Angst and Expressed Biases Against Single People:
Responses to Threats to the Institution of Marriage

BY

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Abstract

Three studies were conducted to test whether people, including singles themselves, experience personal angst or worry about their own future when the value of marriage is threatened and, as a result, they attempt to protect the institution of marriage by expressing prejudice against single people. Study 1 (a community sample) found that even when controlling for SES, age, and religious and political ideology, participants' expectations for a negative future mediated the positive relationship between angst concerning the state of marriage in the United States and expressed biases against single people. There was a positive relationship between angst and biases against single people, and expected negative future mediated this relationship. Study 2 is an experimental design (with an all single sample) that tested whether threatening or affirming the value of marriage would affect single people's feelings of angst and expressed biases against their own group. Participants expressed more biases against singles when the value of marriage was affirmed and angst mediated the effects of the experimental condition on biases against singles. The mediated effect was a suppressed effect such that when controlling for angst, the direct affirm condition effect on biases against singles became stronger. Participants in the threat condition, in contrast, reported increased angst, and angst positively predicted biases against single people. Study 3 replicates the findings of Study 2, but also provides support for a double mediation model in which angst mediates the relationship between the condition effect on expected negative future, as with Study 2. Further, expected negative future mediated the relationship between angst and biases against single people, as with Study 1. Together, these findings suggest that single people who are told that the institution of marriage is failing are more apprehensive about expressing prejudice toward their own potential future group membership. Further, these results support the suppression-justification model such that single

people who are given justifications to express biases against their own group will do so if they do not experience angst in response to the threat. In contrast, when singles experience angst in response to threats to the institution of marriage, they respond by derogating their own group.

Introduction

Angst and Expressed Biases Against Single People:

Responses to Threats to the Institution of Marriage

"I think that marriage does provide greater fulfillment in life. At the end of my life I don't want to look back and see that I was alone."

"You miss out on a lot of great things when you don't have anyone to share with."

-Quotes from research participants, Study 2

As the opening quotes suggest, people have very specific views about how to live a happy and meaningful life and matrimony is often taken for granted as an eventual given in the pursuit of happiness. According to DePaulo (2008), in our culture, marriage is widely considered the ultimate foundation for life purpose and meaning. Many people view marriage as an important normative developmental milestone (e.g., Neugarten, 1976) that in general most individuals desire and expect to achieve (Morris, Sinclair, & DePaulo, 2007). Evidence of this bias toward matrimony is exhibited in the fact that people spend more than $50 billion a year on weddings (Cloud, 2007) and more than 90% of women in every generation for which records exist have married eventually (Rutgers University, The National Marriage Project, accessed 2010). As Morris, Sinclair and DePaulo (2007) point out, to the extent that singles fail to marry by a certain age that is considered normative, beliefs about the perceived value of marriage can lead people to question a single person's choice not to marry.

Faith in the institution of marriage as the all important route to life meaning is often even propagated by social scientists and the media who make specific and sweeping claims regarding the benefits of marriage (DePaulo, 2008). Scientists and the media often claim that married people are more happy and healthy than single people in general, and that marriage leads to a longer, more satisfactory life. DePaulo (2008) debunks these claims by showing (statistically) that single people live happy and purposeful lives too; according to the evidence she provides, sweeping conclusions regarding marriage as a superior way of life in comparison to singlehood are often grossly exaggerated or just plain wrong.

"Singlism", according to DePaulo (2008), is characterized as differential and typically negative treatment based on marital status and can occur in any number of interpersonal, social, or professional contexts (2008). In fact, as previously discussed, our culture places so much importance on marriage as the route to life purpose and meaning that singles might *unknowingly* face many disadvantages in society in comparison to married people due to this wide spread bias. DePaulo and Morris (2005; 2006) suggest that single adults in the United States today face stereotyping, stigmatization, prejudice, and discrimination that continues to go uncontested by single people. For example, many legalized forms of discrimination against singles, like Social Security, are built right into American laws and institutions (DePaulo, 2008). More specifically, if you are married and covered by Social Security, your spouse can receive your benefits when you die, but if you are single your money goes right back into the system. Further, married employees can add their spouse to a health care plan at a reduced rate, while single employees cannot—meaning singles are receiving unequal compensation for the same work as married people. Even when they do the exact same work and are at the same rank and level of proficiency, single men often get paid less than married men. Further, when a single person and a

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married couple filing jointly report the same taxable income, there is never a marriage penalty—single people always pay more in comparison. There are a variety of other ways that single people subsidize married people—married people often get discounts on auto insurance, club memberships, and travel packages, while single people must pay the full price.

There is an abundance of real world evidence illustrating discrimination against singles across life contexts, as the above examples show, but now there is experimental evidence as well. In fact, experimental evidence may even point to the more subtle forms of discrimination that singles may unknowingly face. For instance, in four experiments with similar methods and results, participants who were asked to imagine themselves as landlords overwhelmingly chose the married couple (61 to 80 percent) over the different kinds of single applicants as a potential tenant (Morris, Sinclair, & DePaulo, 2007). Additionally, participants frequently and openly admitted that applicants' marital status influenced their decision (Morris et al., 2007).

Recent research has also demonstrated that singles are indeed the targets of negative stereotypes along with the discrimination they face in many life contexts (e.g. Conley & Collins, 2002; DePaulo & Morris, 2005; 2006; Schütz, Hertel, DePaulo, Morris, & Stucke, 2007;). For example, single people are rated as more irresponsible, immature, and less well-adjusted in comparison to married people (Etaugh & Birdoes, 1991; Morris, DePaulo, Hertel, & Taylor, 2008). In a study of over one thousand undergraduates, DePaulo and Morris (2006) measured how single and married people are characterized. Most of the participants were single, yet they stereotyped singles negatively, and characterized married people in more positive terms. More specifically, singles were characterized as immature, insecure, self-centered, unhappy, ugly, lonely, and independent, while married people were described as mature, stable, kind, happy, honest, loving, and giving.

Negative stereotyping, prejudice, and discrimination against singles is an important burgeoning topic in social scientific literature because "Americans now spend more years of their adult lives single than married" and the number of singles in our society is rising (DePaulo & Morris, 2005, p. 50). There were 86 million single Americans in 2002 compared to 38 million in 1970 (DePaulo & Morris, 2005). DePaulo and Morris (2005) note that only 11 million of the 86 million "single" adults are cohabiting, but this trend may be due to the fact that there has been an increase in the median age of first marriage, the divorce rate is still high, and people, especially women, are living longer.

These studies will test DePaulo's (2008) assertions that people, including singles themselves, derogate single people when their belief in the value of the institution of marriage as the all important route to happiness and life purpose is threatened. Further, this line of reasoning is extended by exploring angst and expectations for a negative future as potential responses to such threats, as well as additional predictors of biases against single people. These variables are also explored as potential sequential mediators (where angst predicts expectations for a negative future, and expectations for a negative future will predict expressions of singlism) that explain the psychological processes regarding why people (particularly singles) express prejudices toward singles.

Ideological threat

System Justification theory (SJT) is often offered as an explanation to the seemingly paradoxical ideological beliefs of lower status and devalued groups that seem to work against their own individual and group interests. Therefore, these studies explore biases against single people (particularly the biases that singles themselves hold against their own group membership) within the framework of system justification theory. According to SJT (see Kay, Jost,

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Mandisodza, Sherman, Petrocelli, & Johnson, 2007; Jost, Banaji, & Nosek, 2004; Jost & Kay, 2010), human beings are motivated to justify the economic, political and cultural status quo because they desire to hold favorable attitudes about the overarching social order as a system that provides stability and existential life meaning. Consequentially, there is a tendency for people to prefer such social arrangements (in this case the marital institution), so that alternatives to the status quo (remaining single) are disparaged. According to DePaulo (2008), the ideology of the institution of marriage as the prevalent social arrangement in contemporary American society and as the perceived route to meaning and fulfillment, facilitates the persistence of singlism. Some of the premises of this ideology are—as the opening quotes by two of our participants indicate—that everyone desires a serious sex-linked relationship and sexual partnership is the most significant peer relationship a person can have (DePaulo & Morris, 2005). For this reason, it is assumed that people who don't have this type of relationship are probably less happy, lonelier, more immature, less attractive and lead less meaningful lives, compared to those who have "that one truly important relationship" (DePaulo & Morris, 2005, p. 58).

Experimental evidence suggests that this ideology seems to go unrecognized and uncontested by single people because these forms of prejudice and discrimination are perceived as legitimate by the (single) targets (Crandall & Warner, 2005; DePaulo & Morris, 2006). As a result of perceived legitimacy of biases against single people, and perhaps the threat that singlehood might pose to ingrained beliefs about the value of marriage, DePaulo and Morris (2006) suggest that negative stereotyping and discrimination against singles is used as a means to further glorify the institution of marriage—one potential explanation as to why "singlism" is so widespread. In other words, as DePaulo (2008) suggests, but for which experimental evidence has of yet to be reported, single people may present a challenge to the belief that finding one's

soul mate and marrying is the only path to living a purposeful and meaningful life. As a consequence, singles may be derogated in an attempt to protect and reify the cultural value of the institution of marriage.

Angst in Response to Threat

Thus, I propose that because marriage is a cultural norm and highly valued as the sure route to life meaning and happiness, people will respond emotionally to threats against the institution of marriage. In general, when people feel threatened, they are predisposed to respond with negative affect, but the dominant negative emotion depends on the type of threat and how the person interprets the threat (Branscombe, Ellemers, Spears, & Doosje, 1999; Wohl & Branscombe, 2008). Threats to the institution of marriage should produce anxiousness and uncertainty about their own ability to find happiness in the future (because people may consequently begin to expect a negative future for themselves if happiness through marriage is no longer a viable route). DePaulo (2008; 2009) asserts that single people threaten the meaning and the value of the institution of marriage and that all individuals invested in the cultural meaning of the institution will respond to this threat with negative emotions toward single people. According to Barlow (1988), people will personally experience angst when they think something bad is going to happen in their future. Thus, because singles make the threat to the institution of marriage salient, which may be perceived as directly relevant to one's own ability to pursue happiness in the future, the expected dominant emotional response to this ideological threat should be a sense of personal angst. Individuals who experience such angst in response to ideological threat should expect negative outcome for themselves in the future if they cannot seek happiness through marriage, and consequently derogate singles (the double sequential mediation hypothesis).

On the other hand, perception that the institution of marriage is increasingly unstable and culturally devalued may also make salient one's more probable future group membership as a single person. For this reason, single people may respond to such threats by showing apprehension in derogating the single category. However, single people who feel anxious as a result of threat should respond by increased derogation of the single category.

Recent studies on collective angst (Wohl, Branscombe, & Reysen, 2010; Wohl, Giguère, Branscombe, & McVicar, in press), or worries concerning the vitality of the ingroup as a whole and its future, suggest that ingroup extinction threat leads to more ingroup cohesion (e.g., desire to engage in ingroup protective actions). However, threats to the institution of marriage that are discussed here and the proposed resulting angst are somewhat different from how these studies conceptualized group extinction threat and collective angst. The threatened group category regarding the current studies would be both married and single people because it is a general ideological system threat that affects both groups. Angst is defined by Barlow (1988) as an individual's anxiety regarding the concern that something negative will happen to them in the future, whereas collective angst measured in the afore mentioned studies is conceptualized as a collective response regarding the fate of the ingroup (Wohl et al., 2010; in press). The current research concerns angst at the individual level; thus the predictions are in regards to individuals' increased personal angst in response to threats to the institution of marriage, which should lead to derogation of single people. It is also important to note that the effects found in the Wohl et al. studies (2010; in press) were moderated by identification, such that participants who were highly identified with their group showed increased levels of ingroup defense and cohesion. Single people do not tend to be highly identified with their group category and may instead be more

prone to expressing biases against their own group for several reasons which will be discussed more thoroughly below.

Affirming Happiness and Purpose Through Marriage Ideology and the Justification-Suppression Model of Prejudice

According to the justification-suppression model of prejudice (Crandall & Eshleman, 2003; Crandall, Eshleman, & O'Brien, 2002), when prejudice is perceived as justified, particularly by ideology, values, and attributions, people are willing to express prejudice and to freely discriminate because such attitudes and behaviors are regarded as natural and legitimate. Crandall and colleagues found that social norms are a powerful predictor in people's willingness to express prejudice (in this study's case, participants' reactions to hostile jokes concerning oppressed groups; Crandall, Eshleman, & O'Brien, 2002). In other words, it may not only be threat against the institution of marriage that induces the motivation to express prejudice against singles. In fact, when the value and meaning of the institution of marriage is affirmed, people may feel justified in their preexisting prejudices, which would consequently motivate them to attempt to reify the marital institution as the appropriate cultural norm by expressing their biases against singles. Thus, participants are also expected to express biases against singles when the value and meaning of marriage in present-day culture is affirmed.

In other words, two pathways to expressions of biases against singles are expected to emerge. The first pathway should be evident when participants feel threatened regarding the state of marriage in the United States, and consequently feel anxious about the future of marriage, and their own ability to find happiness through marriage (the double sequential mediation hypothesis). The second pathway should be a more direct route to expressions of biases against

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singles and should be evident when the value of marriage is affirmed—specifically because

people will feel justified in expressing such biases (Barlow 1988; Crandall & Eshleman, 2003).

When Will Singles Derogate their Own Group?

Desire to exit the group. Singles, who are the recipients of differential and unequal

treatment, may not point out the inequalities they face because they may not even notice them

due to endorsement of the culturally legitimated beliefs previously described. According to

DePaulo and Morris (2006), only 4 percent of single participants spontaneously responded with

single as a category when asked if they belonged to any groups that may have been targets of

discrimination. This evidence suggests that singles may not often think of their single status in

terms of a social group membership, perhaps because in the long run, they plan to abandon this

group membership for the more valued married category. Furthermore, when directly asked, only

30 percent of single participants said they might have or will be stigmatized for being single

(DePaulo & Morris, 2006).

So, in line with recent evidence (DePaulo & Morris, 2006) most singles, more than likely,

are not even aware of the pervasive prejudice and discrimination they face across life contexts

and may not spontaneously categorize themselves as members of the single category (or think of

themselves in terms of being single). According to social identity theorists (Branscombe &

Ellemers, 1998), category membership should be salient before group members will interpret

group-based mistreatment in intergroup terms (Ellemers, Spears, & Doosje, 1997). Further, it is

high identifiers who tend to be more willing to challenge group-based mistreatment through

social competition rather than pursue more individualistic strategies such as gaining entrance into

a higher status group (Branscombe & Ellemers, 1998; Kelly & Breinlinger, 1996; Simon, 1998;

Simon & Klandermans, 2001; Wright & Tropp, 2002).

Perceived mobility into the higher status group. Even with single people who are not invested in the ideological notion that marriage is the route to personal happiness and life meaning, such singles may eventually decide to move into the higher status group (married people) because it is simply easier to do so. Fighting the existing social order requires sacrifice on personal and social levels. According to social identity theorists, when group boundaries are permeable, or when it seems relatively easy to move into the higher status category, lower status groups (i.e., single people) will identify less with their devalued group and will attempt entrance into the higher status category (married; Ellemers, van Knippenberg, & Wilke, 1990). The group boundary between married and single is highly permeable; that is, singles are free to move into the married category should they desire to do so. In essence, they can leave their devalued group membership behind and seek entry into the more respected, married category.

Perceived legitimacy of biases against singles. As recent studies have pointed out, the disadvantages singles face, along with stereotypes related to single status, might be perceived as legitimate by single people themselves. Thus, rather than challenge the status quo, they may hold the same attitudes and engage in the same behaviors that further facilitate their disadvantage. In other words, even singles themselves will devalue and/or derogate their own single category in attempts to protect the institution of marriage, particularly if they perceive their differential treatment to be legitimate based on valued cultural beliefs. According to research in the social identity tradition (Jetten, Schmitt, Branscombe, Garza, & Mewse, 2010; Tajfel & Turner, 1986), group-based mistreatment (i.e., discrimination) must be viewed as illegitimate before people will contest such treatment. If a group's mistreatment is perceived as legitimate, then one potential response to the devalued group membership will be to attempt to gain entrance into the higher status group (married people).

In a study of obese people, Crandall and Biernat (1990) provide an example of how culturally legitimated beliefs can affect people's responses to their social group membership and lead them to express biases against their own group. According to Crandall and Biernat (1990), a person's own weight has little effect on their anti-fat attitudes—however, if obese individuals endorse the beliefs that overweight people are personally responsible for their weight (they have a choice) and lack specific valued characteristics such as self reliance, self discipline and self control—they are likely to assume negative attitudes about their own group (obese people), suggesting that such biases can sometimes be inspired by ideology rather than group membership. As such, obese people are essentially held responsible for their condition, which may explain why anti-fat attitudes are so widespread and legitimized (Crandall & Biernat, 1990). Similarly, both single and married people may view discrimination against singles as justified and legitimate because martial status can be seen as a behavioral choice (see also Morris, Sinclair, & DePaulo, 2007).

As with obesity (where group members can attempt entrance into the higher status group by losing weight), single people can respond to their devalued group membership by attempting to leave the group behind in the quest to become coupled. As previously mentioned, the permeability—or ease by which one is able to fluidly move from one group to another—is likely to lead to social mobility responses (Ellemers, 1993, Lalonde, & Silverman, 1994; Ellemers, van Knippenberg, & Wilke, 1990 Wright & Taylor, 1998; Wright Taylor, & Moghaddam, 1990).

In essence, contesting single disadvantage seems unlikely if single people endorse culturally valued ideology that legitimates biases against singles. Empirical evidence shows that low status group members accept or reject the existing status relations between theirs and higher status groups depending upon whether they expect to leave their group and whether they believe

the status differences are legitimate or illegitimate (Garstka, Schmitt, Branscombe, & Hummert, 2004). When devalued group members believe movement into the higher status group is unlikely, one adaptive response is to increase identification with the ingroup. However, in the case of single people, group boundaries are highly permeable, so the prevailing response would be to leave the devalued group (singles) in order to seek higher social status within the more culturally valued group (marrieds). In other words, if single people believe unequal status relations between married and singles are legitimate, they are unlikely to challenge any existing inequities. Further, singles are unlikely to challenge status relations if they are aware that their group membership is temporary and group boundaries are permeable, and they believe they are responsible for changing their position and plan to abandon their single status eventually when they choose to couple. They should rather, display the same attitudes and behaviors that would ensure that the status quo is kept in place.

Overview of Current Research

The purpose of these studies is to test DePaulo's (2008) argument that ideological threat leads to derogation of singles in order to protect the institution of marriage (currently there is no empirical test of this assertion). A further aim is to delineate the social psychological processes and mediating variables that may explain the patterns obtained. Threats to the institution of marriage should lead to feelings of angst, and angst should both predict biases against single people and mediate the relationship between threat and biases against single people. Further, there should be evidence of double sequential mediation such that expectations that one will experience a negative future will mediate the relationship between angst and biases against single people. So in essence, these studies will first explore the relationships between angst concerning the future of the marital institution, expectations for a negative future, and expressed

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biases against single people using a community sample containing both married and single women. These studies will then experimentally manipulate both affirmation of and threat to the institution of marriage to test for condition effects on angst and biases against single people with an all single sample that includes both men and women. In addition, these studies will test angst as a mediator between the condition effects on biases against single people. Finally, these studies will replicate any results and test a double mediation model in which angst and expected negative future are included as mediators (respectively) in a sequential structural equation model.

Even more specifically, Study 1 focuses on a community sample and relationships between reported levels of angst regarding the state of the institution of marriage in the United States, expectations for a negative future and biases against single people. There should be a direct positive relationship between angst and biases against single people that is mediated by expectations for a negative future (Wohl & Branscombe, 2008). Study 2 manipulates threat to the value of the institution of marriage and assesses its impact on angst and biases against single people. Study 2 then tests angst as a mediator between the condition effects on biases against single people (DePaulo, 2008; Jost, Banaji, & Nsek, 2004; Crandall & Biernat, 1990; Wohl & Branscombe, 2008). This mediation effect should be a suppressed effect. That is, when the value of marriage is affirmed, participants should express the most prejudice toward singles (Crandall & Eshleman, 2003). However, once angst is controlled for, this effect should become reliably stronger because levels of angst that participants in the *Threat to Marriage* condition report are being held constant (these participants should also increase their expressions of prejudice). Study 3 is a replication and extension of Studies 1 and 2 and tests for double sequential mediation. As with Study 1, expectations for a negative future is added as an additional mediator between angst and biases against single people. As with Study 2, angst should serve as a suppressor to the

condition effect on expressions of biases against single people, but also serve as a mediator between the condition effect on expected negative future. So in essence, in Study 3, there should be 1) a condition effect on biases against single people that is mediated sequentially by 2) angst, which should predict 3) expectations for a negative future, which then should predict 4) biases against single people.

Study 1

Study 1 Hypotheses

Participants who report higher levels of angst concerning the state of marriage in the United States will also express more prejudice toward single people (even singles themselves). Further, this relationship is expected to be explained or mediated by expectations that they will experience a negative future, where angst about the future of marriage should positively predict expected negative future, and expected negative future should positively predict bias against singles. The relationship between angst and bias against singles should be reliably reduced when expected negative future is accounted for in the regression model.

Study 1 Method

Participants

A snowball sampling method was employed for this study. Laboratory research assistants and graduate students recruited women they knew as participants (*N*= 120) in the study. Most of this study's participants resided in Kansas, USA; however 25 participants from California, USA were recruited as well. The principle investigator mailed out the materials to a contact in California, with instructions on how to administer the survey. She then recruited her friends to participate in the study. Graduate students and research assistants who participated in recruiting respondents (who all resided in Kansas) were directed to administer a survey on *Attitudes toward*

marriage in the United States to as many women who were within their social networks. This technique was used to gain a wider age range with more sample variability on marital status than could otherwise be obtained from an introduction to psychology student sample. All respondents were female, however, 6 participants (5%) categorized themselves as cohabiting or in a long term committed relationship (rather than "single" or "married) and were excluded from analyses (final *N* = 114). Participants' average age was 42.34, and 52 participants (45.6%) self identified as being single and 62 participants (54.4%) self identified as being married. Most of our participants self-identified as being Caucasian (89.6%).

Measures

 Demographic control variables. Participants were asked to indicate their age, socioeconomic status (1 =0 - $20,000; 1 = 20,000-40,000; 3 = 40,000-60,000; 4 = 60,000-80,000; 5 = 80,000-100,000; and 6 = 100,000+), political ideology (Likert scale, from *1*, very liberal, to *7*, very conservative), and religiosity (Likert scale, from *1*, not at all religious, to *7*, very religious) so that these variables could be utilized as controls during analysis.

 Angst. To determine the extent to which participants experienced angst concerning the future of marriage, they were asked to indicate whether they agreed or disagreed with 3 statements on a scale from 1 (*completely disagree*) to 7 (*completely agree*). These items include: "I worry that the institution of marriage is in Jeopardy"; "I think the institution of marriage is under threat; and "I worry that changes in the modern world will threaten my chances at marriage" (α = .79).

 Expectations of a Negative Future. To determine the extent to which participants believed they would experience a negative future should they remain single, they were asked to indicate whether they agreed or disagreed with 4 statements on a scale from 1 (*completely*

disagree) to 7 (*completely agree*). These items were: "I would worry about what other people thought of me if I stayed single all of my life"; "If you aren't married, people act like you don't exist"; "I worry that if I don't eventually get married, my life will lack purpose and meaning"; and "I worry that if I don't eventually get married, I can never be completely happy" (α = .68).

Singlism. To determine participants' bias against singles they were asked to indicate the extent to which they agreed or disagreed with 9 statements on a 1 (*Not at all*) to 7 (*Absolutely*) scale. These statements include: "People who don't marry aren't ever truly happy"; "Normal people eventually get married"; People who never marry live shallow lives that lack meaning"; "Single people tend to be desperate to find a mate"; "I feel sorry for people who are single too long"; "Single people are unstable"; "Single women are obsessed with their careers"; "Single people tend to be irresponsible"; and Single people tend to be immature" (α = .88).

<center>Study 1 Results</center>

Preliminary Analyses

See Table 1 for bivariate correlations between the measured variables as well as the means and the standard deviations for each. To check whether angst and expected negative future loaded onto two separate factors, a principal components analysis with varimax rotation was conducted using SPSS 16 software. The Kaiser-Meyer-Olkin test for adequate sampling frame (.70) was above .60 and the Bartlett's test of sphericity was significant, as desired ($X^2(66)$ = 8676.71, p < .001). Results indicated that the two factor solution accounted for 65.3% of the variance of the all of the items. The angst factor consisted of 3 items (a = .72, eigenvalue = 3.12) in which participants indicated their concern regarding the future of the institution of marriage (e.g., ''I worry that the institution of marriage is in jeopardy''), and accounted for 45.3% of the variance in these items. The expected negative future factor consisted of 4 items (a = .69,

<center>24</center>

eigenvalue = 1.40) for which participants indicated the extent to which they expected negative

outcomes in the future if they were unable to marry (e.g., ''I worry that if I don't eventually get

married, my life will lack purpose and meaning''), and accounted for 20% of explained variance

in the negative future items.

To check whether expected negative future and singlism loaded onto two separate

factors, a principle components analysis with varimax rotation was again utilized. Unexpectedly,

results indicated that a three factor solution accounted for 66.6% of the variance of the all of the

items. Two of the negative future items ("I would worry about what other people thought of me

if I stayed single all my life", and "If you aren't married, other people act like you don't exist")

loaded highly on one of the singlism factors. Further, the singlism measure parsed into two

factors when those two negative future items were included in the analysis.

Therefore, another principle component analysis was conducted but the negative future

scale was reduced to two items after the above mentioned two items were excluded. The Kaiser-

Meyer-Olkin test for adequate sampling frame (.79) was above .60 and the Bartlett's test of

sphericity was significant, as desired ($X^2(55) = 6447.10$, p < .001). Results indicated that the two

factor solution accounted for 61.5% of the variance of the all of the items. The expected negative

future construct now consisted of 2 items (a = .43, eigenvalue = 1.46) in which participants

indicated expectations that they will experience negative outcomes in the future if they cannot

marry (e.g., ''I worry that if I don't eventually get married, my life will lack purpose and

meaning''). The negative future factor accounted for 13.2% of the variance in these two items.

The singlism factor consisted of 9 items (a = .90, eigenvalue = 5.31) for which participants

indicated their agreement with negative statements in reference to single people (e.g., ''Single

people tend to be irresponsible''), and accounted for 48.3% of explained variance in the singlism items.

Finally, a principle component factor analysis was utilized with all survey items included in the matrix, after excluding the two problematic expected negative future items. The Kaiser-Meyer-Olkin test for adequate sampling frame (.79) was above .60 and the Bartlett's test of sphericity was significant, as desired ($X^2(91) = 820.53$, p < .001). Results indicated that the three factor solution accounted for 65.4% of the variance of the all of the items. The angst factor still consisted of the original three items (eigenvalue = 1.24) and accounted for 15.2% of explained variance in those items (although one item loaded highly onto the expected negative future construct, see Table 2). The expected negative future construct now consists of 2 items (eigenvalue = 2.13) and accounted for 15.2% of explained variance in those items. The singlism factor consisted of 9 items (eigenvalue = 5.80) and accounted for 41.4% of explained variance in those items (see Table 2 for factor loadings).

Mediation Analyses

Regression analyses were conducted to test the hypothesized relationships between variables. All variables were centered before conducting the regression analyses. Bootstrapping for indirect effects (Preacher & Hayes, 2008) was used to determine if expected negative future is a reliable mediator to the hypothesized positive relationship between angst and expressed prejudices toward single people. Because these data are correlational, control variables—age, socioeconomic status, religiosity, and political affiliation—were also included in the analyses for a more conservative test of our predictions. Age and socioeconomic status are classic sociological control variables that may be related to our variables of interest, but political affiliation and religiosity also could be associated with our variables because they are both

cultural artifacts that can influence the amount of value placed on marriage as an institution through which one finds existential meaning.

First, angst was tested as a predictor of expected negative future, even when all four control variables are accounted for. The omnibus test is significant, even when all of the control variables are included in the model, $F(5, 94) = 5.26$, $p < .001$. Age was a marginally significant predictor of expected negative future, such that younger participants reported higher expectations regarding their future ability to find happiness through marriage ($\beta = -.17$, $p = .09$). Respondents who reported higher levels of angst concerning the state of marriage in the United States also reported higher expectations that they will experience a negative future ($\beta = .46$, $p < .001$). Angst accounted for 18% of explained variance in expected negative future.

Next, angst was tested as an indirect predictor of prejudice toward single people through expected negative future as the mediating variable. All of the control variables were included in the first step of the regression equation predicting prejudice toward single people, along with angst. The second step of the equation contained expected negative future, the mediator, also predicting prejudice toward single people. Older people expressed more prejudice toward single people ($\beta = .25$, $p = .02$). Angst predicted prejudice toward single people ($\beta = .30$, $p = .007$), and the overall model for the first step of the equation was significant ($F(5, 94) = 3.53$, $p = .006$), accounting for 11.3% of explained variance in prejudice toward single people. In the second step of the regression equation, expected negative future predicted prejudice toward single people ($\beta = .35$, $p = .001$), and the relationship between angst and prejudice toward single people was reduced (no longer significant) once expected negative future was accounted for in the model ($\beta = .14$, $p = .22$). Further, bootstrapping tests for indirect effects (Preacher & Hayes, 2008; 5,000 samples per test) indicated that expected negative future carried the relationship between angst

and biases against singles (95% CI {.02; .15}). Thus there is evidence for mediation of the relationship between angst concerning the institution of marriage and expected biases against single people through expected negative future.

<div align="center">Study 1 Discussion</div>

Results from Study 1 revealed that participants who report higher levels of angst regarding the state of the marital institution in the U.S. also report expectations of a negative future if they were to remain single as well as more prejudice toward single people. There is also evidence that expectations of a negative future mediates the positive relationship between angst and prejudice toward single people, suggesting that when people feel threatened or uncertain about the future of marriage as an institution, they react by derogating their own group because of their increased concerns about their inability to find happiness through marriage in the future.

However, one limitation to this Study 1 is that, because it is correlational, there is no way to determine what produces an emotional state of threat regarding marriage, or to test DePaulo's (2008) assertion that threat to the institution of marriage *causes* derogation of single people in order to protect that institution. Also, the correlational design of Study 1 does not allow for determination of the causal direction in the mediation analysis. Thus, Study 2 seeks to address this issue by manipulating participants' perceptions of the stability of marriage as an institution and then observing participants responses to this information. Study 2 also tests angst as a mediator between the expected condition effects and expressed prejudice toward single people, and whether affirming the institution of marriage will provide justifications for increases in expressed biases against singles (Crandall & Eshleman, 2003).

Study 2 Hypotheses.

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When the meaning and value of marriage is threatened, people should experience angst, or anxiety about the future of marriage as an institution, and the implications this might have toward their future happiness. Such anxiousness and concern about one's personal future should lead single people to express bias against their own group. Further, angst should mediate any condition effects observed on expressed biases against single people. Participants in the *Affirmation of Marriage* should express the most prejudice against single people because they will feel the most justified in doing so (Crandall & Eshleman, 2003). The mediated effect of angst should strengthen the condition effect on expressed biases against singles because the model is controlling for the participants who respond to the threat condition with increases in angst (and those participants should also express more prejudice). Further, because the Study 1 sample was all female, Study 2 utilizes a sample consisting of both male and female participants. Gender differences are not expected.

<center>Study 2 Method</center>

Participants

Participants (*N*= 123) were recruited from the psychology department subject pool at the University of Kansas. Forty-two participants read the *Affirmation of Marriage* passage, 43 participants read the *Threat To Meaning* passage, and 38 participants read the neutral passage for the control condition (see Appendix A-C). Seventy-three participants were female (59.3%) and 50 participants were male (40.7%). Participants' average age was 19, and 87% of our participants self-identified as being Caucasian. Eighty-four of our participants classified themselves as being single, but one participant reported being legally married.[1]

Procedure

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Participants were directed to a link informing them of their voluntary participation. If they gave their informed consent, they were randomly assigned to one of the three conditions. After reading one of the articles that was neutral ($n = 38$) or either threatened ($n = 43$) or affirmed ($n = 42$) the value of marriage, participants were asked a series of questions that included: manipulation check questions, our dependent measures (angst, and singlism), and several demographic questions.

Materials

After participants signed up for this online study, they were randomly assigned to one of three conditions. Participants were asked to carefully read a short article about which they would later be asked questions. Participants either read an article that affirmed the value of marriage or threatened the value of marriage. The *Affirmation of Marriage* passage argues that marriage is "alive and well" in the United States (see appendix A). In contrast, the *Threat to Meaning* passage argues Americans should be "increasingly alarmed" about the state of marriage as an institution in the United States (see appendix B). Participants in the *Control* condition read a neutral passage about average ages in which people marry (see appendix C).

Manipulation check. To determine whether or not participants understood the condition to which they were randomly assigned, they were asked to complete the following statement: "According to the article you read, married people are…" Participants were given three answer options, "happier and healthier than single people," "more depressed and less healthy than single people," and "not enough information was provided in the article to answer this question." Four of our participants were excluded from the data analysis because their answer did not match the condition to which they were randomly assigned.

Angst. As with Study 1, to determine the extent to which participants felt angst in response to the information they read, they were asked to indicate whether they agreed or disagreed with the same 3 statements used in Study 1 on a scale from 1 (*completely disagree*) to 7 (*completely agree*); α = .82.

Singlism. As with Study 1, to determine participants' bias against singles they were asked to indicate the extent to which they agreed or disagreed with the 9 statements used in Study 1 on a 1 (*Not at all*) to 7 (*Absolutely*) scale. α = .89.

<div align="center">Study 2 Results</div>

Preliminary Analyses

To check whether angst and singlism loaded on two separate factors, a principal components analysis with varimax rotation was conducted using SPSS 16 software. The Kaiser-Meyer-Olkin test for adequate sampling frame (.82) was above .60 and the Bartlett's test of sphericity was significant, as desired ($X^2(66) = 508.92$, $p < .001$). Results indicated that the three factor solution accounted for 68.6% of the variance of the all of the items. Although the solution converged on three factors, the angst items did not reliably load on the other two factors, and instead formed a factor of its own. The angst factor consisted of 3 items (eigenvalue = 1.99) in which participants indicated their concern regarding the future of the institution of marriage (e.g., ''I worry that the institution of marriage is in jeopardy''), and accounted for 16.6% of the variance in these items. The two factors on which the singlism items loaded (eigenvalues = 5.12 and 1.13) for which participants indicated their agreement with negative statements in reference to single people (e.g., ''Single people tend to be irresponsible''), accounted for 42.64% and 9.3% of the variance in the singlism items respectively. There were no discernable differences when predictions were tested on the two separate factors, so all of the items were treated as one scale.

Condition effects were tested on all of the variables of interest using one-way analysis of variance (ANOVA) with *SPSS 16* to determine whether the *Control* vs. the *Affirmation of Marriage* vs. *The Threat to Meaning* conditions differentially affected participants' feelings of angst, and expressions of singlism (see Table 2 for correlations and descriptive statistics).

As expected, there were significant mean differences between the three groups on angst. Participants in the *Threat to Meaning* condition reported experiencing more angst ($M = 3.98$, $SD = 1.34$) in comparison to participants in either the affirm ($M = 3.15$, $SD = 1.43$) or control conditions ($M = 3.21$, $SD = 1.59$), $F(2, 120) = 4.28$, $p = .02$. Means for each of the conditions are shown in Figure 2. For the singlism measure, participants in the *Affirmation of Marriage* ($M = 3.36$, $SD = .93$) condition were more likely to express prejudice toward singles in comparison to participants in the *Threat to Meaning* condition ($M = 2.77$, $SD = 1.12$) and the control condition ($M = 2.80$, $SD = .94$), $F(2, 120) = 4.62$, $p = .01$. Post hoc Tukey tests indicated no significant mean difference between the control and affirm conditions in angst ($p = .98$), but a significant mean difference between the threat and control conditions ($p = .05$) as well as the threat and affirm condition ($p = .03$). Interestingly, post hoc analyses also indicated no significant mean differences between the control and threat conditions ($p = .99$) in expressions of singlism, but significant mean differences between the affirm and control conditions ($p = .04$) as well as the affirm and threat conditions ($p = .02$), indicating that there is something unique about the affirm condition in eliciting heightened expressions of singlism (see Figure 2).

Mediation Analyses

See Table 3 for descriptive statistics and bivariate correlations between variables. Regression analyses were conducted to test the hypothesized relationships between the variables. To analyze these data using regression analysis, the control condition was excluded so that we

could determine relationships comparing only the threat vs. the affirm conditions. All variables were centered before conducting the regression analyses and a bootstrapping test for indirect effects was used to determine if angst reliably mediates the relationship between the condition variable and prejudice toward single people. The two conditions were dummy coded as $1 =$ affirm; $2 =$ threat.

First, the effect of the condition variable on angst was tested. The overall test assessing condition effects on angst was significant, $F(1, 83) = 5.43$, $p = .02$, such that participants in the threat condition expressed higher levels of angst concerning the state of marriage in the United States ($\beta = .25$, $p = .02$). Next, the direct effect of the condition variable on prejudice toward single people was tested in the first step of a regression equation where the condition variable was entered as the predictor and prejudice toward singles was entered as the outcome variable. The overall test was significant, $F(1, 83) = 7.02$, $p = .01$, indicating that participants in the affirm condition reported more prejudice toward single people ($\beta = -.28$, $p = .17$). In the second step of the regression equation, angst was included as the potential mediator to the relationship between the condition variable and prejudice toward single people. The second step of this equation was significant ($F(1, 83) = 5.43$, $p = .02$), and angst significantly predicted prejudice toward single people ($\beta = .38$, $p < .001$). When controlling for angst, the association between the condition variable and prejudice toward single people increases in strength and remains significant, suggesting a partially suppressed relationship ($\beta = -.37$, $p = .01$). This final step of the regression equation accounted for 46.1% of explained variance in prejudice toward single people. Further, bootstrapping tests for indirect effects (Preacher & Hayes, 2008; 5,000 samples per test) indicated that angst reliably strengthened the relationship between the condition effect on biases

against singles (95% CI {.04; .50}). Thus there is evidence for mediation of the relationship between angst concerning the institution of marriage and expected biases against single people.

Study 2 Discussion

Results from the analysis of variance indicated significant mean differences in the hypothesized directions. Interestingly, the affirm condition participants expressed the most prejudice toward single people, while the control and threat conditions did not significantly differ from each other on expressions of bias. This indicated that the affirm condition was having the justification effect proposed by Crandal and Eshleman (2003). As expected, there were condition effects on angst, such that participants who were in the *Threat to Meaning* condition reported experiencing more angst, which positively predicted biases against singles, but the control and affirm conditions did not significantly differ on reported angst. Further, regression analyses indicated that there was an indirect enhanced negative effect on singlism through angst, but most of this effect points to a partially suppressed relationship because the strength of the association between the manipulation on expressed biases towards singles increased in strength when angst was accounted for in the regression model.

Study 2 lends experimental support for DePaulo's (2008) assertion that people respond to threats to the institution of marriage by derogating single people, and highlights the psychological processes involved. When single people respond to such threats by feeling anxious about the future, they are more likely to derogate their own group. Study 2 also lends support to the assertion that when single people are provided justifications for their ideological assumptions regarding marriage as a cultural institution that provides meaning, they will be more likely to express biases against single people (Crandall & Eshleman, 2003). Study 3 is a replication of both Studies 1 and 2 in that it tests whether this suppressed relationship is replicable, and also

includes expected negative future (as was measured in Study 1) as an additional mediator. With Study 3, the threat versus affirm manipulations are retained and angst and expected future outcomes are tested as sequential mediators in a more nuanced model using structural equation modeling.

Study 3 Hypotheses.

Replication of the Study 1 and 2 findings are expected; angst will mediate the condition effect on expressions of biases against single people. In addition, angst and expectations for a negative future should serve as sequential mediators to the condition effect on prejudice toward single people. That is, the same pattern of relationships that were observed in studies 1 and 2 should be obtained; however, double mediation will be tested by including both angst and expected negative future as sequential mediators to the condition effect on biases against single people in one structural equation model. In other words, the condition variable will be specified to predict angst, angst will be specified to predict expectations for a negative future, and expectations for a negative future will be specified to predict biases against single people. Additional paths will also be specified to determine whether angst and expected negative future both serve as a reliable mediators in the sequential double mediation model.

<center>Study 3 Method</center>

Participants

Participants ($N= 57$) were recruited from the psychology department subject pool at the University of Kansas. No control condition was administered in this study. Twenty-nine participants read the *Affirmation of Marriage* passage and 28 participants read the *Threat To Meaning* passage. Thirty-three participants were female (58%) and the average age was 19.

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Eighty-one percent (81%) of our participants self-identified as being Caucasian. All participants were single.

Procedure and Materials

All of the procedures for Study 3 replicate Study 2; however, the new expectations for a negative future measure (now parsed down to two items) was added as an additional mediator to the condition effect and angst on prejudice toward single people.

Manipulation check. As with Study 2, participants indicated their understanding of the manipulation by indicating the correct answer to the following statement: "According to the article you read married people are…" Participants were given three answer options, "happier and healthier than single people," "more depressed and less healthy than single people," and "not enough information was provided in the article to answer this question." Five people were excluded from the data analysis because 2 were married, and 3 provided the incorrect answer to the manipulation check.

Angst. As with studies 1 and 2, to determine the extent to which participants felt angst in response to the information they read, they were asked to indicate whether they agreed or disagreed with 3 statements on a scale from 1 (*completely disagree*) to 7 (*completely agree*); $\alpha = .85$.

Expected Negative Future. As with Study 1, participants were asked to indicate whether they agreed or disagreed with 4 statements on a scale from 1 (*completely disagree*) to 7 (*completely agree*) designed to measure expectations of a negative future. However, due to the results of the factor analysis in Study 1, we included only the two items that loaded onto a separate factor from singlism, $\alpha = .72$.

Singlism. As with Study 1, to determine participants' bias against singles they were asked to indicate the extent to which they agreed or disagreed with 9 statements on a 1 (*Not at all*) to 7 (*Absolutely*) scale. $\alpha = .90$.

<div align="center">Study 3 Results</div>

Preliminary Analyses

Condition effects were tested on all of the variables of interest using one-way analysis of variance (ANOVA) with *SPSS 16* to determine whether the *Affirmation of Marriage* vs. *The Threat to Meaning* affected participants' feelings of angst, expectations of a negative future and expressions of singlism (see Table 4 for correlations and descriptive statistics).

Meaningful differences between groups with regard to angst were tested. As expected, there were significant differences between groups, $F(1, 55) = 6.69$, $p = .01$. Participants in the *Threat to Meaning* condition ($M = 3.98$, $SD = 1.50$) reported experiencing more angst in comparison to participants in the *Affirmation of Marriage* condition ($M = 3.00$, $SD = 1.34$).

Next, meaningful differences between groups with regard to expectations for a negative future were also tested. There were no significant mean differences between the threat and affirm conditions in expectations for a negative future, $F(1, 55) = .15$, $p = .71$. Participants reported the same mean levels of expectations for a negative future in the *Threat to Meaning* ($M = 3.32$, $SD = 1.80$) condition as participants in the *Affirmation of Marriage* condition ($M = 3.16$, $SD = 1.49$).

Last, meaningful differences between groups with regard to prejudice toward singles were then test. The main effect of condition was significant, $F(1, 55) = 5.14$, $p = .03$. Participants in the *Affirmation of Marriage* condition ($M = 3.40$, $SD = .70$) were more likely to express prejudice toward singles in comparison to participants in the Threat to Meaning condition ($M = 3.04$, $SD = .80$).

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Mediation Analyses Using Structural Equation Modeling

Structural equation modeling (SEM) was used to test angst and expectations for a negative future as sequential mediators between the condition effect on prejudice toward single people, using Lisrel 8.8 software. The pattern that emerged in Studies 1 was expected to replicate, but negative future was also expected to mediate the relationship between angst and prejudice toward single people. The condition variable should positively predict angst, whereas angst should positively predict expectations for a negative future and expectations for a negative future should positively predict biases against single people. Path analysis allows for a tests of model fit for mediation without sacrificing reliability of estimates due to sample size (as the paths associated with all of the indicators are eliminated from the estimations).[2] An alternative model in which the mediators' orders were switched was not tested because there were no condition effects on expectation for a negative future, so there is no theoretical or statistical reason why this order would prove reliable in an SEM model.

Using structural equation modeling also allows for a test of the hypothesized model against an alternative model where no mediators are specified. For the no mediation specified model, all of the variables (the condition variable, angst and expectations for a negative future) were treated as predictor variables of biases against single people, yet angst and expectations for a negative future were allowed to freely covary. The model fit where no mediation was specified to the double mediation model were then compared against each other. Model fit was evaluated using the Non Normed Fit Index (NNFI) and the comparative fit index (CFI), for which values greater than .90 are deemed acceptable, as well as the Root Mean Square Error of Approximation (RMSEA), for which values less than .10 are deemed acceptable (Pedhazur & Schmelkin, 1991).

Path Analysis for Mediation

Using Lisrel 8.80 software, structural equation analyses were conducted to determine if the condition effect on prejudice toward single people was sequentially mediated by angst and expected negative future. Specifically, a direct effect model, in which only the direct effect of conditions (coded affirm = 1; threat = 2) as well as the other two variables (angst and expected negative future) was compared to the double mediation model. The double mediation model specified that angst and expectations for a negative future sequentially mediate the condition effects on prejudice toward single people. For our predicted model, indirect condition effects on prejudice toward single people through angst and expected negative future were specified.

The hypothesized indirect effects model showed good fit to the data (see Figure 4 for standardized coefficients). The chi-square was not significant (χ^2 (1, $N = 57$) = .10, $p = .76$), the relative fit indices of the structural model were above .90 (CFI = 99, NNFI = .99), reflecting good fit of the model to the data (Pedhazur & Schmelkin, 1991). In addition, the RMSEA was below the value of .10 (RMSEA = .001; See Figure 4). As expected, the direct effect model, which did not specify sequential mediation, showed relatively low and worse fit to the data (χ^2 (2, $N = 57$) = 8.81, $p = .01$; CFI = .78, NNFI = .34, RMSEA = .23).

In a direct test of the double-mediation hypothesis, a chi-square difference test was performed to determine whether specifying the indirect effects of threat versus affirm conditions through angst and expected negative future significantly improved the model fit. The change in chi-square was significant, $\Delta\chi^2$ (1) = 8.81, $p = .002$. The fit statistics are markedly worse relative to the sequential mediation model.

Further, adding additional parameters to test indirect effects through bootstrapping indicated that angst reliably carried the threat versus affirm effect on expected negative future ($Z = 2.14$, $p = .03$), and that expected negative future reliably carried the effect of angst on prejudice

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toward single people ($Z = 2.54$, $p = .01$). Thus there was evidence for mediation of the condition effect on expected negative future through angst, as well as of the indirect effect of angst on prejudice toward single people through expected negative future, supporting the predicted sequential double-mediation model.

Study 3 Discussion

Building on Studies 1 and 2, participants in the threat condition reported more angst, higher expectations for a negative future, and more biases against single people as a result of the manipulated threat to the institution of marriage. As with Study 2, although participants in the *Threat to Meaning* condition reported experiencing more angst, the participants in the *Affirmation of Marriage* condition expressed the most prejudice toward singles. There was support for the sequential double mediation model such that angst mediated the relationship between the condition effect on expected negative future, while expected negative future explained the positive relationship between angst and prejudice toward single people. Interestingly, there was no condition effect on expected negative future, further supporting the order of relationships in the sequential double mediation model.

General Discussion

Study 1 verified the positive relationships between angst regarding the state of marriage in the United States, expected negative future, and biases against single people, and also found evidence that expected negative future mediates the relationship between angst and biases against single people. In line with Wohl and Branscombe (2008), Studies 1 and 2 show that feelings of threat are likely to be reflected in increased negative emotions, as participants in the *Threat to Meaning* condition experienced increased angst. At first glance this might seem contrary to Wohl and colleagues (2010; in press) findings that increases in angst lead to more

intragroup defense and desire to protect the ingroup from the threat being realized. However, with the current data, the personal implications that the threat has for the self and personal motivations are paramount, which is a key difference between our findings and Wohl et al. (2010; in press). By reflecting on the impact that the failing institution of marriage would have on their future happiness, greater personal anxiety was evoked, and more biases against singles was expressed. These results were explained by a specific concern about one's personal ability to find life meaning and happiness through marriage in the future.

Although it may at first seem counterintuitive that participants expressed more prejudice when the value of marriage was affirmed, these findings are in the line with system justification theory (Jost, Banaji, & Nosek, 2004) and the justification-suppression model of prejudice (Crandall & Eshleman, 2003). Affirming the value of marriage may have led participants to feel justified in their pre-existing prejudices, thereby encouraging them to express them freely. This result turned out to be reliable as evidenced by the Study 3 replication, as well as nuanced through the angst path, where participants who responded to threat with angst were also more likely to express prejudice.

Implications and Future Directions

Terror management theory proposes that people's psychological investment in cultural institutions diminishes the anguish associated with the realization of the inevitability of death because these institutions are source of meaning, organization and continuity (Greenberg, Solomon, & Pyszczynski, 1997; Solomon, Greenberg, & Pyszczynski, 1991). Many studies have shown that mortality salience intensifies people's desire to maintain their cultural worldview (e.g. see Greenberg et al., 1990; Harmon-Jones et al., 1997; Jonas & Greenberg, 2004; Landau, Greenberg & Rothschild, 2010). The belief in the rightness of the assumption that marriage is the

all important social institution might facilitate the motivation necessary to seek after marriage as the route to a happy and meaningful life. This cultural belief may provide a basis for making sense of the world as a stable and orderly place where individuals can pursue symbolic immortality through marriage and children. But aside from producing a desire to reify existing cultural structures, research from a terror management perspective also shows that there is an association between close relationship seeking in general and mortality salience (see Mikulincer, Florian, & Hirschberger, 2003). Although mortality salience is not specifically manipulated in the current studies, similar to terror management theory (Greenberg, Solomon, & Pyszczynski, 1997; Solomon, Greenberg, & Pyszczynski, 1991), one can certainly argue the general point that people are motivated to protect the institution of marriage because it is a cultural institution through which personal meaning, continuity and organization are provided. It would be interesting to test mortality salience, or the desire to seek symbolic immortality through marriage and children as an additional explanation to the current findings regarding biases against singles described and discussed here .

Van den Bos (2009) makes the point that terror management findings may not always be about the existential fear of death, but may, at least sometimes, be about personal uncertainty management. In his view (van den Bos, 2009), people are fundamentally motivated to feel certain about the world and their place in it because feelings of uncertainty are threatening to one's perceptions and beliefs regarding the meaning of existence. Further, under conditions of personal uncertainty, individuals should respond positively to people and events that bolster their cultural norms and values and negatively to people and events that violate them. Van den Bos (2009) also asserts that individuals utilize cultural worldviews (or cultural norms and values) as a means for coping with uncertainty because such beliefs and values provide existential meaning—

so it is not surprising that people respond to feelings of uncertainty with negative affect against people and events that threaten their cultural worldview. In a set of experiments, van den Bos and colleagues (2005) found that both mortality and uncertainty salience had an effect on participants' reactions to violations to cultural norms and values such that they reacted to these violations with negative affect (van den Bos, Poortvliet, Maas, Miedema, & Van den Ham, 2005). Similarly, as DePaulo suggests, single people may pose a threat to the norms and values associated with the institution of marriage that induces a sense of personal uncertainty and consequently evokes a negative affective reaction. The current studies' findings regarding biases against singles are certainly supportive of these assertions.

As outlined in the literature review, single people's emotional responses to threats to the institution of marriage should depend on legitimacy appraisals. Single people who perceive their disadvantaged status in comparison to married people should react to threats to the institution of marriage differently. Single people who perceive status differences to be legitimate should respond with angst, have higher expectations for a negative future, and express more biases against their own group. In contrast, singles who perceive status differences to be illegitimate should contemplate the implications that these status differences have for their own potential future group membership as a single person, and therefore cease to derogate their own group. Thus, future research should test a mediated moderation hypothesis concerning the role that legitimacy appraisals regarding the unequal status of singles will affect how singles will respond to threats to the institution of marriage. It would also be interesting to measure other emotions, such as anger, and other outcomes such as consciousness raising or collective action as other potential responses to threat.

Even though there are little actual differences between singles and couples in psychological health outcomes and general life satisfaction (DePaulo, 2008), there may be ideological differences based on legitimacy appraisals and levels of identification with and commitment to the single category (DePaulo & Morris, 2005). These ideological differences lead to specific behaviors that shape the lives of singles in contemporary American society. Considering current demographic trends, this topic should be of particular interest to social scientists—more and more Americans are living single lives, and Americans now spend more of their adult lives single rather than coupled.

This project provides empirical evidence that supports the assumption proposed by DePaulo (2008) that threats concerning the institution of marriage will evoke negative affect which will consequently lead to expressed biases against single people in order to protect the status quo (see also Crandall & Eshleman, 2003; Jost, Banaji, & Nosek, 2004). This project also extends DePaulo's (2008) assertions by testing the psychological and emotional responses that mediate this process. For example, people who respond to threats against their worldview concerning the institution of marriage may experience personal uncertainty (van den Bos, 2009) and therefore feel anxious, which then encourages them to express biases against singles. However, perhaps, as Wohl and colleagues show (2010; in press), highly identified single people in particular could respond to *group* based uncertainty with *collective angst*, which would then motivate them to defend the ingroup and engage in challenge responses. It would be interesting to test whether group based uncertainty evoked by perceived injustice or inequality would produce the same ingroup serving effects that Wohl and colleagues (2010; in press) found in response to threats to the group's existence.

Overall, participants in the threat to marriage condition expressed less biases against single people compared to participants in the affirm condition. These results imply that singles can respond to threats to the institution of marriage by considering the implications to their potential future group membership as a single person and showing more apprehension about expressing prejudice toward their own future group. In other words, if a single person expects to remain single in the future due to the fact that their chances to marry are diminished (because the institution of marriage is falling apart), they may be more hesitant to express biases against their future group. Of course, this assertion is speculative and requires future empirical support. However, if this assertion eventually finds support, perhaps it is this group of singles in particular who would be more likely to extend effort into challenging the stereotypes and disadvantages singles face, and who would generally engage in consciousness raising regarding existing inequities.

Furthermore, it might well be that people who are assured that the institution of marriage is alive and well are less likely to challenge the status quo (Crandall & Eshleman, 2003; Jost, Banaji, & Nosek, 2004) and will continue to view negative stereotypes and societal disadvantages as legitimate. Future research could also explore challenge responses, consciousness raising and non-response as outcome variables to perceived disadvantages among single people to determine when they will cease expressing biases against their own group and instead seek social change. Future research could also explore the possibility that people might perceive expressions of bias against singles as less legitimate if they are informed about specific statistics regarding the prevalence of singlehood as well as of the inequities singles face. Conversely, these studies suggest that if people are led to believe that the institution of marriage

is valued by most, and almost all people eventually marry, this potentially makes singles appear

even more deviant, which will increase the likelihood that biases against singles are expressed.

Limitations

One limitation to these studies is that self report methods were used for the variables

assessed. Participants, after having realized that the survey they completed containing the

dependent measures was about biases against single people, may have answered the questions in

a way that would make them appear less prejudiced. However, despite this limitation, expected

mean differences in expressed biases against singles were observed. Another limitation concerns

our experimental studies which consisted of college students who were all single. While this

might have limited any chances of observing biases against singles (because participants would

be expressing prejudice against their own social group), this clearly did not happen. Thus,

despite these limitations, mean differences between groups as a function of the experimental

manipulation were obtained.

Another limitation is that self categorization or levels of group identification with the

single category were not measured in this set of studies. One could argue that single people think

of the single category more as a personal attribute rather than a group membership. Future

research needs to also explore the extent to which self categorization and levels of group

identification affect the ways in which single people might respond to these ideological threats.

Conclusion

Singlism may be especially prevalent when peoples' beliefs about the value of the

institution of marriage as the route to meaning and happiness have been affirmed. When single

people's ideological beliefs about the institution of marriage are affirmed, they may respond by

expressing biases against their own group when they feel it is legitimate and justified to do so

(Crandall & Eshleman, 2003). There is also evidence that shows that single people express biases in order to reinforce these beliefs, because as DePaulo (2008) suggests, their own single status may pose a threat to cherished ideology. Single people who are told that the institution of marriage is failing might sometimes be more apprehensive about expressing prejudice toward their own potential future group membership; however, when singles experience angst in response to such threats, they react by derogating their own group. The results of the three studies reported here have interesting implications regarding the impact of biases against single people on psychological well-being, quality of life, as well as for social change processes,. Pinpointing the causes to expressed biases against singles, as well as when singles themselves will cease to express these biases and instead contest their societal disadvantages, can help us to generate effective ways to encourage challenges to societal inequity.

Author's Notes

1. The same results were obtained when these data were analyzed after excluding the
   married participant.

2. Structural equation model with indicators loading on to the latent constructs was also
   conducted and the same pattern of results emerged for the estimated predicted paths;
   however, the estimations were unreliable due to the small sample size, so path analysis
   was utilized instead.

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Appendix A

Affirm Condition

"The State of Modern Marriage in the US"

A number of experts agree that it is futile and alarmist to be too concerned about the state of the modern marital institution in the United States. In fact, they argue that marriage is alive and well in the United States, despite the numerous modern complexities newer generations face. Marriage continues to be a central feature of modern life. It continues to unite <u>man</u> and <u>woman</u> as <u>husband</u> and <u>wife</u>, and although the reasons people marry vary, they usually include one or more of the following: legal, social and economic stability; the formation of a <u>family</u> unit; procreation and the education and nurturing of children; legitimizing <u>sexual relations</u>; and a public declaration of love.

It has been documented by research psychologists that individuals who marry also enjoy many psychological benefits as a result of marriage. For example, researchers have found that married couples are less likely to report feeling lonely than people who are single. In addition, they are generally healthier and happier, and are less likely to suffer from psychological illnesses such as depression in contrast to single people. It has been suggested that married people tend to be happier because they enjoy increased economic advantage, better physical health, greater relationship stability, and increased emotional support.

Although the divorce rate in the U.S. is high, so too is the re-marriage rate. Thus, experts argue, despite the many changes in modern life that newer generations face, the institution of marriage remains vibrant and healthy. Most people eventually find their "soul-mate" and commit to marriage. What's more, even though marriage is no longer a prerequisite for raising children, most couples decide to remain married while they produce and care for their offspring. Now, in light of modern changes and recent evidence, most experts agree that in spite of recent trends, marital unions will remain a significant social institution that organizes and structures our family lives. They argue that marriage will always maintain its status as an institution that is of utmost interest and importance to our social welfare. Marriage will always be entitled to public government sanctions and protections. Indeed, that people agree on the importance of the marital institution, even in light of so many modern alternatives, is evidence that the institution as a whole still plays a meaningful role in modern life. Most people still agree that marriage is the single most important institution in our social history.

Appendix B

Threat to Meaning Condition

"The State of Marriage in the US"

For good reason, a number of experts agree that we should be increasingly alarmed about the state of the modern marital institution in the United States. In fact, they argue that the institution of marriage in the United States is threatening to fall apart in face of the numerous modern complexities newer generations confront. Many experts argue that marriage is no longer a central feature of modern life. In the future, fewer people will marry, more people who marry will divorce, more people who marry will do so later in life, more people will cohabit, fewer people will have children, more people who have children will do so outside of marriage and more people will want to form informal unions of various kinds and experiment with reproductive technologies outside of either marriage or heterosexual unions.

It has also been recently documented by research psychologists that individuals who marry do not enjoy as many psychological benefits through marriage as was previously assumed. For example, researchers found that married couples are actually more likely to report feeling lonely than people who are single. In addition, single people are actually generally more healthy and happy, and are less likely to suffer from psychological illnesses such as depression in comparison to married people. It has been suggested that single people tend to be happier because they enjoy increased personal and economic freedom, better physical health, greater relationship variability, and increased emotional support through a larger network of friends.

The divorce rate in the U.S. is high. People are marrying much later in life, and many are choosing not to marry at all. Thus, experts argue, the many changes in modern life that newer generations face pose a huge threat to the institution of marriage, and it seems as if the institution is disintegrating at a quicker pace every year. Less people are committing to a significant other through marriage. What's more, marriage is no longer a prerequisite for raising children, so many people are now deciding to remain single while they produce and care for their offspring. In light of these changes and recent evidence, most experts agree that marital unions will become increasingly private matters. They argue that it will not be long before marriage is de-legalized. That is, it will lose its status as an institution that is of utmost interest and importance to our social welfare. Soon, some experts comment, marriage will no longer be entitled to public government sanctions and protections. Indeed, the fact that people are debating whether or not to de-legalize marriage is evidence that marriage is no longer the all important social institution but is rather in the throws of being de-institutionalized. Marriage is becoming little more than an option, or a lifestyle choice, like whether to drive a Ford or a Chevrolet.

Appendix C

Control Condition

"Estimated Median Age at First Marriage, by Sex: 1890 to 2000"

The following data from the U.S. Census Bureau indicate an increase in the median age at first marriage for both men and women. Here are the statistics from the U.S. Census Bureau of the median age at first marriage dating back to 1890.

Year --- Men --- Women
2000 --- 26.8 --- 25.1
1995 --- 26.9 --- 24.5
1990 --- 26.1 --- 23.9
1985 --- 25.5 --- 23.3
1980 --- 24.7 --- 22.0
1975 --- 23.5 --- 21.1
1970 --- 23.2 --- 20.8
1965 --- 22.8 --- 20.6
1960 --- 22.8 --- 20.3
1955 --- 22.6 --- 20.2
1950 --- 22.8 --- 20.3

1940 --- 24.3 --- 21.5
1930 --- 24.3 --- 21.3
1920 --- 24.6 --- 21.2
1910 --- 25.1 --- 21.6
1900 --- 25.9 --- 21.9
1890 --- 26.1 --- 22.0

According to the U.S. Census Bureau: the figures reported for 1947 to 1999 are based on Current Population Survey data. The figures for years prior to 1947 are based on census data collected every ten years. A standard error of 0.1 years is appropriate to measure sampling variability for any of the above estimated median ages at first marriage --- based on Current Population Survey data.

Source: U.S. Census Bureau --- Annual Social and Economic Supplement: 2003 Current Population Survey --- Current Population Reports --- Series P20-553 --- "America's Families and Living Arrangements: 2003" and earlier reports." --- Internet release date: September 15 --- 2004"

Appendix D

Dependent Measures

Angst (Studies 1- 3)

1. I worry that the institution of marriage is in jeopardy.
2. I think the future of marriage is under threat.
3. I worry that changes in the modern world will threaten my chances at marriage.

Expected Negative Future (Studies 1 & 3)

1. I worry that if I don't eventually get married, I can never be completely happy.
2. I worry that if I don't eventually get married, my life will lack purpose and meaning.

Biases Against Singles (Studies 1- 3)

1. People who never marry aren't ever truly happy.
2. Normal people eventually get married.
3. People who never marry live shallow lives that lack meaning.
4. Single people tend to be desperate to find a mate.
5. Single people are unstable.
6. Single women are obsessed with their careers.
7. Single people tend to be irresponsible.
8. Single people tend to be immature.
9. I feel sorry for people who are single for too long.

Table 1

Descriptive Statistics and Bivariate Correlations Among All Variables for Study 1.

	M	*SD*	1	2	3	4	5	6	7
1. Marital Status	1.54	.50	-	-	-	-	-	-	-
2. Age	42.34	15.05	.26*	-	-	-	-	-	-
3. SES	3.93	.71	.05	-.05	-	-	-	-	-
4. Political	3.84	1.51	.11	.22*	-.08	-	-	-	-
5. Religion	4.16	1.81	.08	.30*	-.04	.46**	-	-	-
6. Angst	3.00	1.63	-.11	.08	-.09	.39**	.38**	-	-
7. Negative Future	2.42	1.51	-.31*	-.21*	-.03	.05	.02	.41**	-
8. Singlism	1.99	1.04	-.15	.19*	.03	.16+	.13	.26*	.37**

+ $p < .10$; * $p < .05$; ** $p < .01$

Note: Marital status was coded 1 = single; 2 = married. Angst, Expected Negative Future and Singlism were measured on Likert scales (1-7), with higher values indicating greater levels of the constructs.

Table 2

Summary of Exploratory Factor Analysis Results for Angst, Expected Negative Future and Singlism

	Factor		
Item	**1. Singlism**	**2. Expected Negative Future**	**3. Angst**
I worry that the institution of marriage is in jeopardy.	.063	.124	**.916**
I think the future of marriage is under threat.	.198	**.645**	**.416**
I worry that changes in the modern world will threaten my chances at marriage.	.132	.193	**.902**
I worry that if I don't eventually get married, I can never be completely happy.	.139	**.935**	.128
I worry that if I don't eventually get married, my life will lack purpose and meaning.	.276	**.854**	.062
People who never marry aren't ever truly happy.	**.593**	.180	.149
Normal people eventually get married.	**.679**	.137	.170
I feel sorry for people who are single for too long.	**.803**	.062	.149
Single people are unstable.	**.647**	.258	.130
People who never marry live shallow lives that lack meaning.	**.668**	.259	.025
Single people tend to be desperate to find a mate.	**.796**	.133	-.095
Single women are obsessed with their careers.	**.600**	.093	.142
Single people tend to be irresponsible.	**.841**	.103	.031
Single people tend to be immature.	**.838**	.099	-.034

Note: All loadings above .30 are highlighted in bold font.

Table 3

Descriptive Statistics and Bivariate Correlations Among All Variables for Study 2.

	M	SD	1	2	3
1. Condition	1.51	.50	-	-	-
2. Angst	3.57	1.47	.25*	-	-
3. Singlism	3.06	1.06	-.28**	.29	-

$+ p < .10$; $* p < .05$; $** p < .01$

Note: Condition is coded 1 = affirm, 2 = threat. All variables were measured on Likert scales (1-7), with higher values indicating greater levels of the constructs.

Table 4

Descriptive Statistics and Bivariate Correlations Among All Variables for Study 3.

	M	*SD*	1	2	3	4
1. Condition	1.49	.50	-	-	-	-
2. Angst	3.48	1.49	.33*	-	-	-
3. Negative Future	3.50	1.85	-.01	.47**	-	-
4. Singlism	2.97	.94	-.29*	.15	.47**	-

+ *p* < .10; * *p* < .05; ** *p* < .01

Note: Condition is coded 1 = affirm, 2 = threat. All other variables were measured on Likert

scales (1-7), with higher values indicating greater levels of the constructs.

Figure 1. Mediation model with positive indirect positive effect of angst on biases against single people through expected negative future.
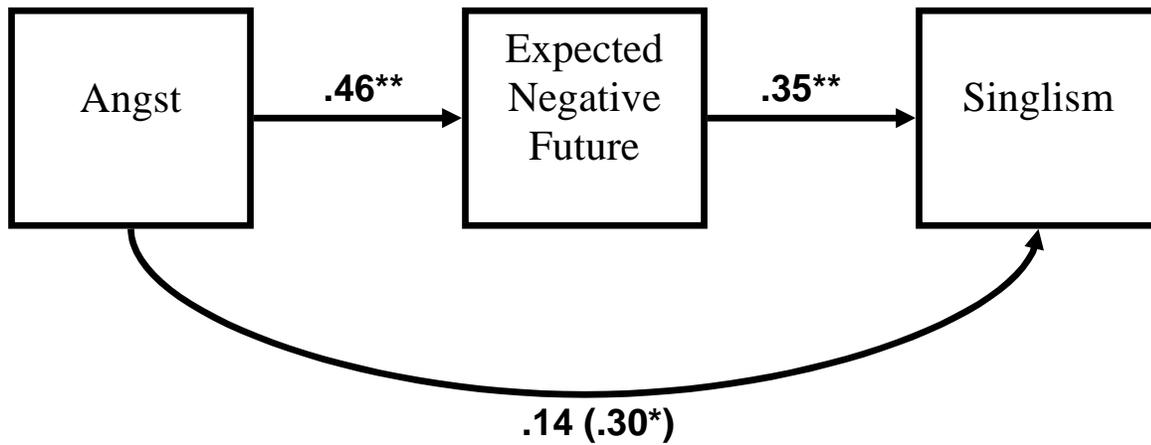
Note: * *p < .05; ** *p < .01.* The beta coefficient inside parentheses is the direct relationship between the predictor and outcome variable before controlling for the mediator.

Figure 2. Mean angst and biases against single people in the threat, affirm and control conditions.
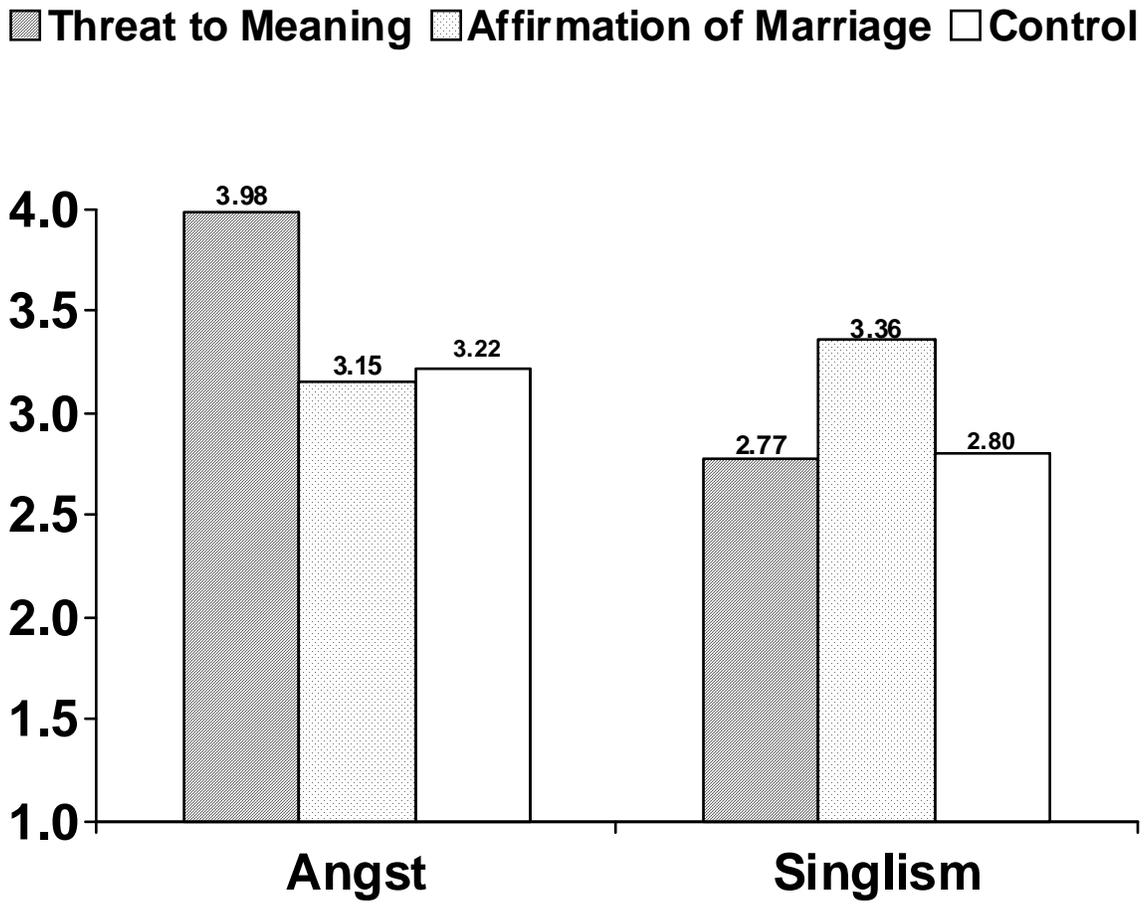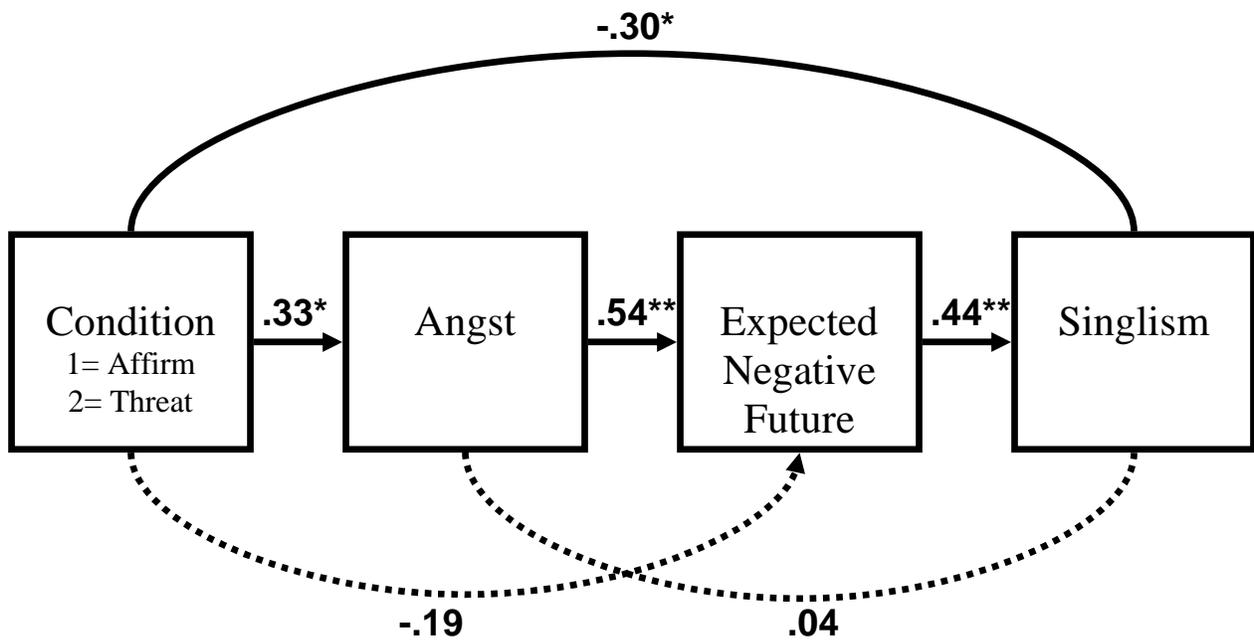

Legend: Threat to Meaning, Affirmation of Marriage, Control

Angst — Threat to Meaning: 3.98, Affirmation of Marriage: 3.15, Control: 3.22

Singlism — Threat to Meaning: 2.77, Affirmation of Marriage: 3.36, Control: 2.80

Figure 3. Mediation model with angst partially suppressing the negative threat versus affirm

condition effect on biases against single people.

Condition
1= Affirm
2= Threat

.25*

Angst

.38**

Singlism

-.37 (-.28*)**
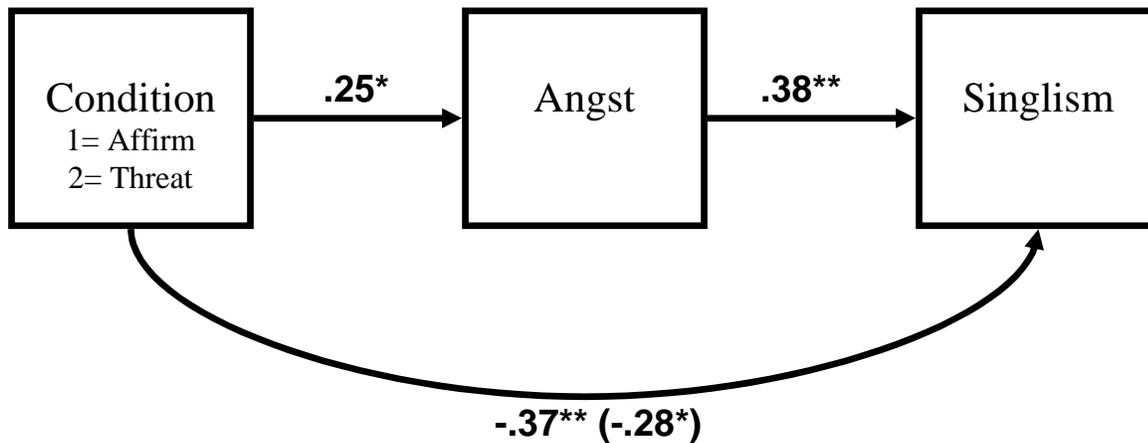
*Note: * p* < .05; ** *p* < .01. *Note: * p < .05; ** *p* < .01. The beta coefficient inside parentheses is

the direct relationship between the predictor and outcome variable before controlling for the

mediator.

Figure 4. Path analysis with double mediation including both angst and expected negative future in one model.

-.30*

| Condition | **.33*** | Angst | **.54**** | Expected | **.44**** | Singlism |

Condition
1= Affirm
2= Threat

.33* → Angst **.54**** → Expected Negative Future **.44**** → Singlism

-.19   **.04**

Note: * p < .05; ** p < .01.