Religiosity, outgroup contact, postconventional religious reasoning, and their associations with Christians' prejudice against sexual and gender minorities.

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RELIGIOSITY, OUTGROUP CONTACT, POSTCONVENTIONAL RELIGIOUS REASONING, AND THEIR ASSOCIATIONS WITH CHRISTIANS’ PREJUDICE AGAINST SEXUAL AND GENDER MINORITIES

By

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A Dissertation Submitted to the Faculty of the College of Education and Human Development of the University of Louisville in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy in Counseling and Personnel Services

Department of Counseling and Human Development
University of Louisville
Louisville, Kentucky

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July 14, 2021
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ABSTRACT

RELIGIOSITY, OUTGROUP CONTACT, POSTCONVENTIONAL RELIGIOUS REASONING, AND THEIR ASSOCIATIONS WITH CHRISTIANS’ PREJUDICE AGAINST SEXUAL AND GENDER MINORITIES

Lucas Huckaby
July 14, 2021

Over the last few decades there has been a resurgence of work investigating topics around religion and spirituality (R/S), with the majority of the literature demonstrating associations with positive outcome variables. However, R/S factors have also shown significant relationships with some negative outcomes, most notably prejudice towards sexual and gender minorities (SGM). Following the call of researchers, this study investigates the hypothesized positive relationship between postconventional religious reasoning (PRR), defined as an individual’s ability to engage in critical thinking around R/S ideas while also demonstrating increased perspective-taking, along with other known covariates of prejudice against SGM (religiosity, outgroup contact) to better understand the strength of these relationships. Responses from a total of 178 community participants were examined using an online snowball sampling method, and three hierarchical regressions were conducted. As hypothesized, PRR was shown to negatively relate to prejudice against gay, lesbian, and transgender individuals. These results attest to the continued importance of studying variables related to mature faith development, to better understand how they may be protective against negative outcomes such as prejudice.
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Dissertation Proposal

Introduction

Over the last few decades, there has been a resurgence of work investigating the relationship between religion and spirituality (R/S) and mental (e.g. depression, anxiety) and physical health outcomes (Miller & Kelley, 2005; Shattuck, & Muehlenbein, 2018). R/S topics can be integral to an individual’s overall identity (Fowler, 1981), and thus are now treated as an important component to multiculturally competent counseling (Esmaili, Zareh, & Golverdi, 2014). The majority of the literature suggests that religiosity, defined as the relative importance and expression of religion in a person’s life, acts as a protective buffer against negative mental health outcomes and may enhance positive mental health outcomes, by increasing positive factors such as meaning making, coping, gratitude, and engagement in a spiritual community (Hackney & Sanders, 2003; Midlarsky, Mullin, & Barkin, 2012; Miller & Kelley, 2005; Park et al., 2013). However, some of the research suggests that religious factors can also lead to negative intrapersonal and interpersonal outcomes, such as exacerbating existing mental health issues, delaying individuals from seeking professional help (Koenig, McCullough, & Larson, 2000), and may also lead to greater prejudice against outgroups (e.g. Whitley, 2009). Prejudice is defined as an evaluation (usually negative) about an individual based on their group membership (Dovidio & Gaertner, 2012), and has been consistently demonstrated to be a stable negative interpersonal outcome for those scoring highly on measures of religious affiliation (Deslandes & Anderson, 2019), especially towards sexual and gender
minorities (SGM; Whitley, 2009), and those of minority faith traditions (Hall, Matz, & Wood, 2010; Johnson, Rowatt, & LaBouff, 2012). Yet much of the research demonstrating these relationships has often measured religiosity as a broad general factor, and there has been a call to investigate more specific aspects of religious belief (Tsang, Carlisle, & McCullough, 2019) that integrate a theoretical framework (Hill & Pargament, 2017). There has also been a call to investigate religious factors from a developmental perspective (Fisher, 2017), as much of the research measures religious factors as a stable, enduring trait, yet many individuals experience developmental change in their faith life (Fowler, 1981). Thus, investigating religious factors related to the process of religious change and growth may better capture the true nature of the impact of religious factors on an individual as they develop across their lifespan.

The majority of Americans identify as religious, with over 70% identifying as Christian (Pew Research, 2015). Since religiosity has consistently been shown to predict prejudice (e.g., Whitley, 2009), it is important to investigate possible factors that may weaken this relationship. American society is becoming increasingly diverse and polarized, thus increased contact with outgroups seems inevitable (Martin, 2012). Some research has shown that outgroup contact tends to reduce prejudice (Pettigrew & Tropp, 2006), yet other research has suggested that contact can have detrimental effects on prejudice (Barlow et al., 2012), thus it may be important to investigate intrapersonal factors that may lead to reductions in prejudice (Pettigrew & Tropp, 2008). Within the R/S literature, postconventional religious reasoning, defined as an individual’s ability to engage in critical thinking around R/S ideas while also demonstrating increased...
perspective-taking, may be an important developmental factor theorized to reduce prejudice (Fowler, 1981; Harris & Leak, 2013).

This study hopes to bridge the gap between the research on religious development, contact, and prejudice, by investigating contact and prejudice along with overall religiosity and capacity for postconventional religious reasoning. More specifically, this study will survey a sample of American Christians (the largest religious group in America) to examine the influence of postconventional religious reasoning (considered an important factor for mature faith development according to Fowler’s Theory of Faith Development) above and beyond the known associations of religiosity and contact in explaining the variance of prejudice against three groups that commonly experience religiously-motivated prejudice: gay, lesbian, and transgender individuals.

**Literature Review**

**Religiosity**

My discussion on religiosity will begin with an initial overview of the religiosity research, and briefly describe important theoretical components of religiosity. Next, I will discuss broad outcomes commonly demonstrated to relate to religiosity, with a focus on the paradoxical, negative interpersonal outcome of prejudice, especially against sexual and gender minorities (SGM) and those of another religion. I will then discuss the importance of investigating this association between religiosity and prejudice from cognitive and developmental frameworks. Finally, I will discuss Fowler’s Theory of Faith Development, and how an important theorized component of mature faith development, postconventional religious reasoning, may be an important variable related to prejudice reduction for American Christians.
Religiosity is a broad, complex, and multidimensional construct, composed of many related factors, which can make it difficult to parse out specific relationships (Tsang, McCullough, & Carlisle, 2019). Most definitions of religiosity contain multiple dimensions, including subjective, cognitive, socio-cultural, moral, behavioral, and may also be indicative of one's internal experiences (Holdcroft, 2006). Within psychology, Allport and Ross’s (1967) bi-dimensional conceptualization of religiosity as intrinsic and extrinsic may be the most well-known, in which extrinsic is seen as self-serving use of religion for one’s own ends, versus intrinsic being an internalization and pursuit of religious values and meaning. Within the current literature, religiosity is said to be composed of key dimensions, including relative importance of one’s belief in a spiritual dimension/higher power, engagement in a set of spiritual practices, living by some form of doctrine regarding conduct, and engagement with a like-minded community (Fontana, 2003; Herek & McLemore, 2013; Koenig, McCullough, & Larson, 2001). Since the beginning of the formal study of religion in psychology, several definitions and ways of measuring aspects of religiosity have been devised (Koenig, Zaben, Khalifa, & Shohaib, 2015), which may explain the confusing and contradictory findings that have often been found (Hackney & Sanders, 2003). These varied definitions of religiosity also span across several disciplines, a review of which is outside the scope of this study (see Holdcroft, 2006, for a review).

In regard to mental health, the majority of the literature suggests that religiosity has a positive relationship with an individual’s overall physical and mental health and well-being Galen & Kloet, 2011; Mochon, Norton, & Ariely, 2011), leading some to go so far as to suggest that a lack of religious belief may be a liability for both mental and
physical health (Hall, Koenig, & Meador, 2008). Research investigating R/S as a multidimensional typology consisting of service attendance, inner experience, prayer, and positive coping has demonstrated that those who are categorized as highly religious also report higher levels of happiness and financial satisfaction (Park et al., 2013). A comprehensive review by Koenig, McCullough, & Larson (2001) suggested that the majority of studies have found a positive relationship between religion and mental health, yet still acknowledge a minority of studies that find no relationship, or even a negative relationship. One meta-analysis demonstrated that religiosity was positively associated with mental health ($r = .10$; Hackney & Sanders, 2003) and suggested that a more personal expression of religiosity, as opposed to institutional membership and motivations, has been shown to relate more strongly to positive mental health outcomes such as gratitude and well-being. However, more recent research has questioned these findings. For example, Moore and Leach (2016) found that when controlling for level of religious and existential certainty (dogmatism), the relationship between religiousness and positive mental health benefits disappeared, with secular and religious individuals displaying similar levels of mental health on four of the five variables assessed. Theistic participants (who identified as believing in a God) did demonstrate a higher level of gratitude than nontheistic participants, however there were no differences between these groups on measures of hope, life satisfaction, and positive and negative affect after controlling for dogmatism (certainty of belief).

Beyond these suggested benefits, some of the literature has also found positive relationships with religiousness and negative outcomes. For example, a review by Koenig, King, & Larson (2012) found that religiousness was positively related to delayed
help-seeking, dependency on others, and a higher prevalence for depression and anxiety. It has also long been suggested that religiousness may have deleterious effects on interpersonal outcomes, such as prejudice, which is defined as an evaluation (usually negative) of another person based on their group membership (Dovidio & Gaertner, 2012). For example, Allport (1954) identified and discussed the paradoxical nature of religiousness and prejudice, as many religions explicitly call for equal treatment of others. A majority of the literature investigating religiosity and prejudice (with the majority of the literature investigating American Christian samples) has demonstrated this relationship, as individuals who have higher levels of religious belief and commitment tend to consistently hold a higher degree of prejudice towards outgroup members, especially towards SGM individuals, and those of a minority religion (Ng & Gervais, 2017; Whitley, 2009). As researchers continue to investigate this relationship, there has been a call to consider cognitive processes and frameworks to better understand what leads religious individuals to exhibit higher prosociality in some contexts, and yet demonstrate elevated levels of prejudice in others (Hunsberger & Jackson, 2005; Preston, Ritter, & Hernandez, 2010). These cognitive frameworks may help explain why religious individuals are prosocial towards ingroup members but not toward outgroup members, as helping those within ones ingroup may be interpreted as advancing, affirming, and protecting one’s own cognitive framework regarding faith belief, while helping an outgroup may lead to more competition for ones shared ingroup beliefs. One study demonstrated that the more highly religious an individual was, the more willing they were to help a closely related individual, but not an unknown individual (Saroglou, Pichon, Trompette, Verschueren, & Dernelle, 2005). This association is also reflected in
research examining certainty of beliefs, as Kossowska, Czernatowicz-Kukuczka, and Sekerdej (2017) found that religious and non-religious individuals may become prejudiced towards outgroups when the certainty of their beliefs (dogmatism) is threatened. Finally, some studies have demonstrated that cognitive priming of religious-related stimuli leads to higher levels of prosociality, yet these effects do not carry over to an outgroup (Pichon & Saroglou, 2009), and that priming-related cognitions of God can elevate levels of aggression towards others (Bushman, Ridge, Das, Key, & Busath, 2007).

**Investigating R/S as a Process/Developmental Framework**

While many theoretical frameworks of R/S have been put forth, there has been a call to move to evaluate R/S as a process in a way that assesses constructs related to change and growth (Barry, Nelson, Davarya, & Urry, 2010; Fisher, 2017), as many previous studies look at religiosity as a stable, enduring construct (Hill & Pargament, 2003), and there is continuing evidence that most (if not all) individuals experience some degree of R/S growth and change throughout their lives (Albrecht & Cornwall, 1989, as cited in Fisher, 2017; Chan, Tsai, & Fuligni, 2015). Thus, it may be important to shift to investigating R/S and outcomes by using developmental constructs that assess factors related to the process by which an individual approaches and relates to their religious and spiritual beliefs, rather than merely measuring the strength or importance of one’s religious beliefs in their life. Though the applicability of such a paradigm may appear to be limited in its generalizability (as some individuals claim to hold no religious belief), Ingersoll (2007) suggested that a capacity for spirituality is inherent to all individuals, but its utilization exists on a developmental continuum, ranging from an untapped quality to an integral trait of one’s identity. Furthermore, most theories of individual development
conclude that aspects of R/S development are an important part of an individual’s developmental progression (e.g. Kohlberg, 1976). For example, as one develops in their cognitive ability, they are better able to reason and understand aspects of their religious beliefs, which may further influence their moral reasoning processes (Love & Talbot, 2009; Myers & Williard, 2003; Pichon & Saroglou, 2009). For example, Hunsberger and Jackson (2005) suggest that the relationship between prejudice and religiosity may be best explained by cognitive factors, as the link between religiosity and prejudice for fundamentalists may be due to their less complex cognitive styles. Thus, it may be especially important to utilize constructs related to faith development in the study of R/S and further investigate factors that influence an individual’s overall process of faith development, as much of the previous literature has investigated R/S constructs as stable, enduring traits rather than a construct that can be further developed (Hill & Pargament, 2003). Thus, constructs related to positive faith development may help to explain the relationship between religiosity and various positive and negative outcomes, such as prejudice.

**Faith Development**

Faith development is broadly defined as a process of change and growth in how one understands and approaches religious concepts, and how these influence one’s perceptions of their experience and how they make meaning in the world (Fowler, 1981; Parker, 2006). Several aspects of mature faith development have been hypothesized, and can include living according to faith-based values, correct religious practice, taking responsibility for negative conduct, a relationship with a Higher Being, participation in a faith group/community, positive interpersonal relationships, moral reasoning, growth
through suffering, critical examination of one’s own beliefs as well as existential issues, integration of religious-life domains (e.g., cognitive, affective), and awareness of one’s limitations of understanding (Allport, 1950; Atkinson & Malony, 1994; Batson, Schoenrade & Ventis, 1993; Cole & Wortham, 2000; Fowler, 1981; Harris & Leak, 2013). While a comprehensive review of all the models of faith development is beyond the scope of this study (for an in-depth review, see Roehlkepartain, Benson, King, & Wagener, 2006), many have their roots in other developmental models, such as Piaget’s theory of cognitive development, Kohlberg’s theory of moral development, and Erikson’s theory of psychosocial development (Fowler, 1981; Parker, 2011). These models have a developmental focus, in that they propose an overall movement from limited to comprehensive understanding of the world, a trend from concrete to abstract thinking, and progression from self-focus to incorporating the perspectives of others (Friedman, Krippner, Riebel, & Johnson, 2012). In the same way that development along Piaget’s stages of development and Erikson’s psychosocial stages is motivated by periods of exploration or challenge (Erikson, 1968; Piaget, 1970), a sense of spiritual struggle, conflict, or disagreement has long been thought to be necessary for faith development (Allport, 1950; Kass & Lennox, 2005), and there is some preliminary qualitative evidence that a sense of spiritual struggle serves as a necessary impetus to both spiritual and personal growth (Pargament, Koenig, Tarakeshwar, & Hahn, 2001).

Given the above hypothesized link between spiritual struggle and mature faith development, researchers have questioned which aspects of struggling with faith matters lead to the most growth, as there is also evidence that those who leave or reduce their faith beliefs in response to struggle and conflict may have worse psychological outcomes.
(Ben-Ezra et al., 2010). Some have suggested that religious development may be best fostered when spiritual struggle leads to disagreement with others on faith topics, forcing individuals to consider different perspectives, construct new faith meanings, and thus develop a more complex model for living out one’s religious belief (Harris, Leak, Dubke, & Voecks, 2015). This process may parallel the more universalized perspective of stages 5 and 6 of Kohlberg’s moral development model, in which individuals make moral judgements based on universal ethical principles instead of a rigid set of rules or a specific authority (Kohlberg, 1976). This developmental process of incorporating different perspectives can be also thought of as analogous to Piaget’s concept of schema accommodation, in that an individual changes their existing mental framework to accommodate new information (Piaget, 1970), which may have implications on the relationship between religiosity and prejudice. Some hypothesize that those scoring highly on religiosity and fundamentalism (both demonstrated to relate to prejudice) tend to assimilate new information into their existing schemas, while those who accommodate this information may likely be less prejudiced (Hunsberger & Jackson, 2005).

Exploration into factors relating to mature faith development may be especially relevant today for several reasons. First, American society is continuing to become more culturally diverse (United States Census Bureau, 2017) and thus individuals are more likely to come across different perspectives and ways of life. Encountering differing religious ideas and perspectives is likely inevitable, especially since religious ideas often overflow into other contexts, such as political discussions (Haidt, 2002). Thus, as one is exposed to differing R/S ideas and opinions, and as they overflow into other life domains, conflict and struggle with one’s own religious belief and identity is highly likely. Second,
as level of education continues to increase for the general populace in the U.S. (Schmidt, 2018), spiritual struggle will also likely increase, as some research demonstrates that those who are more educated may be more likely to experience religious rifts with their faith congregations (Harris, Erbes, Winskowski, Engdahl, & Nguyen, 2014).

Third, due to the advent of the internet, the amount of information available and ability to dialogue with distant others has dramatically increased (see Chen, 2015, for an overview). In the past, many individuals grew up in small, insular communities, and likely only had their local church congregation to turn to for spiritual knowledge and guidance. Questioning or doubt of faith issues likely meant risking ostracism from one's only social community (Ng & Gervais, 2017). Now that widespread internet access is the norm in America, individuals are more exposed to different perspectives, and are more likely to encounter others with similar faith views or disagreements. For example, the internet has been cited as one of the chief mechanisms for the increase in individuals identifying as atheist and overall atheist activism (Smith & Cimino, 2012).

Fourth, without an understanding of the process of spiritual struggle or how to navigate it in a healthy manner, those who experience these struggles may be more prone to negative psychological outcomes. For example, faith conflict with others has been associated with increased rates of depressive symptoms in both a clinical and college student sample (Exline, Yali, & Sanderson, 2000). Religious rifts have also been shown to relate to increased PTSD symptomatology in a church sample (Harris, Erbes, et al., 2008). Thus, research within the realm of mature faith development should explore the factors that may relate to the best outcomes for those who have experienced spiritual struggle, which is considered central to developing a mature faith (Harris et al., 2015a).
However, exploration into these specific attributes still needs to be guided by well-established theory regarding faith development, as much of the existing research into religion and spirituality lacks a sound theoretical rationale (Hill, 2005; Hill & Pargament, 2017).

While the many R/S frameworks may have implications for R/S functioning, some researchers have suggested that the process of religious development is a distinct, separate dimension (Cole & Wortham, 2000; Kristensen, Pedersen & Williams, 2001). While there are many frameworks and models of R/S development, many adopt a focus on a single aspect of faith development, or operate from a specific theoretical orientation (Parker, 2011). For example, Oser’s (1991) approach to religious development focuses on the impact of religious judgements but may neglect the impact of psychosocial aspects on faith development (for a review of faith development perspectives, see Friedman et al., 2012 and Roehlkepartain et al., 2006). Among these various theories and models, it has been suggested that the cognitive/moral development models possess the strongest theoretical and theological support, and these models may be most useful when considering how to measure R/S development (Fowler & Dell, 2006; Gibson, 2004). Among the cognitive/moral development models, Fowler’s Faith Development Theory may be the most comprehensive, well-known, and empirically studied (Fowler, 1981).

**Fowler’s Theory of Faith Development**

Fowler’s Theory of Faith Development is one of the most notable, comprehensive, theoretically established models of individual faith development (Fowler, 1981; Parker, 2006). Fowler’s theory consists of seven distinct stages, and was heavily influenced by other stage models, including Kohlberg’s Theory of Moral Development.
(1976; as cited in Parker, 2006), Erikson’s Psychosocial Theory (Erikson, 1963; Sandhu, 2007), and Piaget’s Theory of Cognitive Development (1970; as cited in Parker, 2006). While Fowler used a similar developmental framework, he criticized these theories for neglecting the role of imagination in constructing reality, as well as not including the role of unconscious processes (Fowler, 1981, p. 103). Another hallmark of Fowler’s theory is its growth-oriented orientation, as opposed to a more negativistic perspective towards R/S propagated by previous theorists (e.g., Ellis, 1985; Freud, 1961; Parker, 2009).

Fowler stated that faith is:

People’s evolved and evolving ways of experiencing self, others and world (as they construct them) as related to and affected by the ultimate conditions of existence (as they construct them) and of shaping their lives’ purposes and meanings, trusts and loyalties, in light of the character of being, value and power determining the ultimate conditions of existence (as grasped in their operative images—conscious and unconscious—of them) (Fowler, 1981, pp. 92-93).

Thus, Fowler (1981) conceptualized faith as a means of knowing and actively constructing one’s experiences into an “ultimate reality”, rather than merely belief in a set of ideological and existential beliefs based on external authority. Faith is seen as a multifaceted construct of related structures, such as one’s beliefs about the ultimate nature of reality, as well as their ability to reason abstractly, morally, and existentially, engage in perspective taking, understand the sacred, and demonstrate social inclusiveness (Fowler, 1981). Faith development is seen as both an interpersonal and intrapersonal process, and heavily influences the values to which one ascribes. Faith is theorized to
intersect with and develop alongside other forms of development, such as cognitive and moral development (Barry, Nelson, Davarya, & Urry, 2010; Friedman, Krippner, Riebel, & Johnson, 2012), and some research has shown that faith development correlates with both ego development and moral development (Snarey, 1991; Barnes, Doyle, & Johnson, 1992). Faith progression reflects the individual becoming more complex, autonomous, humble, socially inclusive, and active in the cognitive, emotional, and interpersonal domains of faith (Parker, 2006). This developmental process is conceptualized as a progression through seven distinct stages of religious reasoning about the nature of reality: 0) infancy and undifferentiated faith, 1) intuitive-projected faith, 2) mythic-literal faith, 3) synthetic-conventional faith, 4) individuative-reflective faith, 5) conjunctive faith, and 6) universalizing faith (Fowler, 1981).

Stage 0: Infancy and undifferentiated faith is more of a precursor to the other stages. This pre-stage reflects the first stage of Erikson’s Psychosocial Theory, in that it is centered around the experience of nurturance and love with a caregiver, leading to a sense of trust but threatened by a fear of neglect or abandonment. Faith begins to develop as an infant is loved and cared for by its caretaker, promoting relationships with others. Experiences of neglect may lead the infant to turn inward and promote self-focus, or to isolate due to a sense of mistrust. Transition to the intuitive-projected stage occurs as the child begins to engage in symbolic expression of thoughts via language (Fowler, 1981, Strickland, 2017).

Stage 1: Intuitive-projected faith usually occurs from two to seven years of age. A child’s language skills continue to develop, and they are able to ascribe meaning to what happens around them. Children begin to develop faith-related views of meaning, which
are primarily influenced by interactions and religious myths from the parent-figure, as well as the child’s own imagination (non-logical thought). Egocentric self-awareness also begins to develop at this stage. Transition to the mythic-literal faith stage occurs as the child begins to engage in Piaget’s concrete-operational thinking (Fowler, 1981; Piaget, 1970).

Stage 2: Mythic-literal faith occurs in elementary aged children, though this process may unfold as late as adolescence or even adulthood (Fowler, 1981). At this stage, an individual is able to construct meaning through concrete, literal interpretation of symbols, and through understanding narratives. Individuals are able to differentiate what is real versus what is imagination and is also able to begin to integrate faith-based stories and ideas into their personal identity. Individuals also shift from egocentric perspectives and are able to view a situation from other’s perspectives, though they struggle to develop meaning outside of their personal beliefs and experiences (Fowler, 1981).

Stage 3: Synthetic-conventional faith often develops in adolescence, but many adults may remain in this stage throughout their lives. Faith based beliefs and ideas operate as a foundation for an individual’s identity, future aspirations, and values, though these values have not been critically examined and they cannot be evaluated objectively. Individuals in this stage also work to develop a true sense of identity, as they are pulled between many roles in life (e.g., school, career, church). Faith identity is heavily influenced by their relationships with others, thus they are likely to conform to the judgements of others.

It has been hypothesized that prejudice may be exhibited to the greatest degree in stages 2 and 3, as an individual’s faith is strongly related to (and often modeled after)
those whom they are closest to. Fowler (1981) states that stage 3 is a “conformist” stage, in that faith belief is heavily influenced by the expectations and potential for judgement from significant relationships. In addition, Fowler states that a danger of this stage is the risk of internalizing a rigid means of evaluating others. Thus, in-group and out-group distinctions may be the most apparent at this developmental stage, as an individual identifies those who share similar beliefs to their own, and also begin to distinguish themselves from those with different faith values, which may lead to a sense of threat and expression of prejudice (Crownover, 2007; Fowler, 1981).

Stage 4: Individuative-reflective faith usually occurs during an individual’s mid-twenties, though transition to this stage may happen as late as 40, or not at all (Fowler, 1981). This stage is marked by an individual beginning to take responsibility for their beliefs and lifestyle, resulting in a shift from outside authority to one’s own authority. Faith is now developed through one’s own self and construction, instead of being contingent on relationships and influences from others, while also being mindful of the larger social context.

Stage 5: Conjunctive faith usually occurs after mid-life. Individuals move beyond the simplistic thinking of stage 4 and begin to wrestle with life’s complexities, while being able to attend to multiple perspectives. Paradoxes can be integrated into one's beliefs, as they realize and are at peace with the fact that some metaphysical questions cannot be answered in a perfect way. Individuals are better able to understand other’s identities, while also being mindful of their own identity, which is no longer fully subservient to judgements from others. There is also a pronounced openness and desire to be close to those who were previously seen as ‘different’ or ‘other’. Individuals in stage 5
are aware of and better understand the dynamics of oppression in society and begin to engage in social justice and activism in a way that transcends group boundaries, but may be held back by their instinct for self-preservation (Fowler, 1981).

As an individual moves into these higher stages of faith development, their potential to harbor prejudice may begin to diminish. The inherent lack of certainty regarding specific faith issues, ability to hold contradictions, as well as the expanded capacity for perspective-taking creates a sense of vulnerability to potential truth that may come from “those who are other” regardless of community boundaries, as well as a sense of decreased threat and a desire for closeness to “that which is different” (Fowler, 1981, p. 198). This suggests that individuals in this stage may be more open to outgroups, less susceptible to prejudice, and may hold a lower level of religious dogmatism, which in turn has been shown to relate to lower levels of prejudice towards outgroups (Kossowska, Czernatowicz-Kukuczka, and Sekerdej, 2017). Other empirical work corroborates this idea, as Green and Hoffman (1989) found that individuals who scored higher on a stage measure of Fowler’s theory did not discriminate against individuals of other faiths, agnostics or atheists, while individuals scoring in Fowler’s lower stages did engage in such discrimination.

Stage 6: Universalizing faith is rare and is marked by efforts to change society to be more fair and just for all people, even at the detriment of the self. They seek to unify and to redeem all individuals in society. This may prompt others to examine their own assumptions and views of themselves and society and may also lead some to feel threatened. Individuals in this stage are not without fault, but exemplify a sense of leadership, and a pursuit of a greater truth and social justice (Fowler, 1981).
Criticisms

Despite a substantial amount of theoretical, theological, and empirical support, Fowler’s theory is not without its criticisms (Parker, 2010). For example, Streib (2005) questioned the unidirectional nature of Fowler’s stages, suggesting the theory does not adequately address the possibility for retrogression, while others also criticize the theory for assuming a common end-point for faith development (Kwilecki, 1988). The theory has also been criticized for its general descriptions, and while this may allow for wider application, a lack of description of specific mechanisms may lessen the predictive power of the theory (Reich, 1993), and make it more difficult to measure (Leak et al., 1999). This generalizability has also been criticized since the theory may not adequately capture unique aspects of a specific faith given its roots in western protestant Christianity (McDargh, 2001). While the theory attempts to connect the psychological with the theological, the theory has been criticized for not adequately linking and explaining each in a satisfactory manner (McDargh, 2001).

While much of the research in the psychology of religion has been criticized as often neglecting theoretical frameworks in the pursuit of quantitative results (e.g., Hill & Pargament, 2017), Fowler’s theory seems to have the opposite problem. Much of the work around Fowler’s theory has been aimed at refining the overall theory, and less on empirical validation (Parker, 2010). This is surprising, especially since a strength of Fowler’s theory has been its “amenability of empirical validation” (Parker, 2010). Part of this lack of empirical study may also be due to the difficulty of measuring mature faith development. Fowler himself argued that faith development is a complicated process and many processes involved in mature faith development may influence each other. Thus, a
measure of faith development may be too short and inadequate for measuring such complex developmental change or may be too lengthy/complicated to be of empirical use. This has led some to suggest that it may be more fruitful to investigate specific aspects of faith development theorized to relate to Fowler’s conception of mature faith (Parker, 2006).

Other definitions of R/S development that differ from Fowler’s theory have also been proposed (e.g., Wink & Dillon, 2002), with some arguing that mature R/S development may look different for other faith traditions (Decker, 1993), as much of the theoretical and empirical work surrounding R/S development has originated from a predominantly Christian perspective and utilizes Christian samples (Hill, 2005; Hill & Hood, 1999). Because of these differences, some have suggested that it may be more fruitful and generalizable to research distinct, specific attributes directly related to faith development, rather than placing individuals at various stages in Fowler’s model (e.g., Barry, Nelson, Davarya, & Urry, 2010; Harris, et al., 2015a; Hill 2005). A review of measures of faith development by Hill (2005) suggested that investigating spiritual maturity through postconventional spiritual cognitions may have the most theoretical and empirical support. More specifically, investigating cognitive processes related to faith/belief may be crucial to understanding religiously motivated behavior (Preston, Ritter, & Hernandez, 2010), with some studies demonstrating the importance of cognitive frameworks and cognitive priming with outcomes such as prejudice, prosociality, and even-condoning violence (e.g., Kossowska, Czernatowicz-Kukuczka, & Sekerdej, 2017; Saroglou et al., 2007). By researching cognitive processes in faith development,
empirical work investigating factors related to mature faith development may also be more generalizable across different faith traditions (Hill, 2005).

**Postconventional Religious Reasoning**

This call to research postconventional spiritual cognitions eventually led to the creation of the Revised Faith Development Scale (RFDS; Harris & Leak, 2013). The RFDS was created to improve upon an earlier measure of postconventional religious cognitions that suffered from psychometric limitations, as well as a call to investigate specific attributes of mature faith development that may be generalizable to individuals regardless of faith tradition or underlying theoretical model (Hill, 2005). Among these specific constructs, Harris et al. (2015), following the recommendations of Hill (2005), sought to create a measure of postconventional religious reasoning, as postconventional spiritual cognitions are theorized to be a crucial construct related to mature faith development.

The RFDS assesses the specific construct of Postconventional Religious Reasoning (PRR), which is defined as an individual’s ability to engage in critical thinking around R/S ideas, and to challenge long held spiritual assumptions, as opposed to merely relying on an outside authority, such as a church or spiritual leader (Harris & Leak, 2013). This construct helps researchers to look beyond overall religiosity or religious commitment, and instead investigate an individual’s ability to critically evaluate beliefs and ideas while integrating personal experience and the perspectives of others/other religions, instead of merely accepting the beliefs one was taught from their church or family of origin. While this construct is likely related to general critical thinking, it is unique in that it pertains to thinking centered around religious ideas and closely held
values, to which religious individuals high in general cognitive ability or critical thinking may still be blind (Critical Thinking, 2018). Research has supported this assertion, as Penneycook, Cheyne, Koehler, and Fugelsang (2013) demonstrated that stronger religious belief was associated with a higher degree of ‘belief bias’ and thus highly religious individuals may be less likely to engage in reflective reasoning, even when other related variables such as cognitive ability were controlled for.

Beyond critical thinking, PRR is thought to encapsulate an individual’s ability to engage with different perspectives, and may also has a social component, as individuals higher in PRR may reflect a higher capacity for perspective-taking and empathy (Harris & Leak, 2013). It has also been suggested that PRR may be more likely to occur during periods of spiritual struggle or traumatic experiences (Harris et al., 2015a). Higher scores of PRR reflects theoretical aspects of Fowler’s individuative-reflective faith stage (stage 4) and conjunctive faith stage (stage 5), and is seen as one factor related to higher religious/spiritual maturity that may be more broadly generalizable to faith traditions outside of western Christianity (Harris & Leak, 2013).

Previous research into aspects related to PRR suggests that PRR may relate to higher levels of mental health, higher education levels, and lower levels of anxiety and hostility (Atkinson & Malony, 1994; Malony, 1988; as cited by Harris & Leak, 2013), and lower internalized homophobia and higher levels of sexual identity development for SGM individuals (Harris, Cook, & Kashubeck-West, 2008). One case study demonstrated that therapeutic interventions aimed at promoting PRR helped a service member move past a ‘moral injury’ (internal violation of a deeply held belief), resulting in less somatic distress (Harris, Park, Currier, Usset, & Voecks, 2015). This service member also shifted
from using more rigid categorical thinking about religious perspectives to being able to hold differing religious meanings (Buddhist and Catholic vs. Catholic alone), which helped him to also hold differing perspectives regarding the meaning of a traumatic event, leading to a reduction in his overall trauma symptoms.

While these results are encouraging, it should be noted that this was a single case study, and while elements of PRR were utilized, it was not measured empirically (Harris et al., 2015b). In addition, PRR has been shown to be related to lower levels of religious fear and guilt (Harris et al., 2015a), which in turn have been shown to relate to other negative outcomes such as depression, anxiety, loneliness (Exline, Pargament, Grubbs, & Yali, 2014), and higher rates of PTSD symptoms in both veteran (Norman, Wilkins, Myers, & Allard, 2014) and church samples (Harris, Erbes, Engdahl, Olson, Winskowski, & McMahill, 2008). While these findings seem promising, more research is needed to determine if PRR is directly related to these reductions in negative mental health symptomatology. It should also be noted that the road to developing higher levels of PRR may be a process that is fraught with challenges, as individuals with higher levels of PRR were also shown to have higher levels of trauma exposure, more religious conflict with family and friends, as well as lower levels of religious comfort, though these challenges may be more likely to produce post-traumatic spiritual growth through PRR (Harris et al., 2015a). However, this study was conducted with a church sample, which may leave out individuals who may no longer attend church due to potential higher levels of religious conflict and lower levels of religious comfort that they have experienced. Overall, more empirical research is needed to better understand this process, how it relates to differing religious individuals, and what outcomes it may be connected to.
Researching PRR may also have theological implications for Christian faith, as it has been suggested that encouraging growth in spiritual maturity should be a primary task of churches and spiritual leaders (Gibson, 2004). Despite the potential importance of this construct, PRR has been understudied in the R/S literature, likely due to its recent inception as well as the overall historical measurement difficulties of faith development instruments (Harris & Leak, 2013). In addition, many existing studies investigating aspects related to PRR have only presented correlational results, and thus there is a need for more studies to investigate the predictive power of PRR in relation to outcomes.

Studying and promoting PRR may be especially important in the future, as individuals find themselves navigating an increasingly diverse and polarized cultural context, perhaps due to existing prejudices (Martin, 2002), especially as religious ideas are often infused into political debates and policies that affect communities (Haidt, 2002). It has been hypothesized that the ability to engage in PRR may help individuals to resolve conflicts and help promote cooperative living in a diverse faith community (Harris & Leak, 2013). Thus, PRR may likely be an integral factor for understanding the relationship between religiosity and prejudice in an increasingly diverse society.

**Prejudice**

First, I will describe the concept of prejudice, with a brief overview of underlying factors and related negative outcomes. There has also been a call to research prejudice against different targets as distinct outcomes, as prejudice against various groups may be the function of different underlying mechanisms. Next, prejudice will be discussed as it relates to religiosity. From there, prejudice and its theorized mechanisms will be discussed for three groups that are commonly the target of religiously motivated
prejudice from American Christians: gay, lesbian, and transgender individuals. I will then discuss PRR and discuss the theoretical rationale for its role in prejudice reduction against these groups from American Christians.

The study of prejudice has been a burgeoning area of research within psychological science over the last few decades (Pettigrew & Tropp, 2006). Prejudice can best be defined as an evaluation of an individual (usually negative) based on their group affiliation (Dovidio & Gaertner, 2012). Prejudice is thought to stem from our natural tendency to categorize people and groups in order to make sense of our world, leading to associations between groups and various qualities and traits (Macrae & Bodenhausen, 2000). This categorization is seen as being rooted in evolutionary adaptation of perceiving threat from those who are outside one’s group or tribe (Edgell, Gerteis, & Hartmann, 2006).

Prejudice is also usually seen as an automatic, non-conscious process that can be heavily influenced by factors such as demand characteristics and social desirability (Yogeeswaran, Devos, & Nash, 2017). Experiencing prejudice has been connected to a host of negative outcomes, such as experiences of discrimination and violence (Woody, Ropp, Miller, & Bayes, 2016), which in turn relate to worse mental health outcomes such as depression (e.g., Cox, Abramson, Devine, & Hollon, 2012). These experiences of prejudice and discrimination also have been shown to relate to several economic and occupational disadvantages (Bertrand & Duflo, 2017). For example, a recent review by Potter, Rondolo, and Smyth (2019) demonstrated that experiences of discrimination were related to a host of negative mental health constructs, including anxiety, social anxiety, depression, and overall negative affect, which in turn is related to negative job
satisfaction and career outcomes. There is also evidence that prejudice is detrimental to the well-being of an individual who holds such biased views. For example, Sowe, Taylor, and Brown (2017) found that individuals holding homonegative attitudes demonstrated lower levels of mental health outcomes and social support, and higher levels of abuse and substance use, suggesting that holding prejudicial attitudes may be detrimental to everyone involved. Given these negative outcomes, researchers have long studied methods of reducing prejudice, with a growing body of evidence that these unconscious affective reactions can be influenced and reduced in various ways, and may be contingent on the type of target for these prejudices (e.g., Ng & Gervais, 2017). As a result, several researchers have suggested that different types of prejudice (based on the target of the prejudice) should be studied as distinct outcomes (Paluck et al., 2018; Worthen, 2013).

Prejudice and Religion

As Allport (1954, 1967) observed several decades ago, the relationship between religion and higher prejudice seems contradictory, given many religious mandates against prejudice/discrimination. Early research corroborated this assertion, as connections between prejudice, religiosity, and religious orientation were demonstrated (Allport & Ross, 1967). Since the mid-20th century, psychologists and social scientists have sought to better understand this connection. Initial research and discourse regarding religiosity and prejudice began with investigations into racial prejudice and were quickly followed by work exploring the associations between religiosity and gender/sexual prejudice (Wells, 2008). Early work revolved around exploring different facets of religion and religiosity, such as orientation (Allport & Ross, 1967) and fundamentalism (McFarland,
1989), to better understand what variables related to religious belief may make a religious person more or less likely to be prejudiced.

Recent work has taken a broader approach to explore theoretical (such as cultural and evolutionary) motivations that may explain how religiosity naturally leads to aspects of prejudice (Blogowska & Saroglou, 2011, Ng & Gervais, 2017). While early work first conceptualized prejudice towards outgroups as a unidimensional construct, evolutionary perspectives suggest that prejudice is developed as an adaptive response to a specific situation or group of people (Neuberg, Kenrick, & Schaller, 2010), suggesting that the mechanisms behind religious prejudice may differ based on the outgroup (Ng & Gervais, 2017). Among the existing research exploring religious prejudice towards outgroups, associations between religiosity and prejudice based on race and ethnicity seems to have grown weaker in more recent times, with one recent meta-analysis demonstrating no relationship between religiosity and prejudice against immigrants (Deslandes & Anderson, 2019). However, prejudice against SGM individuals has been consistently shown to relate to higher religiosity among American Christian samples (Ng & Gervais, 2017, Whitley, 2009), and has endured even as society as a whole seems to have adopted more positive attitudes towards these groups (Loftus, 2001; Wells, 2008). Thus, it may be prudent to investigate the differing mechanisms and motivations that may underlie prejudice towards these two groups.

**Prejudice against Sexual and Gender Minorities by Religious Individuals**

Prejudice against lesbian, gay, bisexual, transgender, and queer individuals is well documented, with the bulk of the research focusing on issues around homophobia (Herek & McLemore, 2013; Huffaker & Kwon, 2016; Kelleher, 2009). While conceptually
sexual identity and gender identity are distinct aspects of identity, they also hold many commonalities in terms of prejudice. Gender and sexual identity and roles in society has traditionally been conceptualized around a binary (e.g., male/female), and thus those who do not conform to these static options are often stigmatized, marginalized, and even pathologized (Gibson, Alexander, & Meem, 2014). However, bisexual and transgender individuals often face stigma not only from the heterosexual majority, but also from the LGBTQ community, resulting in unique risks to psychological and physical health (Hughoto, Reisner, & Pachankis, 2015; Smalley, Warren, & Barefoot, 2016). Transgender individuals also face prejudice that has been shown to limit their access to health services (Nadal, Skolnik, & Wong, 2012) and employment services (Brewster, Velez, Mennicke, & Tebbe, 2014). Some studies have demonstrated that trans individuals face more negative attitudes compared to other sexual and gender minorities (Norton & Herek, 2013), perhaps due to the perceived violation of the strongly held belief that sex and gender operate on a strict binary. Different sexual and gender minorities may face unique forms of stigma and discrimination, yet it has been suggested the prejudicial attitudes they face may also have many similarities (Huffaker & Kwon, 2016). However there has been a call to investigate each of these groups as a distinct entity, to better understand what factors may most influence prejudice towards these specific groups (Worthen, 2013). Among the factors shown to relate to anti-SGM prejudice, higher religiosity has consistently been shown to be a predictor (Whitley, 2009).

Most traditions of Christian faith (e.g., Protestant, Catholic) call for its adherents to ‘love your neighbor’ as well as ‘love your enemy’ (Matthew 5:43-48, New International Version), while also condemning homosexuality (Toulouse, 2002). It has
also been suggested that biblical texts give guidance and instruction regarding sexual and gender norms, and thus likely heavily influence what sexual/gender behaviors, roles, and form of expression an individual deems permissible (e.g., Eliason, Hall, Anderson, & Willingham, 2017). Thus, anti-SGM prejudice may be motivated by these breaches of faith values and norms (Duck & Hunsberger, 1999). More specifically, religious prejudice against SGM is theorized to be promoted by the rejection of conceptions of ‘proper’ gender and sexual expression, as well as the potential violation of religious conceptions of purity which may lead to sentiments of disgust (Cottrell & Neuburg, 2005). This rejection of sexual behavior often is nested in a larger negative evaluation of homosexuals (Bassett et al. 2005). Due to this perceived violation, prejudice against SGM individuals may be permitted as acceptable in communities of faith (Whitley, 2009), and this may impede the positive effects of intergroup contact (Pettigrew, 1998).

Negative attitudes against sexual and gender minorities that are religiously based are hypothesized to serve several functions, including a social-expressive function (strengthening the individuals ties to their religious community), value-expressive function (helping reaffirm the individuals’ conception of self as virtuous), as well as a defensive function against uncertainty in one’s beliefs or alignment to a higher power (Ng & Gervais, 2017). For example, one study found that prejudice led to a reduction of anxiety through alignment with a higher power (Herek & McLemore, 2013), leading some researchers to hypothesize that individuals are more likely to critically examine their prejudicial views towards sexual minorities when they no longer serve one of the proposed functions.
A review of religion and prejudice by Hunsberger and Jackson (2005) found that intrinsic and extrinsic orientations as well as fundamentalism were consistently positively related to prejudice against homosexuals. A recent meta-analysis found that many forms of religiosity, including fundamentalism, attending services, orthodoxy, intrinsic orientation, and religiosity, were related to negative attitudes towards gay and lesbian individuals (Whitley, 2009). Religious individuals have been shown to be more likely than non-religious to experience and express negative affect to both gay and bisexual individuals, and to oppose policies limiting discrimination against them (e.g., Brint & Abrutyn 2010, Haider-Markel & Joslyn 2008, as cited in Herek, & McLemore, 2013). Aspects of religious belief, such as religious fundamentalism, have also been shown to relate to prejudice against SGM individuals in several studies (Hopwood & Connors, 2002; Nagoshi et al., 2008). For example, Warriner, Nagoshi, and Nagoshi (2013) found that, for heterosexual men and women, religious fundamentalism had some of the strongest correlations with homophobia and transphobia ($r = .28$ to $.54$). These prejudicial attitudes may also have negative consequences for those who hold them. One recent study demonstrated that anti-homosexual prejudice was related to several negative outcomes such as substance abuse, abuse, and lower levels of mental health (Sowe, Taylor, & Brown, 2017), suggesting that interventions aimed at reducing prejudice may benefit victim and perpetrator alike.

As noted above, initial research has suggested different mechanisms behind prejudice towards SGM individuals (sexual vs gender norms), yet may still lead to perceptions of threat towards a religious individual’s certainty of belief. In addition, a religious individual may perceive these minorities as value-violators, resulting in
prejudice motivated by self-preservation of ones ingroup and their shared beliefs. Thus, the effectiveness of factors hypothesized to lead to reduced levels of prejudice may be unique, and interventions may be more effective if they are designed to surgically target a specific type of prejudice (Ng & Gervais, 2017; Worthen, 2013). While there have been many proposed constructs thought to help reduce prejudice, intergroup contact may be one of the most studied and consistently related variables shown to reduce prejudice (Pettigrew & Tropp, 2006). Yet there has been a call to investigate contact and prejudice alongside other factors such as empathy, perspective taking, and cognitive rigidity, which have also been demonstrated to relate to prejudice (Kossowska, Czernatowicz-Kukuczka & Sekerdej, 2017; Pettigrew & Hewstone, 2017). There has also been a call to investigate broad and specific religious variables together, to clarify the relationships between these variables and outcomes (Tsang, Carlisle, & McCullough, 2019). In addition, more work needs to be done to investigate potential moderators between broad religious variables (such as religiosity) and outcomes, which may help to further clarify the relationships between these factors (Piumatti & Russo, 2018; Whitley, 2009). Within the psychology of religion, PRR has been suggested to heavily influence these factors for religious individuals (Fowler, 1981; Harris & Leak, 2013).

**Postconventional Religious Reasoning and Prejudice**

As mentioned previously, the construct of religiosity has consistently been shown to relate to higher prejudice (Whitley, 2009). As a result, several lines of empirical investigation have focused on what aspects related to religiosity may strengthen prejudice, such as right-wing authoritarianism and fundamentalism, and this dimension of the religiosity-prejudice connection is more well understood. However, research
examining what aspects related to religiosity may reduce prejudice are not well understood, and thus more empirical research is needed to understand these more prosocial mechanisms related to religiosity (Shepperd, Pogge, Lipsey, Smith, & Miller, 2019). Thus, it may be fruitful to further investigate specific aspects of religious faith development, such as PRR, to more clearly understand how to reduce prejudice among religious individuals.

Religion has long been thought to heavily influence one’s belief system formation, by influencing one’s views on topics such as morality, values, meaning-making, and group identification (Hunsberger & Jackson, 2005). Furthermore, it has been suggested that an individual’s religious institution often greatly influences their faith development. These institutions may also greatly influence prejudice towards outgroups, especially towards sexual minorities (Herek, 2000; Woodford, Levy, & Walls, 2013). Thus, an individual with higher levels of PRR may be less susceptible to these social and institutional influences, since their faith is based on their own critical examination and less reliant on the edicts of a religious authority or significant relationships (Fowler, 1981).

To my knowledge, no research has yet been conducted investigating the relationship between PRR and prejudice, though PRR has been shown to relate to lower levels of internalized homophobia for SGM individuals (Harris, Cook, & Kashubeck-West, 2008). In addition, PRR has been shown to strongly relate to (and yet is still distinct from) quest religiosity, one of the few aspects of religiosity that has been shown to relate negatively to sexual prejudice (Whitley, 2009). In addition, a predecessor to PRR, the Faith Development Scale (a measure of postconventional cognitions), has been
investigated in regard to prejudice. A more recent study with an Australian sample demonstrated that higher scores on the Faith Development Scale were related to lower levels of prejudice towards gay and Muslim individuals, and that faith development was a better predictor for prejudice reduction than quest religious orientation (James, Griffiths, & Pedersen, 2011). These findings echo the call of some researchers of the importance of investigating cognitive factors related to faith development in regard to prejudice reduction (Hill, 2005; Preston, Ritter, & Hernandez, 2010).

Beyond empirical results, Fowler’s Faith Development theory would suggest that PRR should have a negative relationship with prejudice, based on three related factors. First, as one develops higher levels of PRR, their faith beliefs/orientation shift from being solely influenced by religious institutions/authorities and significant others (e.g., family, close friends), to being the product of one’s own critical examination. Individuals with higher levels of PRR are more apt to disagree with some of the beliefs or positions put forth by the primary religious authorities in their life. This result suggests that such an individual may experience less ingroup identification, which may result in less of a distinction between the self and outgroups. Preliminary evidence supports this assertion, as some research suggests that a higher amount of ingroup identification leads to more ingroup bias and prejudice towards outgroups (e.g., Sassenberg & Wieber, 2005).

Second, since higher levels of PRR are associated with the higher stages of Fowler’s faith development theory, individuals higher in PRR may also be more open-minded, as they are often less certain of their beliefs, and yet better able to cope with and reconcile uncertainty and paradox (Fowler, 1981). It has been suggested that the link between religiosity and prejudice may also be influenced by an individual’s overall rigid
cognitive style related to religious cognitions, and information that goes against these rigid categories leads to uncertainty of existing schemas and overall discomfort, which some have called ‘need for closure’ (Tebbe & Moradi, 2012). Overall need for closure has consistently been identified as a correlate for some forms of prejudice (e.g., Roets & Van Heil, 2011). More specifically, belief in rigid, delineated conceptions of sexual orientation has been consistently related to sexual prejudice (Rangel & Keller, 2011). Thus, cognitive rigidity may be a function of managing threats to belief certainty (Jost et al., 2003). Some research has also suggested that higher levels of prejudice are directly related to this threat to the certainty of one’s beliefs posed by an outgroup (Kossowska, Czernatowicz-Kukuczka & Sekerdej, 2017). Paralleling Fowler’s stages of higher faith development, an individual possessing higher levels of PRR is likely more open-minded, less rigid and certain of their beliefs, and better able to hold paradox, suggesting they may also in turn hold less prejudicial attitudes.

Third, higher levels of PRR is hypothesized to relate to higher levels of empathy and perspective-taking (Fowler, 1981), to the point that individuals in the higher stages of Fowler’s model desire and intentionally seek out closeness to others who are different, and are not confined by the ‘boundaries of their tribe’. Within the research literature, a capacity for perspective-taking and empathy has been shown to mediate the relationship between contact and reduced levels of prejudice in past research (Pettigrew & Tropp, 2008). Thus, an individual higher in PRR may be more at peace with their level of uncertainty, have a higher capacity for empathy and perspective-taking, better able to hold paradox, and may identify less with religious ingroups, which likely promotes less prejudice against outgroups. Thus, PRR should be investigated alongside well-known
correlates of prejudice reduction to understand if it may reduce prejudice even after controlling for known predictors, most notably intergroup contact. In addition, since PRR influences one’s outlook of religious ideas and the way in which one interacts with religious authority, PRR may moderate the existing relationship between religiosity and prejudice.

**Intergroup Contact**

First, a general overview of the contact hypothesis and its history will be given, followed by its relationship with prejudice-reduction. Next, I will discuss the theorized mechanisms by which intergroup contact is thought to reduce prejudice. A brief overview of the critiques and supporting empirical evidence for the positive effects of intergroup contact will then be detailed. Next, the relationship between religiosity and contact will be discussed, followed by an overview of the effects of intergroup contact on prejudice-reduction for three groups that commonly are the target for religiously motivated prejudice from American Christians: gay, lesbian, and transgender individuals. Finally, future directions for the research of intergroup contact will be discussed, with a focus on the importance of socio-emotional factors alongside contact for prejudice reduction.

**Theory and Research**

The Contact Hypothesis was originally put forth by Allport (1954), who suggested that if certain preliminary conditions are met, then contact among members of different outgroups should lead to reductions in outgroup stereotypes, prejudice and discrimination. Intergroup contact is hypothesized to reduce prejudice by decreasing threat and anxiety between different groups while fostering perspective-taking (Barlow et al., 2012). Ideas around the effectiveness of contact between outgroups arguably
originated from unique observations during a race riot in Detroit in 1943. While mobs of both blacks and whites experienced conflict in the streets, blacks and whites who knew each other and worked together (e.g., at a university, automotive plant) not only refrained from the chaos, but were also observed helping each other (Lee & Humphrey, 1968). Brophy (1946) also recorded that white sailors who took more voyages with black crewmen had more positive racial attitudes. This led to Williams (1947) original proposal for the effects of intergroup contact on prejudice, and that many other variables likely influence this relationship.

This led to several formal studies of intergroup contact, most notably, Deutsch and Collins’ (1951) research with white mothers living in desegregated housing. Allport’s (1954) publishing of his seminal work, The Nature of Prejudice, included a formal theory of intergroup contact that has guided the work of intergroup contact for decades. In his work, Allport posited that contact alone was not enough to reduce (and may actually exacerbate) prejudice and hypothesized that other factors may be necessary to facilitate prejudice-reduction, such as equal status, support of laws or societal norms, common group goals, and intergroup cooperation. Later research by Pettigrew (1998) demonstrated that intergroup contact was usually associated with less prejudice, though there were some contradictory findings, as some suggested that the effects of contact on prejudice reduction may be overestimated, and may not endure beyond immediate reductions (e.g., Forbes, 2004). This led to the consensus that, as Allport had hypothesized, the relationship between contact and prejudice is complex and likely depends heavily on other factors, such as contextual factors, unique group characteristics, as well as intrapersonal qualities (Pettigrew, 1998).
There are several proposed mechanisms by which contact can reduce prejudice (Pettigrew & Tropp, 2008). First, contact with an outgroup is thought to enhance overall knowledge of that group, which may clash with preconceived stereotypes or assumptions, thus reducing prejudice (Pettigrew, 1998). Contact is also thought to reduce anxiety of the outgroup (Islam & Hewstone, 1993). Since prejudice against outgroups may be motivated by a sense of ‘protecting’ an in-group from threats from an unknown outgroup. Thus, repeated exposure to an outgroup without detrimental consequences may lessen anxiety over contact with the outgroup in the future. Finally, contact with outgroups may help to humanize the outgroup, leading to an increased sense of empathy and perspective-taking (Pettigrew & Tropp, 2008). Overall, there is a strong amount of evidence from meta-analytic studies suggesting that intergroup contact overall reduces prejudice for both minority and majority groups, and that these three mechanisms act as mediators between contact and prejudice-reduction (Pettigrew & Tropp, 2006). Beyond reducing prejudice, contact has also been linked to reductions in anxiety, individual and collective threat, as well as increases in perspective taking, trust, job satisfaction, forgiveness, and empathy (Pettigrew & Tropp, 2011).

Despite a large volume of research and promising findings, intergroup contact theory has had many criticisms throughout its history. McClendon (1974) criticized the relatively simple study designs of existing contact research, a sentiment recently echoed by some researchers who have called for more complex research designs when investigating the effects of intergroup contact (Pettigrew & Hewstone, 2017). An early review by Ford (1986) concluded that support for the contact hypothesis may be exaggerated, especially when applied to naturalistic settings. Yet these reviews were also
criticized for several reasons, such as not including all existing research, using loose inclusion criteria, as well as lacking robust quantitative analyses. In response many of these critiques, Pettigrew and Tropp (2006) conducted a comprehensive meta-analysis. They found that contact usually reduces prejudice, even after controlling for selection bias and publication bias. The effects of contact on prejudice-reduction were also usually generalizable to the outgroup as a whole and are not contingent upon the setting or specific context (Pettigrew & Tropp, 2006).

However, more recent criticisms of the contact hypothesis have also emerged. Bertrand and Duflo (2017) have suggested that the relationship between contact and prejudice may work in the opposite direction; less prejudiced individuals may be more likely to seek out contact. Some have also suggested that negative intergroup contact may increase prejudice (Paolini, Harwood, & Rubin, 2010), with some empirical evidence that negative contact may be more predictive of higher levels of prejudice more so than positive contact may be predictive of lower prejudice (Barlow et al., 2012). Follow-up research suggests that negative contact may be more influential on prejudicial attitudes, yet positive contact may be more of a common occurrence, leading to the question of whether the positive outcomes of contact outweigh potential negatives (Graf, Paolini, & Rubin, 2014).

Despite these limitations, a recent meta-analysis on experimental contact studies found that overall, intergroup contact does seem to reduce prejudice. More specifically, out of the 27 experimental studies identified, 24 demonstrated positive effects of contact on prejudice. In addition, the effects of contact appear to be strong, with experimental contact conditions leading to a .39 standard deviations reduction of prejudice. This
analysis also demonstrated that effect sizes for contact and prejudice varied substantially based on what individual factor was the target of prejudice, suggesting contact may work better or worse for different groups targeted by prejudice (Paluck et al., 2018).

**Contact and Religiosity**

The literature exploring the relationship between religious variables and the effectiveness of contact is unclear at best. Some studies have demonstrated that more dispositional factors such as religiosity are often related to variables such as authoritarianism or social dominance orientation (Van Assche, Koç, & Roets, 2019), as highly religious individuals see their way of life as ‘correct’ which may lead to negative attitudes towards those who have other views (Ciftci, Nawaz, and Sydiq, 2015). Some research has demonstrated that these factors may inoculate an individual from the prosocial effects of intergroup contact (Asbrock, Christ, Duckitt, & Sibley, 2012). Other research has demonstrated how social dominance orientation is resistant to the effects of intergroup contact, leading to the conclusion that intergroup contact may be ineffective for the most intolerant (Schmid, Hewstone, Kupper, Zick, & Wagner, 2012). However, other research has demonstrated the opposite effect, dubbed the ‘enhancement effect hypothesis’. Thomsen and Rafiqi (2017) demonstrated with a large Dutch sample that intergroup contact was most effective at reducing prejudice for the most highly religious, and that contact was effective at reducing prejudice across all levels of religiosity. While such mixed results make it difficult to draw conclusions, these results suggest that religiosity likely influences the frequency and effectiveness of contact in some way, though the strength and directionality of this relationship is unclear.

**SGM and Contact**
Historically, lack of interaction with sexual minorities has long been hypothesized to relate to abundance of prejudicial attitudes, prompting advocates to encourage gay and lesbian individuals to ‘come out’ in the 1960s (Gibson et al., 2014). Existing research suggests that contact leads to large reductions in prejudice against homosexuals (Pettigrew, Tropp, Wagner, & Christ, 2011). More specifically, knowing at least one gay or lesbian person has been shown to relate to higher expression of positive attitudes of sexual minorities (Herek, 2009). While Walch et al. (2010) found that religiosity positively predicted homophobia, they also found that contact with a gay/lesbian individual predicted a large reduction in homophobia, rendering the relationship between religiosity and homophobia insignificant. Contact has also been shown to positively influence engagement in socio-political action towards decreasing stigma against sexual minorities (Fingerhut, 2011). The quality of contact may also strengthen the relationship between contact and SGM prejudice-reduction, as individuals who have heard about the negative experiences of a friend who is a sexual minority tend to have more positive attitudes towards sexual minorities in general (Herek, 2009). These effects seem to be cross cultural as well, as some studies have demonstrated intergroup contact with sexual minorities leads to reduced prejudice in other countries beyond the U.S. (Hodson, 2011).

In addition, some studies also suggest that contact may exert a stronger effect on prejudice reduction when prejudiced attitudes are strong. For example, West and Hewstone (2012) studied the existing level of anti-gay prejudice with a cross-cultural sample of individuals from Jamaica and Britain, with Jamaican participants exhibiting substantially more negative attitudes towards homosexual individuals. Despite this discrepancy, the researchers found that contact with homosexuals led to a more
significant reduction in prejudice for Jamaican participants compared to British participants, though contact did still significantly reduce prejudice in the British sample as well (West & Hewstone, 2012). These results suggest that contact may still have a strong effect on prejudice reduction, even when ideal conditions are not met.

Contact with transgender individuals has also been demonstrated to reduce prejudice towards the trans community (King et al., 2009; Tee & Hegarty, 2006), however, other researchers have found contrasting results (Costa & Davies, 2012; Walch et al., 2012). For example, Tee and Hegarty (2006) found that individuals in a UK sample that had some contact with a gender minority group had lower levels of opposition to trans-persons rights compared to those who had no contact, yet these two groups did not differ in their overall level of heterosexism. Walch et al. (2012) found that participants who had prior contact with trans individuals scored the same as those who had no prior contact on a measure of transphobia, yet an intervention condition for contact in the form of hearing from a transgender speaking panel led to reductions in transphobia across three time points. More recently, McDermott, Brooks, Rohleder, Blair, and Hoskin et al. (2018) found that mediated contact through a panel presentation and a trans-themed film led to reductions of self-reported prejudice. However, this study used female students from a course in human sexuality, which has been demonstrated to be one of the most liberal groups when it comes to beliefs about minority issues (Sears, 1986).

As a result, more research needs to be conducted to understand whether contact acts as a prejudice reducing factor for transgender individuals as it does with other minority groups. For example, Pettigrew (2009) has demonstrated the presence of a ‘secondary transfer effect’, where contact with one minority group led to reductions of
prejudice towards similarly discriminated groups. Thus, individuals who have contact with gay and lesbian individuals and hold positive attitudes may also have more positive attitudes towards trans individuals. Preliminary results demonstrated this secondary transfer effect, as contact with trans individuals was not predictive of reduced anti-trans prejudice yet contact with gay and lesbian individuals did predict less anti-trans prejudice (McCullough, Dispenza, Chang, & Zeligman, 2019). Beyond these initial effects of contact on SGM prejudice, more research needs to be conducted to see what intrapersonal factors may influence contact on reducing transnegative prejudice (Herek & McLemore, 2013).

**Future Directions**

While the effects of contact and prejudice reduction have been well established overall, researchers have shifted to investigate other constructs that may enhance the beneficial effects of contact on prejudice reduction. For example, one study investigated the effects of three hypothesized mediators including knowledge of outgroup, reduced anxiety towards outgroup, and increased perspective-taking/empathy, with empathy and perspective-taking emerging as one of the strongest predictors of reductions in prejudice (Pettigrew & Tropp, 2008). Thus, more research should be conducted on factors related to perspective-taking and empathy alongside contact in relation to prejudice, as some studies have demonstrated that contact can actually increase prejudice, especially if contact is negative (Barlow et al., 2012). Negative contact may also be more likely among groups that differ in ideological ways such as religious differences, as different value systems come into conflict (Altemeyer, 1996), and contact may only occur in conflict between the groups. Thus, it may be especially important to explore other factors
such as empathy that may make contact between groups more effective at reducing prejudice (Hodson, 2011). Some recent research into prejudice-reduction interventions for youth have suggested that interventions that utilize either direct contact or training in socio-emotional factors (such as perspective taking) had the most effective results. For example, Beelmann and Heinemann (2014) found that prejudice prevention programs for youth were most effective when they utilized direct contact between groups, or if they implemented training in socio-emotional factors such as perspective-taking.

**Study Rationale**

This study aims to integrate and address several lines of existing inquiry related to the reduction of prejudice of Christian individuals in America towards gay, lesbian, and transgender individuals. First, this study aims to expand the literature surrounding religiosity, which has consistently been shown to predict prejudice (Ng & Gervais, 2017; Whitley, 2009) and to understand the predictive power of PRR on prejudice after controlling for religiosity and contact. While preliminary evidence suggests that PRR relates to positive interpersonal and intrapersonal outcomes, much of the evidence has only utilized simple correlations and has not controlled for other variables (Harris & Leak, 2013). In addition, while PRR has been shown to relate to more commonly studied religious constructs (such as religiosity, religious commitment, and quest orientation), it is unclear how these variables may relate to negative outcomes such as prejudice when studied together. Indeed, there has been a call to investigate both broad measures of religiosity along with specific measures of religious constructs (such as PRR), while also investigating their connection to both positive and negative outcomes such as prejudice, to understand the relationships more clearly among these variables (Miller & Thoreson,
2005; Tsang, Carlisle, & McCullough, 2019). Finally, there is preliminary research evidence and a solid theoretical rationale to suggest that PRR may predict reduced prejudice through several mechanisms (Fowler, 1981). First, individuals high in PRR are less likely to identify strongly with a religious ingroup, and thus there may be less of an ingroup/outgroup distinction which has been demonstrated to relate to prejudice (Sassenberg & Wieber, 2005). Individuals high in PRR are also thought to be more open-minded and less cognitively rigid regarding religious ideas, factors that have been shown to predict prejudice (Hunsberger & Jackson, 2005; Kossowska, Czernatowicz-Kukuczka & Sekerdej, 2017). Finally, PRR is theorized to strongly relate to empathy and perspective-taking, which have both been shown to be strong predictors of prejudice-reduction (Beelmann & Heinemann, 2014; Pettigrew & Tropp, 2008).

Though individuals may hold preconceived prejudicial attitudes towards outgroups, contact with this outgroup is thought to disconfirm these attitudes while also allowing for the opportunity to cooperate or form personal relationships (Pettigrew, 1998). Empirical research has supported the contact hypothesis, as contact with outgroups often leads to reductions in prejudice (Pettigrew & Tropp, 2006). However, these results are confounded by contradictory findings, as contact may lead to increases in prejudice when there are disagreements on important topics, such as religious beliefs (Barlow et al., 2012; Graf, Paolini, & Rubin, 2014). In addition, much of the existing literature has been conducted without examining possible covariates, which may lead to an overestimation of contact’s effects on prejudice (Pettigrew & Hewstone, 2017). The risk of contact increasing prejudice necessitates the study of other factors that may increase the quality and effectiveness of overall prejudice-reduction alongside intergroup
contact, especially regarding socio-emotional factors such as perspective-taking and empathy, which have also been demonstrated to have a strong influence on prejudice reduction (Beelmann & Heinemann, 2014; Pettigrew & Tropp, 2008).

In addition, it has been suggested that prejudice against individuals may be unique depending on the target of the prejudice, and thus there has been a call to study prejudice against different types of groups simultaneously (Paluck et al., 2018; Worthen, 2013). It should be noted that much of the research examining religiosity and prejudice has been conducted with American Christian samples, and among this majority group, prejudice against SGM has been consistently demonstrated (Whitley, 2009). Some literature also states that prejudice against gender, sexual orientation, and religious belief may be the result of different mechanisms, and thus factors known to affect prejudice may function differently depending on the target of the prejudice (Ng & Gervais, 2017). This study aims to utilize these recommendations by investigating how religiosity, contact, and the construct of PRR may predict prejudice against lesbian, gay, and transgender individuals. More specifically, this study will investigate if PRR will explain variance of prejudice against lesbian, gay, and transgender individuals above and beyond the variance explained by religiosity and contact. In addition, following the call of some researchers to investigate potential moderators between religiosity and prejudice, PRR will be investigated to determine if it moderates the empirically established relationship between religiosity and prejudice against SGM (Piumatti & Russo, 2018; Whitley, 2009).

Hypotheses

Recent literature has identified religiosity as a consistent and stable negative predictor of prejudice, especially against SGM individuals (Herek & McLemore, 2013;
Thus, I expect that religiosity will be positively associated with prejudice against lesbian, gay, and transgender individuals (Hypothesis 1). Based on other meta-analytic findings, I also predict that outgroup contact will be negatively associated with prejudice against lesbian, gay, and transgender individuals, and explain variance in prejudice after controlling for religiosity (Hypothesis 2; Smith, Axelton, & Saucier, 2009). Finally, based on Fowler’s theory of Faith Development, I predict that PRR will be negatively associated with prejudice against lesbian, gay, and transgender individuals, and will explain variance in prejudice after controlling for religiosity and contact.

Individuals higher in PRR are thought to be less bound to a specific moral authority such as a sacred text or church leader and are instead more mindful of perceived paradoxes in morality. Individuals high in PRR are also thought to have a greater capacity for empathy and perspective-taking, factors which have been shown to reduce prejudice. Finally, those high in PRR are also thought to identify less strongly with a specific ingroup and may be more mindful of broader values such as universal human rights (Fowler, 1981). Thus, I expect PRR will be negatively associated with prejudice against lesbian, gay, and transgender individuals over and above the variance explained by religiosity and contact (Hypothesis 3). In addition, I hypothesize that PRR will moderate the established relationship between religiosity and prejudice (Hypothesis 4). Thus, three sets of regressions will be conducted (one for each target group of prejudice), with demographic variables entered into the first block, religiosity entered into the second block, contact entered into the third block, PRR entered into the fourth block, and an interaction term of religiosity and PRR entered into the fifth block.
1. Religiosity will be positively associated with prejudice against lesbian, gay, and transgender individuals.

2. Outgroup contact will be negatively associated with prejudice against lesbian, gay, and transgender individuals over and above the variance explained by religiosity.

3. Postconventional Religious Reasoning will be negatively associated with prejudice against lesbian, gay, and transgender individuals over and above the variance explained by religiosity and outgroup contact.

4. Postconventional Religious Reasoning will moderate the relationship between religiosity and prejudice against lesbian, gay, and transgender individuals, after controlling for demographic variables.

**Method**

**Sample**

Prior to conceptualizing sample recruitment, an a priori power analysis will be conducted using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2013). This software provides guidelines for the necessary sample size needed for a research study contingent on the number of variables being measured, alpha and power levels, as well as the desired effect size. Initial analyses will utilize multiple regression, and I anticipate a medium effect size ($f = .15$; Cohen, 1988), with an alpha of .05 and power set to .8 (as recommended by Cohen, 1992). This study will use three independent variables, thus G*Power reported a necessary minimum sample size of 77. This number also matches the minimum suggestions of Miles and Shevlin (2001) based on a predicted medium effect size and three independent variables. A medium effect size is anticipated based on several empirical results related to perspective taking, empathy, and cognitive flexibility, all
theorized to be important components of PRR. For example, a cross-sectional study by Bäckström and Björklund (2007) found that empathy was negatively related to modern sexism ($r = -.4$, medium to large effect size) and two indices of anti-homosexual prejudice ($r = -.32, -.42$, medium to large effect sizes), while also explaining 21% of the variance in generalized prejudice. Another cross-sectional study by McFarland (2010) found that empathy and perspective taking was negatively related to general prejudice for a student sample ($r = -.42$, medium to large effect size) and an adult sample ($r = -.23$, small to medium effect size). In addition, a recent cross-sectional study investigating predictors of generalized prejudice found that empathy ($\beta = -.31$), perspective-taking ($\beta = -.14$), and measures of psychological flexibility ($\beta = -.11$) explained a combined 36% of the variance in generalized prejudice (Levin et al., 2016). In addition, recent meta-analysis of 81 prejudice reduction intervention studies, which found that prejudice reducing interventions utilizing direct contact or building perspective taking produced the highest effects of all intervention components ($d = .43$ and $d = .44$ respectively; Beelmann & Heinemann, 2014). Thus, I will seek a minimum sample size of 77 participants, while attempting to obtain a larger sample size to account for outliers, non-responses, careless responding, and other sampling issues. In addition, following the recommendations of Osborne (2000), I will obtain 40 participants for each independent variable (for a total of 120 participants) in order to minimize shrinkage and increase the generalizability of the regression equation to other samples.

The study sample will consist of American Christian adults, as this group has been investigated the most in the literature examining relationships between religiosity and prejudice. A sample will be obtained through multiple avenues. First, a snowball
sampling strategy will be utilized by contacting local Christian churches in a large metropolitan city in northern Kentucky. Participants obtained through this strategy will also be encouraged to share the survey with other religious individuals around the country. In addition, I will recruit participants online through Christian-focused discussion forums on Reddit, a popular internet forum website. Reddit has been demonstrated to be a useful sample source based on the diversity of users and forum topics (Shatz, 2017). Finally, any additional participants will be recruited through Amazon’s Mechanical Turk (MTurk), an online program where individuals are paid to engage in a wide variety of tasks, including research studies. MTurk has also been demonstrated to be a valuable sampling source due to its diverse user base and ability to produce high quality data compared to other online samples (Berinsky, Huber, & Lenz, 2017; Buhrmester, Kwang, & Gosling, 2011; Casler, Bickel, & Hackett, 2013a). Before a sample is collected, this study proposal and recruitment letter will be submitted to my university’s Institutional Review Board for approval.

**Procedures**

This study will adopt a cross-sectional survey design, in which data is taken from a sample at one point in time (Field, 2009). Cross sectional designs are advantageous for their ease of use, relative clarity, and ability to utilize many variables. However, such a design will not account for the effects of time and lacks the causal explanatory power of an experimental design (Lavrakas, 2008). Data collection will occur online through a survey hosted by Qualtrics. Links for the survey will be either posted to Reddit or MTurk, or included in an email to churches. Prior to taking the survey, prospective participants will read an IRB-approved recruitment letter, detailing the nature of the
study, and include names and contact information for the principal investigators, the regional IRB board, inclusion criteria, potential risks and benefits, and information about confidentiality (with potentially identifiable information including age and IP address). Participants will need to agree that they understand the information about the study, as well as potential risks and benefits, with risks involving possible emotional distress (as those scoring highly on PRR may be more likely to have experienced traumatic events; Harris et al., 2015a), and benefits including possible financial compensation (for MTurk participants). Recruitment materials will state that individuals who identify as religious and have had experience with a religious institution (e.g., church) are highly desired. While this study intends to focus on an American Christian adult sample (as Fowler’s theory was modeled after this religious group), participants of other faith backgrounds will be invited to take the survey as well, with the hopes of being able to conduct comparison analyses if enough participants are obtained (e.g., differences in PRR between Christians and Muslims). After agreeing to the terms in the recruitment letter, participants will be directed to the survey proper and answer a series of demographic questions, as well as questionnaires tapping religiosity, PRR, contact with SGM individuals, as well as questions related to potential prejudice against these outgroups. Participants who complete the survey from MTurk will be paid at a normative rate (about 25 cents a minute), compared to similar-length survey tasks on the site.

Measures

Demographic Information - First, participants will complete a few questions related to general demographic information, including age, race, ethnicity, religious affiliation, sexual orientation, gender identity, national or state origin, and education
level. These demographic variables will be used to describe characteristics of the American Christian adult sample to assist in understanding how study results may generalize to the wider population. In addition, depending on the overall sample, these demographic variables may be used as variables for additional comparative analysis. Following the recommendations of Meade and Craig (2012), three questions will also be included throughout the survey to ensure respondents are paying attention throughout, including two general attention items (e.g. “For this item, please select 3”) and one ‘bogus’ item that cannot be answered true (“True or false: I was born on February 30th”).

Postconventional Religious Reasoning - PRR will be measured by the Revised Faith Development Scale (RFDS; Harris & Leak, 2013), a 16-item Likert instrument designed to assess an individual’s ability to critically assess spiritual material, and to what extent their faith beliefs are based on their personal critical examination as opposed to based on religious authorities, either from religious institutions (e.g., a church), or significant authoritative relationships (e.g., parents, family of origin). Items are measured on a 1 (Not at all like me) to 4 (Very much like me). Half of the scale items are reverse-scored, with a total score of PRR obtained from the sum of scores of the sixteen items. Examples of scale items include “My religious orientation comes primarily from my own efforts to analyze and understand God”, “I believe that my church has much to offer but that other religions can also provide many religious insights”, “I find myself disagreeing with my church over numerous aspects of my faith”, and “It is very important that my faith is very much like the faith of my parents and family of origin” (Harris & Leak, 2013).
The creators validated the instrument with a community-based sample from churches around the northern midwest of the US. Churches were selected in such a way as to provide a wide spectrum of Christian belief (tapping 14 distinct denominations), with the sample primarily being composed of Catholic (29%), generic Protestant (17%), Lutheran (13%), Episcopal (7%), and Presbyterian (4%) individuals (3% identified as ‘other affiliation’). The sample consisted of 327 individuals (228 females) that was 90% white, with the average age being 55 years old ($SD = 17.5$), and 17 years of formal education ($SD = 12.4$; Harris & Leak, 2013). One potential strength of the instrument is that 73 participants identified as either gay, lesbian, or as sexual minorities are often neglected when constructing religious instruments, suggesting results from this instrument may be more inclusive of sexual minorities responses.

The initial validation study produced a Cronbach’s alpha of .78 to .80 (depending on validation group), suggesting that the internal consistency falls in the adequate to good range (Taber, 2018). This level of internal consistency is significantly higher than other existing measures of faith development, such as the FDS (Cronbach’s alpha = .52 to .65; Crownover, 2007; Harris & Leak, 2013). The overall factor structure of the RFDS has not yet been evaluated, though the one-factor factor structure of its predecessor (FDS) has been shown to have adequate fit and excellent model data fit in a sample of 541 students. A confirmatory factor analysis was conducted, with key fit indices supporting the overall fit of the single factor model of the measure, suggesting initial content and construct validity (Leak, 2008). The validation study also established convergent validity, as the RFDS paralleled the FDS in relating to related constructs in theoretically expected ways. For example, RFDS correlated positively with the FDS parent measure ($r = .73$), quest
religiosity \((r = .64)\), and traumatic experiences \((r = .27)\), and also negatively correlated with religious commitment \((r = -.20)\), and scriptural literalism \((r = -.52; \text{Harris \\& Leak, 2013})\).

**Religiosity** - Overall religiosity will be measured with the Duke University Religion Index (DUREL; Koenig et al., 1997, Koenig \\& Bussing, 2010), which is a five item Likert scale designed to tap the three major dimensions of religiosity proposed during a Fetzer Institute Conference (Koenig \\& Futterman, 1995). These consist of one item measuring organizational religious activity (ORA; “How often do you attend church or other religious meetings?”), one item measuring non-organizational religious activity (NORA; “How often do you spend time in private religious activities, such as prayer, meditation or Bible study?”), and three items measuring intrinsic religiosity (IR; “My religious beliefs are what really lie behind my whole approach to life.”). Both ORA and NORA responses are based on six response options tapping frequency of participation, with ORA ranging from 1 (More than once a week) to 6 (Never), while NORA response options range from 1 (More than once a day) to 6 (Rarely or never). IR is evaluated on a five-point scale ranging from 1 (Definitely true of me) to 5 (Definitely not true of me). These three dimensions can be analyzed separately or be used as a total score for religiosity, which will be used for this study.

The first two items tapping ORA and NORA were validated using two large community samples consisting of 2962 adults, and 3968 adults over 64 years of age (Koenig, 1997). The three IR items were adapted from three items from the Hoge Intrinsic Religiosity scale that had the highest component loadings and correlation with a total score, based on administration to a sample of 455 hospitalized adults. Reliability has
been established through several means, including consistently high Cronbach’s alpha coefficients across multiple projects, spanning from .78 to .91 (Koenig & Bussing, 2010). In addition, two-week test-retest reliability produced correlation coefficients of .91 (Storch, Strawser, & Storch, 2004). Convergent validity has been demonstrated through high correlations of other religiosity instruments (.71 - .86; Koenig & Bussing, 2010). Construct validity has been established via CFA for the use of a single component, with loadings of .85 to .91 (Storch, Roberti, Heidgerken, Storch, Lewin, Killiany, et al., 2004b). Scores on the DUREL have been shown to be predictive of numerous physical and mental health outcomes across a variety of study designs (including longitudinal), and the instrument has been utilized with many cross-cultural samples and translated into over 17 languages (Koenig, Zaben, Khalifa, & Shohaib, 2015). The total score of the five scale items will be used to measure each participant’s level of religiosity.

**Intergroup Contact** – The Contact Quantity subscale of the General Intergroup Contact Quantity and Contact Quality (CQCQ; Islam & Hewstone, 1993, Lolliot et al., 2015) instrument will be utilized to measure direct contact with SGM individuals. The contact quantity subscale measures how often an individual has direct intergroup contact and is measured with five statements on a 7 point Likert-type scale, with responses ranging from 1 (Not at all) to 7 (Very often/a great deal). Statements include “How much contact do you have with [outgroup] at college?”, “How much contact do you have with [outgroup] as good friends?”, and “How often have you visited the homes of outgroup members?”. Islam and Hewstone’s CQCQ has been utilized extensively in the contact literature, and has been adapted for use with a wide variety of religious, ethnic, and racial
groups (Lolliot et al., 2015). Various adaptations across numerous studies have
demonstrated the reliability of the instrument, with internal consistency ratings ranging
from .72 to .90, while also having a six-month test-retest correlation of .52. Instrument
validity has also been established across a wide number of studies, with
convergent/divergent/predictive validity suggested by contact quality and quantity
correlating with other variables (such as outgroup attitudes or outgroup friendships) in
theoretically expected ways. Construct validity is suggested by confirmatory factor
analytic studies affirming the two-factor structure of the instrument, with items loading
significantly onto the two factors of contact quantity and contact quality (Lolliot et al.,
2015). Convergent and divergent validity has been demonstrated by contact quality and
quantity consistently relating to other variables in theoretically expected ways, such as
cross-group friendships, ingroup identification, and intergroup anxiety (Lolliot et al.,
2015).

Prejudice Against SGM – Two instruments will be utilized to measure prejudice
against sexual and gender minorities, more specifically, lesbian, gay, and transgender
individuals. The first instrument, the Modern Homonegativity Scale (MHS; Morrison &
Morrison, 2002) was created to investigate modern attitudes and expressions of
heteronormativity. Since society continues to become more affirming of sexual
minorities, some argue that individuals may be more likely to answer questions tapping
sexual prejudice in a socially desirable way. This has led to a need for measures that tap a
more modern form of heteronormative attitudes in a more subtle and nuanced way,
resulting in the creation of the MHS (Morrison & Morrison 2002). More recent research
affirms this approach, as a recent review of measures of SGM affirmation/prejudice by
Peterson, Dalley, Dombrowski, and Maier (2017) found some evidence suggesting that sexual prejudice and heteronormativity may be ‘evolving’, and thus measures of more subtle sexual prejudice attitudes may be most fruitful.

The MHS consists of two similar 12 item measures, one focused on prejudice against lesbians and one focused on gay men. The scale uses a Likert-type response format ranging from 1 (Strongly disagree) to 5 (Strongly agree), with example statements including “Lesbians seem to focus on the ways in which they differ from heterosexuals, and ignore the ways in which they are the same” and “Gay men do not have all the rights they need. (reverse scored).” Initial instrument development established validity and reliability through a factor analysis with favorable results, as well as high alpha levels (Cronbach’s alpha = .93; Morrison & Morrison, 2002). The scale also boasts construct validity due to correlations with other constructs in theoretically expected ways, with higher scores on the MHS correlating to higher engagement in religious behavior ($r = .23-.28$), religiosity ($r = .20-.28$), old-fashioned homonegativity ($r = .56-.57$), and sexism ($r = .57-.59$). Preliminary evidence also suggests that this measure may more subtly tap sexual prejudice, as scores on the MHS did not correlate with measures of social desirability.

A second measure was also used to tap gender-related prejudicial attitudes. The Genderism and Transphobia Scale – Revised Short Form (GTS-R-SF; Tebbe, Moradi, & Ege, 2014), a more brief and psychometrically robust adaptation of the previously used Gender and Transphobia Scale, designed to tap the various cognitive, affective and behavioral aspects of anti-trans prejudice. The original GTS is one of the most widely used measures of anti-transgender attitudes, but there were inconsistent results with its
overall factor structure (Willoughby et al., 2010). This revised short form version measures two factors, with 8 items measuring Genderism/Transphobia (conceptualized as the negative emotional aspects a person may hold towards trans individuals) and five items measuring Gender-Bashing (propensity for engaging in violent actions towards trans individuals), though only the Gender/Transphobia subscale was used in this study. Response options follow a Likert-style format ranging from 1 (Strongly agree) to 7 (Strongly disagree), with higher anti-trans prejudice relating to higher overall scores on the measure. Example items include “A man who dresses as a woman is a pervert,” “Sex change operations are morally wrong,” and “It is morally wrong for a woman to present herself as a man in public.”

The revision study built upon the substantial psychometric support of the original GTS, while also refining the two-factor structure and overall item pool, improving the reliability of the instrument from its predecessor. Further validity was established through correlations with other measures of sexual, gender, and anti-trans prejudice ($r = .53$ to $.83$). Construct validity was also enhanced, as the GTS-R was shown to positively correlate with other related variables in theoretically expected ways. For example, scores on the GTS-R were positively correlated with need for closure ($r = .23$), social dominance orientation ($r = .63$), and aggression-proneness ($r = .24$), while also demonstrating independence from measures of socially desirable responding (Tebbe et al., 2014).

**Analytic Plan**

Analysis of data will be conducted using SPSS Statistics software V22. Analyses will consist of obtaining correlations and then conducting three separate hierarchical
linear regressions to understand the amount of variance explained by each of the independent variables on each type of prejudice: prejudice against gay individuals, prejudice against lesbian individuals, and prejudice against transgender individuals. Hierarchical linear regression is the most fitting analysis, as it allows the importance of each independent variable to be evaluated based on how much it adds to the overall variance explained of prejudice, over and above other independent variables and demographic variables (Cohen, 2001; Ho, 2013). Hierarchical regression also allows us to test our theory-driven hypotheses by evaluating the variance explained of prejudice by PRR over and above the known associations of religiosity and contact (Petrocelli, 2003).

A regression will be conducted for each type of prejudice based on the recommendations from Worthen (2013) to study sexual prejudices as distinct outcomes. For each of the regression analyses, demographic variables such as age, sexual orientation, and gender will be entered into the first block. Following the recommendations of Baron and Kenny (1986), a moderation effect will be investigated by first entering the established predictor (religiosity) into the regression equation, eventually followed by the hypothesized moderator (PRR), and followed by an interaction term (religiosity x PRR). While this method of hierarchical entry may not be required, entering them in this order will be helpful for evaluating change in R-squared for the other variables (Field, 2009; Hayes & Rockwood, 2017).

Thus, religiosity will be entered into the second block, given the substantial existing empirical support for its ability to explain variance in prejudice (Whitley, 2009). Next, given the substantial support for contact on prejudice reduction, contact will be entered into the third block to determine if individual differences in amount of intergroup
contact may explain variance in prejudice against these groups above and beyond the variance explained by religiosity. Following the suggestions of J. Cohen and Cohen (1983, as cited in Petrocelli, 2003), contact will be entered after religiosity, as dispositional factors may predict factors related to outgroup contact. More specifically, intergroup contact is entered after religiosity due to an individual’s level of religiosity possibly influencing motivations behind prejudice for gender, sexual, and religious minorities, and thus possibly impacting the effects of intergroup contact (e.g. Asbrock et al., 2012; Thomsen & Rafiqi, 2017). PRR will then be entered into the fourth block, to determine if PRR explains variance in levels of prejudice above and beyond the variance already explained by the known covariates of contact and religiosity. Finally, the interaction term of religiosity and PRR will be entered into the fifth block, as this will represent the moderation effect.

Initial data cleaning will consist of first checking to ensure participants meet study guidelines (e.g., are over 18 years of age), to ensure it is representative of the desired population. Participants who did not respond adequately (such as not completing more than 20% of the survey) will be excluded. Participants will also be excluded if they answered incorrectly to the attention items (e.g., responding with any answer other than 3 when asked “Please respond to this item by selecting 3”). Missing responses will be handled by utilizing multiple imputation, following the recommendations of Schlomer, Baumann, and Card (2010). The process of multiple imputation involves replacing missing cases with values derived from inferences from several imputed sets of data, and three sets of imputed data will be used for this study. Multiple imputation is seen as good practice for data cleaning when using multiple regression (Kelley & Maxwell, 2010;
Prior to running the full analysis, I will assess for outliers, check that design assumptions are adequately met, and then recode the study variables as needed. Because this analysis will be investigating a moderation effect in an exploratory manner, scores of religiosity and PRR will be recoded, since the coefficients of these variables are conditional, and not the main effects (Kelley & Maxwell, 2010). These will be recoded through mean-centering, which is seen as the most common method for recoding to investigate interactions and involves taking the sample mean of each independent variable and subtracting it from each score for that variable (Kelley & Maxwell, 2010). After the variables have been recoded and mean-centered, they will be multiplied together to create an interaction variable (Field, 2009).

After recoding the variables, I will assess model fit by looking for potential outliers, which may distort the overall model findings. Thus, I will standardize the residuals by conversion to z-scores and identify any scores above 3 (Field, 2009) and remove them. Following the recommendations of Field (2009), I will evaluate whether more than 1% of the standardized residuals have absolute value z-scores above 2.5 or whether 5% have absolute values greater than 2, as each of these scenarios suggests the model has a poor fit. I will also evaluate for the presence of influential cases that may distort the overall accuracy of the regression model by using Cook’s distance, which is used to show the influence of each response on fitted response values. Any responses with Cook’s distance values over 1 will be deleted (Field, 2009). From there, initial correlation coefficients will be obtained to understand basic relationships between all of the study variables, which will also aid in our ability to assess multicollinearity.
From there, the assumptions of multiple regression analysis will be evaluated. First, a regression analysis assumes that the independent variables must take the form of interval or categorical data, while the outcome variable must be continuous and unbounded (Field, 2009). This assumption will be met based on measures selected (which are interval data), and I will ensure the outcome variable is unbounded through the descriptive statistics produced. In addition, there is an assumption that the independent variables should have variation in their scores (Field, 2009). This will be met by checking the variances of each independent variable to ensure they do not equal zero, indicating variation in scores. Next, the assumption of multicollinearity will be evaluated, in order to ensure the independent variables are independent of each other and that they do not correlate too highly with each other. Multicollinearity will be evaluated by using the variance inflation factor (VIF), with values of 10 suggesting multicollinearity (Field, 2009). Next, the assumption of homoscedasticity will be evaluated to ensure the error is similar across the different values on the independent variables, as heteroscedasticity can lead to distortion of study results and a weakened analysis (Osborne & Waters, 2002). This will be evaluated by examining a data plot, with a ‘funnel’ shape suggesting residuals for each independent variable may not share an equal level of variance and possibly violating the assumption of homoscedasticity (Field, 2009).

Next, the assumption of independence of error terms will be examined, to ensure our error terms do not relate to each other. The Durbin-Watson test will be utilized to evaluate the independence of error terms, with a value of over three or under one suggesting an issue with independence of the error terms (Field, 2009). The assumption of random, normally distributed residuals (normality) will be evaluated in order to ensure
the accuracy of relationships and the significance tests of the model (Field, 2009; Osborne & Waters, 2002). This will be evaluated by looking at a histogram and P-P plots of the residuals, with a normal distribution on the histogram and a straight line on the P-P plot suggesting this assumption is met. Next, the assumption of independent respondents will be examined, as each response needs to come from a unique source. While the assumption of independence of respondents will likely be met based on the online format of data collection, examination of the intraclass correlation of scores will be conducted to ensure the assumption is met (Field, 2009). Finally, the assumption of linearity will be assessed to ensure the outcome variable is related linearly to the independent variables, as a non-linear relationship may result in an under-estimation of the true relationship between the independent and dependent variables (Field, 2009; Osborne & Waters, 2002). Linearity will be assessed by examining a plot of the residuals, with a straight line suggesting this assumption has been met.

After obtaining correlations and checking assumptions, three sets of hierarchical linear regression analyses will be conducted. Demographic variables such as age, sexual orientation, gender, and race will be entered into the first block, to control for these variables. Religiosity will then be entered into the second step, to understand if religiosity positively relates to prejudice against gay, lesbian, and transgender individuals as expected (Hypothesis 1). Contact will then be entered into the third step, to understand whether religiosity and contact explain more of the variance in prejudice than religiosity alone, and to see if the relationship between religiosity and prejudice remains significant (Hypothesis 2). PRR will be entered into the fourth step, to see if it also explains some of the variance of prejudice above and beyond contact and religiosity, and to see if the
relationship between religiosity, contact, and prejudice remain significant (Hypothesis 3). Finally, the recoded interaction term of religiosity and PRR will be entered into the fifth step, which represents the moderation effect, to understand if PRR moderates the relationship between religiosity and prejudice (Hypothesis 4).

Results will be analyzed, with special attention given to comparing the three models for each type of prejudice to understand if each model improves the ability to explain variance in prejudice. For each step in the model, total R-squared will be evaluated to understand how much of the variability in each type of prejudice is accounted for by each combination of independent variables. Adjusted R-squared will also be examined, with the expectation that these values will be close to the value of R-squared, suggesting better model generalizability (Field, 2009). F-ratios will be inspected to ensure each step in the model is significant, by inspecting the column labeled ‘Sig F Change’ for values less than .05 (Field, 2009). Special attention will be given to the change in R-squared, to understand how much additional variance is explained as a function of each added independent variable above and beyond the variance predicted by previous variables. The coefficients table of the regression analysis will then be inspected. I will examine the b-values for each independent variable to understand the directionality of prediction (whether positive or negative), and to understand what degree each independent variable may influence prejudice even when other independent variables are constant. For example, a b-value of -0.8 for contact would suggest that as contact increases by one unit, prejudice would decrease by 0.8 units. Significance will also be inspected to ensure the model is reliable.
These results will be interpreted in light of the study hypotheses, by evaluating the variance explained by each independent variable throughout each block of the model. First, I will investigate if the demographic variables (entered into the first step) explain any of the variance in prejudice against SGM. Based on these results, additional analyses may be conducted, to understand the associations between each demographic variable and prejudice. In addition, contingent on sample size, possible comparisons could be conducted to understand how different demographic groups may differ on measures of prejudice (e.g. males vs females). Religiosity, entered into the second block, will initially be evaluated to see if it explains variance for each type of prejudice as expected (Hypothesis 1). Contact (entered into the third block) will be evaluated to see if it also explains variance for each type of prejudice as expected (Hypothesis 2). Change in $R^2$ will also be inspected to see how much of the variance for each type of prejudice is uniquely explained by contact. Then, PRR (entered into the fourth block) will be evaluated to see if it also explains variance for each type of prejudice as expected (Hypothesis 3), with special attention given to change in $R^2$, to determine how much of the variance for each type of prejudice is uniquely explained by PRR after controlling for contact and religiosity. Finally, the recoded variable representing the interaction of religiosity and PRR will be entered into the fifth step, to understand if PRR moderates the relationship between religiosity and prejudice. If this variable explains a significant amount of the variance of prejudice beyond what is explained by religiosity or PRR alone, then a moderation effect has been demonstrated (Baron & Kenny, 1986; Field, 2009). If a moderation effect is found, a simple slopes analysis will be conducted to better understand the nature of the moderation effect, and to understand how the
relationship between religiosity and prejudice may change at different levels of PRR (Field, 2009).
CHAPTER I: INTRODUCTION

Over the last few decades, there has been a resurgence of work investigating the relationship between religion and spirituality (R/S) and mental (e.g., depression, anxiety) and physical health outcomes (Miller & Kelley, 2005; Shattuck, & Muehlenbein, 2018). Religion/spirituality topics can be integral to an individual’s overall identity (Fowler, 1981), and are now treated as an important component to multiculturally competent counseling (Esmaili, Zareh, & Golverdi, 2014). Large segments of the literature suggest that religiosity, defined as the relative importance and expression of religion in a person’s life, acts as a protective buffer against negative mental health outcomes and may enhance positive mental health outcomes, by increasing positive factors such as meaning making, coping, gratitude, and engagement in a spiritual community (Hackney & Sanders, 2003; Midlarsky, Mullin, & Barkin, 2012; Miller & Kelley, 2005; Park et al., 2013). However, some research suggests that religious factors can also lead to negative intrapersonal and interpersonal outcomes, such as exacerbating existing mental health issues and delaying individuals from seeking professional help (Koenig, McCullough, & Larson, 2000), and may also lead to greater negative prejudice against outgroups (e.g., Whitley, 2009). It has been consistently demonstrated to be a stable negative interpersonal attitude for those scoring highly on measures of religious affiliation (Deslandes & Anderson, 2019), particularly towards sexual and gender minorities (SGM; Whitley, 2009). Yet much of the research demonstrating these relationships has often measured religiosity as a broad
general factor, and there has been a call to investigate more specific aspects of religious belief that more clearly integrate a theoretical framework (Hill & Pargament, 2017; Tsang, Carlisle, & McCullough, 2019). There has also been a call to investigate religious factors from a developmental perspective (Fisher, 2017), as much of the research measures religious factors as a stable, enduring trait, and faith often changes over the lifespan (Fowler, 1981).

Since religiosity has consistently been shown to predict prejudice (e.g., Whitley, 2009), it is important to investigate possible factors that may weaken this relationship. American society is diverse, and increased contact with outgroups seems inevitable (Martin, 2012). Some research has shown that outgroup contact tends to reduce prejudice (Pettigrew & Tropp, 2006), yet other research has suggested that contact can have detrimental effects on prejudice (Barlow et al., 2012), thus it may be important to investigate intrapersonal factors that may lead to reductions in prejudice (Pettigrew & Tropp, 2008). Within the R/S literature, postconventional religious reasoning, defined as an individual’s ability to engage in critical thinking around R/S ideas while also demonstrating increased perspective-taking, may be an important developmental factor to consider since it is theorized to reduce prejudice (Fowler, 1981; Harris & Leak, 2013).

A purpose of this study is to bridge the gap between the research on religious development, contact, and prejudice, by investigating contact and prejudice along with capacity for postconventional religious reasoning. More specifically, this study will survey a sample of American Christians to examine the influence of postconventional religious reasoning above and beyond the known associations of religiosity and contact in explaining prejudice against three SGM groups that commonly experience religiously
motivated prejudice: gay, lesbian, and transgender individuals. For the purpose of this study, “gay” and “lesbian” can be defined as a sexual orientation in which the individual is emotionally or sexually attracted to persons of the same sex or gender identity of the individual, with a gay man experiencing attraction to other men, and a lesbian woman experiencing attraction to other women (APA, 2012). “Transgender” is an adjective used to describe a person “whose gender identity, expression, and/or role does not conform to what is culturally associated with their sex assigned at birth” (APA, 2015).

Religiosity and Mental Health

A comprehensive review by Koenig, McCullough, & Larson (2001) suggested that the majority of studies have found a positive relationship between religiosity and mental health, yet still acknowledged a minority of studies that find no relationship, or even a negative relationship (see Galen & Kloet, 2011 or Mochon, Norton, & Ariely, 2011). One meta-analysis demonstrated that religiosity was positively associated with mental health ($r = .10$; Hackney & Sanders, 2003) and suggested that a more personal expression of intrinsic religiosity (religious belief pursued for its own sake) may lead to the strongest associations with positive outcomes, as opposed to institutional membership and motivations (religious belief pursued for tangible and social gain). However, more recent research has questioned these findings. For example, Moore and Leach (2016) found that when controlling for level of religious and existential certainty (dogmatism), the relationship between religiosity and positive mental health benefits disappeared, with secular and religious individuals displaying similar levels of mental health on four of the five variables assessed.
Beyond the positive benefits described previously, some of the literature has also found positive relationships with religiosity and negative outcomes. Allport (1954) identified and discussed the paradoxical nature of religiousness and prejudice, as many religions explicitly call for equal treatment of others. A majority of the research literature investigating religiosity and prejudice (including primarily American Christian samples) has demonstrated this relationship, as individuals reporting stronger levels of religious belief and commitment tend to consistently hold a higher degree of prejudice towards outgroup members, especially towards SGM individuals (Whitley, 2009). As researchers continue to investigate this relationship, there has been a call to consider cognitive processes and frameworks to better understand what leads religious individuals to exhibit higher prosocial behaviors in some contexts, and yet demonstrate elevated levels of prejudice in others (Hunsberger & Jackson, 2005; Preston, Ritter, & Hernandez, 2010).

While many theoretical frameworks of R/S have been put forth (e.g., Allport’s intrinsic-extrinsic framework), there has been a call to evaluate R/S as a process to assesses constructs related to change and growth (Barry, Nelson, Davarya, & Urry, 2010; Fisher, 2017), as many previous studies examine religiosity as a stable, enduring construct (Hill & Pargament, 2003). Studying religiosity in this static way may be problematic, as there is growing evidence that most individuals experience some degree of R/S growth and change throughout their lives (Albrecht & Cornwall, 1989, as cited in Fisher, 2017; Chan, Tsai, & Fuligni, 2015). The nuance involved in this process of change and growth within one’s religiosity may help to explain the mixed results in the literature between religiosity and positive outcomes, as it is hypothesized that there may be other related factors that may better explain the relationship between religiosity and
mental health (Fowler, 1981; Harris & Leak, 2013). Furthermore, understanding the process by which one develops their faith and spiritual life may be critical for clinicians and faith leaders in their work with religious and spiritual clients (Harris, Erbes, Engdahl, Olson, Winskowski, & McMahill, 2008). Thus, it may be important to shift to investigating R/S and outcomes by using developmental constructs that assess factors related to growth and change in how an individual approaches and relates to their religious and spiritual beliefs. Constructs related to positive faith development may help to explain the relationship between religiosity and various positive and negative outcomes, such as prejudice.

**Faith Development**

Faith development is broadly defined as a process of change and growth in how one understands and approaches religious concepts, which in turn influences one’s perceptions of their experience and overall meaning making (Fowler, 1981; Parker, 2006). Faith development is often framed in a linear fashion, with individuals progressing in their development in a positive direction over time, as more mature faith is often framed as a positive outcome (Fowler, 1981; Roehlkepartain, Benson, King, & Wagener, 2006). Several facets of mature faith development have been hypothesized, including cognitive flexibility, openness, empathy, peace, and a desire to work towards improving the lives of others (for an in-depth review, see Roehlkepartain et al., 2006). Immature, or an underdeveloped faith, is often hypothesized to relate to more negative outcomes, such as reduced flexibility and openness, decreased perspective-taking, and increased prejudice towards others (e.g., Fowler, 1981). It should also be noted that some faith traditions may conceive mature faith development differently, as some of the positive
outcomes discussed previously may be seen as a lack of adherence to faith doctrines, and thus may be interpreted by one’s faith community as a sign of regression in one’s faith development. For example, many theorists suggest mature faith development is characterized by positive outcomes such as flexibility, openness, and empathy, yet some evidence suggests that some faith traditions may condone prejudice towards others who do not conform to faith doctrine (Herek, & McLemore, 2013; Whitley, 2009). In this scenario, prejudice towards an outsider who does not conform to specific faith doctrine may be seen as more ‘mature’ from the perspective of a faith tradition that more highly values adherence to specific faith tenets (Parker, 2006).

Several faith development approaches resemble other developmental models such as Piaget’s theory of cognitive development, Kohlberg’s theory of moral development, and Erikson’s theory of psychosocial development (Fowler, 1981; Parker, 2011). In the same way that development along Piaget’s stages of development and Erikson’s psychosocial stages is motivated by periods of exploration or challenge (Erikson, 1968; Piaget, 1970), a sense of spiritual struggle, conflict, or disagreement has long been thought to be necessary for faith development (Allport, 1950; Kass & Lennox, 2005). Some have suggested that religious development may be best fostered when spiritual struggle leads to disagreement with others on faith topics, forcing individuals to consider different perspectives, construct new faith meanings, and thus develop a more complex model for living out one’s religious belief (Harris, Leak, Dubke, & Voecks, 2015), and there is some preliminary qualitative evidence that a sense of spiritual struggle serves as a necessary impetus to both spiritual and personal growth (Pargament, Koenig, Tarakeshwar, & Hahn, 2001). Given this hypothesized link between spiritual struggle and
mature faith development, researchers have questioned which factors are associated with the most growth, as there is also evidence that those who experience a weakening of their faith beliefs as a result of struggle may exhibit worse psychological outcomes (Ben-Ezra et al., 2010).

Exploration into factors relating to mature faith development may be especially relevant today for several reasons. First, American society is continuing to become more culturally diverse (United States Census Bureau, 2017) and individuals are more likely to encounter different perspectives and ways of life. Second, as level of education continues to increase for the general populace in the U.S. (Schmidt, 2018), spiritual struggle will also likely increase, as some research demonstrates that those who are more educated may be more likely to experience religious rifts with their faith congregations (Harris, Erbes, Winskowski, Engdahl, & Nguyen, 2014). Third, due to the advent of the internet, the amount of information available and ability to dialogue with distant others has dramatically increased (see Chen, 2015, for an overview). Now that widespread internet access is the norm in America, individuals are more exposed to different perspectives, and may be more likely to lead to disagreements. Fourth, without an understanding of the process of spiritual struggle or how to navigate it in a healthy manner, those who experience these struggles may be more prone to negative psychological outcomes (e.g., Exline, Yali, & Sanderson, 2000). Thus, research within the realm of mature faith development should explore the factors that may relate to the best outcomes for those who have experienced spiritual struggle, which is considered central to developing a mature faith (Harris et al., 2015a).
While the many R/S frameworks may have implications for R/S functioning, some researchers have suggested that the process of religious development is a distinct, separate dimension (Cole & Wortham, 2000; Kristensen, Pedersen & Williams, 2001). Among these various theories and models, it has been suggested that the cognitive/moral development models possess the strongest theoretical and theological support, and these models may be most useful when considering how to measure R/S development (Fowler & Dell, 2006; Gibson, 2004). Among the cognitive/moral development models, Fowler’s Faith Development Theory may be the most comprehensive, well-known, and empirically studied (Fowler & Dell, 2006; Parker, 2006).

**Fowler’s Theory of Faith Development**

Fowler’s Theory of Faith Development is one of the most notable, comprehensive, theoretically established models of individual faith development (Fowler, 1981; Parker, 2006). Fowler’s theory consists of seven distinct stages, and was heavily influenced by other stage models, including Kohlberg’s Theory of Moral Development (1976; as cited in Parker, 2006), Erikson’s Psychosocial Theory (Erikson, 1963; Sandhu, 2007), and Piaget’s Theory of Cognitive Development (1970; as cited in Parker, 2006). Central aspects of Fowler’s theory of faith development have been supported within the literature, including statistical support for the invariant, sequential faith development stages, the relationship between age and faith development stage, the universal/cross-cultural applicability of faith development stages, the overall structure of Fowler’s theory, convergent validity between Fowler’s theory and other developmental models, as well as other studies providing support for other related aspects of Fowler’s model (for an overview, see Parker, 2010 and Snarey, 1991).
Fowler (1981) conceptualized faith as a multifaceted construct of related structures, such as one’s beliefs about the ultimate nature of reality, as well as their ability to reason abstractly, morally, and existentially, engage in perspective taking, understand the sacred, and demonstrate social inclusiveness (Fowler, 1981). Faith development is seen as both an interpersonal and intrapersonal process, and heavily influences the values to which one ascribes. Faith progression reflects the individual becoming more complex, autonomous, humble, socially inclusive, and active in the cognitive, emotional, and interpersonal domains of faith (Parker, 2006). This developmental process is conceptualized as a progression through seven distinct stages of religious reasoning about the nature of reality: 0) infancy and undifferentiated faith, 1) intuitive-projected faith, 2) mythic-literal faith, 3) synthetic-conventional faith, 4) individuative-reflective faith, 5) conjunctive faith, and 6) universalizing faith (Fowler, 1981).

Stage 0: Infancy and undifferentiated faith reflects the first stage of Erikson’s Psychosocial Theory, in that it is centered around the experience of nurturance and love with a caregiver, leading to a sense of trust but threatened by a fear of neglect or abandonment. Faith begins to develop as an infant is loved and cared for by its caretaker, promoting relationships with others (Fowler, 1981, Strickland, 2017). Stage 1: Intuitive-projected faith usually occurs from two to seven years of age. A child’s language skills continue to develop, and they are able to ascribe faith-related meaning to what happens around them.

Stage 2: Mythic-literal faith occurs in elementary aged children, though this process may unfold as late as adolescence or even adulthood (Fowler, 1981). At this
stage, individuals are able to construct meaning through concrete, literal interpretation of religious symbols, and through understanding faith narratives (Fowler, 1981). Stage 3: Synthetic-conventional faith often develops in adolescence, but many adults may remain in this stage throughout their lives. Faith based beliefs and ideas operate as a foundation for an individual’s identity, future aspirations, and values, though these values have not been critically examined and they cannot be evaluated objectively. Faith identity is heavily influenced by their relationships with others, thus they are likely to conform to the judgements of others. It has been hypothesized that prejudice may be exhibited to the greatest degree in stages 2 and 3, as an individual’s faith is strongly related to (and often modeled after) those whom they are closest to. Fowler (1981) stated that stage 3 is a “conformist” stage, in that faith belief is heavily influenced by the expectations and potential for judgement from significant relationships. In addition, Fowler stated that a danger of this stage is the risk of internalizing a rigid means of evaluating others. Thus, in-group and out-group distinctions may be the most apparent at this developmental stage, as an individual identifies those who share similar beliefs to their own, and also begins to distinguish themselves from those with different faith values, which may lead to a sense of threat and expression of prejudice (Crownover, 2007; Fowler, 1981).

Stage 4: Individuative-reflective faith usually occurs during an individual’s mid-twenties, though transition to this stage may happen as late as 40, or not at all (Fowler, 1981). This stage is marked by an individual beginning to take responsibility for their beliefs and lifestyle, resulting in a shift from outside authority to one’s own authority. Faith is now developed through one’s own self and construction instead of being contingent on relationships and influences from others, while also being mindful of the
larger social context. However, at this stage, an individual’s thinking around the self and spiritual matters is still relatively simple and lacks nuance, and thus individuals may lack an understanding of others lived experiences and larger systemic impacts in their thinking around faith matters. Stage 5: Conjunctive faith usually occurs after mid-life (if at all). Individuals move beyond the simplistic thinking of stage 4 and begin to wrestle with life’s complexities, while being able to attend to multiple perspectives. Paradoxes can be integrated into one's beliefs, as individuals realize and are at peace with the fact that some metaphysical questions cannot be answered in a perfect way. Individuals are better able to understand others’ identities while also being mindful of their own identity, which is no longer fully subservient to judgements from others. There is also a pronounced openness and desire to be close to those who were previously seen as ‘different’ or ‘other’. Individuals in stage 5 are aware of and better understand the dynamics of oppression in society and begin to engage in social justice and activism in a way that transcends group boundaries (Fowler, 1981).

Stage 6: Universalizing faith is rare and is marked by efforts to change society to be fairer and just for all people, even at the detriment of the self. This understanding of one’s faith and the accompanying actions toward larger societal change may prompt others to examine their own assumptions and views of themselves and society yet may also lead others to feel threatened. Individuals in this stage are not without fault, but exemplify a sense of leadership, and a pursuit of a greater truth and social justice (Fowler, 1981).

As an individual moves into these higher stages of faith development, their potential to harbor prejudice may begin to diminish. The inherent lack of certainty
regarding specific faith issues, ability to hold contradictions, as well as the expanded
capacity for perspective-taking creates a sense of vulnerability to potential truth that may
come from “those who are other” regardless of community boundaries, as well as a sense
of decreased threat and a desire for closeness to “that which is different” (Fowler, 1981,
p. 198). This framework suggests that individuals in these higher stages (stages 4-6) may
be more open to outgroups, less susceptible to prejudice, and may hold a lower level of
religious dogmatism, which in turn has been shown to relate to lower levels of prejudice
towards outgroups (Kossowska, Czernatowicz-Kukuczka, and Sekerdej, 2017). Some
existing empirical work into Fowler’s theory corroborates this idea, such as Green and
Hoffman (1989), who found that individuals who scored higher on a stage measure of
Fowler’s theory did not discriminate against individuals of other faiths, agnostics or
atheists, while individuals scoring in Fowler’s lower stages did engage in such
discrimination.

**Postconventional Religious Reasoning**

A review of measures of faith development by Hill (2005) suggested that
investigating spiritual maturity through postconventional religious/spiritual cognitions
may have the most theoretical and empirical support. More specifically, investigating
cognitive processes related to faith/belief may be crucial to understanding religiously
motivated behavior (Preston, Ritter, & Hernandez, 2010), with some studies
demonstrating the importance of cognitive processes and their relationship with outcomes
such as prejudice, prosociality, and even condoning violence (e.g., Kossowska,
Czernatowicz-Kukuczka, & Sekerdej, 2017; Saroglou et al., 2007). By researching how
one engages in cognitive processes related to faith development, researchers may clarify
the relationship between the importance of one’s religious beliefs and prejudice against outgroups (Harris & Leak, 2013).

Harris et al. (2015), following the recommendations of Hill (2005), sought to create a measure of postconventional religious reasoning, as postconventional cognitions around religion and spirituality are theorized to be a crucial construct related to mature faith development. Postconventional Religious Reasoning (PRR) is defined as an individual’s ability to engage in critical thinking around R/S ideas, and to challenge long held spiritual assumptions, as opposed to merely relying on an outside authority, such as a church or spiritual leader (Harris & Leak, 2013). While this construct is likely related to general critical thinking, it is unique in that it pertains to thinking centered around religious ideas and closely held values, to which religious individuals scoring highly on measures of general cognitive ability or critical thinking may still be blind (Critical Thinking, 2018). Research has supported this assertion, as Penneycook, Cheyne, Koehler, and Fugelsang (2013) demonstrated that engagement in religious activities and adherence to conventional religious belief was associated with a higher degree of ‘belief bias’ even after controlling for other related variables such as cognitive ability, and thus these highly religious individuals may be less likely to engage in reflective reasoning. Beyond critical thinking, PRR is thought to encapsulate an individual’s openness and ability to engage with different perspectives around faith and the sacred, and may also have a social component, as individuals higher in PRR may reflect a higher capacity for perspective-taking and empathy (Harris & Leak, 2013). Higher scores of PRR reflect theoretical aspects of Fowler’s individuative-reflective faith stage (stage 4) and conjunctive faith stage (stage 5; Harris & Leak, 2013). However, it should be noted that PRR, as well as
Fowler’s theoretical framework as a whole, may be controversial in how it frames mature faith development. As mentioned previously, some faith traditions may condone factors such as prejudice towards outsiders, due to a values system that prizes exhibiting bias toward one’s own belief (Whitley, 2009). As a result, that faith tradition may frame mature faith development in ways that may greatly differ from Fowler’s theory.

Previous research into aspects related to PRR suggests that PRR may relate to higher levels of mental health, higher education levels, lower levels of anxiety and hostility (Atkinson & Malony, 1994; Malony, 1988; as cited by Harris & Leak, 2013), lower internalized homophobia, and healthier levels of sexual identity development for SGM individuals (Harris, Cook, & Kashubeck-West, 2008). PRR has also been shown to be related to lower levels of religious fear and guilt (Harris et al., 2015a), which in turn have been shown to relate to other negative outcomes such as depression, anxiety, and loneliness (Exline, Pargament, Grubbs, & Yali, 2014). PRR has also been shown to relate to lower rates of trauma symptoms in both veteran (Norman, Wilkins, Myers, & Allard, 2014) and church samples (Harris, Erbes, Engdahl, Olson, Winskowski, & McMahill, 2008). While these findings seem promising, more research is needed to determine if PRR is directly related to these reductions in negative mental health symptoms, or if PRR can act as a protective buffer against prejudice towards SGM.

Researching PRR may also have theological implications for Christian faith, as it has been suggested that encouraging growth in spiritual maturity should be a primary task of churches and spiritual leaders (Gibson, 2004). Despite the potential importance of this construct, PRR has been understudied in the R/S literature, likely due to its recent inception as well as the overall historical measurement difficulties of faith development.
instruments (Harris & Leak, 2013). In addition, many existing studies investigating aspects related to PRR have only presented correlational results, and thus there is a need for more studies to investigate the predictive power of PRR in relation to outcomes. Studying and promoting PRR may be especially important in the future, as individuals find themselves navigating an increasingly diverse and polarized cultural context, perhaps due to existing prejudices (Martin, 2002), especially as religious ideas are often infused into political debates and policies that affect communities (Haidt, 2002). It has been hypothesized that the ability to engage in PRR may help individuals to resolve conflicts and help promote cooperative living in diverse faith communities (Harris & Leak, 2013). Thus, PRR may likely be an integral factor for understanding the relationship between religiosity and prejudice in an increasingly diverse society.

Prejudice

The study of prejudice has constituted a sizable area of research within psychological science over the last few decades (Pettigrew & Tropp, 2006). Prejudice can best be defined as an automatic, non-conscious evaluation of an individual (usually negative) based on their group affiliation (Dovidio & Gaertner, 2012; Yogeeswaran, Devos, & Nash, 2017). Prejudice is thought to stem from our natural tendency to categorize people and groups in order to make sense of our world, leading to associations among groups and various qualities and traits (Macrae & Bodenhausen, 2000). This categorization is considered to be rooted in an evolutionary adaptation of perceiving threat from those who are outside one’s group or tribe (Edgell, Gerteis, & Hartmann, 2006). Experiencing prejudice has been connected to a host of negative outcomes, such as several economic and occupational disadvantages (Bertrand & Duflo, 2017), and
experiences of discrimination and violence (Woody, Ropp, Miller, & Bayes, 2016),
which in turn relate to worse mental health outcomes such as depression (e.g., Cox,
Abramson, Devine, & Hollon, 2012). For example, a recent review by Potter, Rondolo,
and Smyth (2019) demonstrated that experiences of discrimination were related to a host
of negative mental health constructs, including anxiety, social anxiety, depression, and
overall negative affect, which in turn was related to negative job satisfaction and career
outcomes. There is also evidence that prejudice is detrimental to the well-being of the
individual who holds such biased views, as individuals who scored highly on general and
religiously motivated prejudice were shown to have significantly worse outcomes related
to shame, depression, anxiety, stress, and substance use behaviors (Sowe, Taylor, &
Brown, 2017). Given these negative outcomes, researchers have long studied methods of
reducing prejudice, with a growing body of evidence that these unconscious affective
reactions may be contingent on the type of target for these prejudices (e.g., Ng &
Gervais, 2017). As a result, several researchers have suggested that different types of
prejudice (based on the target of the prejudice) should be studied as distinct outcomes
(Paluck et al., 2018; Worthen, 2013).

**Prejudice & Religion**

As Allport (1954, 1967) observed several decades ago, the relationship between
religion and prejudice seems contradictory given many religious mandates against
prejudice/discrimination. Recent work has taken a broader approach to explore
theoretical (such as cultural and evolutionary) motivations that may explain how
religiosity naturally leads to aspects of prejudice (Blogowska & Saroglou, 2011, Ng &
Gervais, 2017). Evolutionary perspectives suggest that prejudice is developed as an
adaptive response to a specific situation or group of people (Neuberg, Kenrick, & Schaller, 2010), suggesting that the mechanisms behind religious prejudice may differ based on the outgroup (Ng & Gervais, 2017). Prejudice against SGM individuals has been consistently shown to relate to higher religiosity among American Christian samples (Ng & Gervais, 2017, Whitley, 2009), and has endured even as society as a whole seems to have adopted more positive attitudes towards these groups (Loftus, 2001; Wells, 2008). Thus, it may be prudent to investigate the differing mechanisms and motivations that may underlie prejudice towards gay, lesbian, and transgender individuals.

**Prejudice Against Sexual and Gender Minorities by Religious Individuals**

Prejudice against sexual and gender minorities is well documented, with the bulk of the research focusing on issues around homophobia and heterosexism (Herek & McLemore, 2013; Huffaker & Kwon, 2016; Kelleher, 2009). Religious individuals have been shown to be more likely than non-religious to experience and express negative affect to both gay and bisexual individuals, and to oppose policies limiting discrimination against them (e.g., Brint & Abrutyn, 2010; Haider-Markel & Joslyn, 2008, as cited in Herek, & McLemore, 2013). Different sexual and gender minorities may face unique forms of stigma and discrimination, yet it has been suggested the prejudicial attitudes they face may also have many similarities, such as being rooted in perceived differences of widely accepted social and religious norms (Huffaker & Kwon, 2016). However there has been a call to investigate specific sexual and gender minority groups as distinct entities, to better understand what factors may most influence prejudice towards these different identity groups specifically (Worthen, 2013).
Most traditions of Christian faith call for its adherents to ‘love your neighbor’ as well as ‘love your enemy’ (Matthew 5:43-48, New International Version), while also condemning homosexuality as a sinful behavior (Toulouse, 2002). It has also been suggested that biblical texts give guidance and instruction regarding sexual and gender norms, and thus likely heavily influence what sexual/gender behaviors, roles, and form of expression an individual deems permissible (e.g., Eliason, Hall, Anderson, & Willingham, 2017). More specifically, religious prejudice against SGM is theorized to be promoted by their perceived rejection of conceptions of ‘proper,’ religious-based norms of gender and sexual expression, as well as the potential violation of religious conceptions of purity which may lead to sentiments of disgust (Cottrell & Neuburg, 2005; Duck & Hunsberger, 1999). This rejection of sexual behavior often is nested in a larger negative evaluation of same-sex attraction (Bassett et al. 2005). Due to this perceived violation, prejudice against SGM individuals may be permitted as acceptable in communities of faith (Whitley, 2009), and this may impede the positive effects of prejudice-reducing factors such as intergroup contact (Pettigrew, 1998). Religiously-based negative attitudes against sexual and gender minorities are hypothesized to serve several functions, including a social-expressive function (strengthening the individual’s ties to their religious community), value-expressive function (helping reaffirm the individual’s conception of self as virtuous), as well as a defensive function against uncertainty in one’s beliefs or alignment to a higher power (Ng & Gervais, 2017). For example, one study found that prejudice led to a reduction of anxiety through alignment with a higher power (Herek & McLemore, 2013), leading some researchers to
hypothesize that individuals are more likely to critically examine their prejudicial views towards sexual minorities when they no longer serve one of the proposed functions.

**Prejudice & PRR**

To my knowledge, no research has been conducted investigating the relationship between PRR and prejudice toward SGM, though PRR has been shown to relate to lower levels of internalized homoprejudice for SGM individuals (Harris, Cook, & Kashubeck-West, 2008). PRR has been shown to strongly relate to (and yet is still distinct from) quest religiosity, one of the few aspects of religiosity that has been shown to relate negatively to sexual prejudice (Whitley, 2009). In addition, a predecessor to measuring PRR, the Faith Development Scale (a measure of postconventional cognitions), has been used in relation to prejudice. A more recent study with an Australian sample demonstrated that higher scores on the Faith Development Scale were related to lower levels of prejudice toward gay and Muslim individuals, and that faith development was a better predictor for prejudice reduction than quest religious orientation (James, Griffiths, & Pedersen, 2011). These findings echo the call of some researchers of the importance of investigating cognitive factors related to faith development with regard to prejudice reduction (Hill, 2005; Preston, Ritter, & Hernandez, 2010).

**Intergroup Contact**

The Contact Hypothesis was originally put forth by Allport (1954), who suggested that if certain preliminary conditions are met, then contact among members of different outgroups should lead to reductions in outgroup stereotypes, prejudice, and discrimination. Intergroup contact is hypothesized to reduce prejudice by decreasing threat and anxiety between different groups while fostering perspective-taking (Barlow et
Research by Pettigrew (1998) has demonstrated that intergroup contact was usually associated with less prejudice, though there were some contradictory findings, as some suggested that the effects of contact on prejudice reduction may be overestimated, and may not endure beyond immediate reductions (e.g., Forbes, 2004). These discrepant findings led to the consensus that, as Allport had hypothesized, the relationship between contact and prejudice is complex and likely depends heavily on other factors, such as contextual factors, unique group characteristics, as well as intrapersonal qualities (Pettigrew, 1998).

There are several proposed mechanisms by which contact can reduce prejudice (Pettigrew & Tropp, 2008). First, contact with an outgroup is thought to enhance overall knowledge of that group, which may clash with preconceived stereotypes or assumptions, thus reducing prejudice (Pettigrew, 1998). Contact is also thought to reduce anxiety of the outgroup (Islam & Hewstone, 1993), since prejudice against outgroups may be motivated by a sense of ‘protecting’ an in-group from threats from an unknown outgroup. Finally, contact with outgroups may help to humanize the outgroup, leading to an increased sense of empathy and perspective-taking (Pettigrew & Tropp, 2008). A recent meta-analysis on experimental contact studies found that overall, intergroup contact does seem to reduce prejudice. More specifically, out of the 27 experimental studies identified, 24 demonstrated positive effects of contact on the reduction of prejudice. In addition, the effects of contact appear to be strong, with experimental contact conditions leading to a .39 standard deviation reduction of prejudice. This analysis also demonstrated that effect sizes for contact and prejudice varied substantially based on the individual factor that was
the target of prejudice, suggesting contact may increase or decrease prejudice depending on the targeted group (Paluck et al., 2018).

**Contact with Sexual and Gender Minorities**

Historically, lack of interaction with sexual minorities has long been hypothesized to relate to an abundance of prejudicial attitudes, prompting advocates to encourage gay and lesbian individuals to ‘come out’ in the 1960s (Gibson et al., 2014). Existing research suggests that contact leads to large reductions in prejudice against gay/lesbian individuals and knowing at least one gay or lesbian person has been shown to relate to higher expression of positive attitudes of sexual minorities (Herek, 2009; Pettigrew, Tropp, Wagner, & Christ, 2011). While Walch et al. (2010) found that religiosity positively predicted homophobia, they also found that contact with a gay/lesbian individual predicted a large reduction in homophobia, rendering the relationship between religiosity and homophobia statistically non-significant. The quality of contact may also strengthen the relationship between contact and SGM prejudice-reduction, as individuals who had heard about the negative experiences of a friend who is a sexual minority had more positive attitudes towards sexual minorities in general (Herek, 2009). These effects seem to be cross cultural as well, as some studies have demonstrated intergroup contact with sexual minorities leads to reduced prejudice in other countries beyond the U.S. (Hodson, 2011). Contact with transgender individuals has also been demonstrated to reduce prejudice towards the transgender community (King et al., 2009; Tadlock et al., 2017; Tee & Hegarty, 2006). For example, McDermott, Brooks, Rohleder, Blair, and Hoskin et al. (2018) found that mediated contact through a panel presentation and a transgender-themed film led to reductions of self-reported prejudice. However, it should be noted that
other researchers have found contrasting results. For example, in a sample of Portuguese adolescents, Costa and Davies (2012) found that being acquainted with a transgender individual had no effect on the level of transphobia held by an adolescent.

However, studying contact and its effects on prejudice reduction with SGM can be challenging. As a result of the discrimination and prejudice experienced by SGM individuals, many marginalized individuals will engage in identity concealment, in an effort to conceal their minority sexual/gender identity from dominant group contexts (Rood et al., 2017). Concealing one’s gender identity or sexual orientation has been shown to relate to decreased well-being, hypervigilance, and negative self-esteem, and can result in SGM individuals being socially isolated from other SGM individuals (Bariola, Lyons, & Leonard, 2016). However, this concealment has also been shown to have protective factors by reducing one’s exposure to prejudice and discrimination, as well as reducing one’s overall stress related to their identity (Bränström & Pachankis, 2021). However, this concealment can make it difficult to study contact, as a person may be in contact with an SGM individual who is actively concealing their stigmatized identity, thus they may not be aware they are in contact with an SGM individual (Tadlock et al., 2017).

As a result, more research needs to be conducted to understand whether contact acts as a prejudice reducing factor for transgender individuals as it does with other minority groups. For example, Pettigrew (2009) has demonstrated the presence of a ‘secondary transfer effect’, where contact with one minority group led to reductions of prejudice towards similarly discriminated groups. Thus, individuals who have contact with gay and lesbian individuals and hold positive attitudes may also have more positive
attitudes towards transgender individuals (McCullough, Dispenza, Chang, & Zeligman, 2019). Beyond these initial effects of contact on SGM prejudice, more research needs to be conducted to see what intrapersonal factors may influence contact on reducing transnegative prejudice (Herek & McLemore, 2013).

**Study Rationale**

As noted above, initial research has suggested different mechanisms behind prejudice towards SGM individuals (sexual vs gender norms). Thus, the effectiveness of factors hypothesized to lead to reduced levels of prejudice may be unique, and interventions may be more effective if they are designed to surgically target a specific type of prejudice (Ng & Gervais, 2017; Worthen, 2013). While there have been many proposed constructs thought to help reduce prejudice, intergroup contact may be one of the most studied and consistently related variables shown to reduce prejudice (Pettigrew & Tropp, 2006). Yet there has been a call to investigate contact and prejudice alongside other factors such as empathy, perspective taking, and cognitive rigidity (hypothesized to be components of PRR; Harris & Leak, 2013), which have also been demonstrated to relate to prejudice (Kossowska, Czernatowicz-Kukuczka & Sekerdej, 2017; Pettigrew & Hewstone, 2017). In addition, more work needs to be accomplished to investigate potential moderators between broad religious variables (such as religiosity) and outcomes, which may help to further clarify the relationships between these factors (Piumatti & Russo, 2018; Whitley, 2009).

Within the psychology of religion, there is preliminary research evidence and a solid theoretical rationale to suggest that PRR may predict reduced prejudice through several mechanisms (Fowler, 1981). Individuals high in PRR are less likely to identify
strongly with a religious ingroup, and thus there may be less of an ingroup/outgroup distinction which has been demonstrated to relate to prejudice (Sassenberg & Wieber, 2005). Individuals high in PRR are also thought to be more open-minded and less cognitively rigid regarding religious ideas, factors that have been shown to predict prejudice (Hunsberger & Jackson, 2005; Kossowska, Czernatowicz-Kukuczka & Sekerdej, 2017). Finally, PRR is theorized to strongly relate to empathy and perspective-taking, which have both been shown to be strong predictors of prejudice-reduction (Beelmann & Heinemann, 2014; Pettigrew & Tropp, 2008).

This study aims to utilize these recommendations by investigating how religiosity, contact, and the construct of PRR may predict prejudice against lesbian, gay, and transgender individuals. More specifically, this study will investigate if PRR will explain variance of prejudice against lesbian, gay, and transgender individuals above and beyond the variance explained by religiosity and contact. In addition, following the call of some researchers to investigate potential moderators between religiosity and prejudice, PRR will be investigated to determine if it moderates the empirically established relationship between religiosity and prejudice against SGM (Piumatti & Russo, 2018; Whitley, 2009).

**Hypotheses**

Recent literature has identified religiosity as a consistent and stable positive predictor of prejudice, especially against SGM individuals (Herek & McLemore, 2013; Whitley, 2009). Thus, it is hypothesized that religiosity will be positively associated with prejudice against lesbian, gay, and transgender individuals (Hypothesis 1). Based on other meta-analytic findings, it is also hypothesized that outgroup contact will be negatively associated with prejudice against lesbian, gay, and transgender individuals,
and explain variance in prejudice after controlling for religiosity (Hypothesis 2; Smith, Axelton, & Saucier, 2009). Based on Fowler’s theory of Faith Development, it is expected that PRR will be negatively associated with prejudice against lesbian, gay, and transgender individuals, and will explain variance in prejudice after controlling for religiosity and contact. Individuals higher in PRR are thought to be less bound to a specific moral authority such as a sacred text or church leader and are instead more mindful of perceived paradoxes in morality. Individuals high in PRR are also thought to have a greater capacity for empathy and perspective-taking, factors which have been shown to reduce prejudice. Those high in PRR are also thought to identify less strongly with a specific ingroup and may be more mindful of broader values such as universal human rights (Fowler, 1981). Thus, we anticipate PRR will be negatively associated with prejudice against lesbian, gay, and transgender individuals over and above the variance explained by religiosity and contact (Hypothesis 3). It is also hypothesized that PRR will moderate the established relationship between religiosity and prejudice (Hypothesis 4), as it is hypothesized that individuals exhibiting higher levels of PRR will experience increased empathy and perspective taking, mitigating the demonstrated positive relationship between religiosity and prejudice towards SGM. Thus, three sets of regressions will be conducted (one for each target group of prejudice), with demographic variables entered into the first block, religiosity entered into the second block, contact entered into the third block, PRR entered into the fourth block, and an interaction term of religiosity and PRR entered into the fifth block.
CHAPTER II: METHOD

Sample

Appropriate sample size was determined based on an a priori power analysis using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2013). This software provides guidelines for the necessary sample size needed for a research study contingent on the number of variables being measured, alpha and power levels, as well as the desired effect size. Initial analyses utilized multiple regression, and I anticipated a medium effect size ($f = .15$; Cohen, 1988), with an alpha of .05 and power set to .8 (as recommended by Cohen, 1992). This study used three independent variables, thus G*Power reported a necessary minimum sample size of 77. This number also matches the minimum suggestions of Miles and Shevlin (2001) based on a predicted medium effect size and three independent variables. A medium effect size is anticipated based on several empirical results related to perspective taking, empathy, and cognitive flexibility, all theorized to be important components of PRR. For example, a cross-sectional study by Bäckström and Björklund (2007) found that empathy was negatively related to modern sexism ($r = -.4$; medium to large effect size) and two indices of anti-homosexual prejudice ($r = -.32, r = -.42$; medium to large effect sizes), while also explaining 21% of the variance in generalized prejudice. Another cross-sectional study by McFarland (2010) found that empathy and perspective taking was negatively related to general prejudice for a student sample ($r = -.42$, medium to large effect size) and an adult sample ($r = -.23,$
small to medium effect size). In addition, a recent cross-sectional study investigating predictors of generalized prejudice found that empathy ($\beta = -.31$), perspective-taking ($\beta = -.14$), and measures of psychological flexibility ($\beta = -.11$) explained a combined 36% of the variance in generalized prejudice (Levin et al., 2016). In addition, recent meta-analysis of 81 prejudice reduction intervention studies, which found that prejudice reducing interventions utilizing direct contact or building perspective taking produced the highest effects of all intervention components ($d = .43$ and $d = .44$ respectively; Beelmann & Heinemann, 2014). Thus, I sought a minimum sample size of 77 participants, while attempting to obtain a larger sample size to account for outliers, non-responses, careless responding, and other sampling issues. In addition, following the recommendations of Osborne (2000), I sought to obtain at least 40 participants for each independent variable (for a total of more than 120 participants) in order to minimize shrinkage and increase the generalizability of the regression equation to other samples.

The study sample focused on American Christian adults, as this group has been investigated significantly in the literature examining relationships between religiosity and prejudice (Hackney & Sanders, 2003). Samples were obtained through several methods, including through a snowball sampling strategy, which was employed for ease of access and due to financial limitations. Existing research and recommendations support the use of snowball sampling with this group, as individuals in church communities may be most likely to engage in survey studies when hearing about the study from other members within their community (Sadler, Lee, Lim & Fullerton, 2010). The survey was open to participants on March 5th 2020. The top five local Christian churches with the largest estimated congregation (Hartford Institute for Religion Research, 2006) in a large
metropolitan city in the Midwest were contacted via email (found on each churches website) for interest in participation in the study, and participants were encouraged to pass the survey link on to other Christian individuals (to “snowball” for additional participants). These churches varied somewhat in their denominational identity, with two churches identifying as “Evangelical,” one identifying as “Southern Baptist,” and the remaining two identifying as “non-denominational.” Participants were also recruited online through Christian-focused discussion forums on Reddit, a popular internet forum website. Reddit has been demonstrated to be a useful sample source based on the diversity of users and forum topics (Shatz, 2017). A total of 191 participants responded to the survey, with a total of 178 participants successfully completing the survey (as indicated by 100% progress through the survey prompts). Two respondents were removed initially due to incorrectly answering one of the attention (“bogus”) questions, while another two participants were eliminated based on not meeting selection criteria (did not identify as Christian). Due to a high rate of overall survey completion, and presence of only a few missing responses in the dataset, any participants that did not complete at least 90% of the survey items were removed, producing a final count of 173 usable responses.

**Demographics of Sample**

The final sample of 173 participants was comprised of 109 women, 51 men, while 4 individuals identified as non-binary and nine participants did not respond. The sample was predominantly white, with 153 participants identifying as white, 1 identifying as Latino/Hispanic, 5 identifying as Asian, 10 as multi-ethnic, and 13 identifying as ‘other’. Participant age ranged from 18 to 80, with a mean of 45.92, and a standard deviation of
16.58. For sexual orientation, 148 participants identified as heterosexual, 1 as gay, 2 as lesbian, 10 as bisexual, and 3 identifying as other (with nine participants not answering). In terms of highest level of education completed, 1 participant did not complete high school, 6 were high school graduates, 24 had completed some college coursework, 19 obtained a 2-year degree, 63 had a four year degree, 10 had some form of professional degree, 34 had a master’s degree, and 7 held a doctoral degree, while nine participants declined to answer. Regarding religious affiliation, 32 identified as Baptist/Southern Baptist, 31 identified as Evangelical, 19 identified as Catholic, 13 as Pentecostal, 35 identifying as other, and 12 individuals not responding. Of those who identified as other (using a fill in the blank to specify), 14 identified as broadly “non-denominational,” 7 identified as broadly “Christian,” and 2 identified as Protestant, with the remaining 12 respondents identifying with another Christian denomination (such as “Assemblies of God”, or “Nazarene”). The remaining 31 participants were split among the remaining religious affiliations. Overall, the sample was composed of almost entirely white and heterosexual identified individuals, with a majority identifying as a woman, with a large variance in age, and varying degrees of educational attainment (mostly 4-year college degree and above) and denominational identification (skewed towards Southern Baptist, Evangelical, and non-denominational). Thus, these results may not be generalizable to other population groups such as non-white identified Christians or LGBTQ+ identified Christians. Participant demographics are listed in Table 2.

**Procedures**

This study adopted a cross-sectional survey design, in which data is taken from a sample at one point in time (Field, 2009). Cross-sectional designs are advantageous for
their ease of use, relative clarity, and ability to utilize many variables. However, such a design will not account for the effects of time and lacks the causal explanatory power of an experimental design (Lavrakas, 2008). Data collection occurred online through a survey hosted by Qualtrics. Links for the survey were posted to Reddit or included in an email to churches. Prior to taking the survey, participants read an IRB-approved recruitment letter detailing the nature of the study and included names and contact information for the principal investigators, the regional IRB board, inclusion criteria, potential risks and benefits, and information about confidentiality (with potentially identifiable information including age and IP address). Participants needed to agree that they understood the information about the study, as well as potential risks and benefits, with risks involving possible emotional distress (as those scoring highly on PRR may be more likely to have experienced traumatic events; Harris et al., 2015a). Recruitment materials explicitly stated inclusion criteria, which included identifying as an adult individual who identify as religious and who have had experience with a religious institution (e.g., church). Upon clicking the survey link, participants were directed to an IRB-approved recruitment letter that detailed the nature of the survey, informed consent, possible risks (minimal) and potential empirical benefits, as well as participant rights (such as being able to terminate the study early). After agreeing to the terms in the recruitment letter, participants were directed to the survey proper and answered a series of demographic questions, then on to questionnaires assessing religiosity, PRR, contact with SGM individuals, as well as questions related to potential prejudice against these outgroups.

Measures
**Demographic Information**

Participants first completed a few questions related to general demographic information, including age, race, ethnicity, religious affiliation, sexual orientation, gender identity, national or state origin, and education level. Following the recommendations of Meade and Craig (2012), three questions were included in the survey to ensure respondents are paying attention throughout, including one general attention item (e.g. “For this item, please select 3”) and one ‘bogus’ item that cannot be answered true (“True or false: I was born on February 30th”).

**Postconventional Religious Reasoning**

PRR was measured with the *Revised Faith Development Scale* (RFDS; Harris & Leak, 2013), a 16-item Likert-type instrument designed to assess an individual’s ability to critically assess spiritual material, and the extent to which their faith beliefs are based on their personal critical examination instead of religious authorities (such as a church or spiritual leader). One potential strength of the instrument is that 73 participants were included who identified as either gay or lesbian, as sexual minorities are often neglected when constructing religious instruments and suggesting results from this instrument may be more inclusive of sexual minorities responses. Items are measured on a 1 (*Not at all like me*) to 5 (*Very much like me*) scale. Half of the scale items are reverse-scored, with a total score of PRR obtained from the sum of scores of the sixteen items. Examples of scale items include “My religious orientation comes primarily from my own efforts to analyze and understand God”, “I believe that my church has much to offer but that other religions can also provide many religious insights”, “I find myself disagreeing with my church over numerous aspects of my faith”, and “It is very important that my faith is very
much like the faith of my parents and family of origin” (Harris & Leak, 2013). The instrument has demonstrated initial psychometric support, producing a Cronbach’s alpha of .78 to .80 in one recent study, suggesting that the internal consistency falls in the adequate to good range (Taber, 2018). This level of internal consistency is significantly higher than other existing measures of faith development, such as the FDS (Cronbach’s alpha = .52 to .65; Crownover, 2007; Harris & Leak, 2013). Another validation study also established convergent validity, as the RFDS paralleled the FDS in relating to related constructs in theoretically expected ways (Harris & Leak, 2013). For this study, the RFDS produced a Cronbach’s alpha of .80, mirroring reliability coefficients obtained from previous studies.

**Religiosity**

Religiosity was measured with the *Duke University Religion Index* (DUREL; Koenig et al., 1997, Koenig & Bussing, 2010), which is a brief instrument designed to assess the three theorized major dimensions of religiosity proposed during a Fetzer Institute Conference (Koenig & Futterman, 1995). These dimensions consist of one item measuring organizational religious activity (ORA; “How often do you attend church or other religious meetings?”), one item measuring non-organizational religious activity (NORA; “How often do you spend time in private religious activities, such as prayer, meditation or Bible study?”), and three items measuring intrinsic religiosity (IR; “My religious beliefs are what really lie behind my whole approach to life.”). Both ORA and NORA responses are based on six response options assessing frequency of participation, with ORA ranging from 1 (*More than once a week*) to 6 (*Never*), while NORA response options range from 1 (*More than once a day*) to 6 (*Rarely or never*). IR is evaluated on a
five-point scale ranging from 1 (*Definitely true of me*) to 5 (*Definitely not true of me*). These three dimensions can be analyzed separately or be used as a total score for religiosity, which will be used for this study. The DUREL has been used extensively in the R/S literature and demonstrated consistent psychometric validity, including two large validity studies with community samples of almost 7,000 adults (Koenig, 1997), as well as evidence of convergent validity through high correlations with other religiosity instruments (.71 - .86; Koenig & Bussing, 2010). The DUREL also demonstrates evidence of strong reliability, including several studies producing consistently high Cronbach’s alpha coefficients spanning from .78 to .91 (Koenig & Bussing, 2010), and two-week test-retest reliability correlation coefficients of .91 (Storch, Strawser, & Storch, 2004). For this study, the DUREL produced a Cronbach’s alpha of .85, falling within the range of reliability coefficients obtained from previous studies.

**Intergroup Contact**

The Contact Quantity subscale of the *General Intergroup Contact Quantity and Contact Quality* (CQCQ; Islam & Hewstone, 1993, Lolliot et al., 2015) instrument was utilized to measure direct contact with SGM individuals. The contact quantity subscale measures how often an individual has direct intergroup contact and is measured with five statements on a 7-point Likert-type scale, with responses ranging from 1 (*Not at all*) to 7 (*Very often/a great deal*). It should be noted that, while this measure is widely used (see below), it relies on an individual’s perception and awareness of contact with others. Because sexual and gender identity may be concealable (Rood et al., 2017), an individual may not be aware of the amount of contact they actually have with SGM. As a result, this is a measure of an individual’s perceived contact with SGM individuals but may not
accurately reflect the amount of actual contact with SGM an individual may experience. Statements include “How much contact do you have with [outgroup] at college?”, “How much contact do you have with [outgroup] as good friends?”. Islam and Hewstone’s CQCQ has been utilized extensively in the contact literature and adapted for use with a wide variety of religious, ethnic, and racial groups (Lolliot et al., 2015). Various adaptations across numerous studies have demonstrated the sufficient reliability of the instrument, with internal consistency ratings ranging from .72 to .90, while also having a six-month test-retest correlation of .52. Instrument validity has also been established across a wide number of studies, with convergent/divergent/predictive validity suggested by contact quality and quantity correlating with other variables (such as outgroup attitudes or outgroup friendships) in theoretically-expected ways, as well as evidence of construct validity through confirmatory factor analytic studies affirming the two-factor structure of the instrument, with items loading significantly onto the two factors of contact quantity and contact quality (Lolliot et al., 2015). For this study, the Contact Quality subscale of the CQCQ produced Cronbach’s alpha values of .74 (contact with lesbian individuals), .82 (contact with gay individuals), and .90 (contact with transgender individuals), falling within the range of reliability coefficients obtained from previous studies.

**Prejudice Against SGM**

Two instruments were utilized to measure prejudice against sexual and gender minorities, more specifically, lesbian, gay, and transgender individuals. The first instrument, the *Modern Homonegativity Scale* (MHS; Morrison & Morrison, 2002) was created to investigate modern and possibly more subtle/nuanced attitudes and expressions
of heteronormativity. Since society continues to become more affirming of sexual minorities, some argue that individuals may be more likely to answer questions assessing sexual prejudice in a socially desirable way. This consideration has led to a need for measures that assess a more modern form of heteronormative attitudes in a more subtle and nuanced way, resulting in the creation of the MHS (Morrison & Morrison 2002). More recent research affirms this approach, as a recent review of measures of SGM affirmation/prejudice by Peterson, Dalley, Dombrowski, and Maier (2017) found some evidence suggesting that sexual prejudice and heteronormativity may be ‘evolving’, and thus measures of more subtle sexual prejudice attitudes may be most fruitful. The MHS consists of two similar 12 item factors, one focused on prejudice against lesbians and one focused on gay men. The scale uses a Likert-type response format ranging from 1 (Strongly disagree) to 5 (Strongly agree), with example statements including “Lesbians seem to focus on the ways in which they differ from heterosexuals and ignore the ways in which they are the same” and “Gay men do not have all the rights they need. (reverse scored).” Initial instrument development established strong reliability through a factor analysis with favorable results, as well as high alpha levels (Cronbach’s alpha = .93), as well as construct validity due to correlations with other constructs in theoretically expected ways (Morrison & Morrison, 2002). For this study, the produced Cronbach’s alpha values of .95 (prejudice towards lesbian individuals) and .94 (prejudice towards gay individuals), falling within the range of reliability coefficients obtained from previous studies.

A second measure was also used to assess gender-related prejudicial attitudes. The Genderism/Transphobia subscale of the Genderism and Transphobia Scale – Revised
Short Form (GTS-R-SF; Tebbe, Moradi, & Ege, 2014), a more brief and psychometrically robust adaptation of the previously used Gender and Transphobia Scale, designed to assess the various cognitive, affective and behavioral aspects of anti-trans prejudice. Response options follow a Likert-style format ranging from 1 (Strongly agree) to 7 (Strongly disagree), with higher anti-trans prejudice relating to higher overall scores on the measure. Example items include “A man who dresses as a woman is a pervert,” and “Sex change operations are morally wrong.” The revision study built upon the substantial psychometric support of the original GTS, while also refining the two-factor structure and overall item pool, improving the reliability of the instrument from its predecessor. Further validity was established through correlations with other measures of sexual, gender, and anti-trans prejudice ($r = .53$ to $.83$), as well as evidence of construct validity through the GTS-R positively correlating with other related variables in theoretically expected ways (Tebbe et al., 2014). For this study, the Genderism/Transphobia subscale of the GTS-R-SF produced Cronbach’s alpha values of .93, demonstrating excellent internal reliability.

**Analytic Plan**

Analysis of data was conducted using SPSS Statistics software V22 and consisted of obtaining correlations and then conducting three separate hierarchical linear regressions to examine the amount of variance explained by each of the independent variables on each type of prejudice: prejudice against gay individuals, prejudice against lesbian individuals, and prejudice against transgender individuals. Hierarchical linear regression is the most fitting analysis, as it allows the importance of each independent variable to be evaluated based on how much it adds to the overall variance explained of
prejudice, over and above other independent variables and demographic variables (Cohen, 2001; Ho, 2013). Hierarchical regression also allows us to test our theory-driven hypotheses by evaluating the variance explained of prejudice by PRR over and above the known associations of religiosity and contact (Petrocelli, 2003). Thus, a regression was conducted for each type of prejudice based on the recommendations from Worthen (2013) to study sexual prejudices as distinct outcomes.

For each of the regression analyses, demographic variables such as age, sexual orientation, and gender were entered into the first block, followed by religiosity in the second block, given the substantial existing empirical support for its ability to explain variance in prejudice (Whitley, 2009). Next, given the substantial support for contact on prejudice reduction, contact was entered into the third block to determine if individual differences in amount of intergroup contact may explain variance in prejudice against these groups above and beyond the variance explained by religiosity. Following the suggestions of Cohen and Cohen (1983, as cited in Petrocelli, 2003), contact was entered after religiosity, as dispositional factors may predict factors related to outgroup contact. More specifically, intergroup contact is entered after religiosity due to an individual’s level of religiosity possibly influencing motivations behind prejudice for gender, sexual, and religious minorities, and thus possibly impacting the effects of intergroup contact (e.g., Asbrock et al, 2012; Thomsen & Rafiqi, 2017). PRR was entered into the fourth block, to determine if PRR explains variance in levels of prejudice above and beyond the variance already explained by the known covariates of contact and religiosity. Following the recommendations of Baron and Kenny (1986), a moderation effect was investigated by first entering the established predictor (religiosity) into the regression equation,
eventually followed by the hypothesized moderator (PRR), and followed by an interaction term (religiosity x PRR). While this method of hierarchical entry may not be required, entering them in this order will be helpful for evaluating change in R-squared for the other variables (Field, 2009; Hayes & Rockwood, 2017). Thus, this interaction term of religiosity and PRR was entered into the fifth block, as this will represent the moderation effect.

Initial data cleaning consisted of first checking to ensure participants meet study guidelines (e.g., are over 18 years of age), to ensure it is representative of the desired population. Participants who did not respond adequately (such as not completing more than 90% of the survey) were excluded. Participants were also excluded if they answered incorrectly to the attention items (e.g., responding with any answer other than 3 when asked “Please respond to this item by selecting 3”). Prior to running the full analysis, the data was analyzed for outliers, design assumptions were assessed and adequately met (see below), and then study variables were recoded. Because this analysis investigated a moderation effect in an exploratory manner, scores of religiosity and PRR were recoded, since the coefficients of these variables are conditional, and not the main effects (Kelley & Maxwell, 2010). These were recoded through mean-centering, which is seen as the most common method for recoding to investigate interactions, and involves taking the sample mean of each independent variable and subtracting it from each score for that variable (Kelley & Maxwell, 2010). After the variables were recoded and mean-centered, they were multiplied together to create an interaction variable (Field, 2009).

Model assumptions were also checked, including the study variables consisting of the appropriate type of data (interval and continuous), variation in the scores on
independent variables, multicollinearity through adequate variance inflation factors, and homoscedasticity. After recoding the variables, model fit was determined by looking for potential outliers, which may have distorted the overall model findings. Thus, the residuals were standardized by conversion to z-scores and identified any scores above 3 (Field, 2009) and removed them, with no scores reaching this threshold. Following the recommendations of Field (2009), I also evaluated whether more than 1% of the standardized residuals have absolute value z-scores above 2.5 or whether 5% have absolute values greater than 2, as each of these scenarios suggests the model has a poor fit. I also evaluated for the presence of influential cases that may distort the overall accuracy of the regression model by using Cook’s distance, which is used to show the influence of each response on fitted response values. Any responses with Cook’s distance values over 1 were deleted (Field, 2009), with no responses needing to be deleted. From there, initial correlation coefficients were obtained to understand basic relationships between all of the study variables, which also aided in our ability to assess multicollinearity.

From there, the assumptions of multiple regression analysis were evaluated. First, a regression analysis assumes that the independent variables must take the form of interval or categorical data, while the outcome variable must be continuous and unbounded (Field, 2009). This assumption was met based on measures selected (which are interval data), and I ensured the outcome variable is unbounded through the descriptive statistics produced. In addition, there is an assumption that the independent variables should have variation in their scores (Field, 2009). This was met by checking the variances of each independent variable to ensure they do not equal zero, indicating
variation in scores. Next, the assumption of multicollinearity was evaluated, in order to ensure the independent variables are independent of each other and that they do not correlate too highly with each other. Multicollinearity was evaluated by using the variance inflation factor (VIF), with values of 10 suggesting multicollinearity (Field, 2009), however no values reached this threshold. Next, the assumption of homoscedasticity was evaluated to ensure the error is similar across the different values on the independent variables, as heteroscedasticity can lead to distortion of study results and a weakened analysis (Osborne & Waters, 2002). This was evaluated by examining a data plot, with the ‘funnel’ shape suggesting residuals for each independent variable may not share an equal level of variance and possibly violating the assumption of homoscedasticity (Field, 2009). Overall data appeared to be normally distributed, thus the assumption of homoscedasticity was met.

Next, the assumption of independence of error terms was examined, to ensure our error terms do not relate to each other. The Durbin-Watson test was utilized to evaluate the independence of error terms, with a value of over three or under one suggesting an issue with independence of the error terms (Field, 2009). All values fell within the range of 1-3, indicating independence of error terms. The assumption of random, normally distributed residuals (normality) was evaluated in order to ensure the accuracy of relationships and the significance tests of the model (Field, 2009; Osborne & Waters, 2002). This was evaluated by looking at a histogram and P-P plots of the residuals, with a normal distribution on the histogram and a straight line on the P-P plot indicating this assumption is met. Next, the assumption of independent respondents was examined, as each response needs to come from a unique source. While the assumption of
independence of respondents will likely be met based on the online format of data collection alone, examination of the intraclass correlation of scores was conducted to ensure the assumption is met (Field, 2009). Finally, the assumption of linearity was assessed to ensure the outcome variable is related linearly to the independent variables, as a non-linear relationship may result in an under-estimation of the true relationship between the independent and dependent variables (Field, 2009; Osborne & Waters, 2002). Linearity was assessed by examining a plot of the residuals, with a straight line suggesting this assumption has been met.

After obtaining correlations, checking assumptions, and recoding variables, three sets of hierarchical linear regression analyses were conducted. Demographic variables such as age, sexual orientation, gender, and race were entered into the first block, to control for these variables. Religiosity was then be entered into the second step, to understand if religiosity positively relates to prejudice against gay, lesbian, and transgender individuals as expected (Hypothesis 1). Contact was entered into the third step, to understand whether religiosity and contact explain more of the variance in prejudice than religiosity alone, and to see if the relationship between religiosity and prejudice remains significant (Hypothesis 2). PRR was entered into the fourth step, to see if it also explains some of the variance of prejudice above and beyond contact and religiosity, and to see if the relationship between religiosity, contact, and prejudice remain significant (Hypothesis 3). Finally, the recoded interaction term of religiosity and PRR was entered into the fifth step, which represents the moderation effect, to understand if PRR moderates the relationship between religiosity and prejudice (Hypothesis 4).
Results were analyzed, with special attention given to comparing the three models for each type of prejudice to understand if each model improves the ability to explain variance in prejudice. For each step in the model, total R-squared was evaluated to understand how much of the variability in each type of prejudice is accounted for by each combination of independent variables. Adjusted R-squared was also be examined, with the expectation that these values will be close to the value of R-squared, suggesting better model generalizability (Field, 2009). F-ratios were also inspected to ensure each step in the model is significant, by inspecting the column labeled ‘Sig F Change’ for values less than .05 (Field, 2009). Special attention was given to the change in R-squared, to understand how much additional variance is explained as a function of each added independent variable above and beyond the variance predicted by previous variables. The coefficients table of the regression analysis was then inspected. The beta-values for each independent variable were examined to understand the directionality of prediction (whether positive or negative), and to understand what degree each independent variable may influence prejudice even when other independent variables are constant. For example, a b-value of -0.8 for contact would suggest that as contact increases by one unit, prejudice would decrease by 0.8 units. Significance was also inspected to ensure the model is reliable.

These results were interpreted in light of the study hypotheses, by evaluating the variance explained by each independent variable throughout each block of the model. First, I investigated if the demographic variables (entered into the first step) explained any of the variance in prejudice against SGM. Religiosity, entered into the second block, was initially evaluated to assess whether it explained variance for each type of prejudice
as expected (Hypothesis 1). Contact (entered into the third block) was then evaluated to see if it also explains variance for each type of prejudice as expected (Hypothesis 2). Change in R-squared was also inspected to see how much of the variance for each type of prejudice is uniquely explained by contact. Then, PRR (entered into the fourth block) was evaluated to see if it also explains variance for each type of prejudice as expected (Hypothesis 3), with special attention given to change in R-squared, to determine how much of the variance for each type of prejudice is uniquely explained by PRR after controlling for contact and religiosity. Finally, the recoded variable representing the interaction of religiosity and PRR was entered into the fifth step, to understand if PRR moderates the relationship between religiosity and prejudice. If this variable explains a significant amount of the variance of prejudice beyond what is explained by religiosity or PRR alone, then a moderation effect has been demonstrated (Baron & Kenny, 1986; Field, 2009).
CHAPTER III: RESULTS

Primary Analyses

Descriptive Statistics and Correlations

Descriptive statistics for all primary study measures are listed in Table 2. Pearson correlations between study variables are listed in Table 3. Overall, most study variables had correlations that fit with model hypotheses. Correlations between gay prejudice, lesbian prejudice, and transgender prejudice were high (ranging from .79 to .97), however this is to be expected given the close similarity of these variables.

Prejudice Against Gay Individuals

For prejudice against gay individuals, demographic variables (Block 1: age, race, gender, sexuality, level of education) explained about 21% of the total variance ($R^2 = .207, F[8, 153] = 4.98, p < .001$). Religiosity (Block 2) explained an additional 7.9% of the variance (change $R^2 = .079, R^2 = .286, F[1, 152] = 16.8, p < .001$), and was shown to positively relate to prejudice overall ($\beta = .21, p = .005$). Overall contact with gay individuals (Block 3) explained an additional 16.3% of the variance (change $R^2 = .163, R^2 = .448, F[1, 151] = 44.61, p < .001$) and contact was shown to negatively relate to prejudice ($\beta = -.39, p < .001$). As predicted, PRR (Block 4) explained an additional 3.8% of the variance as well (change $R^2 = .038, R^2 = .486, F[1, 150] = 10.973, p = .001$), and was shown to negatively relate to prejudice ($\beta = -.24, p = .001$). However, the interaction
term (Block 5, Religiosity x PRR) was not significant (change $R^2 = .000$, $R^2 = .486$, $F[1, 149] = .12$, $p = .730$).

**Prejudice Against Lesbian Individuals**

For prejudice against lesbian individuals, demographic variables (Block 1: age, race, gender, sexuality, level of education) explained about 23% of the total variance ($R^2 = .228$, $F[8, 153] = 5.65$, $p < .001$). Religiosity (Block 2) explained an additional 8% of the variance (change $R^2 = .08$, $R^2 = .308$, $F[1, 152] = 17.65$, $p < .001$), and it was found to positively relate to prejudice against lesbian individuals ($\beta = .20$, $p = .005$). Overall contact with lesbian individuals (Block 3) explained an additional 15.8% of the variance (change $R^2 = .158$, $R^2 = .467$, $F[1, 151] = 44.82$, $p < .001$), and was also shown to negatively relate to prejudice ($\beta = -.37$, $p < .001$). As predicted, PRR (Block 4) explained an additional 4.8% of the variance as well (change $R^2 = .048$, $R^2 = .515$, $F[1, 150] = 14.98$, $p < .001$), and also was found to negatively relate to prejudice ($\beta = -.27$, $p < .001$). However, the interaction term (Block 5, Religiosity x PRR) was not significant (change $R^2 = .000$, $R^2 = .515$, $F[1, 149] = .088$, $p = .767$).

**Prejudice Against Transgender Individuals**

In regards to prejudice against transgender individuals, demographic variables (Block 1: age, race gender, sexuality, level of education) explained about 16.7% of the total variance ($R^2 = .167$, $F[8, 150] = 4.06$, $p < .001$). Religiosity (Block 2) explained an additional 8.4% of the variance (change $R^2 = .084$, $R^2 = .251$, $F[1, 149] = 16.7$, $p < .001$), and like the other two models, was found to positively relate to prejudice towards transgender individuals ($\beta = .22$, $p = .009$). Overall contact with transgender individuals (Block 3) explained an additional 6.2% of the variance (change $R^2 = .062$, $R^2 = .31$, $F[1,
148] = 13.34, \( p < .001 \), and was found to negatively relate to prejudice (\( \beta = -.25, p < .001 \)). As predicted, PRR (Block 4) explained an additional 6.5% of the variance as well (change \( R^2 = .065 \), \( R^2 = .38 \), \( F[1, 147] = 15.38, p < .001 \)). PRR had the strongest relationship with prejudice, as it was shown to negatively relate to prejudice (\( \beta = -.30, p < .001 \)). However, the interaction term (Block 5, Religiosity x PRR) was not significant (change \( R^2 = .002 \), \( R^2 = .38 \), \( F[1, 146] = .5, p = .48 \)). Primary study results are listed in Table 4.
CHAPTER IV: DISCUSSION

Based on the results of this study, the relationship between religiosity among Christians in America and prejudice towards sexual and gender minorities still persists today. While there has been much research into the underlying causes of prejudice, as well as general mitigating factors, there has been little research into specific factors that may reduce prejudice within specific religious populations. The current study sought to address this gap by investigating whether postconventional religious reasoning would be associated with reduced prejudice towards sexual and gender minorities, even after controlling for well-known associated variables such as contact and religiosity, and to identify if there were any interaction effects between PRR and religiosity.

It was hypothesized that religiosity would be positively associated with prejudice against gay, lesbian, and transgender individuals (H1). This hypothesis was supported for all three regression models, with religiosity explaining around 8% of the total variance for the three models. This finding was not surprising given previous research findings showing the association between religiosity and prejudice (e.g., Herek, & McLemore, 2013), but it is worth noting that religiosity explained a similar amount of variance in prejudice across the three models (7.9% for prejudice against gay individuals, to 8.4% for transgender individuals). Thus, it appears the association between religiosity and prejudice against SGM still remains even after examining other factors hypothesized to influence SGM prejudice, such as contact and PRR. It should also be noted that
religiosity produced the lowest beta values for all three models, when compared to contact and PRR. Thus, despite the significant amount of variance explained by religiosity, it may have a weaker relationship to SGM prejudice compared to more unique and varying factors, such as an individual’s amount of contact or capacity for PRR. This result may further suggest the importance of studying more idiographic factors related to faith development and faith belief when exploring the relationship between religious belief and SGM prejudice.

It was also hypothesized that contact with the relevant outgroup would be negatively associated with prejudice against SGM (H2). This hypothesis was also supported for all three regression models. Contact with outgroups has been one of the most studied constructs that strongly relates to reductions in prejudice (Pettigrew, 1998). Examination of the standardized beta coefficients showed that contact with the relevant outgroup had the strongest effects of any single variable for two of the three regression models, with contact demonstrating the strongest effect on prejudice reduction towards gay and lesbian individuals, but not for prejudice reduction toward transgender individuals. These overall results are unsurprising given the large amount of research demonstrating the longstanding, strong relationship between prejudice and contact with an outgroup (Pettigrew & Tropp, 2006). R-squared values from this study for the relationship between contact with lesbian and gay individuals and prejudice (.16 for both) closely resemble R-squared results from past studies (.18 for gay prejudice, .16 for lesbian prejudice; Herek, 2009).

However, it is notable that contact demonstrated a weaker relationship to prejudice against transgender individuals relative to prejudice against lesbian and gay
individuals. In this study, R-squared values for the relationship between transgender contact and prejudice reduction (.06) were noticeably smaller compared to previous studies (.25 to .31; Tadlock et al., 2017). This result may be due in part to the frequency of this identity group, as recent statistics suggest that 3.5% of the US population identifies as lesbian, gay, or bisexual, whereas only 0.6% of the population identifies as transgender (Flores, Herman, Gates, & Brown, 2016). In addition, many transgender individuals often report concealing their transgender identity (from 51% to over 90% of transgender individuals from a recent cross-national European sample), which has been shown to negatively affect overall well-being, yet also serves a protective function against stigma and discrimination (Bränström & Pachankis, 2021). As a result, a person may not be aware they are interacting with a transgender individual who may be concealing their identity. These factors are further reflected in overall mean scores of contact from this study, as amount of contact with lesbian and gay individuals ($M = 15.4$) was significantly higher than amount of overall contact with transgender individuals ($M = 7.6$). Given the lower likelihood of an individual encountering or knowing a transgender individual, or of unknowingly encountering a transgender individual who may be concealing their gender identity to protect against stigma, the effects of contact on transgender prejudice may thus differ compared to other SGM identities. In addition, a transgender individual who is not actively concealing their identity may appear or dress in a gender-nonconforming way, thus they may be more visible to those who hold more traditional gender norms, compared to an individual of a minority sexual identity. These differences may be recognizable before an individual even interacts with a transgender person, and thus they may be primed to be thinking of gender-norm violations as they
interact with transgender individuals, possibly raising the likelihood of negative contact (Altemeyer, 1996; Graf, Paolini, & Rubin, 2014).

It was also hypothesized that PRR would be negatively associated with prejudice towards SGM even after controlling for religiosity and contact (H3), which was the case for all three models. PRR had the second strongest overall effect size on prejudice towards gay and lesbian individuals and had the strongest overall effect size on prejudice towards transgender individuals. These results are surprising, as it was assumed contact would have the strongest effect on prejudice for all three models, given the robust research literature supporting the contact-prejudice reduction connection (Pettigrew, 1998). One possible explanation is the relative recency of transgender activism, which surged around the beginning of the early 2000’s, while gay and lesbian social activism came to the forefront of American social discourse much earlier around the 1960’s/1970’s (American Psychological Association, 2009). The relative recency of transgender issues suggests that the religious prescriptions around gender identity may not have been challenged as often, or for as long, as sexual identity norms. Thus, contact may not act to reduce prejudice as much as would be expected, as though contact may occur, Christian individuals may still hold their religious prescriptions about the morality of gender identity and roles in the forefront of their minds during this contact, which has been demonstrated to increase the chance of ‘negative contact’ (Altemeyer, 1996; Graf, Paolini, & Rubin, 2014). Individuals high in PRR are thought to be more open minded and less bound to specific religious edict or church, while also exhibiting a greater capacity for empathy and perspective taking, which likely explains why they may be
quicker to accept nonbinary conceptions of gender identity that may differ from the religious teachings of some churches.

It was also hypothesized that PRR would moderate the relationship between religiosity and prejudice against SGM (H4). More specifically, it was predicted that the perspective taking, empathy, and open-mindedness associated with higher levels of PRR would act as a protective factor, reducing the amount of prejudice towards SGM from those who hold their religion as important and who engage in various spiritual disciplines. However, this hypothesis was not supported in any of the regression models, as none of the interaction terms explained any additional variance beyond the previous variables in the model, suggesting that PRR does not moderate this relationship. It should also be noted that there was a negative correlation between religiosity and PRR, suggesting that more religious individuals tended to exhibit lower scores on PRR. This was not anticipated, as it was predicted that the importance of religion or amount of engagement in spiritual behaviors would not strongly relate to one’s sense of open-mindedness, perspective taking, or empathy related to faith views. This negative correlation could suggest that as religion grows in importance and individuals engage in higher amounts of spiritual practices that mirror their religious community, they may be less open to other perspectives and less open to ways of life that differ from the prescriptions of the religious sect they follow. Conversely, as one considers other perspectives and grows in their capacity to engage in empathy and open-mindedness, the importance of a single religious code to their lives may wane, and their engagement in specific spiritual behaviors or a specific religious community may also decrease.
This study’s results also provide initial evidence into the possible protective effects of PRR as it relates to prejudice against SGM. From a practical standpoint, these findings may aid clinicians in working with clients whose Christian religious identity may be most salient, and who may exhibit prejudice towards SGM. Depending on the nature of the clinical work, counselors could use Fowler’s Faith Development theory broadly, and PRR specifically, to help their clients understand the cognitive, affective, and relational aspects of their own faith struggles, while also challenging more rigidly held views that may be problematic or contribute to existing prejudice or overall distress. These results may also be helpful in conducting family therapy when working with religious adults who may be unaffirming of their child’s SGM identity. This work may be especially important, as it has been estimated that somewhere between 11%-40% of homeless youth identify as LGBT, and LGBT youth are 2.2 times more likely to experience homelessness due to conflict and rejection from family members, often on religious grounds (Morton et al., 2018). Counselors could again use Fowler’s theory, while also exploring how to help their clients to experience a greater level of PRR, to reduce the rigidity of their faith ideals and likely reduce prejudice towards SGM, which may in turn reduce the rates of LGBT youth becoming homeless due to family rejection. These results may also be helpful for faith leaders in developing strategies for reducing prejudice or increasing open-mindedness/acceptance of more marginalized identities within their congregations, from a faith development framework. In general, clinicians should be mindful of their religious clients’ level of faith development and PRR, how it may influence their perceptions of others and the world, and how this may contribute to their overall distress.
Limitations and Future Directions

As results from this study are interpreted, several key limitations should be noted. First, this study used a cross-sectional design, making it impossible to interpret these results regarding cause and effect. Future research in this area should address this shortcoming with other study designs, such as a longitudinal study to measure PRR and other factors related to prejudice across different time points.

There are also limitations based on the study sample. Almost 90% of our sample identified as white and heterosexual, suggesting concerns around the generalizability of these findings to individuals with other social identities. In addition, this study was primarily focused on investigating prejudice towards SGM from an American Christian sample, and thus results may not be generalizable to other religious traditions or national contexts. Our sampling strategy (snowball sampling through online forums) also serves as a study limitation, as this study utilized willing volunteers who replied to an email request, further limiting generalizability. However, it is worth noting that this study had a fairly diverse sample regarding age (with a standard deviation of 16.6), and level of education.

There are also limitations with the study instrumentation. The history of research on faith development has not been without instrumentation difficulties, as Fowler’s theory of faith development is ambitious in its scope and assesses many constructs that are difficult to measure. Given the practical limitations of administering a comprehensive instrument like the Faith Development Interview, The Revised Faith Development Scale was used to measure one theorized related factor to higher faith development (PRR). While this scale showed promising initial psychometric properties, it is still a new
instrument and thus will need to be examined in additional empirical literature to better understand its overall reliability and validity. While the RFDS allows researchers to obtain a quantitative score of PRR, its concise format means that many other important factors related to higher stages of faith development in Fowler’s theory, and how they relate to PRR and prejudice towards SGM, are still unclear. Future research should also explore the RFDS alongside other measures that tap into different components of Fowler’s faith development theory, to understand if PRR relates to these various constructs in theoretically expected directions. Finally, PRR and other related aspects of Fowler’s theory should be investigated using statistical designs that allow for model testing and that examine the multidirectional relationships between several related variables. To the author’s knowledge, no study has yet used these advanced statistical designs, yet such a design would be helpful for clarifying the relationships between several faith development-related factors to understand if they relate in theoretically expected ways as proposed by Fowler.

Finally, it should be noted that several study variables, including prejudice, have been difficult to study in the past due to participant pressure to respond in socially desirable ways (Anderson, 2019). While some instruments for measuring prejudice were chosen specifically to address this (such as the MHS’s design as a measure of subtle/nuanced forms of prejudice), these results may nevertheless still be impacted by pressure to answer surveys in socially desirable ways, resulting in participants answering survey questions in a way that conceals their true attitudes towards SGM. In addition, participants may have been pulled to endorse PRR at a lower level than they may actually exhibit given the continued social pressure to adhere to group (e.g., church) norms and
possible hesitance to challenge these norms. However, despite this possible pressure to minimize actual feelings of prejudice or to endorse lower-than-accurate levels of PRR, PRR was still shown to negatively relate to all three prejudice conditions significantly.

**Conclusion**

This study’s findings suggest that PRR does significantly impact an individual’s level of prejudice towards SGM, even beyond other well-studied variables (i.e. religiosity, contact). These findings also support the suggestions from other prejudice researchers that intrapersonal factors (such as empathy and openness) play an important role in influencing levels of individual prejudice (Pettigrew & Tropp, 2008), and that studying different types of prejudice towards different groups simultaneously may yield unique findings (Paluck et al., 2018; Worthen, 2013). Future research should continue to explore other factors related to faith development that may reduce the likelihood of prejudice against sexual and gender minorities, as well as to test interventions aimed at increasing these identified protective factors (such as PRR).
### Table 1: Demographics of Participants

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<th>Gender</th>
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<th>Percentage</th>
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<tbody>
<tr>
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<tr>
<td>Woman</td>
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<tr>
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<td>2.3</td>
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<tr>
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<td>5.2</td>
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<tr>
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Table 2

*Descriptive Statistics for Study Measures*

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For all scales, higher scores are indicative of a higher endorsed value for the measured construct. LG_Contact = contact with gay and lesbian individuals. Trans_Contact = contact with transgender individuals. PRR = Postconventional Religious Reasoning. GayPrej = prejudice towards gay individuals. LesPrej = prejudice towards lesbian individuals. TransPrej = prejudice against transgender individuals.
Table 3

Correlations Between All Primary Study Variables

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*p < .05, **p < .01. For all scales, higher scores are indicative of a higher endorsed value for the measured construct. LG_Contact = contact with gay and lesbian individuals. Trans_Contact = contact with transgender individuals. PRR = Postconventional Religious Reasoning. GayPrej = prejudice towards gay individuals. LesPrej = prejudice towards lesbian individuals. TransPrej = prejudice against transgender individuals.
Table 4

Results of the Multiple Regression Analyses

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Lesbian Prejudice
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*p < .05. **p < .01. PRR = Postconventional Religious Reasoning, RxPRR = Religiosity and Postconventional Religious Reasoning Interaction variable.
REFERENCES


increased prejudice more than positive contact predicts reduced prejudice". *Personality and Social Psychology Bulletin*. 38 (12): 1629–1643.


http://hirr.hartsem.edu/cgi-bin/mega/db.pl?db=default&uid=default&view_records=1&ID=*&sb=4&State=KY


http://dx.doi.org/10.1037/sgd0000334


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Appendix 1: Study Instruments/Items

Demographics: age, race, ethnicity, religious affiliation, sexual orientation, gender identity, national or state origin, and education level

- Gender identity: (select all that apply)
  - Male, Female, nonbinary (e.g., genderqueer), other _____

- Ethnicity: Please select all the labels that best describe your racial/ethnic identity
  - white/caucasian, black/african, hispanic/latino, asian, native hawaiian or other pacific islander, american indian or alaskan native, multiethnic, other____

- National Origin:
  - If in the USA, please select your state:

- Religious Affiliation:
  - (10 largest denominations according to Pew Research Forum, 2015):
    - Catholic, Baptist/Southern Baptist, Methodist, Lutheran, Presbyterian, Pentecostal, Episcopalian, Mormon, Orthodox Christian, Jehovah’s Witness, Other ______
    - Include Jewish, Muslim, Buddhist, Hindu, Atheist, and Agnostic?

- What is your age:

- Sexual orientation:
  - heterosexual, gay, lesbian, bisexual, pansexual, asexual, other _____

- What is your level of education?
o Did not attend high school, some high school, high school graduate or GED, technical school graduate, some college, Associates degree, bachelors degree, masters degree, doctoral degree

Attention questions (to be randomly inserted into survey):

- For this question, please respond by selecting ‘3’
- For this question, please respond by selecting ‘1’
- I was born on February 30th. True or False

**Intergroup contact quantity:** From Islam & Hewstone’s (1993) Intergroup Contact Quantity and Contact Quality Scale (CQCQ)

How much contact do you have with [outgroup]….

1. at college?
2. as neighbors?
3. as close friends?
   *Scaled from 1 (none at all) to 7 (a great deal)*

How often have you...

4. ...engaged in informal conversations with outgroup members
5. ...visited the homes of outgroup members
   *Scaled from 1 (not at all) to 7 (very often)*
Religiosity: From Koenig et al. (1997) Duke University Religion Index (DUREL)

‘Please circle the number in front of the answer that most accurately describes your usual behavior or belief (circle only one answer for each question).’

- How often do you attend church or other religious meetings?

1. More than once/week
2. Once a week
3. A few times a month
4. A few times a year
5. Once a year or less
6. Never

- How often do you spend time in private religious activities, such as prayer, meditation or Bible study?

1. More than once a day
2. Daily
3. Two or more times/week
4. Once a week
5. A few times a month
6. Rarely or never

‘The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.’

- In my life, I experience the presence of the Divine (i.e., God)

1. Definitely true of me
2. Tends to be true
3. Unsure
4. Tends not to be true
5. Definitely not true

• My religious beliefs are what really lie behind my whole approach to life.
1. Definitely true of me
2. Tends to be true
3. Unsure
4. Tends not to be true
5. Definitely not true

• I try hard to carry my religion over into all other dealings in life.
1. Definitely true of me
2. Tends to be true
3. Unsure
4. Tends not to be true
5. Definitely not true

Scoring: Reverse score all items; score range for ORA (1) is 1-6, NORA (2) is 1-6, and IR (3-5) is 3-15; total score range 5-27

Postconventional Religious Reasoning: From Harris & Leak’s (2013) Revised Faith Development Scale
This survey asks you to describe how you look at religious issues. For each statement, rate how much this way of looking at religious issues is like yours, using the following scale. Circle the number that best describes you.

1 2 3 4 5

Very unlike me Very much like me

* Items 1, 3, 5, 8, 12, 13, 15, and 16 are reverse scored.

1. My religious orientation comes primarily from my church and the people who first taught me about my faith.

2. It is not important that I keep the same religious views as my family of origin.

3. The religious traditions and beliefs I grew up with are very important to me and do not need changing.

4. My religious orientation comes primarily from my own efforts to analyze and understand God.

5. I would rather not be exposed to other religions.

6. The religious traditions and beliefs I grew up with have become less and less relevant to my current religious orientation.

7. I believe that my church has much to offer but that other religions can also provide many religious insights.

8. I believe totally (or almost totally) the teachings of my church.

9. I am interested in learning more about other religions.

10. It is very important for me to critically examine my religious beliefs and values.
11. As my religious views have changed, I find that I sometimes disagree with my family of origin about my faith.

12. It is rare for me to disagree with church leadership or my family of origin about my faith.

13. It is very important that my faith is very much like the faith of my parents and family of origin.

14. I find myself disagreeing with my church over numerous aspects of my faith.

15. I believe that my church offers a full insight into what God wants for us and how we should worship God.

16. It is very important for me to accept the religious beliefs and values of my church.

*Prejudice Against Atheists: From Gervais’ (2011) Negative Attitudes toward Atheists Scale (NAAS)*

*Items 2 and 6 are reverse scored.*

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1. I would be uncomfortable with an atheist teaching my child

2. I strongly believe that church and state should be kept separate

3. Societies function better if everyone believes in God

4. Religion facilitates moral behavior in a way that nothing else can

5. I would prefer to spend time with people who are religious believers
6. I would not at all be bothered by a Prime Minister who did not have religious beliefs.

7. In times of crisis, I am more inclined to trust people who are religious.

*Prejudice against transgender individuals:* From Tebbe, Moradi, & Ege’s (2014), Genderism and Transphobia Scale – Revised Short Form (GTS-R-SF). This study will use the Genderism/Transphobia subscale. Items are rated on a 7-point Likert-type scale, with response choices ranging from 1 (strongly agree) to 7 (strongly disagree).

1. If I found out that my best friend was changing their sex, I would freak out.

2. If a friend wanted to have his penis removed in order to become a woman, I would openly support him. (rev)

3. Men who cross-dress for sexual pleasure disgust me.

4. Women who see themselves as men are abnormal.

5. I would avoid talking to a woman if I knew she had a surgically created penis and testicles.

6. A man who dresses as a woman is a pervert.

7. Sex change operations are morally wrong.

8. It is morally wrong for a woman to present herself as a man in public.

*Prejudice Against Gay and Lesbian Individuals:* From Morrison and Morrison’s (2002) Modern Homonegativity Scale (MHS):
Modern Homonegativity Scale – Gay Men (MHS-G; Morrison & Morrison, 2002)

1. Many gay men use their sexual orientation so that they can obtain special privileges.
2. Gay men seem to focus on the ways in which they differ from heterosexuals, and ignore the ways in which they are the same.
3. Gay men do not have all the rights they need.*
4. The notion of universities providing students with undergraduate degrees in Gay and Lesbian Studies is ridiculous.
5. Celebrations such as “Gay Pride Day” are ridiculous because they assume that an individual’s sexual orientation should constitute a source of pride.
6. Gay men still need to protest for equal rights.*
7. Gay men should stop shoving their lifestyle down other people’s throats.
8. If gay men want to be treated like everyone else, then they need to stop making such a fuss about their sexuality/culture.
9. Gay men who are “out of the closet” should be admired for their courage.*
10. Gay men should stop complaining about the way they are treated in society, and simply get on with their lives.
11. In today’s tough economic times, Americans’ tax dollars shouldn’t be used to support gay men’s organizations.
12. Gay men have become far too confrontational in their demand for equal rights.

Modern Homonegativity Scale – Lesbian Women

(MHS-L; Morrison & Morrison, 2002)

1. Many lesbians use their sexual orientation so that they can obtain special privileges.
2. Lesbians seem to focus on the ways in which they differ from heterosexuals, and ignore the ways in which they are the same.

3. Lesbians do not have all the rights they need.*

4. The notion of universities providing students with undergraduate degrees in Gay and Lesbian Studies is ridiculous.

5. Celebrations such as “Gay Pride Day” are ridiculous because they assume that an individual’s sexual orientation should constitute a source of pride.

6. Lesbians still need to protest for equal rights.*

7. Lesbians should stop shoving their lifestyle down other people’s throats.

8. If lesbians want to be treated like everyone else, then they need to stop making such a fuss about their sexuality/culture.

9. Lesbians who are “out of the closet” should be admired for their courage.*

10. Lesbians should stop complaining about the way they are treated in society, and simply get on with their lives.

11. In today’s tough economic times, Americans’ tax dollars shouldn’t be used to support lesbian’s organizations.

12. Lesbians have become far too confrontational in their demand for equal rights.

______________________________________________________________________

Note: * represents items to be reverse scored
CURRICULUM VITAE

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University of Louisville
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(209) 366-4575

EDUCATION

Ph.D. - Counseling Psychology - University of Louisville
7/2021

University of Utah Counseling Center
7/2021
8/2020 - 7/2021
APA-Accredited Predoctoral Internship

M.Ed. - Counseling Psychology - University of Louisville
6/2018
8/2015 -

B.A. - Psychology - California State University, Chico
12/2012
8/2009-

TEACHING EXPERIENCE

Identity and Inclusivity (EDPS 3010), Co-Instructor
1/2021 -
Current
University of Utah, Salt Lake City, UT
Supervisor: Karen Cone-Uemura, Ph.D.
Co-taught an Identity and Inclusivity introductory course (all online) for 16 undergraduates
Led class discussions around issues of culture, identity, and power
Bolstered existing course materials with additional media discussions and experiential exercises
Updated course curriculum to better reflect evidence-based theories and principles
Worked alongside another co-instructor to use interaction patterns to model concepts
Experience using Zoom teleconference software for course instruction

**Human Development and Learning (EDTP 107), Instructor on Record**  
8/2018 - 5/2019
University of Louisville, Louisville KY
Supervisor: Sherri Brown, Ph.D.
Lead instructor for four sections (two per semester) of human development and learning for education undergraduate majors
Experience lecturing, facilitating discussion, leading experiential exercises
Coordinated observational placements for all students with other education professionals
Updated course curriculum to better reflect evidence-based theories and principles
Updated course curriculum to infuse more topics related to multiculturalism and identity
Received high feedback ratings from students in all classes

**Group Process and Practice (ECPY 650), Teaching Assistant**  
6/2019 - 7/2019
University of Louisville, Louisville, KY
Supervisor: Eileen Estes, Ph.D.
Supervised students practicing the provision of process and skills-based group therapy
Provided individualized feedback and recommendations to students

**Psychological Assessment II (ECPY 649), Teaching Assistant**  
1/2018 - 5/2018
University of Louisville, Louisville KY
Supervisor: Amanda Mitchell, Ph.D.
Supervised scoring and interpretation of psychological personality assessments
Presented material to students and led discussion groups

**Differential Diagnosis & Treatment (ECPY 621), Teaching Assistant**  
8/2017 - 12/2017
University of Louisville, Louisville, KY
Supervisor: Laurie McCubbin, Ph.D.
Supervised students in the diagnosis process
Gave direct feedback to case conceptualizations, diagnoses, and treatment recommendations

**Psychological Assessment (ECPY 648), Teaching Assistant**  
8/2017 - 12/2017
University of Louisville, Louisville, KY
Supervisor: Amanda Mitchell, Ph.D.
Supervised the administration and scoring of the WAIS-IV and the WISC-V
Supervised live administration of the WAIS-IV and WISC-V
Graded and corrected WAIS-IV and WISC-V record forms

**Differential Diagnosis & Treatment (ECPY 621), Teaching Assistant** 1/2017 - 5/2017
University of Louisville, Louisville, KY
Supervisor: Katy Hopkins, Ph.D.
  Supervised students in the diagnosis process
  Gave direct feedback to case conceptualizations, diagnoses, and treatment recommendations

**Psychological Assessment (ECPY 648), Teaching Assistant** 3/2017 - 5/2017
University of Louisville, Louisville, KY
Supervisor: Patrick Pössel, Dr. rer. Soc.
  Supervised the peer review process of administering and scoring the WISC-V
  Graded and corrected WISC-V record forms

**RESEARCH EXPERIENCE**

**Lead Researcher - Dissertation** 5/2019 - Current
  • The Influence of Religiosity, Intergroup Contact, and Postconventional Religious Reasoning on Prejudice Against LGBTQ and Atheists
    • Dissertation Chair: Dr. Mark Leach
      ○ Committee members: Dr. Amanda Mitchell, Dr. Jason Immekus, Dr. Ken Linfield
      ○ Dissertation proposal approved on 10/17/2019
      ○ Dissertation defense approved on 7/14/2021

**Graduate Research Assistant** 1/2018 - Current
  • Meta Analytic-SEM of Beck’s Cognitive Theory of Depression, Rumination, and Personality Variables
    • In collaboration with Dr. Jeff Valentine & Dr. Patrick Pössel
Graduate Research Assistant 7/2016 - 7/2017

- 360 Degree Assessments and Feedback: Benefits and Limitations for Management
  - In collaboration with Dr. Ray Haynes

Graduate Research Assistant 7/2016 - 7/2017

- The Behavioral Engagement Scale for Elementary Students: Development and Validation
  - In collaboration with Dr. Jason Immekus

Lead Researcher 7/2016 - 10/2017

- Atheist Intergroup Forgiveness of Prejudice from Religious Individuals
  - Principal Investigator, in collaboration with Dr. Mark Leach

Lead Researcher - Masters Thesis 8/2015 - Current

- Investigating the Predictive Power of Self-Conscious Emotions in the Process Model of Self-Forgiveness
  - Principal Investigator, in collaboration with Dr. Mark Leach

Graduate Research Assistant 4/2016 - 6/2017

- Significant Predictors of Korean College Students’ Subjective Well-Being
  - Coauthor, in collaboration with Dr. Namok Choi

Research Assistant 9/2013 - 8/2015

- The Five-Factor Finder: An Online Database that Automatically Codes Trait Words into the Five-Factor Model
  - Coauthor, working under Dr. Michael Ennis
Research Assistant 8/2014 - 7/2015

- Exploring Culturally Sensitive Oral Health Messages Among Mexican American Mothers
  
  - Coauthor, working under Dr. Theodore Singelis
    - Grant funded under the National Institute of Dental and Craniofacial Research

Research Assistant 8/2014 - 8/2015

- The Intergenerational Transmission of Intimate Partner Violence
  
  - Coauthor, working under Dr. Kyle Horst

PRESENTATIONS


Sittman, C., Huckaby, L., Ennis, M., & D’Arcy, T. (2015). The Five-Factor Finder: An Online Database that Automatically Codes Trait Words into the Five-
Factor Model. *Symposium presentation at the 95th annual Western Psychological Association Conference, Las Vegas, Nevada.*

**CLINICAL EXPERIENCE**

**Doctoral Intern, University of Utah Counseling Center** 8/2020 - Current  
University of Utah, Salt Lake City, UT  
Conducted individual therapy for a variety of issues with a college student population  
Balanced a case-load of ~38 clients, all through telehealth services  
Led weekly interpersonal process groups, and responsible for conducting two weekly intakes  
Supervised two doctoral student trainees in their own work with clients  
Participated in co-therapy with three staff psychologists on six couples cases  
Administered psychological assessments and composed integrative reports  
Collaborated with various offices on campus to organize outreach presentations  
Led weekly drop in meditations and Feel Better Now workshops  
Served on the Outreach committee and the Mindfulness Center committee (Fall 2020)  
Received Level 1 training in the Gottman Method of couples counseling (by July 2021)

New Albany, IN  
Conducted individual therapy at a private practice  
Worked with complex trauma, depression, anxiety, delusional disorders, sexual abuse  
Administered two full psychological evaluations and clinical interview assessments a week  
Administered assessments for fitness for medical procedures (e.g., spinal cord stimulator)

**Therapist, Bellarmine University Counseling Center** 8/2018 - 5/2019  
Louisville, KY  
Conducted individual therapy at a college counseling center  
Conducted assessments for trauma, mood disorders, personality disorders  
Experience working with GAD, MDD, Borderline personality disorder, Bipolar disorder  
Served as liaison/consultant to the Office of Military and Veteran Services  
Conducted semi-structured intake assessments for new clients  
Consulted with other clinic workers for treatment planning and best treatment practices  
Participated in weekly case management meetings, individual and group supervision
Therapist, Spalding University Counseling Center 8/2017 - 9/2018
Louisville, KY
Conducted individual therapy at a college counseling center
Experience working with PTSD, social anxiety, depression, generalized anxiety disorder
Conducted assessments for learning disorders, ADHD, psychotic symptoms, mood disorders
Composed integrated assessment reports for the university resource center
Conducted semi-structured intake assessments for new clients
Consulted with other clinic workers for treatment planning and best treatment practices
Participated in weekly case management meetings, individual and group supervision

Therapist, Couples and Family Therapy Clinic 8/2017 - 5/2018
Cardinal Success Program, Louisville, KY
Conducted evidence-based couples therapy under live supervision
Conducted co-therapy of a couple with a social work graduate student
Live supervision of other students conducting therapy and provided mid-session feedback

Psychological Test Administrator 8/2016 - 8/2018
Cardinal Success Program, Louisville, KY
Administered psychological tests for a variety of adult and child cases, including qualifications for institutional accommodations, NCAA eligibility, vocational rehabilitation, diagnostic clarification (PTSD, anxiety, depression). See assessment list below

Therapist, Cardinal Success Program 8/2016 - 8/2017
NIA Center, Louisville, KY
Conducted individual therapy with a client caseload at a community mental health center
Experience with Bipolar II, suicidality, depression, anxiety, couples and family counseling
Consulted with other clinic workers for treatment planning and best treatment practices
Routinely administered outcome assessments for tracking client progress
Conducted semi-structured intake assessments for new clients
Participated in weekly case management meetings, individual and group supervision

TIM & SARA Depression Prevention Program 8/2016 - 5/2017
The Academy @Shawnee, Louisville, KY
Conducted CBT-based depression prevention groups for freshmen students
Engaged in both individual and group supervision

**Instructional Healthcare Paraprofessional** 8/2013 - 6/2014
Chico Unified School District
Worked as a one-on-one aide with a student on the Autism spectrum
Experience with implementing behavioral interventions
Regularly consulted BCBA and other education professionals to coordinate care

**Aquatics Manager** – NAF Atsugi, Japan 5/2013 - 8/2013
Department of Defense – University of Northern Iowa
Managed an installation-wide aquatics program on a US Navy base in Japan
Experience working with both children and adults with disabilities

**Child Development Center Intern** - USAG Bamberg, Germany 3/2013 - 5/2013
Department of Defense – University of Northern Iowa
Worked in a child development center on a US Army installation in Germany
Experience working with both children and adults with disabilities

**Aquatics Intern** - Camp Foster, Okinawa, Japan 5/2012 - 8/2012
Department of Defense – University of Northern Iowa
Worked with an installation wide aquatics program on a US Marines base in Japan
Experience working with both children and adults with disabilities

**ASSESSMENT EXPERIENCE**

**Intelligence/IQ:**

- Wechsler Adult Intelligence Scale - IV (WAIS IV)
- Wechsler Intelligence Scale for Children - V (WISC-V)
- Kaufman Brief Intelligence Test, 2nd edition

**Achievement:**
- Wechsler Individual Achievement Test - III (WIAT-III)
- Woodcock Johnson Tests of Achievement, 4th edition
- Kaufman Test of Educational Achievement, 3rd edition (KTEA 3)
- Wide-Range Achievement Test 4 (WRAT 4)

**Personality/Psychopathology:**

- Personality Assessment Inventory (PAI)
- Minnesota Multiphasic Personality Inventory 2 -RF (MMPI 2-RF)
- Millon Clinical Multiaxial Inventory IV (MCMI-IV)
- Millon Clinical Multiaxial Inventory III (MCMI-III)
- Behavior Assessment System for Children, Third Edition (BASC-3)

**Issue-specific / Other:**

- Conners Continuous Performance Test 3 (CPT-3)
- Conners Continuous Auditory Test of Attention (CATA)
- Adult Attention Deficit Disorder Evaluation Scale- Revised (A-ADDES-RV)
- Brown Executive Function/Attention Scales
- Wechsler Memory Scale (WMS-IV)
- Vineland Adaptive Behavior Scales
- Adaptive Behavior Assessment System, 3rd edition (ABAS 3)
- State-Trait Anger Experiences Inventory, 2nd edition (STAXI-2)
- Trauma Symptom Inventory 2 (TSI 2)
● Trauma Symptom Checklist for Children (TSCC)
● Thematic Apperception Test (TAT)
● Rotter Incomplete Sentence Blank (RISB)
● PTSD Checklist for the DSM-V (PCL-5)
● Beck Depression Inventory II (BDI-II)
● Beck Anxiety Inventory (BAI)
● State-Trait Anxiety Inventory (STAI)
● Color Trails Test (CTT)
● Bender-Gestalt Recall/Visual Motor Scales
● Beery-Buktencia Developmental Test of Visual-Motor Integration
● Child Abuse Potential Index
● Diagnostic Interview for Anxiety, Mood, and Obsessive-Compulsive and Related Neuropsychiatric Disorders (DIAMOND)

PROFESSIONAL SERVICE

  ○ Engaged in regular meetings for planning conference logistics
  ○ Involved in the selection of keynote and conference speakers
  ○ Developed conference materials, including the conference program
  ○ Developed content for the conference website
○ Reviewed conference presentation and poster proposals

○ Worked on coordinating transportation/lodging/dining options

○ Composed materials for conference event

○ Worked as a coordinator for registration on conference dates

● Campus representative, Student Affiliates of Division Seventeen (SAS) 6/2018 - 5/2019

  ○ Attended monthly meetings to discuss campus needs and division initiatives

  ○ Coordinated with other students to create a SAS student social at the Great Lakes Conference

● Guest Lecturer, Differential Diagnosis & Treatment (ECPY 621) 3/2019

  University of Louisville, Louisville, KY
  Supervisor: Laurie McCubbin, Ph.D.
  Presented on Acceptance and Commitment Therapy to a class of graduate students

● Guest Lecturer, Psychological Assessment II (ECPY 649) 3/2019

  University of Louisville, Louisville KY
  Supervisor: Amanda Mitchell, Ph.D.
  Presented on the Personality Assessment Inventory to a class of graduate students

● Completed online training course for Cognitive Processing Therapy - Medical University of South Carolina

● Graduate Student Council Representative for the Department of Counseling and Human Development (ECPY) 8/2016 - 12/2016

  ○ Communicated department needs and concerns to the Graduate Student Council

  ○ aided ECPY students in applying for funding for research and travel
○ participated in meetings regarding University wide policies and initiatives

- Student representative to the ECPY faculty meetings  
  9/2015 - 6/2016

- University Fellowship Award recipient  
  8/2015 - 8/2019

- Experience working with various biofeedback programs