EXPLORING STABILITY IN SEXUALITY AND MENTAL HEALTH OUTCOMES USING IDENTITY THEORY

A Dissertation

by

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ABSTRACT

A growing body of work shows that sexual orientation can and does change over time. However, little of that research delves into the mental health repercussions of such a shift in identity. This project uses the Kaplan Longitudinal and Multigenerational Study (KLAMS) and employs nested negative binomial regression to explore the impact of sexual identity change on mental health outcomes. Identity control theory is used to explain how lack of identity verification, caused by a shifting sexual identity, leads to stress, which can manifest as higher reported counts of negative mental health symptoms. Results show the most relevant factor regarding sexual identity mobility and negative mental health outcomes is fluidity (change over time) in sexual orientation itself, rather than stigma alone. This finding provides support for identity control theory interpretations. There were no differences found in negative mental health symptoms for those that reported stable sexual orientations.

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NOMENCLATURE

ICT	Identity Control Theory
NSF	Negative Self-Feelings
SIT	Social Identity Theory
SRB	Self-Referent Behavior
SVT	Self-Verification Theory

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CHAPTER I

INTRODUCTION

Sexual orientation is a fundamental component of human sexuality and the human experience. Often, in social science, there are two basic approaches to sexual orientation: essentialist and social constructionist (Baumle, Compton and Poston Jr 2009, Laumann et al. 1994). Essentialist thought regarding sexuality focuses on the concept of "essential" biologicial/psychological attributes that are shared across the board. It is something frequently understood to be universally defined and stable (Bell, Weinberg and Hammersmith 1981, Ellis and Ames 1987, Haldeman 1991, Money 1987). These distinct categories, or fundamental traits, are what determines a person's inclusion into various sexual orientation categories (lesbian/gay, bisexual, heterosexual). A social constructionist view of sexual orientation arguest against the notion that an individual is either *in* or *not in* discrete categories, reasoning that definitions vary homosexuality across culture, time and space. Likewise, some inviduals might self-identify has homosexual but not engage in same-sex behavior (Laumann et al. 1994) . In addition, how an individual self-identifies in terms of sexuality might be incongruous with how society at large would identify/label that person.

Sexuality literature, however (Baumeister 2000, D'Augelli 1994, Diamond and Savin-Williams 2003), indicates that essentialist conceptualizations of sexuality are not congruent with the social world. Sexual orientation must therefore be defined with the social world in mind. Shively and De Cecco (1977) outlined four parts of sexual identity:

1) biological sex, 2) gender identity (psychological sense of being female or male), 3) sex role (social norms dependent on culture that dictate behavior and attitudes deemed appropriate of each sex), and 4) sexual orientation (erotic and/or emotional disposition to the same and/or opposite sex). The authors point out that while the first three have no bearing on sexual identity, they are often mistaken for having a relationship. Various facets of each (cross-dressing, fetishism, etc.) are also not related to sexual orientation. Additionally, individuals may engage in same-sex behavior but choose not to label themselves in that way. Beyond asking a respondent their sexual orientation (usually termed "self-reported identity") there are other components of an individual's sexuality that can be considered when conducting research centered on sexuality: sexual fantasy, romantic attraction, and sexual behavior.

If one accepts the concept of fluid sexual orientation, this has ramifications upon how such orientation will be determined or reported. Often classifications are composed of merely three choices when self-reporting sexual orientation: homosexual, bisexual, and heterosexual. This simple 3-category response may not accurately reflect an individual's sexual orientation, which can lead to lack of resources for populations in need. As a result of this phenomenon, there is a growing body of sexuality research that utilizes an expanded category of sexual orientation. The argument made is that scholars must recognize sexuality as a fluid, multi-category component of society in order to provide more precise work and better scholarship regarding marginalized groups (Savin-Williams and Vrangalova 2013).

As LGBT (lesbian, gay, bisexual and transgender) issues are gathering more attention, a more precise categorical response concerning sexual orientation is necessary to produce research with more potential for application (Baumle, Compton and Poston Jr 2009, Laumann et al. 1994, Poston and Chang 2015) . A growing body of sexuality research focuses on those that self-identify as *mostly heterosexual* and how this group is more at-risk for negative outcomes compared to those that identify as *heterosexual*. This is an example of a group that would not be looked at in the traditional tri-category of sexual orientation, as most would self-select into heterosexual (Loosier and Dittus 2010, Savin-Williams and Vrangalova 2013, Vrangalova and Savin-Williams 2012).

Adding to this line of research, this paper will utilize the theoretical perspective of Identity control theory along with research conducted on Sexuality and Mental Health to examine how one's fluid sexual identity (changing sexual orientation over time) can affect the presence of negative mental health outcomes, such as depressive symptoms, anxiety and self-derogation.

CHAPTER II

LITERATURE REVIEW

Since sexual orientation is an important identity, perhaps one of the most central of all identities, I first discuss general approaches toward identity and how these approaches enable explanation and prediction of individuals' behaviors. Then I will delve into literature on sexuality, as well as mental health, stress and stigma.

Identity

Identity is a vital component of social psychological research that corresponds to a sense of self, or who one is. Identities are embedded within social structures and change depending on the context. Meaning, the behavior associated with certain identities relies on the environmental surroundings as well as the social network an actor is currently engaging. Social cognition and symbolic interaction are the two prevailing perspectives on identity which comprise the theoretical core of understanding identity (Howard 2000). Social cognition has roots in psychology and theorizes on how actors process and store information. Actors create cognitive schemas, which are methods of organization information about the self. Examples of such schemas are: What kind of sports do I like? Am I a morning person? Using a categorization system is beneficial in that is allows for a quick summary of key information, but can allow for loss of information as well. Interactionism differs in that the focus centers of how individuals attach symbolic meaning – to the self, behaviors, others, and objects. The idea is that actors engage and react to stimuli based on the meaning attached to the object.

Interaction itself is vital to how objects derive their meaning, as meaning can only develop through interaction. Identities themselves are symbols to actors that pinpoint them in certain locations and relationships. These meanings vary across space, time and individuals. For example, if I conceive of myself as a "morning person" I have an identity-relevant meaning as to what sort of behavior that entails. Therefore, as I view myself as a morning person, I will exhibit behavior I find appropriate: I wake up refreshed, without delay and possessing a cheery disposition (Howard 2000).

There are many different theories that center upon the concept of identity. Well-known social psychological identity theories that focus on identity verification include identity theory or identity control theory (Burke 2007), affect control theory (Heise 2007) and Swann's verification theory (Swann Jr, Pelham and Krull 1989). These three perspectives center upon the idea that people seek out evidence for confirming or verifying their identities. However, not all identity theories center on the idea of verification; for example, Kaplan (1986) focuses on the assumption that people seek self-enhancement. Social Identity Theory (Tajfel and Turner 1986), rooted in psychology, emphasizes motives for a positive social identity, or enhancement, by focusing on group membership.

Identity Control Theory (ICT) focuses on how a person defines *who they are* and the relationship between that identity and their behavior, within a social structure in various identities are embedded. A central idea in these types of theories is that behavior is based on a world that is named and classified. People within this world name and identify themselves, as well as others, with respect to the positions they occupy. These

labels have meanings and expectations attached to them, and it is these meanings and expectations that become part of the person's identity through internalization. These self-labels define people in terms of their position in society along with carrying shared behavioral expectations. They are also relational, as they tie people together through shared meanings. Social structure, in this view, is not fixed (Burke 2007).

The meaning through which identities are formed is a key concept within ICT. What does it *mean* to be a parent, sibling, or college student? Burke states "an identity is a set of meanings applied to the self in a social role or as a member of a social group that define who one is" (Burke 2007: 2). Simply put, the definition of meaning can be seen as a response to a stimulus. Thinking of oneself as "X" brings forth a set of responses (meanings) similar to those called up in others. These responses define what it *means* to be X, Y, or Z. Common responses lead to common expectations about what X is and does in terms of behavior (Burke 2007).

Every identity is seen as a control system. Burke (2007) outlines the control system with a cybernetic model using a feedback loop. There are four components: 1) *the identity standard* (meaning of the identity to the actor), 2) *perceptions* of meanings in the situation (relevant to identity), 3) a *comparator* which compares perceived meanings with that of the identity standard, which also functions as an output of the comparison (error/discrepancy) that indicates the different between the meaning and the standard. And 4) *meaningful behavior in the situation*, a function of the error, that transmits meaning about our identity. In a setting, if people perceive their identity-relevant meanings as matching the meanings of their identity standard, people will

continue their actions (since they have achieved the necessary identity verification). If, however, there is some discrepancy, people will change their behavior in order to get the meanings and standards to align. *Changing the behavior changes meanings in the situation*. So once again, the individual will compare the meanings to the standard. Therefore, each identity is a control system that seeks to control perceptions (identity-relevant meanings) by matching them to their identity standards, discarding any discrepancy caused by the interruption. This cycle is the process of identity verification. People act in ways that verify their identities, and in doing so, will put themselves in the position for their meanings and identity standards to be consistent. The meanings in the identity standard signify goals, or the way the situation is supposed to be. "If the identity is a role identity, then the behavior that brings about the changes in the situational meanings to make them consistent with the identity standard is appropriate role behavior" (Burke 2007: 2-3). In terms of a group identity, the behavior used for verification is that which maintains group boundaries in the social structure. So, the process of identity verification not only creates but also maintains the social structure that the identities are embedded in (Burke 2007).

ICT has three kinds of identities. *Role identities* show what it means to be in a role such as a "father". *Social identities* show what it means to be a in a group or category such as "American." *Person identities* show what it means to be the unique biological entity that one is. Each act in the same way, where people attempt to verify their identities by making the situational meanings match the meanings of the identity standard by balancing any interruptions. For each, different resources are controlled

through the control of meaning. It is understood that people have multiple identities. This complexity regarding the self mirrors the complexity of society. The identities are arranged in a hierarchy where some identities are higher than others in the sense that the output of the higher-level identities set the standards for the lower level identities (Burke 2007).

The most common occurrence from discrepancy between the perceived identity relevant meanings and the identity standard is behavior that offsets any disruption and brings meanings back in line with the identity standard. However, ICT also addresses identity change (the identity standard slowly changes in the direction of the situational meaning). Both of these occur at the same time, just at different speeds. If the interrupted meaning is quickly fixed, any change to the standard could go unnoticed. In the case of persistent disturbance, however, the identity standard will continue to change slowly in the direction of the situational meaning and the person will begin to see him/her-self as being consistent with those meanings. The discrepancy was removed by changing the identity standard to match the situation meaning, and not the other way around. Identity verification is tied to emotion. If the incongruity between the perception and the standard is small or decreasing, people will feel good. If the difference is large or increasing, people will feel bad or distressed. This takes time and most people leave the situation as opposed to enduring the slow changes to self (Burke 2007). Identity change is an important point that will be examined later when discussing the purpose of this study.

Swann's self-verification theory (Swann Jr, Pelham and Krull 1989, Swann Jr, Milton and Polzer 2000, Swann Jr, Chang-Schneider and Larsen McClarty 2007, Swann

Jr et al. 2009) follows in the tradition of self-consistency theories (see Higgins 1987 for a review) but diverges by abandoning the idea that people are interested in consistency for its own sake. People want to confirm their self-conceptions in order to reinforce their perceptions and predictions and control. They want to understand mental and social life. Self-view can be described as self-concept, self-esteem, or a firm belief or feeling about oneself. Self-verification theory (SVT) assumes that one key to successful social relationships is the ability to recognize how others perceive you. People see how others respond and internalize the responses as self-concepts. In general, people want to be seen according to their self-views, which are maintained through self-verification strivings. People begin to prefer evaluations that confirm their self-concepts and avoid those that do not as positive evaluations create a semblance of stability. People are motivated to self-verify in order to have stable self-views. With such, they'll be able to handle the flux of social life. Also, being understood eases social interaction while being misunderstood creates unease.

The concept of SVT competes with another—self-enhancement. Self-enhancement perspectives assumes that, overall, people want positive reviews (regardless of whether or not *their* self-views are positive). If someone has a positive self-view, self-enhancement works as they want to self-verify enhancing self-views. However, if a person has a negative self-view, this clashes with the concept of self-enhancement. Swann states that self-verification tends to win over self-enhancement when people feel very strongly about the self-view and when the self-view is depressive. For example, it can cause people to move towards abusive partners, or leave a

spouse/partner that sees them too favorably. SVT suggests that people will begin to shape others' views of them before the interaction even takes place through identity cues and impression management (clothing, body language, cars, etc.). Swann suggests that people are biased. They see things as more supportive than they really are (conscious or deliberate) and listen to those that confirm their self-views and ignore those that do not. Overall, they interpret things in such a way that reinforces self-views.

Kaplan's (1986) theory of self-referent behavior (SRB) conceptualizes a person as similar to two separate individuals—there is one who *acts* and one who *reacts* to the behavior of the actor. People that perform the behaviors are also the objects of that same behavior. "The person is the knower and the known, the one who feels and the object of the feeling, the person who judges and the one who is evaluated" (Kaplan 1986: 1). Self-referent behavior belongs to the category of human social behavior, which can be seen as any behavior by an individual or group that can serve as a stimulus for, or response to the (real or imagined past, present, or future) behavior of another individual or group. This definition serves to remind us that the behavior does not have to be "real" to be labeled 'social.' A belief can invoke a response, whether that belief is real or imagined, just as a past memory or anticipation of a person's behavior can become a stimulus. Kaplan outlines four modes of self-referent responses: 1) self-referent cognition, 2) self-evaluation, 3) self-feelings, and 4) self-protective/self-enhancing responses. His theory rests on the assumption that individuals need positive responses. All behaviors and responses are geared towards receiving that positive feedback from the actor himself, as well as in interactions with others. If an actor does not receive positive feedback, the

actor will engage in self-protective/self-enhancing responses in order for the scale to measure towards the positive once more.

Social Identity Theory (SIT) is a psychological theory that focuses on group relations and processes in conjunction with the social self. Much of the self-concept for an actor is derived from group membership. Each membership is a social identity that delineates one's attributes as a member of that group: what you should think, what you should feel, how you should act, etc. When a particular group identity becomes salient, an actor's self-perception and behavior becomes in-group stereotypical and normative. Members are strongly motivated to follow in-group norms in order to maintain group esteem. Due to these strong motivations, SIT emphasizes incentives for a positive social identity, which is presumed to drive the social comparison process as well as the desire for positive in-group distinctiveness (Hogg, Terry and White 1995, Stets and Burke 2000, Tajfel and Turner 1986).

The core concept within SIT is that actors' identities are embedded within the groups they are a member of, and their self-meanings mirror those of the groups. Therefore, the basis for identities are groups, as opposed to roles, as in identity theory and identity control theory.

While they do differ, these theories all concern identity and interaction. Identity control theory sees identities as a set of meanings, self-verification theory sees people attempting to confirm their identities for consistency, self-referent behavior sees identities as a collection of stimuli and responses and social identity theory pinpoints

group membership as a driving force for behavior. They all work together in explaining how various individuals form and maintain their self-concept through social interaction.

Identity plays a vital role in an individual's life. It can be defined as the set of meanings that people hold for themselves that define what it "means" to be who they are. There are various ways to examine identity. Some perspectives focus on social structures and how they are linked to identity (Serpe 1987, Stryker and Burke 2000), others focus on people's motivations to seek either consistent or enhancing feedback (Burke and Harrod 2005), and still others assert that identity is contingent upon being categorized within certain groups and the in-group/out-group comparison (Stets and Burke 2000).

Burke's work on identity focuses on the internal processes that bring forth behavior. In particular situations, perceptions of an individual's identity will surface. Individuals will seek to have the audience's (in an interaction) definition of the identity match the definition that the actor applies to him/her-self. This process (the aforementioned feedback loop) is called identity verification. When one can achieve identity verification, positive feelings are elicited. On the other hand, when an individual is unable to obtain identity verification, it causes negative feelings (Burke 2007).

My research focuses on identity control theory (Burke and Cast 1997, Burke 2007, Cast, Stets and Burke 1999, Stets and Burke 2000, Stets and Burke 2005) since it addresses the ways in which an actor defines who they are through labels having explicit meanings that are internalized as identities. More specifically, this research utilizes

identity control theory for its focus on identity instability due to lack of verification and the subsequent effect on the actor.

Burke (2004) outlines some ways that identity control theory should be seen as a theory about the connection between identity and social structure. He points out that the identities being verified are most often given by culture. Social structure should be considered since a person's verification of their identity is based largely on the resources and means provided by said structure. An individual's culture/social structure will dictate how they will be able to incorporate the new identity into their existing one based on the cultural aspects associated with that new label. One must also consider the fact that the social structure is produced and reproduced through the process of identity verification. Having a role identity verified helps to sustain that role and its counter-roles. Having a group identity verified helps to sustain and maintain the group and the in-group/out-group division.

Burke and colleagues have explored different facets of identity and social structure (Burke and Stets 1999, Cast, Stets and Burke 1999, Stets and Burke 2005). These studies demonstrate that identity verification leads to committed relationships, emotional attachments, and group orientation, which are all characteristics of a stable social structure. Social psychological processes can be shown to uphold the social structure by demonstrating the impact it has on psychological processes. The self is not static or stationary. It is constantly shaped and maintained. It can change at any time due to an ongoing personal context. Research suggests that a person's relative status can alter this process.

Burke and Stets' research demonstrates that having your identity constantly verified in interaction causes certain consequences: increased trust for others, commitment to those others, increased emotional attachment to those others and the feeling that you are part of a group. Therefore, through repeated identity verification, an individual will acquire knowledge of others' character and will eventually come to trust those people. Positive self-feelings will also induce trust and trust will induce feelings of confidence and security. This should also result in a positive emotional attachment.

Another important aspect concerning identity is its connection to role performance and power. Burke and Cast (1997) show that the idea of the self is relatively stable and maintained by a continuous process of self-verification. However, identity standards can change due to a disruption of the process or by some external event. Burke and Cast point out that the continuous mismatches that lead to this kind of identity change are likely under certain circumstances, such as *role transitions*, when the self experiences a speedy shift in social conditions. Adopting a new role means reorganizing the social environment. An individual cannot remove themself from the situation as a way to achieve balance. This study by Burke and Cast demonstrates how gender identity may adapt over time to changing cultural definitions. When there is a shift in the formation of a new identity, there can be a change in role performance due to the transition. Agency and power also take a part in this. Those that have more power will be more likely to have their identities verified and will be more likely to define the situation in their favor (Cast 2003). High power actors have the ability to direct the interaction to have their identities verified. Because of this, that have more agency (or

power) will perhaps feel less stress associated with a particular role (Tsushima and Burke 1999).

Sexuality

Sexual orientation is a fundamental part of an individual's identity. How sexuality is measured, defined, and researched has undergone some scrutiny in recent scholarship and has highlighted the myriad of ways that researchers, individuals and society understand sexuality. Sexual orientation has been generally defined by attraction to women, men or both (LeVay and Valente 2006). Sexual orientation has often been assumed to be something an individual is "born with" and is stable over time, an essentialist view of sexuality (Laumann et al. 1994) . New research reveals that sexuality is not completely unwavering. From a definition standpoint, what *is* sexual orientation? Is it sexual attraction, fantasy, sexual behaviors, romantic relationships, or merely a convenient label? Questioning who belongs in what group, for how long, and why, is crucial for any scholar interested in sex research (Baumle, Compton and Poston Jr 2009, Compton, Farris and Chang 2015, Laumann et al. 1994, Poston and Chang 2015) .

Part of the definitional problems relate to whether categorization is related to behavior, desire, or some other aspect of self-identity. For example, what if an individual has romantic relationships with men but fantasizes about women? Figure 1 illustrates a simple nomological network for sexual orientation, including core components of self-identity, sexual behavior, romantic attraction and sexual attraction (Mustanski, Kuper and Greene 2014).

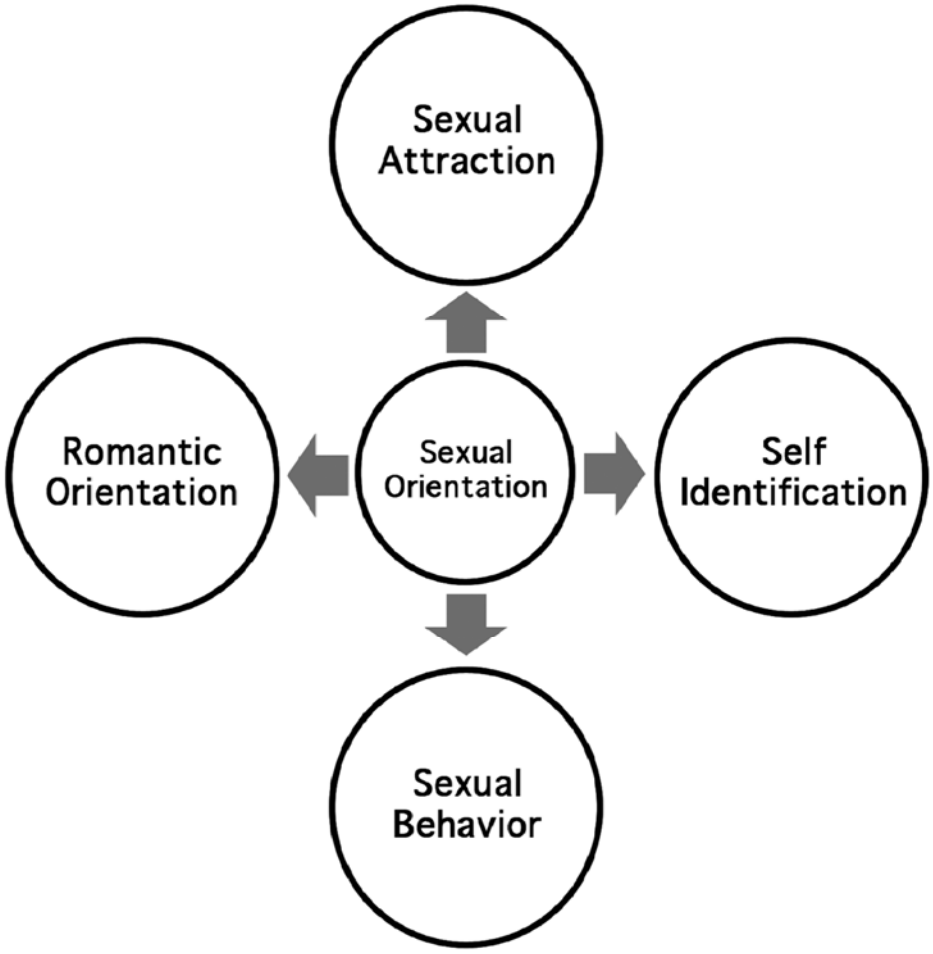

Figure 1: Nomological Network of Sexual Orientation
Source: Mustanski, Kuper and Greene (2014)

Self-identification, sexual behavior and romantic attraction are all measured through self-report by asking questions such as, “Do you identify as heterosexual, gay, lesbian or bisexual?”, “Do you have sex with men, women or both?” and “Who do want to be in a romantic relationship with?” These questions correspond to socially constructed categories of identity that will continue to evolve over time, and can be measured with precise units as well as a Likert scale (Mustanski, Kuper and Greene 2014). Sexual

attraction, on the other hand, measures sexual arousal which includes physiological, affective and cognitive components (Janssen et al. 2000). Relationships between these constructs are not well defined and likely vary in men and women and across individuals. As mentioned earlier, an individual may have an opposite-sex preference for one component and same-sex preference for another, while self-identifying something seemingly contradictory. In this aspect, compared to men, women's sexual orientation has been described as "fluid" across the life course (Diamond 2012), in that they change and evolve over time more often than men. Kinnish, Strassberg and Turner (2005) found significant sex differences in reported change in orientation over time for both gays and heterosexuals, with women showing more change in orientation over time compared to men. While one third of their total sample reported *no change whatsoever* for any dimension of orientation (fantasy, romantic attraction, sexual behavior), two-thirds of the participants reported *some* shift across the three dimensions of orientation. Confirming previous research (Diamond 2000, Diamond 2003b), Kinnish, Strassberg and Turner (2005) that found less change in sexual orientation than in the dimensional ratings.

Though sexual orientation is theoretically understood to be a continuum, in practice it is often condensed into three categories (heterosexual, bisexual, and homosexual) by researchers (Sell 1997). This is a simplistic way to measure a fairly complex trait and research shows the need for multiple models of sexuality as sexual orientation is not systematically associated with behavior, ideation and attraction, and needs to be measured in more thoughtful and accurate ways (Diamond 1998, Diamond 2003a, Diamond 2008, Gonsiorek, Sell and Weinrich 1995). The most frequently used

multiple-item measure of sexual orientation is the Kinsey Scale (Kinsey, Pomeroy and Martin 1948), which assesses sexual orientation on a continuum between "exclusive heterosexuality" and "exclusive homosexuality" (see Figure 2). In fact, Kinsey, Pomeroy and Martin (1948) can be credited with moving sexuality research from an essentialist viewpoint to a social constructionist one, as most research done before the 1940s employed an essentialist focus.

Rating	Description
0	Exclusivly heterosexual
1	Predominantly heterosexual, incidentally homosexual
2	Predominantly heterosexual, but more than incidentally homosexual
3	Equally heterosexual and homosexual
4	Predominantly homosexual, but more than incidentally heterosexual
5	Predominantly homosexual, incidentally heterosexual
6	Exclusively homosexual
X	Asexual, non-sexual

Figure 2: Kinsey Scale
Source: Kinsey, Pomeroy and Martin (1948)

Though investigators commonly accept that sexual orientation exists along a continuum (a 5- or 7-point Kinsey scale), in practice they will likely place participants into one of the three discrete categories previously mentioned (Savin-Williams 2014). This is often

done due to methodological or practical reasons (such as small sample size), but recently for theoretical reasons concerning men and their arousal patterns – i.e. identifying as heterosexual but being physically aroused by depictions of men (Bailey 2009). Almost 30 years ago, McConaghy (1987) argued that sexuality exists along a continuum with degrees of non-exclusivity in between heterosexuality and homosexuality. Over a decade later McConaghy (1999) determined that the debate between category versus continuum with respect to sexual orientation was one of the major unresolved issues in sexuality studies. The Institute of Medicine (2011) issued a report underlining the operationalization and measurement of sexual orientation as an important challenge facings scholars. There are so many ways to research and understand sexual orientation in this literature, from single-item measures to multidimensional scales and physiological assessments. Because of the countless ways researchers have measured these various components of sexual orientation, it has been defined differently on several dimensions, highlighting the challenge facing those that would enter into this area of research. As the literature evolves and becomes better studied, it becomes more difficult to define sexual orientation.

Theoretically, collecting data on multiple variables should paint a more accurate picture. Hence, researchers have suggested using multiple methods to measure sexual orientation, as the rate of non-heterosexuality changes depending on how sexual orientation is operationalized as a variable (Baumle, Compton and Poston Jr 2009, Compton, Farris and Chang 2015, Laumann et al. 1994, Poston and Chang 2015) . For example, Kinnish, Strassberg and Turner (2005) utilized three components of sexual

orientation for their study in order to assess sex differences in flexibility of sexual orientation over time: current sexual orientation (three categories), dimensional ratings (7-point Kinsey scale) on sexual fantasy, romantic attraction, and sexual behavior, and sexual history. By using more than one method, researchers were able to collect and assess more finely tuned data. Results from this study indicated that there was less change in the categorical aspects of sexual orientation than in the dimensional ratings (see Diamond 2000, Diamond 2003a, Kinnish, Strassberg and Turner 2005). Had the authors only assessed sexual orientation with three categories, they could not have evaluated how *dimensions* are more likely to be fluid over time. Two-thirds of their sample reported some shift across the three dimensions of orientation. That type of data is not found in simple categorical responses. The specification of context is extremely vital, as there is no single measure that is recommended for use across studies. Depending on the focus of research, sexual behavior may be more important for assessing risk of sexually transmitted infections as it is behavior, not identity, that lead to exposure. The ideal combination of dimensions should be guided by the research question and goals.

Saewyc (2011) concurs with that assessment in her work, which combed through a decade's worth of research (1998-2008) and concluded that it is better to have more than one measure of orientation when conducting research, as they are not always in sync among young adolescents and adults. In fact, Saewyc suggests a rather simple approach: just ask young people themselves. This was recommended as studies have shown that adolescents considered attraction (sexual and romantic) to be the main focus

of sexual orientation while they rejected behavior questions as a valid measurement of sexual orientation. They also seemed uncomfortable with labels, due to their implied permanence and perceived stigma of minority labels. Concluding, Saewyc recommends that studies should measure more than one dimension of orientation (attraction, identity labels, or behavior) and when possible, disaggregate orientation categories in analyses.

As more research is being done, it is becoming clear that the standard three-category system is no longer useful, as more categories are needed to assess the choices of individuals regarding their sexual identity, especially for youth and young adults (Savin-Williams and Ream 2007). There is already research that expresses the need for an emerging category between *heterosexual* and *bisexual* - mostly heterosexual. Mostly heterosexuals are caught in the gray area between heterosexual and bisexual – in that opposite sex attraction is dominant with a small percentage of same-sex attraction. If research respondents are only given a three-category response, mostly heterosexuals will most often place themselves into the *heterosexual* category. This can be problematic, as research has shown that mostly heterosexuals are a distinct sexual orientation group (Diamond 2008, Loosier and Dittus 2010, Savin-Williams 2005, Savin-Williams and Vrangalova 2013, Vrangalova and Savin-Williams 2012). Studies have shown mostly heterosexuals, compared to heterosexuals, to be higher risk for outcomes such as parental mistreatment, home displacement, thoughts of suicide, depressive symptoms, and frequency of drinking and delinquency (Loosier and Dittus 2010). Vrangalova and Savin-Williams (2014) reviewed literature concerning mostly heterosexuals and found that compared to heterosexuals they are at greater risk for physical and mental health

outcomes, health risk behaviors, and risk and protective factors. Mostly heterosexuals also report less social support from family and friends and were more likely to reveal treatment for depression and problems with drug use (Corliss et al. 2009). Savin-Williams (2014) states "the prevalence of unacknowledged *in-between sexualities* (between heterosexual and homosexual) can be substantial, sufficiently such that they should not be group with another set of eliminated from consideration" (446-447) since studies support the perspective that sexual orientation is a continuously distributed individual characteristic.

Part of what makes measurement philosophies regarding sexuality so central to research is the topic of stability – whether sexual orientation is a fixed characteristic or a fluid trait of individuals. A crucial question in sex research is the stability of sexual orientation: if and to what degree does sexual orientation change or remain the same through the life course. When considering the controversy surrounding sexual orientation conversion therapy (Spitzer 2003) -- the belief that sexual orientation can be changed with psychotherapy -- it is baffling that more research has not been done on the patterns of sexual orientation stability and change (LeVay and Valente 2006, Savin-Williams and Vrangalova 2013, Savin-Williams 2014, Vrangalova and Savin-Williams 2014). However, there are some similarities in the research. Heterosexuality is the most predominant sexual orientation identity and the least likely to change over time (Kinnish, Strassberg and Turner 2005, Savin-Williams, Joyner and Rieger 2012) when respondents retroactively report their sexual orientation for various time periods. Some evidence exists that points to a greater fluidity in women's sexual orientation identity, particularly

in non-heterosexual women (Diamond 2008, Ott et al. 2011). Also, bisexual identity seems to be chosen less over time compared to other sexual orientations (Kinnish, Strassberg and Turner 2005).

Mock and Eibach (2012) attempted to address some limitations in the literature by drawing on a national longitudinal study (10 year span) to evaluate patterns of stability and change in sexual orientation. Their findings indicate that heterosexuality was the most stable identity, meaning that those who self-reported as heterosexual in Time 1 were less likely to report a change in later waves. They also found that women's sexual fluidity seemed to apply more to sexual minority women. Meaning, women that self-identified as non-heterosexual were more likely to alter their sexual orientation over time. However, it should be noted that the authors utilized a three-category variable for self-reported sexual orientation (heterosexual, bisexual, homosexual). As mentioned above, *mostly heterosexuals* have been shown to be a distinct category worthy of independent study and have significantly different experiences and outcomes compared to heterosexuals. Not all studies report similar findings. Savin-Williams, Joyner and Rieger (2012) results point to self-reported sexual orientation as a stable characteristic of individuals. In their study, changes were relatively rare. This contrasts wildly with the findings from Kinnish, Strassberg and Turner (2005), which reported 35% proportion of participants shifting sexual identity over time. However, the data from Kinnish et al. were recruited via advertisements, flyers and internet sources specifically seeking out respondents to study sexuality whereas Savin-Williams et al. utilized nationally representative data (Add Health) gathered expressly to study youth. In contrast, Katz-

Wise (2014) found sexual fluidity for both men and women that originally identified as non-heterosexual, extending the findings of Diamond (2008) results of women's sexual fluidity compared to men.

The developmental study of sexual orientation is understudied, as it is difficult to observe due to poorly measured cohort effects (Martin and D'Augelli 2009). One of the major issues with longitudinal work involving sexual orientation is that it is nearly impossible to parcel out the fact that social change has resulted in a greater acceptance of the LGBT community. If researchers follow a cohort of young adolescents for a decade and observe increasing same-sex attractions throughout development, it is difficult to discern whether the increase is due to individual change or a society more accepting of homosexuality, and consequently respondents reporting change. Mustanski, Kuper and Greene (2014) state that to properly test stability would require a multiple cohort longitudinal design where developmental changes could be disentangled. No such study has been published. They also point out that adolescence is a time where sexual attraction is first emerging and being discovered. Since sexual orientation is the interaction between biological and sociocultural processes, it is best understood as a continuous, life-long process. "Over the course of life, individuals experience the following: a) changes of fluctuations in sexual attractions, behaviors and romantic partnerships; b) the need to negotiate coming out across contexts; and c) sociocultural changes (e.g., societal views of LGBT individuals)" (Mustanski, Kuper and Greene 2014:619).

Mental Health, Stress and Stigma

An important assumption that has guided research among those that study inequalities in mental health, is that mental health is affected by different social experience (Aneshensel 1992, Pearlin 1989). Stress process models, such as those discussed by Pearlin et al. (1981), focus on the connection between experiences and social and personal resources deemed relevant to mental health risks. The model posits that variation in exposure to stress and the ability to cope comes largely from a person's living conditions and social location (Pearlin 1989). The domains of the stress process to consider are: stressors, stress mediators, and stress outcomes. *Stressors* refers to situations that cause stress, such as life events or chronic strains (ongoing stressful situations). *Stress mediators* have been showed to mediate or curtail the effects of stressors on stress outcomes. Coping and social support have received the most attention in stress research (Pearlin and Schooler 1978). Coping refers to actions that individuals engage in on their own behalf in order to reduce the impact of stressful situations (Pearlin and Schooler 1978). "[Social] support comes when people's engagement with one another extends to a level of involvement and concern, not when they merely touch at the surface of each other's lives" (Pearlin et al. 1981:340). *Stress outcomes* are the results or manifestations of stress, and Pearlin cautions that stratified groups can manifest stress in different ways. Status differences (such as gender, SES, marital status, age, etc.) may be linked to mental health for the reason that they tend to highlight varying exposure to stress and the availability of coping resources (Turner and Lloyd 1999). Pearlin (1989) argues that these three domains (stressors, stress mediators and

stress outcomes) are largely linked to embedded social structures and, therefore, determine stress exposure, any possible mediators, and how an individual experiences stress. Many stressful experiences are experiences gained through social interaction and can be connected to surrounding social structures and systems of stratification, such as race, class, ethnicity, gender and age (Pearlin 1989). In fact, just occupying a low status within these categories is considered to be a stressor. SES, marital status, and gender have repeatedly and reliably been linked to mental health *generally* and depression *specifically* across studies (Turner and Lloyd 1999). Pearlin (1989) emphasizes the need to study the arrangement and structure of society in relation to individual experience when conducting stress research. Turner and Lloyd (1999) also noted that individuals are at the mercy of how society is structured in reference to type of stress exposure and availability of resources. Their findings support Pearlin (1989) findings that stress exposure and ability to cope is significantly correlated with life conditions, which are defined by social status and social location.

Thoits (2010) summarized the sociological literature on stress with 5 major findings: 1) stressors have a substantial damaging impact on physical and mental health, 2) mental and physical health differences are largely produced by differential stress exposure in stratified groups such as race, gender, marital status and social class, 3) minority groups are also subject to discrimination stress, 4) stressors continue throughout the life course, widening the gap between advantaged and disadvantaged groups, and 5) mediators such as mastery, self-esteem and social support help reduce the impact of stressors.

To see how stress relates to identity, I turn to Burke's work (see Burke 2004, Burke 2007) on identity control theory, which shows us that *social structure* is the link between stress and identity. As previously mentioned, ICT states that individuals seek to verify identities through a 4-step feedback loop wherein the situational meanings must match the identity meanings in order for an identity to be verified in any given situation (Burke 2004). By verifying an identity, actors are able to avoid the discrepancy between a mismatched situational meaning and an identity standard which can cause negative emotion, such as distress, anger and depressive symptoms (Burke and Harrod 2005). Identity and social structure are intimately connected: by "verifying identities, people create and maintain the social structure in which the identities are embedded" (Burke 2007:3). Consequently, it is crucial to understand the location of identities within the social structure, as power and status affects an actor's ability to define the situation and have identities verified (Cast, Stets and Burke 1999). Seen this way, social structure controls the flow of resources while meanings are tied to those resources. Controlling meanings then results in the control of resources. "Tying meaning to resources makes ICT relevant for issues pertaining to the political, economic and social structures that evolve in the world of resources" (Burke 2004:8)

The minority stress model asserts that minority group members experience negative mental and physical health outcomes due to their minority status (Meyer 1995, Meyer 2003, Meyer 2007). Specifically, those with non-normative traits, desires, and embodiments become stigmatized and marginalized with negative health outcomes. The minority stress model has been applied to numerous stigmatized groups, such as

homosexuals, racial/ethnic minorities, those with mental and physical illness, and those with large bodies (Barnett and Baruch 1987, Meyer 2003, Miller and Myers 1998, Pearlin et al. 1981, Pearlin 1999, Swim et al. 2001). Meyer (2003) proposed a minority stress theory that focused on non-heterosexuals, using general models of social psychology on prejudice and stigma (Goffman 2009) and general stress theory (Dohrenwend 1998, Dohrenwend 2000). This theory outlined three situations that turn non-heterosexual minority status into a stress factor: a) victimization (experience of prejudice), b) anticipation of prejudice and the cost of concealment, and c) the internalization of homophobia.

Meyer points out that minority stress comes from two areas: input and output. Stress depends on *input*, where individuals are confronted by society with different levels and types of minority stress, such as perceived discrimination (Mays and Cochran 2001). Internalized homophobia, stressful life events and victimization have been found to be some of the most significant predictors of post-traumatic stress among non-heterosexual youth (Dragowski et al. 2011). *Output* is the means of coping with minority stress. Individuals then have various strategies in order to cope with psychological problems. Minority status, while associated with stress, is also associated with resources such as group solidarity and cohesion that can protect minority status members from negative mental health affects of the minority status. Minority groups often create a "buffer" strategy in the "collective identity", but this is more difficult to do with sexual orientation, at least in initial phases of sexual development. "Characteristics of identity may be related to mental health both directly and in interaction with stressors" (Meyer

2003:677). Identity disruptions – incompatible feedback from others on one's self-identity – can cause distress (Burke 1991). Lack of and limited access to social support is one of the greatest hurdles that non-heterosexual youth must overcome (Meyer 2003).

The minority stress process can be understood through the lens of stigma. Stigma is socially discrediting and often results in social exclusion (Goffman 2009). Using this as a foundation, Link and Phelan (2001) define stigma as "the co-occurrence of…labeling, stereotyping, separation, status loss, and discrimination" (363). This conceptualization of stigma entails difference as well as devaluation, tangible consequences, and power deficits of the stigmatized person relative to agents of stigmatization, as minority stress operates at both micro and macro levels (Crocker 1999).

Although researchers have established a definite link between minority status and physical and mental health, the details of this relationship remain unclear (Thoits 1999). The negative effects of stress differ greatly across a broad spectrum, including increased incidents of cold and flu, increased risk of heart attacks, high blood pressure, and cardiovascular disease, pregnancy complications, depression, anxiety, substantive abuse, decreased life expectancy and many others (Cohen and Williamson 1991, Creed 1985, Gilman et al. 2008, Thoits 1999). Moreover, the physical and mental effects of similar stressful experiences vary widely across groups and between individuals (Thoits 1999). The primary goal of minority stress researchers should therefore be to disentangle these complex relationships to establish a more nuanced understanding of stress processes as they relate to mental and physical health. Identity is a key variable with which to engage

in such disentangling (Thoits 1991, Thoits 1999, Thoits 2011) and this project will utilize sexual identity as a distinctive way of viewing negative outcomes, traditionally thought to be caused by stigmatized identities.

While cultural shifts seem to imply more support for LGBT communities, non-heterosexuals still occupy a minority sexual orientation and incidents involving hate, fear and mistrust are frequent. Self-identifying as non-heterosexual places an individual automatically in a category that has been stigmatized—and involve systematic denial of rights. Prejudice against non-heterosexuals is still a widespread phenomenon and non-heterosexuals are at a greater risk for bullying and victimization (Bontempo and d'Augelli 2002, Garofalo et al. 1998). Those who are not heterosexuals report less social support than their heterosexual peers (Corliss et al. 2009).

Empirical findings on mental health and minority stress consistently replicate three major findings for those who identify as non-heterosexual: a) depression and mood and anxiety disorders are more prevalent; b) suicidal ideation and suicide attempts occur more frequently; and c) alcohol abuse is elevated, with tobacco and drug use less so (Becker et al. 2014). King et al. (2008) conducted a systematic review of mental disorders, suicide, and self harm among non-heterosexuals and concluded that they have higher risk in all three areas with some qualifying gender differences: gay and bisexual men show a higher risk than lesbian and bisexual women for suicidal ideation, suicide attempts and anxiety disorders. Lesbian and bisexual women are more prone to substance use and/or dependency.

Saewyc (2011) conducted a review of a decade's worth of research on sexual orientation concerning development, health disparities, stigma and resistance and found that with nearly all populated-based studies (world-wide), a higher prevalence of sexual minority youth indicate emotional distress, depression, self-harm, suicidal ideation, and suicide attempts than do their heterosexual peers (Coker, Austin and Schuster 2010, Everett et al. 2016, Fergusson, Horwood and Beautrais 1999, Fergusson et al. 2005, Saewyc et al. 2008, Zhao et al. 2010). Marshal et al. (2008) conducted a meta-analysis of 18 different studies and concluded that LBGT youth are nearly three times more likely overall to report substance use than heterosexual youth. Other studies found sexual minority adolescents, compared to heterosexual teens, were more likely to drink alcohol earlier and engage in risky drinking (Saewyc 2011).

Everett (2015) conducted a very similar study to this one using a nationally representative dataset (Add Health) concerning sexual identity mobility. Everett analyzed three conceptualizations of sexual identity mobility from two waves: more same-sex orientated identity, less same-sex oriented identity and those that had stable sexual identities. Results indicated that adolescents who moved towards same-sex identities showed an increase in depressive symptoms while those that moved towards less same-sex oriented identities did not show an increase in depressive symptoms. There was no difference in depressive symtoms for those that reported stable identities regardless of baseline sexual orientation (gay/lesbian, bisexual, and heterosexual). Results also suggest that negative outcomes regarding identity change were concentrated

among those who initially reported no same-sex attraction. In addition, the study also revealed those with stable identities showed no difference in depressive symptoms.

CHAPTER III

THEORETICAL FRAMEWORK

Theory

For this project, I use identity control theory (ICT) to construct hypotheses about the effect of sexual identity stability on negative mental health outcomes (anxiety, depressive symptoms, and self-derogation). Identity control theory would support the concept that sexual identities, as almost all identities, are flexible and can evolve over the lifespan. Identity control theory states that actors work to maintain a stable sense of self. From an identity control theory perspective, relatively large shifts in a core identity, such as sexual orientation, can cause distress due to a lack of a stable baseline for verification. Burke (2006) conducted analysis from his Marital Roles Project in order to research mechanisms for identity change and posited two different mechanisms: 1) persistent problems with the verification of a particular identity and 2) multiple identities activated together wherein the verification requires opposing meanings. For a single identity, when there is a continued discrepancy between situational meanings and self-meanings (the identity standard) that cannot be reduced through behavior alone, the identity standard (self-meanings) will change to be more in line with situation meanings. For multiple identities, the verification of one identity may come at the cost of another if both are activated and hold different meanings on the same level of dimension. This causes both identities to shift to reach a compromise of sorts where both (all) identities can be verified in the situation.

For individuals that experience a change in sexual orientation (identity), verification can be difficult to complete due to the changing situation and contextual meanings of that identity during interaction. When an identity is unable to be verified, ICT predicts that the actor will experience mental distress, which is operationalized as negative self-feelings (depressive symptoms, anxiety and self-derogation). For this project, I predict that an actor will suffer from an unverified identity during the transition from one sexual orientation to another (Time 1 to Time 2).

As detailed earlier, existing sexualities literature shows that those with non-normative sexualities are at greater risk for adverse mental health outcomes, citing stigmatization as the root cause. With identity control theory as a framework, I theorize that identity instability—rather than only stigmatized categorization—has a strong negative effect on mental health. In other words, I argue that it is not solely the stigmatized identity that provokes stress and subsequent anxiety. An identity can prompt situations that enable confirmation; confirmation in itself can decrease anxiety. Rather it is instability in identity that provokes stress and subsequent anxiety. However negative identities, even if they are stigmatized identities, when confirmed can cause mental health issues because they are stigmatized.

Hypotheses

H1: Compared to Stable individuals, Fluid individuals are more likely to experience negative mental health outcomes.

H2: Stable Non-heterosexuals are more likely to experience negative mental health outcomes compared to Stable Heterosexuals.

H3: Fluid individuals are more likely to experience negative mental health outcomes compared to Stable Non-heterosexuals.

H4: Those whose orientations became more homosexual are more likely to experience negative mental health outcomes than those that become more heterosexual.

H5: Looking at the absolute value of an individual's change in sexual orientation from T1 to T2, those who experience a higher number of change are more likely to experience negative mental health outcomes, regardless of direction.

These hypotheses reflect a variety of propositions regarding stability in sexual orientation and negative mental health outcomes (NSF). Since direction is not taken into account, H1 focuses on the change of sexual orientation (and lack of identify verification) that can create the propensity for negative mental health outcomes. Hypotheses 2 & 3 emphasize the comparison between stable sexual orientation and fluid sexual orientation, with H2 focusing mainly on stigma and H3 focusing on lack of identity verification. H4 tests the idea that the direction of the change matters. Non-

heterosexual identities are still considered somewhat "deviant" and are subject to stigmatization, which would cause them to be more difficult for actors to verify. H5 considers the impact of changing sexual orientation drastically, as opposed to not at all or only by one category. Direction of the change does not matter as distance between the two orientations is of more consequence, all of which would theoretically make identity verification more difficult. Next, I will discuss the dataset, sample and methods as well as the results of hypothesis testing.

CHAPTER IV

METHODOLOGY

Sample

To test my general propositions, I utilized data collected for the Kaplan Longitudinal and Multigenerational Study (KLAMS). KLAMS offers social researchers a unique window into life in the United States. It is one of the very few studies that span decades following two generations—parents and children (Kaplan and Tolle Jr 2006). Data collection began in the 1970's when Dr. Howard Kaplan's team interviewed about 50% of all of the 7th graders in the Houston Independent School District, about 7,500 students (Generation 1). These original respondents were followed up to six times through their adolescence and into mid-life. During the last interview, respondents gave permission for researchers to conduct interviews on their children when they were at least 11 years old, thus creating Generation 2. Data collection for Generation 2 occurred at most three times. The latest interviews occurred during the years 2003-2008 when the respondents were in their early 20s (Pals and Kaplan 2013a).

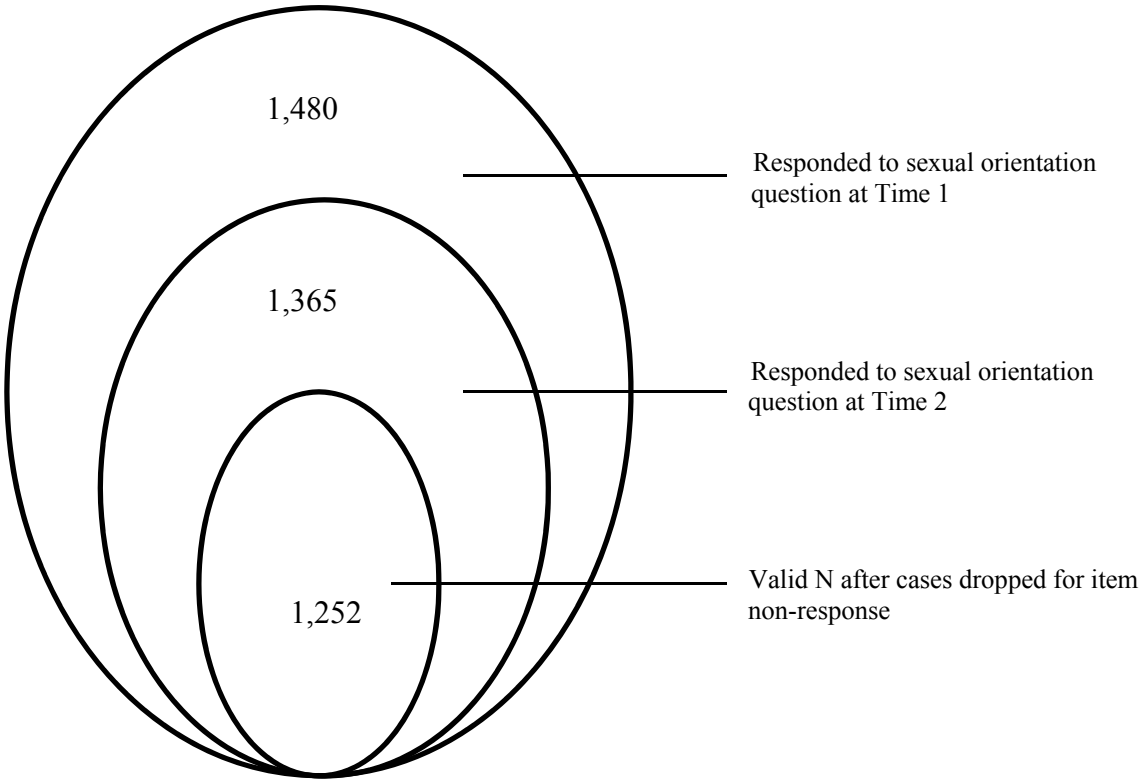

Figure 3: Sample Size

This project utilizes the data collected in Generation 1, using Wave 5 as Time 1 (years 1988-1990; age 30-34) and Wave 7 as Time 2 (years 1994-1998; age 34-40). These two waves included a 7-point scale question regarding sexual orientation, which makes it ideal to measure changes in sexual orientation over time. Time 1 (or Wave 5 of the Kaplan data) was a special data set that was a subset of earlier waves and has sample size of 1,480. It consists of about 700 respondents who based on their previous responses

were at risk of HIV/AIDS (such as multiple sexual partners, drug use, etc.) and about 700 of respondents who were not at risk of HIV/AIDS based on previous responses. Time 2 (or wave 7 of the Kaplan data) has a total sample size of 5,449. Dr. Kaplan's team attempted to follow up with as many original respondents as possible. However, of the 5,449 from Time 2 only 1,365 respondents answered the corresponding sexual orientation question from Time 1, a loss of 115 respondents. The valid N for this study is 1,252 due to another 113 respondents being dropped for item non-response (please see Figure 3). 6.7% of the sample identified as non-heterosexual in Time 1, followed closely by 7% in Time 2 (see Table 1). Women experienced sexual fluidity as a rate of 7.7% whereas men had a rate of 9%. Overall, the sample largely white (70%), 52% female with an average income of almost $22,000 and 13 years of education.

Table 1: Non-Heterosexuality of the Sample by Gender

	Time 1		**Time 2**	
	Percent	N in Category	Percent	N in Category
Non-Heterosexual	6.7%		7%	
Men		47		42
Women		37		45
Heterosexual	93.7%		93%	
Men		555		560
Women		613		605

Valid N = 1,252

Measures

Dependent Variable

Negative mental health outcomes are conceptualized as Negative Self-Feelings (NSF). NSF encompasses three separate components: depressive symptoms, anxiety and self-derogation, all adapted from Kaplan and colleagues (Kaplan 1976, Kaplan and Lin 2000, Pals and Kaplan 2013b). These scales ask respondents to state "Yes" (1) or "No" (0) in response to a series of questions and statements about their mental health. Each scale is additive and all scores are coded such that high scores indicate high levels of depressive symptoms, anxiety and self-derogation respectively. The Kuder-Richardson statistic was used to test the internal consistency reliability (analogous to Cronbach's α), as the statements used for scale creation are dichotomous. The KR reliability coefficient and scale items for depressive symptoms, anxiety and self-derogation for both T1 and T2 are listed below.

Depressive Symptoms are measured using the following six statements with a Kuder-Richardson Reliability Coefficient of 0.54 at T1 and 0.65 at T2:

(1) Do you wish you could be as happy as others seem to be?

(2) Would you say that most of the time you feel in good spirits?

(3) Do you often lose track of what you were thinking?

(4) Do you often have difficulty keeping your mind on things?

(5) Do you often have trouble sitting still for a long time?

(6) Do you often have trouble getting to sleep or staying asleep?

Anxiety is composed using the following six statements with a Kuder-Richardson Reliability Coefficient of 0.65 at T1 and 0.67 at T2:

(1) Are you often bothered by nervousness?

(2) Do you often get angry, annoyed or upset?

(3) Are you often bothered by shortness of breath when not exercising or not working hard?

(4) Are you often bothered by bad dreams?

(5) Are you often bothered by pressures or pains in the head?

(6) Are you often troubled by your hands sweating so that they feel damp & clammy?

Self-Derogation is composed using the following six statements with a Kuder-Richardson Reliability Coefficient of 0.69 at T1 and 0.72 at T2:

(1) I take a positive attitude toward myself.

(2) All in all I am inclined to feel that I am a failure.

(3) I certainly feel useless at times.

(4) At times I think I am no good at all.

(5) I feel disgusted with myself.

(6) I felt proud or good about some things I did during the past month.

Table 2 provides the summary statistics and KR coefficient for each NSF scale in its entirety.

Table 2: Negative Self-Feelings Scale for T1 and T2

	KR Coef	Mean	Std Dev	Min	Max
NSF (T1)	0.79	3.09	2.99	0	16
NSF (T2)	0.83	2.86	3.19	0	16

Valid N = 1,252

Independent Variables

The main independent variable for each hypothesis focuses on sexual orientation. Both T1 & T2 ask respondents to choose a category that best described their sexual orientation. What makes this survey question unique (especially for the time period) is the inclusion of multiple categories beyond the standard 3 category responses of "gay, straight or bisexual." The response categories for this question were derived from the aforementioned Kinsey Scale. Please see Tables 3.1 and 3.2 for information on sexual orientation at T2 andT2.

Table 3.1: Sexual Orientation at T1

	Frequency	Percent	Cum
Exclusively Homosexual	14	1.12	1.12
Predominantly homosexual, slight heterosexual interest	6	.48	1.6
Predominantly homosexual, substantial heterosexual interest	2	.16	1.76
Bisexual	4	.32	2.08
Predominantly heterosexual, substantial homosexual interest	8	.64	2.72
Predominantly heterosexual, slight homosexual interest	50	3.99	6.71
Exclusively heterosexual	1168	93.29	100
Total	**1,252**	**100**	

Table 3.2: Sexual Orientation at T2

	Frequency	Percent	Cum
Exclusively Homosexual	22	1.76	1.76
Predominantly homosexual, slight heterosexual interest	8	.64	2.4
Predominantly homosexual, substantial heterosexual interest	4	.32	2.72
Bisexual	6	.48	3.19
Predominantly heterosexual, substantial homosexual interest	4	.32	3.51
Predominantly heterosexual, slight homosexual interest	43	3.43	6.95
Exclusively heterosexual	1165	93.05	100
Total	**1,252**	**100**	

For analysis, the independent variable (sexual orientation), measured both in Time 1 and Time 2, will be coded to best suit the data and the question(s) put forth by this research project. Four different independent variables regarding sexual orientation were created utilizing the original survey question. Hypothesis 1 measures the fluidity of

sexual orientation over time (Table 4). Using the two measures of sexual identity, I created a dichotomous variable wherein a value of 1 indicates those whose sexual orientation changed from T1 to T2 and value 0 indicates those who reported the same sexual identity at both T1 and T2.

Table 4: Fluid (dichotomous) Change in Sexuality from T1 to T2

	Frequency	Percent	Cum
Stable (0)	1148	91.69	91.69
Fluid (1)	104	8.31	100
Total	**1,252**	**100**	

The variable created to test Hypotheses 2 & 3 separated the stable identity category into two: 1) *stable heterosexual* (heterosexual both in T1 and T2), 2) *stable non-heterosexual* (non-heterosexual in both T1 and T2). The third category mirrors the first fluidity variable and identities those who had changed their sexual orientation from T2 to T2 (Table 5).

Table 5: Categorical Sexuality from T1 to T2

	Frequency	Percent	Cum
Stable Heterosexual	1124	89.78	89.78
Stable Non-Heterosexual	24	1.92	91.69
Fluid	104	8.31	100
Total	**1,252**	**100**	

Table 6 shows a directional variable utilized for Hypothesis 4. This variable comprised of three levels that focus on the direction of the orientation change from T1 to T2: *no change*, *more heterosexual* (respondent moved *towards* heterosexuality in T2), and *more homosexual* (respondent moved *towards* homosexuality in T2). A final variable showcased in Table 7 the absolute value of the amount of change (or shifts) an individual experienced from T1 to T2, with options of 0, 1, 2, 3+. The larger the number, the more an individual has 'shifted' categories between the two time periods, regardless of direction.

Table 6: Directional Change of Sexuality from T1 to T2

	Frequency	Percent	Cumulative
More Homosexual	58	4.63	4.63
More Heterosexual	46	3.67	8.31
No Change	1148	91.69	100
Total	**1,252**	**100**	

Table 7: Amount of Change (absolute value) in Sexuality from T1 to T2

	Frequency	Percent	Cumulative
1 Shift	72	5.75	5.75
2 Shifts	14	1.12	6.87
3+ Shifts	18	1.44	8.32
No Shifts	1148	91.69	100
Total	**1,252**	**100**	

Control Variables

There are six control variables used for each analysis. All control variables include basic demographic information such as gender, education, income (Time 1) and race (Time 2). As previously mentioned, gender is a dichotomous variable coded female =1, with a little over half of the sample being female. This is important to measure as previous research has indicated that women's sexuality is often more fluid compared to men's sexuality. Education is measured in number of years of school, and ranges from 6 to 17. Respondents annual (individual) income was recoded to a mid-point value in tens of thousands of dollars in order to keep it continuous for analysis, with a mean of 2.22. Education and income are often used as control variables and in this context, I view them as important because they provide resources for individuals that are benefical for mental health. Dummy variables concerning race were created for four racial categories: white, black, Hispanic and other race. Negative self-feelings is controlled for in Time 1, as well as being the dependent variable (Time 2), which allows for prediction for the change in NSF from T1 to T2.

Friendship is also utilized as a social support control variable along with an scale for Negative Self-Feelings (NSF) for anxiety, depressive symptoms and self-derogation, all from Time 1. Friendship is an additive scale created from four items regarding the respondents' feelings towards their friends. They were asked how often they felt a) ashamed, b) comfortable, c) unsure of [themselves] and d) unwanted with [their] friends. Respondents were given choices of: 1) Very Often, 2) Sometimes or 3) Hardly/Never. "Comfortable" was reverse coded, as the rest of the scale items were negative in nature.

The mean for the scale on friendship is 11.43, with a range of 4 to 12. Essentially, the higher the score on Friendship, the more comfortable and at-ease you feel around your friends. This variable is important as social support is consistently shown to be important for mental health. Table 8 combines all variables for every statistical model used for analysis.

Table 8: Combined Table of Variables

	Mean[a]	N in Category	Std Dev
Dependent Variable			
Negative self-feelings (Range 0-16)	2.86		3.19
Sexuality Variables			
Dichotomous change in sexuality			
Fluid	8.31	104	
Stable	91.69	1148	
Categorical change in sexuality			
Fluid	8.31	104	
Stable non-heterosexual	1.92	24	
Stable heterosexual	89.78	1124	
Directional change			
More homosexual	4.63	48	
More heterosexual	3.67	46	
No change	91.69	1148	
Amount of change			
1 shift	5.75	72	
2 shifts	1.12	14	
3+ shifts	1.44	18	
No shifts (ref)	91.69	1148	
Control Variables			
Female	51.92	650	
Years of education (Range 6-17)	13.52		2.40
Annual income in $10,000 (Range .25-7.5)	2.22		1.48
Race			
White (ref)	69.65	872	
Black	19.81	248	
Hispanic	10.06	126	
Other race	.48	6	
T1 Negative self-feelings (Range 0-16)	3.09		2.99
Friendship Comfort (Range 4-12)	11.43		1.01

Valid N = 1,252

[a] mean for categorical variables represents the proportion in category

CHAPTER V

ANALYSIS AND RESULTS

Analysis

Since the dependent variable is a count of symptoms for depression, anxiety and self-derogation, it is treated as a count variable. I test each hypothesis using nested negative binomial regression, to see the effect of the sexuality variable on the overall model. Negative binomial regression was preferable to Poisson since the data are overdispersed (Long and Freese 2006:372). Because there is a significant evidence of overdispersion per the likelihood ratio test of alpha (520.20, $p<.001$) the negative binomial regression model is the favored over the poisson regression model (Long and Freese 2006:376-77). For each hypothesis, the first block will include all the control variables, and the second block will be the relevant sexuality variable based on the prediction. As interpretation of negative binomial regression coefficients can be difficult, I will report incidence rate ratios (IRRs) in order to see the factor change in the rate. The IRR is calculated by taking the exponent of the negative binomial b coefficient (e^b). The most straightforward way to interpret IRRs is using the percent change in IRR ((IRR -1) *100). This method will be utilized when reporting results for ease of interpretation during hypothesis testing.

Results

Hypothesis #1: Compared to Stable individuals, Fluid individuals are more likely to experience negative mental health outcomes.

Table 9 shows the results comparing the count of negative self-feelings for those who experienced fluid sexual identity to those with a stable sexual identity over time. Nested regression was used to test the addition of the sexuality (fluid) variable. The likelihood ratio chi-square is statistically significant at $p<0.001$ level, which indicates overall model fit compared against a model with no independent variables. The Wald statistic tests if the parameter(s) of the model are equal to zero. If so, removing them would not reduce the fit of the model, as it was not contributing much to help predict the dependent variable. If the Wald chi-square stastic is significant, then the parameter is significantly different from zero, and the model fit is improved by including the parameter(s). The Wald chi-square for change in model fit (addition of fluid sexuality variable) was significant at the $p<0.01$ level. Thus, the addition of the independent variable (sexuality) provides a better model fit than the one without it. In terms of the control variables, *friendship*, *income* and *NSF* (T1) were statistically significant. These variables are significant for all models (H1-H5). Gender, education and race are not significant for this model, or any of the other models (H2-H5).

The IRR for friendship is .93, meaning that each reported increase in friendship comfort, reduces the expected count of symptoms of NSF at T2 by 7%. Essentially, the more comfortable and at ease you feel around your friends (an indicator of social support), the lower your expected count of NSF symptoms at T2. Income was also

statistically significant at the $p<0.01$ level with an IRR of .94. Meaning, for each $10,000 increase in income, expected count of NSF symptoms decreased by nearly 6%. *NSF* at T1 has an expected significant impact on expected count of NSF symptoms at T2, with an IRR of 1.18 at the $p<0.001$ level. This indicates that each additional reported symptom of NSF at T1 increases the expected count of symptoms of NSF at T2 by 18%.

Fluidity in sexual identity is significant at the $p<0.01$ level with an IRR of 1.27. Therefore, those that experienced fluid sexual identity have a 27% higher expected count of symptoms of NSF at T2 compared to those with stable (unchanging) sexuality. This shows that H1 is supported, as there is a statistically significant difference between those who are fluid in their sexuality and those who are stable in terms of negative mental health outcomes. To conclude, fluid sexuality is significantly different from stable sexuality in terms of expected count of negative self-feelings.

Table 9: Negative Binomial Regression IRRs for Fluid Sexuality on NSF (T2)

	Base Model	H1 Model
Control Variables		
Friendship Comfort	.93**	.93**
Years of Education	1.00	.97
Female	1.00	1.01
Income in $10,000	.94**	.94**
NSF (T1)	1.19***	1.18***
Race		
White (ref)		
Black	.97	.97
Hispanic	.88	.89
Other	.99	1.02
Sexuality Variable		
Fluid		1.27**
Constant	3.71***	3.73***
Likelihood Ratio Chi-Square	442.56***	449.82***
Degrees of Freedom	8	9
Wald Chi-Square for Change in Model Fit		7.19**
Degrees of Freedom		1
LR Test of Alpha	520.28***	508.61***

*** p<0.001, ** p<0.01, * p<0.05
Data Source: KLAMS (Generation 1: Waves 5&7)
Valid N: 1,252

H2: Stable Non-heterosexuals are more likely to experience negative mental health outcomes compared to Stable Heterosexuals.

Table 10 shows the results for H2 and H3. Looking at the sexuality variable (a 3 category variable with *stable heterosexual*, *stable non-heterosexual* and *fluid*), there is no significant difference between stable heterosexuals (reference group) and stable non-heterosexuals. Therefore, H2 is not supported. The only significant group comparison is between stable heterosexuals and those with fluid sexuality. Those with fluid sexuality

have a 27% higher expected count of NSF symptoms compared to stable heterosexuals. The results of this hypothesis test validate the results from H1: fluidity matters.

Table 10: Negative Binomial Regression IRRs Categorical Sexuality on NSF (T2)

	Base Model	H2 Model	H3 Model
Control Variables			
Friendship Comfort	.93**	.93**	.93**
Years of Education	1.00	1.00	1.00
Female	1.00	1.02	1.01
Income in $10,000	.94**	.94**	.94**
NSF (T1)	1.19***	1.18***	1.18***
Race			
White (ref)			
Black	.97	.97	.97
Hispanic	.88	.89	.89
Other	.99	1.02	1.02
Sexuality Variable			
Stable Heterosexual		(ref)	.94
Stable Non-Heterosexual		1.07	(ref)
Fluid		1.27**	1.19
Constant	3.71***	3.74***	3.00***
Likelihood Ratio Chi-Square	442.56***	449.93***	449.93***
Degrees of Freedom	8	10	10
Wald Chi-Square for Change in Model Fit		7.30*	7.30*
Degrees of Freedom		2	2
LR Test of Alpha	520.27***	508.71***	508.71***

*** p<0.001, ** p<0.01, * p<0.05
Data Source: KLAMS (Generation 1: Waves 5&7)
Valid N: 1,252

H3: Fluid individuals are more likely to experience negative mental health outcomes compared to Stable non-heterosexuals.

Results for H3 can be found on Table 10. For the sexuality variable, there is no significant difference between those with fluid sexuality and stable non-heterosexuals. Therefore, H3 is not supported.

H4: Those whose orientations became more homosexual are more likely to experience negative mental health outcomes than those that become more heterosexual.

Results for H4 can be found on Table 11 and shows that there is no significant difference between those that moved towards homosexuality (reference category) and those that moved towards heterosexuality, determining that H4 is not supported. Once again, this points to fluidity as a matter of concern for negative mental health outcomes, as opposed to directional movement in sexuality. The only significant categorical comparison concerns those that did not change, with an IRR of 0.79 at the $p<0.05$ level. Meaning, compared to those who became more homosexual, those whose sexual identity did not change experienced a 21% decrease in the expected count of NSF at T2. Because of this, the model was also tested using "no change" as the reference. Results show that compared to unchanging sexuality, experiencing a move towards homosexuality increased the expected count of NSF symptoms by 27% at the $p<0.05$ level. Experiencing a move towards heterosexuality increased the expected count of NSF symptoms by 28% at the $p<0.10$ level, which provides additional support for the idea that fluidity is the significant factor to take into account regarding mental health and sexuality over time.

Table 11: Negative Binomial Regression IRRs Directional Sexuality on NSF (T2)

	Base Model	H4 Model V1	H4 Model V2
Control Variables			
Friendship	.93**	.93**	.93**
Years of Education	1.00	1.00	1.00
Female	1.00	1.01	1.01
Income	.94**	.94**	.94**
NSF (T1)	1.19***	1.18***	1.18***
Race			
White (ref)			
Black	.97	.97	.97
Hispanic	.88	.89	.89
Other	.99	1.02	1.02
Sexuality Variable			
More Homosexual		(ref)	1.27*
More Heterosexual		1.01	1.28+
No Change		.79*	(ref)
Constant	3.71***	4.72***	3.73***
Likelihood Ratio Chi-Square	442.56***	449.82***	449.82***
Degrees of Freedom	8	10	10
Wald Chi-Square for Change in Model Fit		7.19*	7.19*
Degrees of Freedom		2	2
LR Test of Alpha	520.28***	506.97***	520.28***

*** p<0.001, ** p<0.01, * p<0.05, +p<0.10
Data Source: KLAMS (Generation 1: Waves 5&7)
Valid N: 1,252

H5: Looking at the absolute value of an individual's change in sexual orientation from T1 to T2, those who experience a higher number of changes are more likely to experience negative mental health outcomes compared to those that experienced a smaller number of change, regardless of direction.

Results for H5 can be found on Table 12. Compared to zero shifts, one shift of movement on the sexuality scale is significant at the p<0.10 level with an IRR of 1.21

and 3+ shifts significant at the $p<0.05$ level with an IRR of 1.60. This tells us that shifting one category, compared to unchanging sexuality, increases the expected count of NSF at Time 2 by 21%. Those that shifted three or more categories between T1 and T2 experienced a 59% higher expected count of NSF symptoms, compared to those that experienced unchanging sexuality. While not all categories of the sexuality variable regarding amount of change were statistically significant, the results still offer support for the original findings from H1: fluidity, regardless of direction, increases negative mental health outcomes.

Table 12: Negative Binomial Regression IRRs Amount of Change of Sexuality on NSF (T2)

	Base Model	H5 Model
Control Variables		
Friendship	.93**	.93**
Years of Education	1.00	1.00
Female	1.00	1.01
Income	1.00**	1.00**
NSF (T1)	1.19***	1.18***
Race		
White (ref)		
Black	.97	.97
Hispanic	.88	.89
Other	.99	1.02
Sexuality Variable		
0 Shifts (ref)		
1 Shift		1.21+
2 Shifts		1.17
3+ Shifts		1.60*
Constant	3.71***	3.75***
Likelihood Ratio Chi-Square	442.56***	451.62***
Degrees of Freedom	8	11
Wald Chi-Square for Change in Model Fit		8.82*
Degrees of Freedom		3
LR Test of Alpha	520.28***	505.14***

*** p<0.001, ** p<0.01, * p<0.05
Data Source: KLAMS (Generation 1: Waves 5&7)
Valid N: 1,252

Table 13: Combined Negative Binomial Regression IRRs for NSF (T1) for All Models

	Base Model	H1 Model	H2 Model	H3 Model	H4 Model Version 1	H4 Model Version 2	H5 Model
Control Variables							
Friendship	.93**	.93**	.93**	.93**	.93**	.93**	.93**
Years of Education	1.00	.97	1.00	1.00	1.00	1.00	1.00
Female	1.00	1.01	1.02	1.01	1.01	1.01	1.01
Income	1.00**	1.00**	1.00**	1.00**	1.00**	1.00**	1.00**
NSF (T1)	1.19***	1.18***	1.18***	1.18***	1.18***	1.18***	1.18***
Race							
White (ref)							
Black	.97	.97	.97	.97	.97	.97	.97
Hispanic	.88	.89	.89	.89	.89	.89	.89
Other	.99	1.02	1.02	1.02	1.02	1.02	1.02
Independent Variables							
H1 Model							
Fluid (dichotomous)		1.27**					
H2 & H3 Models							
Stable Heterosexual			(ref)	.94			
Stable Non-Heterosexual			1.07	(ref)			
Fluid (categorical)			1.27**	1.19			
H4 Models							
More Homosexual					(ref)	1.27*	
More Heterosexual					1.01	1.28+	
No Change					.79*	(ref)	

Table 13: Continued

	Base Model	H1 Model	H2 Model	H3 Model	H4 Model Version 1	H4 Model Version 2	H5 Model
H5 Model							
0 Shifts							(ref)
1 Shift							1.21+
2 Shifts							1.17
3+ Shifts							1.60*
Constant	3.71***	3.73***	3.74***	3.00***	4.72***	3.73***	3.75***
Likelihood Ratio Chi-Square	442.56***	449.82***	449.93***	449.93***	449.82***	449.82***	451.62***
Degrees of Freedom	8	9	10	10	10	10	11
Wald Chi-Square for Change in Model Fit		7.19**	7.30*	7.30*	7.19*	7.19*	8.82*
Degrees of Freedom		1	2	2	2	2	3
LR Test of Alpha	520.28***	508.61***	508.71***	508.71***	506.97***	520.28***	505.14***

*** p<0.001, ** p<0.01, * p<0.05, +p<.10
Data Source: KLAMS (Generation 1: Waves 5&7)
Valid N: 1,252

CHAPTER VI

SUMMARY AND CONCLUSIONS

This study not only adds to existing literature on sexuality and mental health, but also identity control theory by providing new understandings into the relationship between the two by examining a different avenue: sexual identity fluidity. Sexual identity fluidity is viewed as a stressor that can contribute to differences in negative self-feelings due to a lack of baseline for identity verification. As previously mentioned, the inability to verify an identity can lead to stress, or mental distress, which can manifest as symptoms of depression, anxiety and self-derogation. A major assumption in this project, based on identity control theory (ICT), is that changing sexual identity over time creates a situation where identity verification is more difficult. The results indicated that fluidity in sexual identity (change over time) was one of the most important factors regarding count of NSF symptoms at Time 2. Comparing those who experienced fluid sexual identity to those whose sexual identity remained unchanged is theoretically important as this test aims to show that identity verification is a driving force for negative self-feelings.

Fluidity in sexual orientation *does* matter. Hypotheses concerning directionality of difference based on the stigma of homosexuality, while unsupported in their specific iterations of sexual identity, provided support for the primary prediction based on the importance of sexual identity and verification of that identity. Even though there was no reported difference between stable heterosexuals and stable non-heterosexuals, fluidity

was the stress inducing factor. While I found support that mirrored findings from Everett (2015), which indicated movement towards homosexuality increased the count of symptoms of depressive symptoms, my results suggest that it is not homosexuality per se that is the issue, but rather change or fluidity. This was demonstrated by the comparison between unchanging sexual identity and those who moved towards heterosexuality. These people, too, experienced a higher expected count of negative self-feelings symptoms. According to identity control theory, a change in identity (such as sexual orientation) creates a stressful time for the individual actor, which is can be marked by poorer mental health. This is based on the assumption within identity control theory that unverified identities cause mental distress.

Likewise, results from my study demonstrated the amount a person's sexual identity changes affects negative self-feelings. Higher amounts of change, or "shifts" a person experiences in changing their sexual identity leads to a higher expected count of NSF symptoms. Everett's (2015) study has corresponding results which found that increased depressive symtpoms were concentrated in the group that had a heterosexual baseline identity and moved towards same-sex identity, presumably experiencing more "shifts." Identity control theory would suggest this as the more shifts an individual experienced, the harder the identity was to verify. In addition, my results denote that people with stable sexual identities were shown to have a lower expected count of negative self-feelings, fostering support for the relationship between fluid sexual identity and negative mental health outcomes. Everett's (2015) findings mirrored my results with the additional caveat that baseline sexual identity was not significant – just the stability

factor. Stable identities can serve as a buffer against stigmatized identities and are linked to higher levels of self acceptance and better mental health (Floyd and Stein 2002, Needham 2012, Rosario et al. 2006).

This study had many limitations. Only 8.3% of the sample experienced a change in sexual orientation from T1 to T2 (fluid sexual identity). 6.7% of the sample identified as non-heterosexual, while this may seem small, it is much larger than the estimated percent of the population that is non-heterosexual -- 3.5% (Gates 2011). Another potential limitation of the data is that sexual orientation was not asked in the original survey until Wave 5 (T1 in this study) – when respondents were well into adulthood (early 30s). Therefore, the data are not able to inform us on how sexual identity changed during adolescence or young adulthood and the subsequent effects on negative mental health outcomes. However, this is also a strength of the study as most research done thus far on sexual identity fluidity focuses on adolescence (Everett 2015, Everett et al. 2016). Also missing from this analysis is a more comprehensive operationalization of social support. Variables concerning non-heterosexual friends and support would have enriched the analysis regarding the importance of a support network for an already marginalized group of people. Furthermore, the measure for sexual identity only taps self-reported sexual orientation identity. It is not a multi-factor approach to sexual orientation, that includes behavior, attraction and identity. Nonetheless, the self report of these identities is critical for diagnoses of potential negative self feelings.

Despite the limitations of this research, this project further supports identity control theory through the investigation of sexual identity fluidity. There is little research

that investigates the consequences of fluidity in sexual identity on mental health for adults and this project sought to fill that gap. In doing so, this research can hopefully aid in identifying potential risk factors concerning depressive symptoms for an already at-risk population (non-heterosexuals) by highlighting another potential source of stress.

More research is needed to study various trajectories of sexual identity as it develops over the life course to understand how changing sexual identity over the life course, coupled with changing norms surrounding sexuality, can impact mental health as well as what factors can alleviate the stress associated with an identity change. Avenues for reducing the stigma surrounding identity change and emphasizing the normative nature of identity change is important for mental health professionals that serve a sexual minority population.

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APPENDIX

CONTROL VARIABLES

Female (dichotomous)

	Frequency	Percent	Cumulative
Male (0)	602	48.08	48.08
Female (1)	650	51.92	100
Total	**1480**	**100**	

Race

	Frequency	Percent	Cumulative
White	872	69.65	69.65
Black	248	19.81	89.46
Hispanic	126	10.06	99.52
Other	6	.48	100
Total	**1,252**	**100**	

Years of Education

	Frequency	Percent	Cumulative
6	3	.24	.24
7	18	1.44	1.68
8	21	1.68	3.35
9	28	2.24	5.59
10	40	3.19	8.79
11	41	3.27	12.06
12	369	29.47	41.53
13	135	10.78	52.32
14	146	11.66	63.98
15	71	5.67	69.65
16	236	18.85	88.85
17	144	11.5	100
Total	**1,252**	**100**	

Annual Income in $10,000

	Frequency	Percent	Cumulative
.25	157	12.54	12.54
.75	104	8.31	20.85
1.25	147	11.74	32.59
1.75	199	15.89	48.48
2.25	204	16.29	64.78
3	271	21.65	86.42
4.25	112	8.95	95.37
6.25	45	3.59	98.96
7.5+	13	1.04	100
Total	**1254**	**100**	

Summary Statistics for Continuous Control Variables

Variable	Mean	Std Dev	Min	Max
Years of Education	13.52	2.40	6	17
Friendship	11.43	1.01	4	12
Income ($10,000)	2.22	1.48	.25	.75

Valid N = 1,252