reported high relationship satisfaction were less likely to have stress, anxiety, and depression. However, participants who reported low relationship satisfaction also were more likely to be stressed, anxious and depressed. In addition to the direct effects, relationship satisfaction was indirectly related to depression through stress (65%) and anxiety (13%). These results support previous research that indicated that relationship satisfaction was the strongest predictor for emotional distress (Rosand et al, 2012). In my study, low relationship satisfaction was not the strongest predictor to depression but it was the strongest predictor for stress and anxiety. In addition, it did significantly contribute to stress, anxiety, and depression. Mental health factors such as stress and anxiety were directly and significantly related to depression. Participants who reported higher levels of stress and anxiety also reported higher depression rates. These results supported previous research which indicated that anxiety and stress are associated with higher depression rates and that support can mediate stress, anxiety, and depression (Burton et al, 2013; Hammen, 2005; Helig et al., 2004; Judah et al, 2013; Meadows et al., 2006; Rosand et al., 2012; Rusli et al, 2008).

The last main result of this study was that gender moderated the relationships between sexuality factors, relationship factors, mental health, and depression. Overall, gender did partially moderate the relationships between sexuality factors and depression. First, sexual minority status did not significantly relate to depression regardless of gender. Gender did not moderate the relationship between sexual minority status and depression. Previous research has suggested that gay males have higher rates of depression when compared to lesbian women but not compared to bisexual women

(Bostwick et al., 2010). However, these results did not support this research in that there was no significant difference between males and female sexual minorities and depression. However, gender partially moderated the relationship between fluid identity and depression because females who reported fluid identity had significantly higher rates of depression when compared to females who reported static identity. Males who reported fluid identity had a weaker but still significant relationship to depression. In addition, gender partially moderated the relationship between fluid attraction and depression because male participants who reported fluid attraction had significantly higher rates of depression when compared to males who reported static attraction. Females who reported fluid attraction had a weaker but still significant relationship to depression. Previous research supports these finding, which indicates that females have higher depression rates when compared to males (Kendler et al, 2001; Kendler et al., 2014) and sexual minorities have higher depression rates when compared to heterosexuals (Bostwick et al., 2010). However, in this study fluid identity females and fluid attraction males had the highest depression rates. So gender not only partially moderated depression rates but the type of fluidity impacted depression rates differently by gender.

Gender also moderated the path model relationships between sexuality factors, satisfaction with their partner, and mental health factors. Gender fully moderated the relationship between sexual orientation identity and relationship satisfaction because females who reported a sexual minority status had significantly lower rates of relationship satisfaction than females who reported heterosexual identity. However, sexual minority males had similar relationship satisfaction when compared to heterosexual males. Previous research has indicated that females tend to have slightly

lower satisfaction when compared to males but not significantly (Rosand et al, 2012).

Previous research has shown that support mediates the relationship between sexual

minority identity and mental health consequences for youth and adults (Birkett et al,

2009; Burton et al, 2013; Wong et al., 2014). This research found that sexual minority

women differed significantly from males and that gender fully moderated the relationship

between sexual orientation identity and relationship satisfaction. In addition, gender fully

moderated the relationship between sexual orientation identity and stress. Sexual

minority females reported significantly high stress but sexual minority males had similar

stress levels when compared to heterosexual males. Gender fully moderated the

relationship between identity, relationship satisfaction, and stress. Previous research has

indicated that for male youth, stressful life events were not a significant predictor of

depressive symptoms whereas female stressful life events did predict depression

(Meadows et al., 2006). This research suggests that males and females handle stress

differently. In addition, parental support mediated the impact of stress on depression but

the mediational effect of supportive parents lessened as the youth aged (Meadows et al.,

2006). Perhaps the effect of the supportive parent waned as participants found similar

support in a partner. This study found that partner satisfaction significantly reduced

stress and depression rates. In addition, gender only partially moderated the relationship

between identity and anxiety. Male sexual minorities had significantly higher anxiety but

female sexual minorities had a weaker but still significant association between sexual

minority status and anxiety. These results are supported by previous research which has

suggested that males who reported gay, bisexual, or unsure identity had higher rates of

anxiety when compared to lesbian or unsure females but had the same anxiety rates when

compared to bisexual females (Bostwick et al., 2010). Gender did not moderate the relationship between attraction fluidity, stress, and anxiety so there was no significant difference between males and females who reported fluid attraction. Previous research found that males who were mostly attracted to other males had the highest rate of anxiety whereas females had the lowest rates (Bostwick et al., 2010). Although this research did not examine individuals who reported attraction fluidity, it did examine how varied attraction related to anxiety rates and indicates that males had higher anxiety rates. My study found no differences between attraction fluidity, stress, and anxiety by gender. However, females who reported fluid attraction had a non-significant negative association to anxiety meaning that fluid women had lower rates of anxiety whereas males who reported fluid attraction had a positive non-significant association to anxiety. Despite this non-significant relationship, it relates to the previous research which indicated that males have higher anxiety rates when compared to females (Bostwick et al., 2010). Conversely, females who reported fluid attraction had a non-significant positive association to stress meaning that fluid women had higher rates of stress. Males who reported fluid attraction had a negative non-significant association to stress meaning fluid males had lower rates of stress when compared to males with static attraction. Gender did not moderate the relationship between fluid attraction, stress and anxiety but gender did moderate fluid identity, relationship satisfaction, stress and anxiety. Specifically, gender moderated the relationship between fluid identity and satisfaction with partner. Females who reported a fluid identity had similar relationship satisfaction to females who reported static attraction. Males who reported a fluid identity had a weak but significant association with lower partner satisfaction. Fluid identities for women had

no relationship to partner satisfaction but males with a fluid identity were less likely to be happy with their current partners. Conversely, female fluid identity resulted in significantly higher stress but a fluid identity had no significant impact on anxiety for women. Male fluid identity had no significant impact on stress but it did have a significant impact on anxiety by reducing male anxiety. So males who reported a fluid identity had lower rates of anxiety and average rates of stress whereas fluid identity women had average rates of anxiety and significantly higher stress. Gender fully moderated the relationship between fluid identity and stress, anxiety, and relationship satisfaction. Overall, gender moderated many of the relationships in the path model between sexuality, relationship, and mental health factors.

Finally, the results indicated that gender moderated the association between relationship and mental health factors. For example, gender partially moderated the relationship between satisfaction with current partner, stress, and depression. Males who reported lower relationship satisfaction had significantly higher anxiety whereas women had a weaker but still significant relationship to higher anxiety. Previous research has indicated that relationship satisfaction was the strongest predictor of emotional distress (e. g., anxiety and depression) for both men and women (Rosand et al., 2012). Males had a weaker association between relationship satisfaction and emotional distress but it was still significant. Likewise, males who reported lower relationship satisfaction had significantly higher stress whereas women had a weaker but still significant relationship to higher stress. Finally in this study, gender did not moderate the relationship between anxiety and depression but gender partially moderated the relationship between stress and depression. Female stress was significantly related to higher depression rates. Males had

a weaker but still significant relationship between stress and depression. Previous research has also shown a significant association between anxiety and depression (Judah et al. 2013). Previous research showed that gender moderated the relationship between stress and depression in that higher stress rates led to higher depression but only for females (Meadows et al., 2006). Male stress levels were unrelated to depression and support mediated the relationship between stress and mental health factors (Meadows et al., 2006). In this study, male stress was significantly related to depression.

Minority Stress Theory (MST)

This study used a moderated-mediation path model within the context of the MST (Meyer, 2003) as a framework to examine the pathways to depression among sexual minority young adults. MST offers a framework for integrating sexual minority identity, relationship satisfaction, stress, anxiety, and their influence on depression. Therefore, depression can be considered to occur as a result of an interaction between sexuality, protective, risk, and mental health factors within this framework. Specifically, this study used a moderated-mediation path model to examine the linkages between sexuality factors and depression as mediated by mental health and relationship support, moderated by gender, an arrangement which is derived from theories and previous empirical literature on depression.

My findings support the moderated-mediation path model for risk and protective factors for depression within the MST model in four main ways. First, sexuality factors affected satisfaction with partner, stress, anxiety, and depression. Specifically, sexuality factors like sexual orientation identity affected satisfaction with partner, anxiety and

stress, which then impacted depression indirectly. Identity fluidity affected satisfaction with partner and stress levels, which then impacted depression directly and indirectly. Finally, fluid attraction impacted depression directly and indirectly. MST explains that a stigmatized identity, such as a sexual minority identity, can increase minority stress through prejudicial events, violence, expectations of rejection, concealment of identity, and internalized homophobia which then increases the potential for negative mental health outcomes. My study showed that individuals who report identity and attraction fluidity had a similar impact on depression but a different relationship to anxiety and stress. However, all three sexuality factors impacted these variables directly which indicates that they should be examined separately in order to understand how varied identities have a stronger influence on support and mental health factors. In addition to sexuality factors impacting the risk and protective factors for depression, support was shown to mediate the impact of sexuality on depression.

Second, support factors mediated the impact of sexuality factors on mental health issues. Specific support factors, like satisfaction with partner, affected anxiety and stress levels which in turn impacted depression indirectly and directly. MST details that support factors such as coping and social support, whether from a community or individual, can reduce the impact of minority stress on mental health factors like depression. My study showed that support mediated the impact of identity fluidity and sexual orientation identity on depression. In addition, stress and anxiety mediated the effect of support as a protective factor on depression. Support should continue to be examined as a protective factor for individuals reporting a sexual minority identity, fluid attraction or identity.   Third, anxiety and stress impacted depression significantly.

Anxiety and stress impacted depression as predicted in the MST model in that a higher level of stress and anxiety should increase the levels of depression.

Fourth and finally, gender moderated many of the relationships in the model. My study examined gender as a moderator which found that there was significant difference between how males and females responded within the MST framework. Specifically, males who reported a sexual minority identity had no significant relationship to support, depression, and stress but had significantly higher anxiety levels (higher than females). Sexual minority females had significantly higher levels of dissatisfaction with partner, stress, and anxiety (but lower when compared to males) and no significant relationship to depression. Both female and male sexual minorities did not have a significant relationship to depression which means that a sexual minority status would decrease the risk of depression. For individuals who identify with a sexual minority identity, males had higher anxiety levels whereas females had higher levels of dissatisfaction with partner, higher stress, and higher anxiety. Female sexual minorities appeared to have greater risk for stress and lack of support factors but male sexual minorities had higher anxiety. MST provides insight into why female sexual minorities had greater risk for stress and males reported higher levels of anxiety, but it does not explain why males and females function differently within the model and in response to a sexual minority identity.

Males who reported a fluid identity had significantly lower levels of satisfaction with their partner, no relationship to stress, significantly lower levels of anxiety, and higher levels of depression (but lower when compared to females). Females who had a fluid identity reported no relationship to satisfaction with partner or anxiety, but

significantly higher levels of stress and higher depression (higher when compared to males). For individuals who reported a fluid identity, males had higher depression levels (but lower than females) and higher dissatisfaction with partner but significantly lower anxiety levels whereas females had significantly higher levels of stress and depression (higher than males). Females with fluid identity appeared to have greater risk for stress and depression factors but males with fluid identity had higher dissatisfaction with partner but significantly lower anxiety. MST offers a possible explanation to why identity fluid males and females had greater risk for mental health issues and lack of support. In addition, the theory also suggests that identity integration and other support factors may play a role in lower anxiety levels for identity fluid males (Meyer, 2003). If identity fluid males have greater identity integration or other support factors like access to a supportive community, this may significantly lower anxiety levels. However, identify fluid males in this study had significant lower levels of relationship satisfaction which not explain the lower levels of anxiety. This model did not assess identity integration or other support factors and in addition, this does not explain why males but not females had this protective effect. Minority stress also does not explain why males and female function differently within the model and in response to a fluid identity.

Males who reported fluid attraction had no significant relationship to stress (but a negative non-significant relationship) or anxiety but significantly higher levels of depression (much higher than females). Females who reported fluid attraction had no significant relationship to anxiety (but a negative non-significant relationship), no significant relationship to stress, but significantly higher levels of depression (but lower when compared to males). MST explained why males and females who reported

attraction fluidity had greater risk for depression but it does not explain why males would have higher depression rates than females when males did not have significantly worse stress or lower satisfaction with partner. In addition, fluid attraction males were associated with non-significantly lower stress whereas females were associated with non-significantly lower anxiety level meaning that the fluid identity lowered stress for males but not for females and anxiety levels for females but not males. MST also does not explain why males and female function differently within the model and in response to a fluid attraction but it does explain various factors why fluid identity may increase the risk of mental health issues. The model in this study could not account for all factors.

Minority Stress Theory (MST) can explain the path from a sexual minority status to greater mental health issues mediated by protective factors. In addition, my study has extended sexual minority status to include individuals with a fluid identity or fluid attraction. These sexuality factors can lead to higher stress as explained through the model. This stress can lead to worse mental health outcomes such as depression. In addition, the MST has also indicated that support factors can mediate the impact of a sexual minority status and stress and depression. Meyer (2003) explained how insufficient support or additional rejection can lead to higher stress and depression rates. For the adults in my study, sexuality factors were associated with lower support, higher stress, higher anxiety, and higher depression. However, this was not true for all relationships.

Implications for Practice

A substantial number of participants reported changes in their sexuality over the

four waves of this study. The prevalence findings from this study are comparable with the

empirical literature showing that approximately one out of three heterosexual and one out

of two sexual minorities report different attraction over a 13 year period, while a very

small percentage of heterosexuals reported a change in identity (2-5%) and one out of

two sexual minorities reported different identities from wave three to wave four.   These

results suggest an urgent need to reevaluate how sexuality is viewed and how scholars

understand the impact on mental health issues. Intervention strategies for reducing

mental health issues within the sexual minority and fluid population should focus on

reducing the impact of change stigma even among heterosexuals who are fluid.   Fluidity

had a significant impact on stress, anxiety, satisfaction with partner and depressive

symptoms; yet fluidity is often not addressed within interventions targeting mental health

issues. In addition, there are no interventions that specifically address how gender

impacts the relationship between fluidity, support and mental health factors. Male and

female participants in this study had significantly different associations to stress, anxiety,

and satisfaction with partner and depression. One of the main differences was how male

and females responded to anxiety and stress. Identity fluid males were significantly more

anxious while identity fluid women were significantly more stressed. Fluid attraction

males were more anxious while fluid attraction females were more stressed. Despite

some of the results showing a non-significant difference, females and males have an

opposite relationship to anxiety and stress. Likewise, males and females responded

differently to satisfaction with partner. Identity fluid males were significantly more

dissatisfied with their partners while sexual minority females were more dissatisfied with their partners. Overall, gender moderated these relationships frequently in opposite ways so interventions targeting sexual minorities and reducing mental health issues must account for the clear gender differences in how males and females respond to risk and protective factors.

Therefore, it is important to consider the serious negative effects of stigma surrounding fluidity on the impact on mental health. When we consider the substantial and considerably high rates of fluidity, mental health services that accommodate fluid individuals are needed. Previous studies suggest a link between a sexual minority identity and greater mental health issues. According to previous findings, sexual minorities are more likely to develop anxiety, stress, and depression. Therefore, early identification of mental health problems and intervention for sexual minorities is critical. With early intervention to improve the mental health of this group, they will be less vulnerable to experiencing the negative effects of fluidity and this will also lead to more successful transitions to adulthood.

The findings of the present study suggest specific pathways regarding the risk and protective factors for depression among young adults. Sexuality factors affected depression through satisfaction with partner, stress, and anxiety – these paths guide approaches in psychotherapy. Therefore, social workers, parents, and mental health professionals should consider sexuality, support, and other mental health factors in order to prevent or reduce the negative effects of depression. In particular, focusing on improving relationship satisfaction could assist individuals in reducing the risk for greater mental health issues. Based on the findings, social workers, parents, and mental health

professionals should be aware of the impact of fluidity, support, and risk factors on mental health to enhance support and minimize factors such stigma, stress, and anxiety to promote better mental health among individuals who report fluidity.

Limitations

Several limitations to this study are noteworthy. First, sexual identity was only assessed in two of the four waves as opposed to attraction that was assessed at all four waves. So the full extent of identity fluidity was not able to be assessed for this study. Add Health data is an ongoing longitudinal study, so in the future they may continue to assess identity and this study may be able to be repeated with the additional information on participants who change their identity over time. Second, this study did not consider all factors within the MST model like prejudicial events, coping, social support, and identity integration. For example, this study did not factor participant's victimization or other prejudicial events. This study only considered relationship satisfaction as a proxy for support but did not consider other support factors like access to and acceptance within a sexual minority community and acceptance from family. In addition, this study did not consider coping skills of individual participants or identity integration which would mediate the impact of sexuality factors on mental health. Third, this study considered some longitudinal variables like attraction and identity fluidity but did not assess satisfaction with partner, depression, anxiety or stress longitudinally as it was only assessed in the fourth wave. A more comprehensive examination of changes in sexuality factors, support, and mental health is needed to fully understand the impact on depression over time. Fourth, the measurements used in this study to assess stress, anxiety, and

depression may be limited. Stress and anxiety were measured with only four questions and this may not be a sufficient amount of questions to fully assess mental health issues. In addition, diagnostic criteria for anxiety and depression in the DSM-V vary from the four anxiety questions for this dataset. The DSM-V is the standard by which mental health professional diagnose mental health issues. However, the Add Health study based the depression questions on a partial version of the CESD-10. These limitations were noteworthy for this study and should be considered when interpreting the results.

Future Research

This study illuminates several areas for future research. First, pathways to depression including risk and protective factors should be examined in relation to sexuality, relationship, and mental health factors. This is due to the risk and/or protective factors of depression might be different for various expressions of sexuality and fluidity. In particular, sexual orientation identity did not directly impact depression, but identity fluidity and attraction fluidity did have a significant direct impact depression. This study did not assess the impact of sexuality on suicide risk. Depression is the greatest predictor of suicide attempts so this is an important consequence that should be examined in the future. Males who reported fluid attraction or identity reported slightly higher depression rates when compared to females who reported fluidity which indicates that male mental health may be impacted more negatively by fluidity. Gender played an important role in this study, so future research should continue to explore the differences in why males and females often responded in opposite ways to stress, anxiety, and satisfaction with partner. In addition, future research could examine the efficacy of interventions such as

relationship counseling to improve relationship satisfaction and decrease depression. Relationship counseling can improve an individual's perception of the quality of their relationship and could enhance feelings of closeness, trust, reliability, and loyalty which lead to higher relationship satisfaction. However, gender would need to be examined to see if relationship counseling has a different level of impact on relationship satisfaction for males and females.

Future research could evaluate geographic impact of sexuality factors on depression when considering social stigma in communities where sexual minorities are viewed as conflicting with individual community member "moral values." Despite the recent Supreme Court ruling that legalizes marriage equality in the United States, some jurisdictions continue to refuse to issue licenses to individuals of the same gender. No doubt with time, the court will resolve this conflict. However, there are many other conflicts regarding housing, employment, and child custody laws, etc. that do not offer protections against the discrimination of sexual minorities. The law may change, but individual community member attitudes may remain unchanged which will have an impact on the stigma attached to sexual minorities and to fluidity. Sexual minorities who live in more stigmatized areas may have greater risk for mental health issues due to an increase in minority stress and lack of support factors.

Another possibility for expanding future research is to explore how high school and college level health or sexuality classes can include facts regarding the prevalence of fluidity and sexuality factors. This knowledge may change attitudes and the stigma attached to sexual minority identities. Some research has shown that education and individual contact with stigmatized minority groups helps to reduce stigmatizing attitudes

which may have an impact on mental health. Future research should consider the impact of sexuality factors, relationship factors, stress, mental health, and geographic area on depression and should consider the effectiveness of interventions targeted to alleviate depression and increase knowledge of sexuality.

In conclusion, this study's findings suggest an urgent need to provide prevention and intervention strategies for young adults who are sexual minorities and have mental health issues. The higher rates of depression among sexual minorities show the importance of focusing and targeting this subgroup of adults when addressing mental health issues. The practical implications include providing quality mental health services, developing interventions that target the stigma of having a fluid or sexual minority identity, and to help improve satisfaction in relationships as it provides a protective factor against mental health issues.

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