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# The influence of the single stereotype on moral judgments

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THE INFLUENCE OF THE SINGLE STEREOTYPE ON MORAL JUDGMENTS

An Abstract of a Thesis  
Submitted  
in Partial Fulfillment  
of Requirements for the Degree  
Master of Arts

Peng Zhang  
University of Northern Iowa  
December 2015

## ABSTRACT

Stereotypes can powerfully influence people's moral judgments. For example, stereotypes of atheists lead people to report immoral behavior as more consistent for atheists than Christians (Wright & Nichols, 2014). When targets are labeled as "obese" or "hippie", perceivers morally judge them more harshly than targets who are not assigned such labels (Masicampo, Barth, & Ambady, 2014). However, limited research has examined how stereotypes of single people can influence perceivers' moral judgments. Because of various negative stereotypes people hold about single people (Conley & Collins, 2002; DePaulo & Morris, 2005), it was anticipated that people would morally judge a single target more harshly than a romantically attached target, especially if they were romantically attached themselves. Two hundred and twenty Turkers and 202 college students completed an online study in which they judged how honest 8 people were, based on a description of that person (which included their relationship status) and their behavior in a 2 (relationship status of target) by 2 (neutral vs. dishonest behavior) within-participants design. Participants indicated their own relationship status and were primed to think about that status (e.g., by describing how being in a relationship or being single felt) prior to rating the targets. Across both samples, perceivers judged targets' dishonest behaviors more harshly than their neutral behaviors, and perceivers also judged single targets more harshly than attached targets. There were no effects for relationship status of the participants, which indicates that single perceivers judged single targets as harshly as attached perceivers. This study provides further evidence of how mixed stereotypes of certain target groups can influence people's perceptions and judgments of those groups.

*Keywords: Single stereotype, moral judgments*

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Entitled: The influence of the single stereotype on moral judgments

Has been approved as meeting of the thesis requirement for the  
Degree of Master of Arts

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## CHAPTER 1

### INTRODUCTION

According to Conley and Collins's (2002) definition, singles are currently "not involved in a close romantic relationship, whether they have been attached or married in the past" (p. 1485). Singles have been targets of negative stereotypes since the 1980s (Etaugh & Malstrom, 1981). Compared to married or coupled people, singles are perceived as less caring and less desirable (B. DePaulo, personal communication, Oct 6, 2014). DePaulo and Morris (2005) called this phenomenon "singlism." According to DePaulo (2011), "singlism is the stigmatizing of adults who are single. It includes negative stereotyping of singles and discrimination against singles" (p. 14).

Because stereotypes can powerfully influence people's perceptions toward a stereotyped group, perceivers may infer positive or negative stereotyped characteristics when they are actually not true, and such stereotyped perceptions may influence people's moral judgments (Tsukiura & Cabeza, 2011; Wright & Nichols, 2014). For example, stereotypes of atheists have an impact on both atheists and Christians' moral judgments. Both of these two groups reported immoral behavior as more consistent for atheists than Christians (Wright & Nichols, 2014). However, few studies have explored whether singlism influences perceivers' moral judgments of single people.

For the present study, I hypothesized that the stereotypes (e.g., less caring, less desirable, and more risky than attached people) of singles would negatively influence people's moral judgments of singles compared to people who are currently in a relationship. In addition, I explored whether relationship status of the perceivers

themselves would moderate this effect based on in-group favoritism (Tajfel & Turner, 1979).

### Theoretical Background of Stereotypes

According to Hamilton and Troler (1986), “a stereotype is a cognitive structure that contains the perceiver’s knowledge, beliefs, and expectancies about some human group” (p. 133) and most of the time, the beliefs or knowledge are not quite accurate. For example, the beliefs that “Jews are religious and wealthy; African American are noisy and athletic; Italians are loyal to family and loud; females are not good at math” are at least not true for all; however, those beliefs have been heavily endorsed by American college students (Madon et al., 2001).

### Origin of Stereotypes

Early researchers (Katz, Allport, & Jenness, 1931; Katz & Braly, 1933) suggested that stereotypes toward certain ethnic groups or nationalities were not derived from beliefs about a member of the stigmatized group, but instead stereotypes toward stigmatized group were a conditioned response that people have learned through their lives. They argued that when people encounter a member of certain stigmatized group, they do not see the member as a human being, but view the individual as a symbol of various beliefs that they have learned before. As people become more and more personally involved with stereotyped individuals, stereotypes might go away. Nadler, Berry, and Stockdale (2013) argued that stereotypes could be influenced by familiarity with individuals from the stigmatized group, because as familiarity increased, the

interpersonal affective ties and the knowledge of stigmatized people would also increase, which could lead to the individualization of the stigmatized people.

Evolutionarily speaking, people simplify incoming environmental stimuli either instinctively (e.g., snakes are dangerous), or cognitively, based on previous learned knowledge (e.g., bright colored fruits are poisonous). This simplification process dramatically increases people's survival and reproductive rates. For example, being instinctively afraid of snakes or insects would cause people to stay away from them whether they are poisonous or not, and therefore would increase people's survival and reproductive rates.

Most research assumes that people's ability to process incoming environmental information is limited, and that people cannot process all the stimuli that come from their environment (Hilton & Von Hippel, 1996; Tajfel, 2010). Thus people are intrinsically motivated to simplify incoming stimuli from the environment, and stereotyping is one of the by-products people have evolved during their evolutionary history to help with this process. By categorizing individuals into groups with labels based on previous knowledge, people are able to utilize their limited cognitive resources more efficiently, powerfully influencing people's survival and reproductive rates. Thus, stereotypes can be considered a way people evolved in order to effectively deal with more "important" environmental stimuli.

### Functions of Stereotypes

In general, stereotypes allow people to perceive environmental stimuli based on previously stored knowledge in order to make information processing easier (Hilton &

Von Hippel, 1996). However, these cognitive short cuts sometimes have negative effects. Within United States culture, because people tend to associate African Americans with violence and crime, White participants identify guns faster under Black face priming than White face priming (Payne, 2001). White participants also tend to respond faster to White faces paired with positive words (e.g., playful, humorous, charming) than Black faces paired with positive words, and Black faces paired with negative words (e.g., poor, violent, lazy) than White faces paired with negative words. These findings suggest that negative stereotypes of African Americans may implicitly influence White participants' social judgments of African Americans (Wittenbrink, Judd, & Park, 1997).

These stereotypes can impact how others treat members of stereotyped groups. For example, people perceive targets with lower socioeconomic status (SES) as less competent and motivated than targets with higher SES (Lily, 1994). Such stereotypes also apply to racial minorities. White people tend to perceive Black people as less academically competent than White people (Wittenbrink et al., 1997). Furthermore, teachers consciously or unconsciously tend to hold lower academic expectations for African American students and students who come from low SES families (Jussim, Eccles, & Madon, 1996). Teachers are also less likely to refer racial minority students as "gifted" or "talented" than racial majority students (Marx, 2003; Tenenbaum & Ruck, 2007), therefore negatively affecting those stereotyped students' academic performance.

Stereotypes can also lead people to minimize individual differences and simply attribute people's characteristics to the stereotyped group membership they have (Tajfel, 2010). Due to the U.S. cultural stereotypes of Asians being good at math, Americans

might be more likely to attribute Asians' academic success in math to their natural ability rather than their hard work. Lesbian, gay, bisexual and transgender people (LGBT) are often treated differently by heterosexuals because of the negative stereotypes (e.g., promiscuity; Brown & Groscup, 2009). In terms of gender stereotypes, men are more likely to be perceived as intellectually competent compared to women, whereas women are more likely to be associated with negative intellectual qualities such as being naive (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972). Perhaps because of the existence of such negative stereotypes, women have been historically underrepresented in science and mathematics fields (Gurer & Camp, 2001).

When an individual who belongs to a group that is negatively stereotyped performs ambiguous behaviors, the negative stereotypes can distort the meaning of these behaviors. For example, a shove is considered more violent if it is done by a Black person than a White person due to widely shared stereotypes of African Americans as violent (Duncan, 1976; Sagar, Schofield, & Snyder, 1983). A mixed performance on an exam is interpreted more positively if the student comes from a high-level socioeconomic family than from low-level socioeconomic family (Darley & Gross, 1983), because of the existence of negative stereotypes of low SES students being academically incompetent.

People who are stereotyped may also be treated differently based on their peripheral characteristics. Men can be perceived as less intellectual if they have blond hair, and both men and women are likely to be perceived as temperamental if they have red hair (Weir & Fine-Davis, 1989). People also perceive women with tattoos as less physically attractive and more promiscuous than women without tattoos (Swami &

Furnham, 2007). People are also perceived as more aggressive and dishonest if they are wearing black clothing (Vrij & Akehurst, 1997). Furthermore, people even have stereotypes of specific eating habits. They perceive women with “unhealthy” breakfast habits as less likeable, healthy, and athletic (Oakes & Slotterback, 2004).

### Self-fulfilling Prophecy

Stereotypes can also influence the well-being of the targets of these stereotypes by making them believe the stereotype is their own reality through a self-fulfilling prophecy (Merton, 1948). In one of the most famous studies of self-fulfilling prophecy (Snyder, Tanke, & Berscheid, 1977), participants were asked to have a telephone conversation with a stranger of the opposite sex. Before the telephone conversation, researchers showed male participants the supposed picture of their telephone conversation partners. Instead of showing the picture of their actual partners, the pictures were randomly replaced by physically attractive or unattractive women. Stereotypes of physical attractiveness actually changed the behavior of the female participants. Female participants who talked to a male participant who had been showed an attractive woman behaved in a more likeable and sociable way than female participants who talked with male participants who had been showed an unattractive woman. Female participants who were believed by the men to be physically attractive actually acted more attractive based on the male participants’ responses to them.

People are also at risk of believing they have certain negative characteristics that they actually might not have. Most sighted people tend to believe that blind people are helpless and need be treated carefully (Monbeck, 1973), however such “careful”

treatment might hinder blind people's regular practice of life-needed skills. Self-fulfilling prophecies are also frequent in the classroom. Teachers' stereotypes of gender (e.g., female students are bad at math), ethnicity (e.g., African American students are less academically competent than White students), and socioeconomic status (e.g., low SES students are less academically competent than high SES students) lead to lower expectations towards certain students, and students who come to believe these stereotypes may jeopardize their own academic motivation and achievements (Bianchi, 1984). Students' ethnicities are the second most powerful predictor of teachers' expectations, right after students' intellectual ability (Clifton, Perry, Parsonson, & Hryniuk, 1986).

### Stereotype Threat

Stereotypes can also explicitly influence stigmatized individuals through their fear of confirming such stereotypes even though they might not believe them. African Americans tend to underperform on standardized tests compared to White Americans (Steele & Aronson, 1995). The knowledge of the stereotype that African Americans are intellectually inferior to Whites might be one of the factors which could hinder Black students' performance on intellectual tests, a phenomenon known as stereotype threat. Unlike self-fulfilling prophecy where people actually believe the stereotypes, for stereotype threat, even if people do not believe they have the stereotyped characteristics, the fear that their future performance might confirm the stereotypes dramatically influences their performance by wasting their limited cognitive resources.

After Steele and Aronson (1995)'s provocative study showed that Black freshman and sophomore college students underperformed on a standardized test if Black students'

race was emphasized before the test, stereotype threat effects have been widely found on various types of tasks among stigmatized groups. Children with lower socioeconomic status tend to perform worse on intellectual tasks than children with high socioeconomic status (Croizet & Claire, 1998). Latinos and particularly Latina women perform more poorly than White Americans if the task is labelled as a test of intelligence (Gonzales, Blanton, & Williams, 2002). Furthermore, even non-stigmatized individuals can be primed to experience stereotype threats. White American men performed more poorly than African American participants on a golf task when the task was labeled as a measurement of natural athletic ability, but if the golf task was labeled as a measurement of “sport intelligence,” then African Americans tended to perform more poorly than White Americans (Stone, Lynch, Sjomeling, & Darley, 1999). White Americans also perform more poorly on a math test when they are informed that their performance will be compared with that of Asians (Aronson et al., 1999).

Widespread stereotypes such as those related to gender, race, or sexual orientation not only powerfully influence how people perceive certain stigmatized groups, but also jeopardize the well-being of those in these stigmatized groups by self-fulfilling prophecies (Merton, 1948) and stereotype threats (Steele & Aronson, 1995; Stone et al., 1999). However few studies have specifically explored the stereotypes of single people.

### Single Stereotype

Single stereotypes have been identified for several decades since Duberman (1975) and Stein (1976) found that people viewed singles as less desirable and less natural than people who are married. Since then, the population of singles in the U.S. has increased dramatically (Fields, 2004). In 1970, single adults comprised about 28% of the adult population; however in 2014, according to the dataset of America's Families and Living Arrangements, the percentage of single adults among the general adult population had increased to 38%. As the population of singles has become larger, one might expect that certain stereotypes towards singles might have changed from the 1970s. However, a recent study (Hertel, Schütz, DePaulo, Morris, & Stucke, 2007) indicated that people still perceive singles as less warm and caring, more likely to have an STD, and more risky and less responsible than people who are in relationships (Conley & Collins, 2002). Singles are also perceived as less mature, reliable, and stable than their married counterparts (B. DePaulo, personal communication, Oct 6, 2014). In terms of traits, single people are perceived as less agreeable and less open to experience (Greitemeyer, 2009). College students who are currently in a relationship are judged more favorably than those who are not currently in relationship. Even persons who once were in a relationship are judged more favorably than ones who were never in a relationship (B. DePaulo, personal communication, Oct 6, 2014).

### Origin of Single Stereotypes

Why do people hold so many stereotyped beliefs toward singles? The main reason seems to be American culture's overemphasis on marriage. American culture maintains

the ideology that marriage is the most important social relationship (Day, Kay, Holmes, & Napier, 2011). In the U.S., at least 90 percent of adults have been married at some point in their life (Connidis, 2001). The majority of people assume that married people are happier, less lonely, and more mature (B. DePaulo, personal communication, Oct 6, 2014).

Such a marriage-emphasizing tradition is also prevalent in collectivist cultures. In China, marriage is important for most people (Higgins, Zheng, Liu, & Sun, 2002). One of the most important standards of personal success is a perfect marriage. There is a very famous traditional idiom called “cheng jia li ye” which means that people need to focus on their career only after they get married. Japan also has a similar marriage culture. Japanese women are raised to be a good wife and sacrifice their own personal goals for the family’s good (Bardsley, 2004). Thus people who still remain single after a certain age might be labelled with multiple negative stereotypes (e.g., risky, irresponsible, undesirable, immature, incomplete) that influence people’s perceptions of single people.

Stereotypes might also make singles suffer negative interpersonal and economic outcomes in their daily lives. As people’s romantic relationships become more and more intimate, they tend to withdraw themselves from their friends (Wellman, Wong, Tindall, & Nazer, 1997), and when they socialize, they prefer to socialize with other married people instead of single friends (Verbrugge, 1983). Singles often feel left out by their married friends (Amador & Kiersky, 1998). Singles report that they feel like they are being treated as less than fully adult sometimes, and they believe that their married friends make most of the decisions when they socialize (Amador & Kiersky, 1998).

### Social Identity Perspective of Single Stereotypes

Singles are treated differently by their married counterparts, but how about their single counterparts? Based on social identity theory (Tajfel & Turner, 1979), people are intrinsically motivated to maintain a positive self-concept. Therefore people perceive in-group members more favorably than out-group members, because part of an individual's self-concept comes from memberships in social groups.

In-group favoritism (Tajfel & Turner, 1979) has been repeatedly shown in both laboratory and real world situations. For example, Muslims tend to allocate more money to their ethnic in-group members in a dictator game (Whitt & Wilson, 2007). White participants tend to favor White candidates more than Black candidates in an employment game when the candidates' qualifications are ambiguous (Dovidio & Gaertner, 2000). After Clinton's concession in 2008, Democrats were more likely to behave generously toward people who supported their own preferred candidate than the people who supported other Democratic candidates (Rand et al., 2009). Even small similarities can introduce in-group favoritism. Jones, Pelham, Mirenberg and Hetts (2002) found that women were more likely to marry men whose last name began with the same letter as theirs. Furthermore, people named Louis are more likely to live in St. Louis, and people named Paul are more likely to live in St. Paul (Pelham, Mirenberg, & Jones, 2002). Thus, based on the phenomenon of in-group favoritism, I tested whether singles may be perceived more positively by their single counterparts than their attached counterparts.

### Gender Effects on Single Stereotypes

Gender can also affect the content of single stereotypes. In the U.S., women are evaluated more negatively than men if they delay marriage (Krueger, Heckhausen, & Hundertmark, 1995). Women judge single male targets more harshly than men judge single female targets in sexual contexts (Conley & Collins, 2002), because of the stereotype that men are more promiscuous than women. Single male targets are believed to have more risk of HIV and other STDs than single female targets (Conley & Collins, 2002), and single female targets are perceived as more responsible and more competitive than single male targets (Etaugh & Malstrom, 1981). Both men and women rate single people as less responsible and having riskier personality traits than married or coupled people (Conley & Collins, 2002). In collective cultures such as China or Japan where interpersonal relationships are highly emphasized (Hsu, 1985), people are more likely to associate women's traits with their interpersonal relationships than men's. If women remain single after a certain age, they are more likely to be viewed as less competent than men (Higgins et al, 2002).

Because people hold various negative stereotypes toward singles, it is possible that people will apply such negative stereotypes during moral judgments of stereotyped groups. However, there are few studies that have specifically examined whether people will apply negative stereotypes of single people when they make moral judgments of them.

### Moral Judgment

Humans are able to perceive others by moral standards, which means that people can perceive others not only based on their previous knowledge and experiences (e.g., stereotypes; Jussim, 1991), but can also evaluate targets' actions in moral terms, including both universal and cultural norms about right and wrong. According to Haidt (2001), moral judgments are “evaluations (good vs. bad) of the actions or character of a person that are made with respect to a set of virtues held to be obligatory by a culture or subculture” (p. 817).

The social intuitionist approach to moral reasoning generally assumes that moral judgments are automatic, immediate, and emotion based. According to Haidt (2001), “moral intuition can be defined as sudden appearance in consciousness of a moral judgment, including an affective valence (good-bad, like-dislike), without any conscious awareness of having gone through steps of searching, weighing evidence, or inferring a conclusion.” (p. 818) The intuitionist approach suggests that reasoning often comes after people have made moral judgments. The main difference between reasoning and intuition is that reasoning occurs slowly and requires cognitive effort, whereas intuition occurs more quickly, effortlessly, and automatically, and without cognitive effort.

During one of the Haidt's (2001) famous taboo hypothetical dilemmas about sexual intercourse between siblings, all possible objections were neutralized. For example, both brother and sister have turned 21 years old, both of them use birth control to rule out the negative genetic consequence of inbreeding, and both of them feel good about the violation and decide not to do it again, which rules out the possibility that one

of them will get hurt either physically or mentally from such a violation. The participants then were asked to judge whether the behaviors between siblings were morally appropriate. Most of the participants think the action is morally wrong and “disgusting”; however most of them cannot provide effective arguments to justify their decision. Based on Haidt (2001)’s and Haidt, Koller and Dias (1993)’s work, Cushman, Young and Hauser (2006) also found that people thought harmful actions as means to a goal (e.g., save 5 people’s lives by purposely pulling the lever and drop a man off the footbridge to stop the moving train) were morally more wrong as compared to harmful actions as foreseeable side effects to the goal (e.g., save 5 people’s lives by pulling the lever to change the direction of the moving train, however, as a side effect, one person will die). However, similar to Haidt (2001)’s and Haidt, Koller and Dias (1993)’s study, participants could not offer specific reasons for why they made such moral judgments.

Haidt (2001) argues that the reason why participants cannot provide convincing arguments, despite the fact that they think the action is morally wrong, is that participants are not aware of the process when they make moral judgments. People may use moral reasoning to justify or interpret moral conclusions instead of helping them make moral judgments.

The intuitionist approach also emphasizes the importance of peer socialization. Haidt (2001) argued that moral intuition is partially inborn; however people in different cultures seem to have different sets of moral intuitions that are unique to their own culture. For example, in Cushman et al. (2006)’s study, both U.S. and Brazilian participants thought that eating a dog was morally wrong based on their moral intuitions;

however, in certain area of China (e.g., Yulin), people eat dogs on a daily basis and think that eating dogs is just as normal as eating any other animals. Haidt (2001) suggested that, during the maturation of people's moral intuitions, their socialization with peers as children shape their moral intuitions to be consistent with their own cultural moral values. Haidt (2001) suggests that people's moral intuitions are always there; however, during the development of moral intuition, some of them are more chronically accessible than others, depending on their cultural socialization. Minoura (1992) found that Japanese children who spent a few years in the U.S. at a sensitive period of time between the age of 9 to 15 developed an "American" way of thinking. When they returned to Japan, they felt like something inside of them was missing under the pressure of Japanese culture, and felt like they did not belong. However, if Japanese children had already passed the age of 15 when they came to U.S., there was little change to their identity, and they did not internalize an "American" way of thinking.

### The Influence of Stereotypes on Moral Judgments

The social intuitionist model considers moral judgments as generally quick and automatic instead of conscious and deliberate. Such automatic evaluations are easily influenced by stereotypes (Devine, 1989; Dion, Berscheid, & Walster, 1972). For example, people perceive attractive people as holding higher moral standards than others (Tsukiura & Cabeza, 2011). Knowledge of an individual's group membership can powerfully influence how people morally judge an individual's action. When targets are labeled as obese, hippie, or White trash, perceivers morally judge them more harshly than targets who were not assigned such labels (Masicampo, Barth, & Ambady, 2014).

Traditional sex-role stereotypes that men pursue sex just for physical pleasure and lust (DeLamater, 1987) lead people to rate male AIDS patients lower on moral worth than female AIDS patients (Walkey, Taylor, & Green, 1990). The racial stereotypes of African Americans as violent lead people to perceive African Americans as holding lower moral standards than White Americans (Sigelman & Tuch, 1997).

People can be stereotyped solely based on their out-group membership.

Heterosexuals with orthodox religious beliefs perceive the growing acceptance of gay men and lesbians as the decline of American morals (e.g., importance of heterosexuality; Herek, 1988). Younger people perceive older people as more dishonest than younger people, and older people perceive younger people as more dishonest than older people as well (Schniter & Shields, 2014).

Whether a stereotype is well-known (e.g., racial or gender stereotype), or a more subtle one that people tend to ignore in their daily life (e.g., age or appearance), or even a label that people are given (e.g., hippies), such stereotypes can influence one's moral judgments of a stereotyped or labeled target.

#### Current Study

Because people generally hold negative stereotypes toward singles and perceive them as less warm, less caring, more risky, more irresponsible, and less desirable (B. DePaulo, personal communication, Oct 6, 2014; Conley & Collins, 2002; Etaugh & Malstrom, 1981), such negative stereotypes may influence how people judge singles on moral issues.

I propose that participants will morally judge a single target more harshly than a target who is in a long term relationship. Because of in-group favoritism (Tajfel & Turner, 1979), this effect may also be moderated by perceivers' relationship status -- single perceivers may morally judge a single target less harshly than a perceiver who is in a relationship even if the single perceiver morally judges the single target more harshly than the target who is in a relationship. Thus the formal hypotheses are:

1. Both single and attached participants will rate single targets more harshly than attached targets.
2. Single participants will rate the single targets less harshly than the attached participants will.

Furthermore, no previous studies have explored whether partners' relationship satisfaction may influence their social identity. Decreased relationship satisfaction does not necessarily mean dis-identification with an attached membership, but it is possible that as individuals start to become more and more dissatisfied with current relationship, people might more likely to identify themselves as single. If that is the case, then according to in-group favoritism (Tajfel & Turner, 1979), even among attached participants, their judgments toward single targets may differ based on their relationship satisfaction. Thus my first research question is whether attached participants' relationship satisfaction will be negatively correlated with the harshness of their moral judgments towards single targets, since according to in-group favoritism, attached people should perceive single targets more positively if they identify themselves as single currently.

Most previous research (Eagly & Mladinic, 1994; Etaugh & Malstrom, 1981;

Mueser, Bellack, Morrison, & Wade, 1990) has indicated that there is not a gender effect on targets in terms of competence and personality, however few studies have explored whether gender effects exist in the context of targets' current relationship status. Because women are generally judged more negatively than men at late marriage (Krueger et al, 1995), it is possible that people hold stricter standards for single women than single men. Thus my second research question is whether the targets' gender serves as a moderator of perceivers' moral judgments.

## CHAPTER 2

### METHOD

#### Design

This study is a posttest-only 2 (moral condition: neutral vs. moderately dishonest)  $\times$  2 (target's relationship status: single vs. attached)  $\times$  2 (replication) factorial within-participant design in which participants judged eight same-gender targets' honesty based on their behavior. I also examined the between-participants variables of sample source (college student vs. m-Turk participants), participants' relationship status (single vs. attached) and gender (male vs. female).

#### Participants

Based on the mean effect size of previous studies ( $r = .20$ ) that have explored the relationship between stereotypes and moral judgments (Tsukiura & Cabeza, 2011; Wright & Nichols, 2014), in order to achieve .80 power, the sample size of the current study should be no less than 277. Two hundred and twenty six college students (42.5% male; 86% Caucasian; 54.3% single; among participants who were currently in relationships, 26% were casually dating, 63% were seriously dating; Mean age = 19.45, Median age = 19,  $SD = 3.15$  years) were recruited from the Introduction to Psychology participant pool, and 202 participants (39% male; 71% Caucasian; 31.3% single; among participants who were currently in relationships, 24% were seriously dating, 17% were living together and 50% were married; Mean age = 33.97, Median age = 31,  $SD = 12.16$  years) participated through Amazon Mechanical Turk. The total number of participants did not include an

additional 2 college students and 10 m-Turk participants who were younger than 18; those 12 individuals' data were deleted after data collection.

Despite the obvious age differences between the college student sample and the Turker sample, the data from two samples were combined to increase power. There were no main effects,  $F(1, 408) < .01$ ;  $p = .989$ ,  $\eta^2 < .001$ , nor interaction effects,  $F$ 's  $< 4.90$ ,  $p$ 's  $> .24$ , for sample (college student vs. m-Turkers) on how honest the targets' behavior was.

### Procedure and Measurements

All participants completed the study online. College students participated in small groups of up to 12 in a university computer lab, whereas Turkers participated on their own computers. After participants read the consent form (see Appendix A&B) and voluntarily agreed to participate, both college students and Turkers completed demographic questions, such as age, sex, ethnicity, and sexual orientation (see Appendix C).

Participants then completed an instructional manipulation check question (Oppenheimer, Meyvis, & Davidenko, 2009) to examine whether they read the instructions carefully or not (see Appendix D).

Then they were asked to report their relationship status. Participants were asked detailed information about their relationship status if they were attached, or they provided their current thoughts on their relationship status if they were single (see Appendix E).

Participants then judged 8 same-gender targets on 9-point scales from *extremely dishonest* to *extremely honest* after reading a short description of the targets (see

Appendix F). An example is: “David is a 23-year-old college student majoring in chemistry. He has been in a relationship with Jennifer for almost 3 years. During his leisure time, David likes to play soccer and tennis. When he visited his aunt, he told stories about Santa Claus to his nephew. How honest do you think David is based only on the information you have?” The target’s name, age (20 years old – 23 years old), major, and hobby were varied across each scenario, and each participant read about 4 targets who were single and 4 who were in a relationship. The final sentence in each scenario was a behavior chosen from a previous study (Skowronski & Carlston, 1987) that categorized given behaviors from extremely dishonest to extremely honest. In order to avoid ceiling or floor effects, I only chose neutral dishonest to moderately dishonest behaviors from this study. The 8 scenarios were presented in a random order.

Participants who were currently in a relationship, based on answers from demographic questions, then completed the relationship assessment scale (RAS; Hendrick, 1988) to assess their general relationship satisfaction (see Appendix G). They answered each item using a 7-point Likert scale to indicate their general feelings within the current relationship. A sample question includes “How often do you wish you hadn’t gotten into this relationship?” The internal consistency coefficient of the RAS in previous research was .91, and the RAS functions as a reliable measurement for relationship satisfaction of participants (Vaughn & Matyastik Baier, 1999). Furthermore the RAS has shown strong predictive validity with dating couples (Hendrick, 1988). The internal consistency coefficient of the RAS in current study was .71.

Then participants were also asked to respond one question (i.e., what percentage of your friends is currently involved in a relationship?) in order to explore whether their familiarity with single people would influence their moral judgments toward single people.

All participants then rated the extent to which 10 characteristics (B. DePaulo, personal communication, Oct 6, 2014) described single people of different ages on 7-point scales from “*not at all*” to “*very much*” to assess the stereotypes they might hold towards single people who were 24 years old or 40 years old (see Appendix H). For example, “Think of a typical 24-year-old single man. To what extent do you think each of these characteristics describes him? How happy do you think he usually is?” or “How lonely do you think he is?” The questions were assigned to participants based on their gender in a random order. Each participant responded about both a 24-year-old and 40-year-old single person of their gender.

Participants then completed open-ended questions (see Appendix I) about both single and attached people of their own gender, such as “What comes to mind when you think about single/attached men? (Please list any characteristics that you think generally describe them below.)”.

All participants received the debriefing statement (see Appendix J) after finishing the survey.

## CHAPTER 3

### RESULTS

#### Manipulation Checks

Participants rated targets who engaged in moderately dishonest behavior as less honest ( $M=3.03$ ,  $SD=.05$ , 95%  $CI$  [2.94, 3.13]) than those who engaged in neutral behaviors ( $M=5.24$ ,  $SD=.04$ , 95%  $CI$  [5.16, 5.32]) based on a repeated measures 2 (single target vs. attached target)\*2 (neutral moral behavior vs. moderately immoral behavior)\*2 (replication 1 vs. replication 2) ANOVA, supporting the effectiveness of the moral condition manipulation,  $F(1,409)=1456.45$ ,  $p<.001$ ,  $\eta^2=.73$ .

Thirty percent of college students and 64.7% of Turkers correctly responded to the instructional manipulation check question. In order to test whether participants paying attention to instructions influenced the results of the study, whether participants passed the manipulation check or not was considered as a between group variable in a repeated measures 2 (single target vs. attached target)\*2 (neutral moral behavior vs. moderately immoral behavior)\*2 (replication 1 vs. replication 2) ANOVA. I combined careful and non-careful readers during data analysis mainly because there were no significant differences in responses of careful readers ( $M=4.10$ ,  $SD=.05$ , 95%  $CI$  [4.00, 4.20]) vs. non-careful readers ( $M=4.17$ ,  $SD=.05$ , 95%  $CI$  [4.08, 4.26]) on how honest the target was rated in a given scenario,  $F(1, 408) = .92$ ,  $p = .338$ ,  $\eta^2 < .001$ .

#### Main Findings

A repeated measures 2 (single target vs. attached target)\*2 (neutral moral behavior vs. moderately immoral behavior)\*2 (replication 1 vs. replication 2) ANOVA

without any between participant variables included in the design was used to examine whether targets' relationship status would influence perceivers' judgments of honesty. Participants judged single targets ( $M=3.93$ ,  $SD=.04$ , 95%  $CI$  [3.85, 4.00]) more harshly than attached targets ( $M=4.35$ ,  $SD=.04$ , 95%  $CI$  [4.27, 4.42]),  $F(1, 409) = 146.02$ ,  $p < .001$ ,  $\eta^2 = .23$ . There were similar results, however with a smaller effect size, when participants who passed the instructional manipulation check were only examined ( $M=3.93$ ,  $SD=.05$ , 95%  $CI$  [3.83, 4.04] vs.  $M=4.27$ ,  $SD=.06$ , 95%  $CI$  [4.16, 4.38]),  $F(1, 409) = 146.02$ ,  $p < .001$ ,  $\eta^2 = .18$ ).

Based on the same repeated measures ANOVA above, participants' judgments differed by replications for all participants ( $M=3.99$ ,  $SD=.04$ , 95%  $CI$  [3.92, 4.07] vs.  $M=4.28$ ,  $SD=.04$ , 95%  $CI$  [4.20, 4.36]),  $F(1, 409) = 65.64$ ,  $p < .001$ ,  $\eta^2 = .11$ ) and for careful readers only ( $M=3.99$ ,  $SD=.05$ , 95%  $CI$  [3.88, 4.10] vs.  $M=4.21$ ,  $SD=.06$ , 95%  $CI$  [4.10, 4.32]),  $F(1, 186) = 19.78$ ,  $p < .001$ ,  $\eta^2 = .08$ ), which means that the replication of the 2 moral neutral behavior and 2 moderately immoral behaviors appears to have been unsuccessful. Participants generally rated the first 2 neutral moral behaviors (i.e., check vending machine for coins, told nephew about Santa Claus) and 2 moderately immoral behaviors (i.e., cheated during poker game, do not tell cashier about extra change) as less honest than the last replications of 2 moral neutral behaviors (i.e., check the vegetables carefully, finish report on time) and 2 moderately immoral behaviors (i.e., cut in line, fix and hide the car problem before selling the car); (Table 1 and Table 2).

Table 1. Descriptive Statistics of Study Measures (All Participants)

		<i>Mean</i>	<i>SD</i>	<i>95% CI</i>
Targets' status	Single	3.93	.04	3.85 – 4.00
	Attached	4.35	.04	4.27 – 4.42
Moral level	Neutral	5.24	.04	5.16 – 5.32
	Moderately Dishonest	3.03	.05	2.94 – 3.13
Replication	Replication 1	3.99	.04	3.92 – 4.07
	Replication 2	4.28	.04	4.20 – 4.36
Participants' status	Single	4.11	.05	4.01 – 4.21
	Attached	4.15	.05	4.06 – 4.24
Participants' gender	Male	4.11	.05	4.00 – 4.22
	Female	4.15	.05	4.06 – 4.24

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

Table 2. Descriptive Statistics of Study Measures (Careful Readers only)

		<i>Mean</i>	<i>SD</i>	<i>95% CI</i>
Targets' status	Single	3.93,	.05	3.83 – 4.04
	Attached	4.27	.06	4.16 – 4.38
Moral level	Neutral	5.23	.06	5.11 – 5.35
	Moderately Dishonest	2.95	.07	2.80 – 3.09
Replication	Replication 1	3.99	.05	3.88 – 4.10
	Replication 2	4.21	.06	4.10 – 4.32
Participants' status	Single	4.04	.08	3.89 – 4.17
	Attached	4.15	.07	4.02 – 4.28
Participants' gender	Male	4.09	.08	3.94 – 4.24
	Female	4.08	.07	3.95 – 4.22

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

There was an interaction between replication and target's relationship status,  $F(1, 409) = 15.66, p < .001, \eta^2 = .04$ , indicating that the two replications of neutral moral scenario and moderately immoral scenario showed more differences when the targets were single than when they were attached; there was an interaction between replication and moral behaviors as well,  $F(1, 409) = 35.72, p < .001, \eta^2 = .08$ , indicating that the two replications of the neutral moral scenario and moderately immoral scenario showed more differences when the scenario was neutral than moderately dishonest. However, I only found one interaction between replication and moral behaviors in the sample including

careful readers only,  $F(1, 186) = 11.40, p < .001, \eta^2 = .06$ , which might be due to the smaller sample size. I also found a 3 way interaction between target's relationship status, type of moral behaviors, and replication for all participants. For single targets, the two replications showed more differences on the neutral moral scenario than the moderately immoral scenario,  $F(1, 414) = 83.80, p < .001, \eta^2 = .17$ . For attached targets, the two replications showed no differences between the neutral moral scenario and the moderately immoral scenario,  $F(1, 410) = 2.72, p = .10, \eta^2 = .007$ . And in terms of careful readers only, for single targets, the two replications showed more differences on the neutral moral scenario than the moderately immoral scenario,  $F(1, 188) = 29.65, p < .001, \eta^2 = .14$ ; for attached targets, the two replications showed no differences between the neutral moral scenario and the moderately immoral scenario,  $F(1, 187) = 1.87, p = .17, \eta^2 = .01$ .

According to an examination of the repeated measures 2 (single target vs. attached target)\*2 (neutral moral behavior vs. moderately immoral behavior)\*2 (replication 1 vs. replication 2) ANOVA with participants' gender and their current relationship status as between group variables, there were no main effects for participants' status (all participants:  $M(\text{single}) = 4.11, SD = .05, 95\% CI [4.01, 4.21]$  vs.  $M(\text{attached}) = 4.15, SD = .05, 95\% CI [4.06, 4.24], F(1, 406) = .31, p = .573, \eta^2 < .001$ ; careful reader only :  $M(\text{single}) = 4.04, SD = .08, 95\% CI [3.89, 4.17]$  vs.  $M(\text{attached}) = 4.15, SD = .07, 95\% CI [4.02, 4.28], F(1, 183) = .98, p = .322, \eta^2 = .005$ ) or participants' gender (all participants:  $M(\text{male}) = 4.11, SD = .05, 95\% CI [4.00, 4.22]$  vs.  $M(\text{female}) = 4.15, SD = .05, 95\% CI [4.06, 4.24], F(1, 406) = .28, p = .598, \eta^2 < .001$ ; careful

reader only :  $M(\text{male})=4.09$ ,  $SD=.08$ , 95%  $CI$  [3.94, 4.24] vs.  $M(\text{female})=4.08$ ,  $SD=.07$ , 95%  $CI$  [3.95, 4.22],  $F(1, 183) = .01$ ,  $p = .92$ ,  $\eta^2 < .001$ ).

Based on the same repeated measures analysis, there were also no interaction effects related to participants' status (all participants:  $p$ 's  $> .16$ ,  $\eta^2 < .03$ ; careful reader only:  $p$ 's  $> .07$ ,  $\eta^2 < .01$ ) or participants' gender (whole participants:  $p$ 's  $> .07$ ,  $\eta^2 < .05$ ; careful reader only:  $p$ 's  $> .06$ ,  $\eta^2 < .02$ ) (Table 3 and Table 4).

Table 3. Repeated Measures Analysis of Variance (ANOVA)

All Participants					
	<i>df</i>	<i>MSE</i>	<i>F</i>	$\eta^2$	<i>p</i>
Targets' status	1	.97	141.81	.18	<.001***
Moral level	1	2.75	1456.45	.73	<.001***
Replication	1	1.07	61.17	.08	<.001***
Participants' status	1		.32	.00	.57
Participants' gender	1		.28	.00	.60
Targets' status * Moral level	1	.80	.04	.00	.85
Targets' status * Replication	1	.76	15.67	.04	<.001***
Moral level * Replication	1	.96	35.72	.08	<.001***
Participants' status * Target's status	1		.19	.00	.66
Participants' status * Moral level	1		.83	.00	.36
Participants' status * Replication	1		1.96	.01	.16
Participants' gender * Target's status	1		2.05	.01	.15
Participants' gender * Moral level	1		2.02	.01	.15
Participants' gender * Replication	1		3.20	.01	.07
Targets' status * Moral level * Replication	1	.86	66.70	.14	<.001***

table continues

Targets' status * Moral level *	1	.01	.00	.91
Participants' status				
Targets' status * Moral level *	1	.21	.00	.65
Participants' gender				
Targets' status * Replication *	1	1.05	.00	.31
Participants' status				
Targets' status * Replication *	1	.36	.00	.54
Participants' gender				
Moral level * Replication * Participants' status	1	.18	.00	.67
Moral level * Replication * Participants' gender	1	.08	.00	.80
Targets' status * Participants' status * Participants' gender	1	.78	.01	.19
Moral level * Participants' status * Participants' gender	1	1.37	.00	.24
Replication * Participants' status * Participants' gender	1	.10	.00	.75
Error	406			

*Note: \*p < .05, \*\*p < .01, \*\*\*p < .001*

Table 4. Repeated Measures Analysis of Variance (ANOVA)

Careful Reader only

	<i>df</i>	<i>MSE</i>	<i>F</i>	$\eta^2$	<i>p</i>
Targets' status	1	.91	45.99	.23	<.001***
Moral level	1	2.68	728.03	.80	<.001***
Replication	1	.95	18.87	.08	<.001***
Participants' status	1		.98	.01	.32
Participants' gender	1		.01	.00	.92
Targets' status * Moral level	1	.66	1.04	.00	.31
Targets' status * Replication	1	.72	2.92	.04	.09
Moral level * Replication	1	.87	11.40	.08	.001**
Participants' status * Target's status	1		.09	.00	.77
Participants' status * Moral level	1		.50	.00	.48
Participants' status * Replication	1		.00	.00	.96
Participants' gender * Target's status	1		.09	.00	.76
Participants' gender * Moral level	1		.04	.00	.85
Participants' gender * Replication	1		.85	.01	.36
Targets' status * Moral level * Replication	1	.76	21.28	.13	<.001***
Targets' status * Moral level * Participants' status	1		1.46	.01	.23
Targets' status * Moral level * Participants' gender	1		.84	.01	.36
Targets' status * Replication * Participants' status	1		.25	.00	.62
Targets' status * Replication * Participants' gender	1		.03	.00	.87

table continues

Moral level * Replication * Participants' status	1	.08	.00	.77
Moral level * Replication * Participants' gender	1	3.60	.02	.06
Targets' status * Participants' status * Participants' gender	1	1.17	.01	.28
Moral level * Participants' status * Participants' gender	1	.37	.00	.54
Replication * Participants' status * Participants' gender	1	.29	.00	.60
Error	183			

*Note: \*p < .05, \*\*p < .01, \*\*\*p < .001*

#### The Influence of People's Familiarity with Single Targets

The mean percentage of attached friends of participants is 50.33%. Bivariate correlations were used to examine the relationship between the percentage of attached friend of participants and their moral judgments toward single targets in order to explore whether the familiarity of single people would influence participants' moral judgments toward single targets. And there was no significant correlation between the percentage of attached friend of participants and their moral judgments toward single targets (Table 5).

Table 5. Correlation between Percentage of Attached Friends of Participants and Their Judgments towards Single Targets

Measure	1	2	3	4
Percentage of attached friend	.07	-.02	.02	.09
1. Checked the vending machine for coins (single)	--	.16**	.24**	.19**
2. Kept extra \$5 change in pocket (single)		--	.01	.35**
3. Finished report on time (single)			--	.04
4. Fixing and hiding car problem before selling (single)				--

\* $p < .05$ , \*\* $p < .01$

#### Relationship Satisfaction

Bivariate correlations were used to examine the relationship between participants' relationship satisfaction and their judgments towards single targets. Only one neutral moral behavior, finishing a report on time, was positively correlated with attached participants' relationship satisfaction (Table 6). After conducting fisher  $z$  score transformations, the average within-cell correlation of participants' relationship satisfaction and their judgments towards single people was .14.

Table 6. Correlation between Attached Participants' Relationship Satisfactions and Their Judgments towards Single Targets

Measure	1	2	3	4
Satisfaction	.07	-.01	.16**	.02
1. Checked the vending machine for coins (single)	--	.16**	.24**	.19**
2. Kept extra \$5 change in pocket (single)		--	.01	.35**
3. Finished report on time (single)			--	.04
4. Fixing and hiding car problem before selling (single)				--

\* $p < .05$ , \*\* $p < .01$

#### Single Stereotypes at Different Ages

All the participants were asked to rate to what extent characteristics (e.g., happy, secure, kind, stubborn, faithful) were representative of both 24-year-old and 40-year-old single people. Because the mean age for the college students sample was much lower than for the Turker sample (Mean age = 19 vs. Mean age = 34), the college students' and Turkers' judgments towards single people at different ages might be influenced by their own age according to in-group favoritism (Tajfel & Turner, 1979). I therefore separated the college student sample and Turker sample during the analyses of people's judgments towards single people at different ages.

First, one sample  $t$ - tests with the scale midpoint (4) as a comparison value were conducted to examine whether people hold certain stereotypes towards single people at different ages. There were significant differences from the midpoint on most of the rated

traits for each age group. For the college student sample, both 24-year-old and 40-year-old single people were rated as happier, more stubborn, more faithful, shy, lonelier, more reliable, and more sociable than the scale midpoint (Table 7). For the m-Turk sample, both 24-year-old and 40-year-old single people were rated as happier, more stubborn, more independent, more kind, more faithful, lonelier, more reliable, more independent, more kind, and more sociable than the scale midpoint; however, Turkers rated 40-year-old single people as less shy than the scale midpoint (Table 8).

Table 7. One Sample *t*-tests of Participants' Stereotypes of Single Targets  
(SONA Sample)

	24 year old			40 year old			<i>t</i> -test	<i>p</i>	<i>d</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>t</i> -test	<i>M</i>	<i>SD</i>	<i>t</i> -test					
Happy	4.57	1.13	7.31***	4.30	1.49	3.03**	.003	.42		.003	.42
Secure	4.20	1.39	2.01*	4.12	1.73	1.05	.295	.15		.295	.15
Kind	4.85	1.01	12.14***	4.83	1.61	7.58***	<.001	1.05		<.001	1.05
Stubborn	4.74	1.26	8.39***	5.27	1.63	-4.56***	<.001	-.62		<.001	-.62
Faithful	4.67	1.16	8.29***	5.59	1.58	15.02***	<.001	2.05		<.001	2.05
Shy	4.27	1.45	2.58**	4.85	1.78	7.12***	.01	.98		<.001	.98
Lonely	4.49	1.56	4.61***	5.33	1.95	10.08***	<.001	1.38		<.001	1.38
Independent	5.19	1.38	12.59***	5.02	1.89	8.27***	<.001	1.13		<.001	1.13
Reliable	5.46	1.27	17.45***	4.27	1.67	2.32*	<.001	.32		.021	.32
Sociable	4.76	1.16	9.60***	4.37	1.56	3.50**	<.001	.48		.001	.48

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Note. *M* = Mean. *SD* = Standard Deviation. *Test value* = 4.

Table 8. One Sample *t*-tests of Participants' Stereotypes of Single Targets  
(m-Turk Sample)

	24 year old				40 year old					
	<i>M</i>	<i>SD</i>	<i>t</i> -test	<i>p</i>	<i>d</i>	<i>M</i>	<i>SD</i>	<i>t</i> -test	<i>p</i>	<i>d</i>
Happy	4.94	1.17	11.02***	<.001	1.62	4.43	1.22	4.83***	<.001	.70
Secure	4.77	1.39	7.70***	<.001	1.11	4.13	1.41	1.17	.245	.17
Kind	4.98	1.16	11.73***	<.001	1.70	4.39	1.09	4.96***	<.001	.68
Stubborn	5.32	1.35	13.62***	<.001	1.97	4.95	1.42	9.20***	<.001	1.26
Faithful	4.86	1.20	9.99***	<.001	1.44	4.34	1.24	3.79***	<.001	.52
Shy	4.39	1.29	4.14***	<.001	.60	3.44	1.45	-5.38***	<.001	-.74
Lonely	4.26	1.14	2.46*	.015	.36	4.13	1.95	1.16	.246	.16
Independent	4.28	1.53	2.56*	.011	.37	4.83	1.42	8.16***	<.001	-1.12
Reliable	4.73	1.19	8.54***	<.001	1.24	5.26	1.18	14.77***	<.001	2.02
Sociable	4.82	1.26	9.03***	<.001	1.31	4.01	1.28	.06	.955	.01

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Note. *M* = Mean. *SD* = Standard Deviation. Test value = 4.

The two samples were also separated to examine whether people would perceive single people who were 24 years old differently than single people who were 40 years old. College students rated 24-year-old single people as happier, less stubborn, less faithful, less shy, more reliable, more sociable and less lonely than 40-year-old single people (see Table 9). Turkers also rated 24-year-old single people as happier and more sociable than 40-year-old single people. But in contrast, they rated 24-year-old single people as more stubborn, more faithful, shyer, and less reliable than 40-year-old single people (see Table 10).

Table 9. Paired Sample *t*-tests of Participants' Stereotypes of Single Targets

(SONA Sample)

	24 year old		40 year old		<i>df</i>	<i>t</i> -test	<i>p</i>	<i>d</i>	95% <i>CI</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Happy	4.57	1.13	4.30	1.49	219	2.30*	.022	.32	.04 – .50
Secure	4.20	1.39	4.12	1.73	219	.57	.568	.08	-.20 – .36
Kind	4.85	1.01	4.83	1.61	218	.19	.853	.03	-.22 – .27
Stubborn	4.74	1.26	5.27	1.63	219	-4.56***	<.001	-.62	-.76 – -.30
Faithful	4.67	1.16	5.59	1.58	218	-7.90***	<.001	-1.08	-1.15 – -.69
Shy	4.27	1.45	4.85	1.78	219	-4.36***	<.001	-.60	-.85 – -.32
Lonely	4.49	1.56	5.33	1.95	218	-6.07***	<.001	-.83	-1.11 – -.56
Independent	5.19	1.38	5.02	1.89	218	1.40	.162	.19	-.07 – .41
Reliable	5.46	1.27	4.27	1.67	216	8.44***	<.001	1.16	.92 – 1.47
Sociable	4.76	1.16	4.37	1.56	219	3.46**	.001	.47	.17 – .61

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

Table 10. Paired Sample *t*-tests of Participants' Stereotypes of Single Targets  
(m-Turk Sample)

	24 year old		40 year old		<i>df</i>	<i>t</i> -test	<i>p</i>	<i>d</i>	95% <i>CI</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Happy	4.94	1.17	4.43	1.22	190	4.76***	<.001	.65	.30 – .72
Secure	4.77	1.39	4.13	1.41	190	4.43***	<.001	.61	.36 – .93
Kind	4.98	1.16	4.39	1.09	189	5.89***	<.001	.81	.39 – .79
Stubborn	5.32	1.35	4.95	1.42	191	3.05**	.003	-.62	.12 – .61
Faithful	4.86	1.20	4.34	1.24	191	5.00***	<.001	.68	.31 – .73
Shy	4.39	1.29	3.44	1.45	191	7.48***	<.001	1.02	.68 – 1.18
Lonely	4.26	1.14	4.13	1.949	190	.99	.325	.14	-.16 – .37
Independent	4.28	1.53	4.83	1.42	190	-4.29***	<.001	-.59	-.80 – -.30
Reliable	4.73	1.19	5.26	1.18	191	-5.22***	<.001	-.72	-.72 – -.32
Sociable	4.82	1.26	4.01	1.28	191	7.32***	<.001	1.00	.61 – 1.04

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

### Gender Effects for Single Stereotypes

#### Main Effect

Repeated measures (24-year-old vs. 40-year-old) ANOVAs with participants' gender (male vs. female) and sample source (college student vs. m-Turk) as between group variables were used to examine whether participants' judgments toward single people of their own gender at different ages were influenced by participants' gender.

Participants judged single targets differently based on their gender. Men rated male targets as less happy, less kind, less faithful, and less reliable than women rated

female targets. Men also rated male targets as more secure, less stubborn, less shy, and more independent than women rated female targets (Table 11 and Table 12).

Table 11. Main Effect of Gender in Repeated Measures Analyses of Variance (ANOVAs)

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Happy	1	25.071	.06	<.001***
Secure	1	10.42	.02	.001**
Kind	1	21.86	.05	<.001***
Stubborn	1	9.56	.02	.002**
Faithful	1	55.30	.12	<.001***
Shy	1	20.47	.05	<.001***
Lonely	1	2.15	<.01	.144
Independent	1	92.14	.19	<.001***
Reliable	1	6.56	.02	.01**
Sociable	1	3.50	.01	.062
Error	407			

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 12. Descriptive Statistics for Gender Effects on Characteristics

		<i>Mean</i>	<i>SD</i>	<i>95% CI</i>
Happy	Male	4.28	.07	4.13 – 4.42
	Female	4.76	.06	4.64 – 4.88
Secure	Male	4.50	.08	4.34 – 4.65
	Female	4.16	.07	4.03 – 4.29
Kind	Male	4.50	.07	4.36 – 4.65
	Female	4.94	.06	4.82 – 5.06
Stubborn	Male	4.86	.09	4.69 – 5.03
	Female	4.21	.07	5.07 – 5.35
Faithful	Male	4.46	.07	4.31 – 4.60
	Female	4.16	.06	5.04 – 5.28
Shy	Male	3.93	.09	3.75 – 4.10
	Female	4.45	.07	4.31 – 4.60
Lonely	Male	4.67	.10	4.47 – 4.87
	Female	4.48	.08	4.31 – 4.64
Independent	Male	5.49	.09	5.31 – 5.66
	Female	4.38	.07	4.23 – 4.52
Reliable	Male	4.78	.08	4.63 – 4.93
	Female	5.03	.06	4.91 – 5.15
Sociable	Male	4.38	.08	4.22 – 4.54
	Female	4.57	.07	4.44 – 4.70

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

#### Two-way Interaction Effects

Interaction effects between participant's gender and single targets' age were also found in terms of happiness,  $F(1,407)=20.64$ ,  $p<.001$ ,  $\eta^2=.048$ ; secureness,  $F(1,407)=60.72$ ,  $p<.001$ ,  $\eta^2=.13$ ; stubbornness,  $F(1,408)=44.73$ ,  $p<.001$ ,  $\eta^2=.099$ ;

loneliness,  $F(1,406)=19.94$ ,  $p<.001$ ,  $\eta^2=.047$ ; independent,  $F(1,407)=15.69$ ,  $p<.001$ ,  $\eta^2=.037$ ; reliableness,  $F(1,405)=28.39$ ,  $p<.001$ ,  $\eta^2=.066$ ; sociableness,  $F(1,408)=23.65$ ,  $p<.001$ ,  $\eta^2=.055$ .

Male participants rated 40-year-old single men as less happy than female participants rated 40-year-old single women,  $F(1,409)=43.05$ ,  $p<.001$ ,  $\eta^2=.10$ , however there were no gender differences for 24-year-old singles,  $F(1,411)=1.24$ ,  $p=.27$ ,  $\eta^2=.003$ .

In terms of how secure participants rated targets, male participants rated 24-year-old single men as less secure than women rated 24-year-old single women,  $F(1,410)=6.11$ ,  $p=.01$ ,  $\eta^2=.015$ , but men rated 40-year-old single men as more secure than women rated 40-year-old single women,  $F(1,410)=51.45$ ,  $p<.001$ ,  $\eta^2=.111$ .

In terms of how kind participants rated targets, male participants rated 24-year-old single men as less kind than women rated 24-year-old single women,  $F(1,410)=26.46$ ,  $p<.001$ ,  $\eta^2=.061$ , and male participants also rated 40-year-old single men as less kind than female participants rated 40-year-old single women,  $F(1,410)=5.21$ ,  $p=.023$ ,  $\eta^2=.013$ .

In terms of how stubborn participants rated targets, male participants rated 24-year-old single men as less stubborn than women rated 24-year-old single women  $F(1,411)=50.74$ ,  $p<.001$ ,  $\eta^2=.110$ , but there were no gender differences for 40-year-old singles,  $F(1,409)=2.22$ ,  $p=.137$ ,  $\eta^2=.005$ .

In terms of how lonely participants rated targets, male participants rated 40-year-old single men as more lonely than female participants rated 40-year-old single women  $F(1,408)=12.62$ ,  $p<.001$ ,  $\eta^2=.030$ , but there were no gender differences for 24-year-old singles in terms of their loneliness,  $F(1,410)=2.86$ ,  $p=.091$ ,  $\eta^2=.007$ .

In terms of how independent participants rated targets, male participants rated 24-year-old single men as more independent than women rated 24-year-old single women,  $F(1,410)=28.00$ ,  $p<.001$ ,  $\eta^2=.064$ , and male participants also rated 40-year-old single men as more independent than women rated 40-year-old single women,  $F(1,409)=100.87$ ,  $p=.023$ ,  $\eta^2=.198$ .

In terms of how reliable participants rated targets, male participants rated 24-year-old single men as less reliable than women rated 24-year-old single women,  $F(1,410)=34.40$ ,  $p<.001$ ,  $\eta^2=.077$ , however, there were no gender differences for 40-year-old singles,  $F(1,408)=2.06$ ,  $p<.152$ ,  $\eta^2=.005$ .

In terms of how sociable participants rated targets, male participants rated 40-year-old single men as less sociable than female participants rated 40-year-old single women,  $F(1,408)=18.38$ ,  $p<.001$ ,  $\eta^2=.043$ , but there were no gender differences for 24-year-old singles,  $F(1,410)=1.96$ ,  $p=.163$ ,  $\eta^2=.005$ .

### Three-way Interaction Effects

There were also three way interactions between participant's gender, single target's age and sample source in terms of happiness,  $F(1,407)=17.64$ ,  $p<.001$ ,  $\eta^2=.042$ ; security,  $F(1,407)=33.30$ ,  $p<.001$ ,  $\eta^2=.067$ ; kindness,  $F(1,407)=4.3$ ,  $p=.039$ ,  $\eta^2=.011$ ; shyness,  $F(1,407)=18.63$ ,  $p<.001$ ,  $\eta^2=.044$ ; independent,  $F(1,407)=46.77$ ,  $p<.001$ ,  $\eta^2=.104$ ; reliableness,  $F(1,407)=18.63$ ,  $p<.001$ ,  $\eta^2=.044$ ; sociableness,  $F(1,407)=16.05$ ,  $p<.001$ ,  $\eta^2=.038$ .

In terms of how happy participants rated targets, male Turkers rated both 24-year-old and 40-year-old single men as less happy than female Turkers rated 24-year-old and

40-year-old single women (24 years old:  $F(1,191)=7.94, p=.005, \eta^2=.040$ ; 40 years old:  $F(1,191)=8.59, p=.004, \eta^2=.043$ ). In the college students sample, there were no gender differences for 24-year-old singles,  $F(1,218)=1.50, p=.222, \eta^2=.007$ , but male participants rated 40-year-old single men as less happy than women rated 40-year-old single women,  $F(1,218)=36.66, p < .001, \eta^2=.144$ .

In terms of how secure participants rated targets, male participants from the m-Turk sample rated 24-year-old single men as less secure than female Turkers rated 24-year-old single women,  $F(1,190)=78.64, p < .001, \eta^2=.294$ , however male Turkers also rated 40-year-old single men as more secure than female Turkers rated 40-year-old single women,  $F(1,191)=28.54, p < .001, \eta^2=.131$ . In the college sample, male students rated both 24-year-old and 40-year-old single men as more secure than female students rated 24-year-old and 40-year-old single women (24 years old:  $F(1,218)=13.75, p < .001, \eta^2=.059$ ; 40 years old:  $F(1,218)=24.37, p < .001, \eta^2=.101$ ).

In terms of how kind participants rated targets, male participants from the m-Turk sample rated 24-year-old single men as less kind than female Turkers rated 24-year-old single women,  $F(1,190)=21.30, p < .001, \eta^2=.101$ , however there were no gender differences for 40-year-old singles. In the college student sample, male students rated both 24-year-old and 40-year-old single men as less kind than female students rated 24-year-old and 40-year-old single women (24 years old:  $F(1,219)=6.78, p = .01, \eta^2=.030$ ; 40 years old:  $F(1,218)=4.51, p = .035, \eta^2=.020$ ).

In terms of how stubborn participants rated targets, male participants from the m-turk sample rated 24-year-old single men as less faithful than female Turkers rated 24-

year-old single women,  $F(1,191)=19.09$ ,  $p < .001$ ,  $\eta^2=.091$ , however there were no differences for 40-year-old singles,  $F(1,190)=3.08$ ,  $p = .081$ ,  $\eta^2=.016$ . In the college sample, male students rated both 24-year-old and 40-year-old single men as less faithful than women rated 24-year-old and 40-year-old single women (24 years old:  $F(1,218)=20.84$ ,  $p < .001$ ,  $\eta^2=.087$ ; 40 years old:  $F(1,218)=90.23$ ,  $p < .001$ ,  $\eta^2=.293$ ).

In terms of how shy participants rated targets, male participants from the m-Turk sample rated 20-year-old single men as less shy than female Turkers rated 24-year-old single women,  $F(1,190)=23.42$ ,  $p < .001$ ,  $\eta^2=.110$ , however there were no gender differences for 40-year-old singles,  $F(1,190)=.182$ ,  $p = .67$ ,  $\eta^2=.001$ . In the college sample, male students rated 40-year-old single men as less shy than female students rated 40-year-old single women,  $F(1,218)=17.41$ ,  $p < .001$ ,  $\eta^2=.074$ , but there were no gender differences for 24-year-old singles,  $F(1,219)=3.46$ ,  $p = .064$ ,  $\eta^2=.016$ .

In terms of how independent participants rated targets, male participants from the m-turk sample rated both 24-year-old and 40-year-old single men as more independent than female Turkers rated 24-year-old and 40-year-old single women (24 years old:  $F(1,190)=18.88$ ,  $p < .001$ ,  $\eta^2=.091$ ; 40 years old:  $F(1,190)=20.75$ ,  $p < .001$ ,  $\eta^2=.098$ ). In the college student sample, male students also rated both 24-year-old and 40-year-old single men as more independent than female students rated 24-year-old and 40-year-old single women (24 years old:  $F(1,218)=10.20$ ,  $p = .002$ ,  $\eta^2=.045$ ; 40 years old:  $F(1,219)=87.53$ ,  $p < .001$ ,  $\eta^2=.287$ ).

In terms of how reliable participants rated targets, male participants from the m-Turk sample rated both 24-year-old and 40-year-old single men as less reliable than

female Turkers rated 24-year-old and 40-year-old single women (24 years old:  $F(1,191)=4.04, p =.046, \eta^2=.021$ ; 40 years old:  $F(1,190)=12.58, p <.001, \eta^2=.062$ ). In the college student sample, male students rated 24-year-old single men as less reliable than female students rated 24-year-old single women,  $F(1,218)=50.06, p <.001, \eta^2=.187$ , and the male students also rated 40-year-old single men as more reliable than female students rated 40-year-old single women,  $F(1,218)=20.24, p <.001, \eta^2=.086$ .

In terms of how sociable participants rated targets, there were no gender differences for 24-year-old or 40-year-old singles among m-turk samples (24 years old:  $F(1,190)=.817, p =.37, \eta^2=.004$ ; 40 years old:  $F(1,190)=.035, p =.85, \eta^2<.001$ ). However, in the college student sample, male students rated 40-year-old single men as less sociable than female students rated 40-year-old single women,  $F(1,219)=35.56, p <.001, \eta^2 =.14$ , but there were no gender differences for 24-year-old singles among the college sample,  $F(1,219)=.1.21, p =.273, \eta^2 =.005$ . (Table 13 and Table 14 and Table 15).

Table 13. Repeated Measures Analyses of Variance (ANOVA)

	<i>df</i>	<i>F</i>	<i>MSE</i>	$\eta^2$	<i>p</i>
Age (Happy)	1	32.49	1.19	.07	<.001***
Age (Happy)*Participant's gender	1	20.64		.05	<.001***
Age (Happy)*Participant's gender*Sample	1	17.64		.04	<.001***
Age (Secure)	1	4.89	1.78	.01	.028*
Age (Secure)*Participant's gender	1	60.72		.01	<.001***
Age (Secure)*Participant's gender*Sample	1	33.30		.08	<.001***
Age (Kind)	1	11.86	1.32	.03	.001**
Age (Kind)*Participant's gender	1	1.67		.02	.002**
Age (Kind)*Participant's gender*Sample	1	4.31		.01	.039*
Age (Stubborn)	1	4.82	1.32	.01	.029*
Age (Stubborn)*Participant's gender	1	44.73		.10	<.001***
Age (Stubborn)*Participant's gender*Sample	1	.30		.00	.585
Age (Faithful)	1	7.96	1.17	.02	.005**
Age (Faithful)*Participant's gender	1	.00		.00	.954
Age (Faithful)*Participant's gender*Sample	1	46.79		.10	<.001***
Age (Shy)	1	2.69	1.71	.01	.102
Age (Shy)*Participant's gender	1	.75		.00	.389
Age (Shy)*Participant's gender*Sample	1	18.63		.04	<.001***
Age (Lonely)	1	20.45	1.81	.05	<.001***
Age (Lonely)*Participant's gender	1	19.94		.05	<.001***
Age (Lonely)*Participant's gender*Sample	1	.00		.00	.977
Age (Independent)	1	7.74	1.45	.02	.006**
Age (Independent)*Participant's gender	1	15.69		.04	<.001***
Age (Independent)*Participant's gender*Sample	1	16.55		.04	<.001***
Age (Reliable)	1	10.30	1.35	.03	.001**
Age (Reliable)*Participant's gender	1	28.39		.07	<.001***
Age (Reliable)*Participant's gender*Sample	1	46.77		.10	<.001***
Age (Sociable)	1	73.27	1.18	.15	<.001***
Age (Sociable)*Participant's gender	1	23.65		.06	<.001***
Age (Sociable)*Participant's gender*Sample	1	16.05		.04	<.001***
Error	407				

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 14. Descriptive Statistics for Age Effects on Characteristics

		<i>Mean</i>	<i>SD</i>	<i>95% CI</i>
Happy	24-year-old	4.74	.06	4.62 – 4.85
	40-year-old	4.29	.07	4.16 – 4.42
Secure	24-year-old	4.44	.06	4.31 – 4.56
	40-year-old	4.23	.08	4.08 – 4.37
Kind	24-year-old	4.86	.05	4.76 – 4.97
	40-year-old	4.58	.07	4.44 – 4.72
Stubborn	24-year-old	4.94	.06	4.82 – 5.06
	40-year-old	5.12	.08	4.97 – 5.27
Faithful	24-year-old	4.70	.06	4.59 – 4.81
	40-year-old	4.92	.07	4.79 – 5.04
Shy	24-year-old	4.26	.07	4.13 – 4.40
	40-year-old	4.11	.08	3.96 – 4.27
Lonely	24-year-old	4.35	.08	4.21 – 4.50
	40-year-old	4.79	.09	4.62 – 4.96
Independent	24-year-old	4.81	.07	4.67 – 4.95
	40-year-old	4.05	.07	4.90 – 5.19
Reliable	24-year-old	5.03	.06	4.92 – 5.15
	40-year-old	4.77	.07	4.63 – 4.91
Sociable	24-year-old	4.80	.06	4.69 – 4.92
	40-year-old	4.14	.07	4.01 – 4.28

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

Table 15. Descriptive Statistics for Age×Participants' Gender×Sample Source

## Effect on Characteristics

<i>Characteristics</i>	<i>Gender</i>	<i>Sample</i>	<i>Age</i>	<i>Mean</i>	<i>SD</i>	<i>95% CI</i>
Happy	Male	m-Turk	24	4.65	.13	4.39 – 4.91
			40	4.11	.15	3.81 – 4.41
		SONA	24	5.12	.11	4.91 – 5.33
			40	4.63	.12	4.40 – 4.87
	Female	m-Turk	24	4.70	.12	4.47 – 4.93
			40	3.65	.14	3.38 – 3.91
		SONA	24	4.48	.10	4.28 – 4.68
			40	4.79	.12	4.56 – 5.02
Secure	Male	m-Turk	24	3.84	.15	3.55 – 4.13
			40	4.76	.17	4.42 – 5.10
		SONA	24	5.38	.12	5.15 – 5.61
			40	3.72	.14	3.45 – 4.00
	Female	m-Turk	24	4.62	.13	4.37 – 4.88
			40	4.76	.16	4.46 – 5.07
		SONA	24	3.90	.11	3.68 – 4.12
			40	3.65	.13	3.39 – 3.92
Kind	Male	m-Turk	24	4.53	.12	4.29 – 4.77
			40	4.27	.16	3.95 – 4.59
		SONA	24	5.28	.10	5.08 – 5.47
			40	4.47	.13	4.21 – 4.72
	Female	m-Turk	24	4.66	.11	4.44 – 4.87
			40	4.56	.14	4.28 – 4.84
		SONA	24	4.99	.09	4.81 – 5.18

table continues

Stubborn	Male	m-Turk	24	4.55	.14	4.27 – 4.82
			40	4.89	.18	4.54 – 5.24
		SONA	24	5.82	.11	5.60 – 6.04
			40	4.98	.14	4.70 – 5.26
	Female	m-Turk	24	4.44	.13	4.19 – 4.69
			40	5.55	.16	5.24 – 5.86
		SONA	24	4.96	.11	4.75 – 5.17
			40	5.06	.14	4.80 – 5.33
Faithful	Male	m-Turk	24	4.41	.13	4.16 – 4.67
			40	4.53	.15	4.24 – 4.83
		SONA	24	5.15	.10	4.95 – 5.36
			40	4.21	.12	3.98 – 4.45
	Female	m-Turk	24	4.28	.12	4.05 – 4.51
			40	4.60	.13	4.34 – 4.86
		SONA	24	4.95	.10	4.76 – 5.15
			40	6.32	.11	6.09 – 6.54
Shy	Male	m-Turk	24	3.85	.16	3.55 – 4.16
			40	3.49	.19	3.13 – 3.86
		SONA	24	4.73	.12	4.48 – 4.97
			40	3.40	.15	3.11 – 3.69
	Female	m-Turk	24	4.08	.14	3.80 – 4.35
			40	4.29	.17	3.96 – 4.62
		SONA	24	4.41	.12	4.18 – 4.64
			40	5.27	.14	4.99 – 5.55
Lonely	Male	m-Turk	24	4.19	.17	3.85 – 4.53
			40	4.58	.20	4.19 – 4.98
		SONA	24	4.30	.14	4.03 – 4.57

table continues

Independent	Female	m-Turk	24	4.28	.16	3.98 – 4.59
			40	5.62	.18	5.27 – 5.97
		SONA	24	4.65	.13	4.39 – 4.91
			40	5.12	.15	4.82 – 5.42
	Male	m-Turk	24	4.85	.16	4.54 – 5.17
			40	5.39	.17	5.06 – 5.72
		SONA	24	3.91	.13	3.66 – 4.17
			40	4.47	.14	4.20 – 4.73
Reliable	Female	m-Turk	24	5.54	.15	5.25 – 5.82
			40	6.16	.15	5.86 – 6.46
		SONA	24	4.94	.13	4.69 – 5.18
			40	4.18	.13	3.93 – 4.44
	Male	m-Turk	24	4.52	.13	4.26 – 4.78
			40	4.89	.16	4.58 – 5.21
		SONA	24	4.87	.11	4.66 – 5.08
			40	5.50	.13	5.24 – 5.75
Sociable	Female	m-Turk	24	4.86	.12	4.62 – 5.09
			40	4.84	.15	4.55 – 5.12
		SONA	24	5.90	.10	5.70 – 6.10
			40	3.86	.13	3.61 – 4.10
	Male	m-Turk	24	4.92	.14	4.65 – 5.19
			40	4.03	.16	3.72 – 4.34
		SONA	24	4.75	.11	4.53 – 4.97
			40	3.99	.13	3.74 – 4.24
Female	m-Turk	24	4.87	.13	4.63 – 5.12	
		40	3.69	.14	3.41 – 3.97	
	SONA	24	4.68	.11	4.47 – 4.89	
		40	4.87	.12	4.63 – 5.11	

*Note.* *M* = Mean. *SD* = Standard Deviation. *CI* = Confidence Interval.

### General Stereotypes People Hold towards Single People

All participants were asked about what they thought about the typical single/attached man or single/attached woman based on their own gender at the end of the survey. Those open-ended questions were independently analyzed by two raters using 19 categories (e.g., independent, lonely, risky). One of the raters was a native English speaker and the other rater was not. The 19 categories were created by the experimenter after recording all the comments.

If participants' comments contained information that corresponded with a given category, then we coded that category as "1," otherwise as "0". For example, one of the participants described single men as people who "party, drink, watch lots of TV", which would be coded risky "1." Overall inter-rater reliability was 92.86% across all open ended questions. Seventy-nine out of 1107 items differed between the two raters mainly because of the two raters' different interpretations of free-related words (i.e., free, freedom, care-free). After discussing this with native speakers, all of the "free" or "freedom" "care-free" words were interpreted as independent and sensation-seeking, which means all of "free" or "freedom" "care-free" words were coded as "1" in the category "independent" and category "sensation seeking".

The five most frequently mentioned characteristics for single men were independent (46%), lonely (33%), sensation seeking / risky (23%), indifference (22%), and outgoing/ open-minded (21%). The five most frequently mentioned characteristics for single women were independent (67%), lonely (28%), confident (22%), determined (20%), and outgoing/ open-minded (19%) (Table 16).

Table 16. Percentage of Each Characteristics Mentioned for Single Men vs. Single

Women

Characteristics	Male	Female
independent	58%	73%
lonely	33%	28%
sensation seeking / risky	29%	20%
indifference	22%	12%
outgoing/ open-minded	21%	19%
confident	13%	22%
introverted	13%	9%
stubborn	11%	18%
charming	10%	10%
sad	10%	4%
lazy	7%	1%
determined	4%	20%
hardworking	4%	13%
selfish	4%	12%
unattractive	4%	3%
bored	2%	0%
dishonest	2%	2%
loyal	2%	4%
responsible	1%	14%

According to Chi-square analyses, more female participants described single women as independent ( $\chi^2(1, 414) = 10.73, p = .001$ ), confident ( $\chi^2(1, 414) = 5.66, p = .017$ ), determined ( $\chi^2(1, 414) = 22.37, p < .001$ ), hardworking ( $\chi^2(1, 414) = 9.15, p = .002$ ), stubborn ( $\chi^2(1, 414) = 4.03, p = .045$ ), and responsible ( $\chi^2(1, 414) = 20.84, p <$

.001) than male participants' described single men. Fewer female participants described single women as indifferent ( $\chi^2(1, 414) = 7.10, p = .008$ ), lazy ( $\chi^2(1, 414) = 12.24, p < .001$ ), sad ( $\chi^2(1, 414) = 4.18, p = .041$ ), and risky ( $\chi^2(1, 414) = 23.224, p < .001$ ) than male participants described single men. Generally speaking, female participants perceived single women as holding more positive characteristics than male participants perceived single men.

## CHAPTER 4

### DISCUSSION

#### Summary

The current study examined how single stereotypes influenced participants' moral judgments of single people. Participants judged single targets as less honest than attached targets on moral scenarios. Singles are perceived as less reliable, less agreeable, and less mature than married people (B. DePaulo, personal communication, Oct 6, 2014; Greitemeyer, 2009), and such negative stereotypes might lead people to morally judge singles more harshly than attached people. This study showed that these negative stereotypes also affect people's moral judgment of honesty.

Contrary to expectations, I did not find in-group favoritism based on participants' relationship status. Single participants did not judge single targets less harshly than attached participants did, which may indicate that participants did not consider their current relationship status as a membership that they need to protect in order to maintain their positive self-concept. It is also possible that singles may have accepted their negative stereotypes as a part of the status quo and justified them rather than refuting them (Laurin, Kay, & Shepherd, 2011; Ståhl, Eek, & Kazemi, 2010). Furthermore, there was no correlation between attached participants' relationship satisfaction and their moral judgments of singles, which suggests that attached participants still perceive themselves as being in a relationship despite their relationship satisfaction.

Participants' age might be one reason why participants did not show in-group favoritism based on their relationship status. The age of most single participants in the

current study was relatively young (college student sample: 18.79 year old; m-Turk: 33.56 year old). Even though they were currently single, it is possible that they still separated themselves from the undesirable stereotyped “single” people. More than 70% of single Turkers were younger than 35. They might be still looking for partners and not consider themselves as undesirable stereotyped “singles”.

Participants did, however, show in-group favoritism in terms of their age. College students whose mean age was 21 years old perceived 24-year-old single targets more positively (e.g., happier, less stubborn, less shy, more reliable) than 40-year-old single targets. On the contrary, Turkers, whose mean age was 33 years old, perceived 40-year-old single targets more positively (e.g., less stubborn, less shy, more reliable) than 24-year-old single targets. Participants maintained their positive self-concept by perceiving their own age group more positively than the other age group. Such own-age bias has been found in previous studies. For example, both children and adults recognize their own-age faces more accurately than other-age faces (Anastasi & Rhodes, 2005). It is also possible that Turkers, being older, may simply know more 40-year-old single targets and they just judged targets based on their own knowledge of their similar-aged friends.

Men and women differed in their assessments of singles’ characteristics. Men judged single men more harshly than women judged single women on happiness, kindness, faithfulness, and reliability (e.g., men rated male targets as less happy, less kind, less faithful, and less reliable than women rated female targets). Women also judged single women more harshly than men judged single men on security, independence, and shyness (e.g., women rated female targets as less secure, less

independent, and shy than men rated male targets). Some characteristics (e.g., humor, risk taking) are considered more desirable in men than in women or vice versa, and both men and women acknowledge such differences (Paunonen, 2015). It is possible that both men and women considered characteristics such as happiness, kindness, faithfulness, or reliability as more desirable in women than in men, and therefore the mean rating of such characteristics were higher in women. Also because they considered other characteristics such as secure and independent as more desirable in men than in women, the mean rating of these characteristics (e.g., secureness, independent) may have been higher in men.

Stereotypes of singles were not all negative. Participants in the current study also perceived singles as independent, confident, charming, hardworking, loyal, and outgoing. The findings of the current study suggested that stereotypes of singles remain mixed since DePaulo's (personal communication, Oct 6, 2014) integrative study on singlism (e.g., singles are immature, independent, and risky).

Men and women also differed on what they thought about singles. Women were more likely to perceive single women as holding positive stereotypes than men perceived single men did. The five most frequently listed stereotypes about single women were independent, lonely, confident, determined, and outgoing/ open-minded, four of which were positive. However, the five most frequently listed stereotypes about single men were independent, lonely, sensation seeking / risky, indifferent, and outgoing/ open-minded, only two of which were positive. Well-known cultural ideology suggests that men take the initiative in romantic relationships, which might lead to the belief that if men are single, they must be not good enough, whereas if women are single, they might

just have high standards for partners. These beliefs might influence women to perceive single women as holding positive characteristics than men perceived single men did. However, it is also possible that women are just more likely to list positive characteristics of any group than men are. Since each gender only listed stereotypes about their own gender, it is unclear whether similar results might arise from women's listings of men's stereotypes. Therefore, future studies should assess both men and women's stereotype content of both men and women in order to find out whether there is a gender difference in perceptions of single people or whether women are just naturally nicer to people.

Even though women were more likely to perceive single women as holding positive stereotypes than men perceived single men did, women did not judge single women less harshly than men judged single men on moral scenarios. It is possible that among mixed single stereotypes, negative stereotypes (e.g., risky, immature, undesirable) are more accessible than positive stereotypes (e.g., independent, confident, outgoing) when people make moral judgments, as negative stereotypes might be stronger (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Rothbart and Park (1986) found strong negative correlations ( $r = -.70$ ) between the desirability of stereotypes and the number of instances required for their disconfirmation, which confirms the power of negative stereotypes.

#### Limitations and Suggestions for Future Research

Because of concern for under-recruitment, both men and women judged only same-gender single targets. Therefore the current study did not directly compare gender differences in terms of crossing both genders. Previous studies have shown that men

report that there are more differences between single women and married women than between single men and married men (B. DePaulo, personal communication, Oct 6, 2014), which might suggest that the results related to gender differences in this study are incomplete. However, despite several studies showing that people morally judged women more harshly than men in sexual behaviors (Oliver & Sedikides, 1992; Sprecher, 1989), few studies have found gender effects on people's moral judgments related to honesty. Even though people generally have more positive attitudes toward women as a group than toward men as a group (Eagly & Mladinic, 1994), when it comes to the individual level, both men and women share similar attitudes about gender-related characteristics (e.g., communal characteristics, nurturing characteristics; Eagly & Mladinic, 1994). Therefore, moral judgments related to honesty and characteristics assessments that come from the same gender might represent the judgments and assessments that come from the other gender as well. However, future research that tests judgments and assessments of the other gender are still needed, because none of the previous studies have specifically explored gender effects on honesty-related moral judgments.

There was only one behavior provided for each moral scenarios, which might not be enough for participants to make accurate moral judgments of the targets, and it might make the scenarios seem more artificial, although based on participants' feedback, demand characteristics did not seem to be a problem. Furthermore, all of the targets in the moral scenarios of the current study were of similar age (21 years old -24 years old). As I found in-group favoritism on age such that both college students and Turkers perceived their own age targets as holding more positive characteristics than other age

targets, it is possible that Turkers might morally judge 21-year-old targets more harshly than 35-year-old targets under the same scenarios. Future research should also address whether single stereotypes differ based on the reason why the person is single. For example, people's stereotypes of a never-married woman in her 50s might differ from those of a 50-year-old woman who was widowed. However, limiting the moral scenarios to college students' age has its own advantages. Limited age options eliminate other confounds that might influence people's moral judgments on singles. For example, if I expanded the age variable, then targets' job might influence people's moral judgments, because people tend to make harsher moral judgments of poor people (Pitesa, & Thau, 2014). Furthermore, in order to achieve relatively high power, the sample size would need to increase dramatically with additional age and job variables.

The current study measured people's attitudes toward single targets in terms of 10 characteristics at different ages (24 years old vs. 40 years old) in order to explore whether people perceive singles differently based on their age. However, because of time constraints, the study did not assess people's attitudes on attached targets in terms of those 10 characteristics. It is possible that there was no difference between perceptions of single people and attached people on those 10 characteristics. The difference that was found for 24-year-old singles versus 40-year-old singles could be just differences based on age perceptions. Future study is needed to test whether the age differences that the current study found were specifically for singles.

Because Turkers completed the study on their own, unlike college students who completed the survey in a computer lab, the researchers had less control of Turkers'

environments, which might lead to data inaccuracy. However, the results of Turkers' moral judgments toward single and attached targets were similar to college students' moral judgments, and the mean time of both college students and Turkers to complete the study was less than 15 minutes, which suggested that the two groups paid similar attention to the material, even though the Turkers may generally pay less attention to experimental materials than college students (Goodman, Cryder, & Cheema, 2013, but see Hauser & Schwarz, 2015).

### Implications

Most of the previous research on single stereotypes (Conley & Collins, 2002; DePaulo, 2011; DePaulo & Morris, 2005) has focused on the single stereotype itself. Few of them have examined how single stereotypes might influence people's judgments and attitudes. The current study showed that single stereotypes did negatively influence people's moral judgments toward single people.

However, this study does not suggest that people will perceive singles as dishonest when their relationship status is revealed. Instead, being single may be acceptable if singles are by themselves. However, when there are attached people around, the current study suggests that people might judge singles as less honest than their attached counterparts when they perform a similar behavior.

Even though the single stereotype contained both positive and negative elements, it could still negatively influence people's moral judgments of stereotyped individuals. Although people might have positive stereotypes of single people (e.g., independent, outgoing), the negative elements of the single stereotypes (e.g., immature, risky,

undesirable) appeared to be much more impactful than the positive elements of single stereotypes. Most of the stereotypes (e.g., obese, physically unattractive, atheist) used in previous studies on how stereotypes influence moral judgments were one-sided negative. Few stereotype studies have explored how mixed stereotypes influence people's moral judgments. More subtle, mixed stereotypes that people tend to ignore also influence people's daily lives, and deserve more research attention.

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## APPENDIX A

## CONSENT FOR COLLEGE STUDENT

Project Title: Judgments of Others

Name of Investigator(s): Peng Zhang

**Invitation to Participate:** You are invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your agreement to participate in this project. The following information is provided to help you make an informed decision about whether or not to participate.

**Nature and Purpose:** The purpose of this study is to investigate the nature of judgments we make about other people.

**Explanation of Procedures:** The whole study should take you about 15-20 minutes. During study you will be asked to fill out basic demographic questions, then you will be asked to judge several persons based on information we give you. After that, you will be asked to answer questions about your relationship satisfaction if you are currently involved in a romantic relationship. At the end of survey, you will get a paper copy of consent form in order to contact me for further questions that may occur in future.

**Discomfort and Risks:** There are no foreseeable risks to participation.

**Benefits and Compensation:** There are no direct benefits for you to participate in the current study, but you will 0.5 extra credit for you introduction to psychology.

**Confidentiality:** Information obtained during this study that might identify you will be kept confidential. The summarized findings with no identifying information may be reported in my thesis project.

**Right to Refuse or Withdraw:** Your participation is completely voluntary. You are free to withdraw from participation at any time or to choose not to participate at all, and by doing so, you will not be penalized or lose benefits to which you are otherwise entitled.

**Questions:** If you have questions about the study you may contact or desire information in the future regarding your participation or the study generally, you can contact Peng Zhang through [zhangpab@uni.edu](mailto:zhangpab@uni.edu) or the project investigator's faculty advisor Helen Harton at the Department of Psychology, University of Northern Iowa, [helen.harton@uni.edu](mailto:helen.harton@uni.edu). You can also contact the office of the IRB Administrator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process.

**Agreement:**

**I am fully aware of the nature and extent of my participation in this project as stated above and the possible risks arising from it. I hereby agree to participate in this project. I acknowledge that I have received a copy of this statement. I am 18 years of age or older.**

\_\_\_\_\_

(Signature of investigator)

\_\_\_\_\_

(Date)

\_\_\_\_\_

(Signature of Participants)

\_\_\_\_\_

(Date)

\_\_\_\_\_

(Print name of participant)

## APPENDIX B

## CONSENT FOR M-TURK PARTICIPANTS

Project Title: Judgments of Others

Name of Investigator(s): Peng Zhang

**Invitation to Participate:** You are invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your agreement to participate in this project. The following information is provided to help you make an informed decision about whether or not to participate.

**Nature and Purpose:** The purpose of this study is to investigate the nature of judgments we make about other people.

**Explanation of Procedures:** The whole study should take you about 15-20 minutes. During study you will be asked to fill out basic demographic questions, then you will be asked to judge several persons based on information we give you. After that, you will be asked to answer questions about your relationship satisfaction if you are currently involved in a romantic relationship.

**Discomfort and Risks:** There are no foreseeable risks to participation.

**Benefits and Compensation:** There are no direct benefits for you to participate in the current study, but you will receive 25 cents for your contribution.

**Confidentiality:** Information obtained during this study that might identify you will be kept confidential. The summarized findings with no identifying information may be reported in my thesis project.

**Right to Refuse or Withdraw:** Your participation is completely voluntary. You are free to withdraw from participation at any time or to choose not to participate at all, and by doing so, you will not be penalized or lose benefits to which you are otherwise entitled.

**Questions:** If you have questions about the study you may contact or desire information in the future regarding your participation or the study generally, you can contact Peng Zhang through [zhangpab@uni.edu](mailto:zhangpab@uni.edu) or the project investigator's faculty advisor Helen Harton at the Department of Psychology, University of Northern Iowa,

[helen.harton@uni.edu](mailto:helen.harton@uni.edu). You can also contact the office of the IRB Administrator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process.

**Agreement:**

**I am fully aware of the nature and extent of my participation in this project as stated above and the possible risks arising from it. I hereby agree to participate in this project. I am 18 years of age or older.**

**AGREE**

**DISAGREE**

APPENDIX C  
DEMOGRAPHIC QUESTIONS

**What is your age?** \_\_\_\_\_

**What is your gender?**

- Male
- Female
- Other

**What is your ethnicity?**

- Caucasian/White
- Asian
- Black or African American
- Hispanic or Latino
- Other \_\_\_\_\_

**What year are you in the university?**

- First year student
- Sophomore
- Junior
- Senior
- Other

## APPENDIX D

## MANIPULATION CHECK QUESTIONS

Sports Participation In order to demonstrate that you have read the instructions, please ignore the sports items below, simply click on the next button to next screen. Thank you very much. Which of these activities do you engage most in regularly?

Basketball

Football

Swimming

Rock-climbing

Tennis

Running

Soccer

Others

## APPENDIX E

## RELATIONSHIP STATUS

**What is your current romantic relationship status?**

- Single
- In a relationship

**(If participants are attached)**

**How would you describe your current romantic relationship?**

- Casually dating
- Seriously dating
- Living together
- Engaged Married

**How long have you been in your current relationship?**

- less than 3 months
- 3 – 6 months
- 6 months – 1 year
- 1 – 2 years
- more than 2 years

**Please describe your current thoughts/emotions about your partner.**

(If participants are single)

**Please describe your current thoughts/emotions about being single.**

(for all participants)

**What percentage of your friends are currently in a relationship?**

APPENDIX F  
MORAL JUDGMENT SURVEY

**We often make judgments about people based on limited information. You are now going to read descriptions of several persons and one thing they did. Based on the little you know about this person, how honest do you think the person is?**

extremely dishonest	Neutral	extremely honest
1   2   3	4   5   6   7   8	9

1. James/Mary is a 22-year-old college student majoring in psychology. He/She currently is single and lives in Iowa City. During his/her leisure time, James/Mary likes to read and play basketball. Yesterday, he/she checked the vending machine at the gym for coins.
2. David/Jennifer is a 23-year-old college student majoring in chemistry. He/She has been in a relationship with Jennifer/David for almost 3 years. During his/her leisure time, David/Jennifer likes to play soccer and tennis. When he/she visited his/her aunt, he/she told stories about Santa Claus to his/her nephew.
3. Robert/Patricia is a 21-year-old college student majoring in communication. He/She has been dating Patricia/Robert for 2 years. During his/her leisure time, Robert/Patricia likes to kayak and watch movies. Last Friday night, he/she cheated at his/her friend's poker game.
4. Richard/Elizabeth is a 21-year-old college student majoring in history. He/She

currently is single. During his/her leisure time, Richard/Elizebeth likes to read and swim. When he/she shopped at Wal-Mart last week, he/she didn't tell the cashier when she/he gave him/her an extra \$5 in change.

5. Michael/Linda is a 22-year-old college student majoring in physics. He/she has been with Lind/Michael a for 3 years, and they currently live in Des Moines. During his leisure time, he/she likes to play ping pong and listen to alternative music. Last week, he/she checked the vegetables carefully at the store before buying them.
6. Charles/Susan is a 20-year-old college student majoring in finance. He/She currently is single and lives in Cedar Rapids. During his/her leisure time, he/she likes to play video games and listen to music. On Monday, he/she finished his report on time.
7. William/Barbara is a 22-year-old college student majoring in accounting. He/She currently is single. During his/her leisure time, he/she likes to dance and go rock climbing. Before he/she sold his/her car, he/she asked his/her friend to fix it to hide that it had been in an accident.
8. Joseph/Margret is a 20-year-old college student majoring in architecture. He/She has been with Margaret/Joseph for almost 2 years, and they currently live in Milwaukee. During his/her leisure time, he/she likes to cook and to go hiking. Last Saturday, he/she cut in front of 2 people who were waiting in line to buy tickets at a movie.

## APPENDIX G

## RELATIONSHIP ASSESSMENT SCALE

Please rate following items from 1 to 7.

**How well does your partner meet your needs?**

Poorly                      Extremely Well

**In general, how satisfied are you with your relationship?**

Unsatisfied                      Extremely Satisfied

**How good is your relationship compared to most?**

Poor                      Excellent

**How often do you wish you hadn't gotten into this relationship?**

Never                      Very Often

**To what extent has your relationship met your original expectations?**

Hardly at All                      Completely

**How much do you love your partner?**

Not Much                      Very Much

**How many problems are there in your relationship?**

Very Few                      Very Many

*Note: Items 4 and 7 are reverse scored*

APPENDIX H  
CHARACTERISTICS SURVEY OF SINGLES IN DIFFERENT AGE

**Think of typical a 24-year-old single man/woman. To what extent do you think each of these characteristics describes him/her?**

Not at all

Very

1                      2                      3                      4                      5                      6                      7

1. How happy do you think he usually is?
2. How secure or stable do you think he usually is?
3. How kind do you think he usually is?
4. How stubborn do you think he usually is?
5. How faithful or loyal do you think he usually is?
6. How shy do you think he usually is?
7. How lonely do you think he usually is?
8. How independent do you think he usually is?
9. How reliable do you think he usually is?
10. How sociable do you think he usually is?

**Think of typical a 40-year-old single man/woman. To what extent do you think each of these characteristics describes him/her?**

Not at all

Very

1

2

3

4

5

6

7

How happy do you think he usually is?

How secure or stable do you think he usually is?

How kind do you think he usually is?

How stubborn do you think he usually is?

How faithful or loyal do you think he usually is?

How shy do you think he usually is?

How lonely do you think he usually is?

How independent do you think he usually is?

How reliable do you think he usually is?

How sociable do you think he usually is?

APPENDIX I  
OPEN ENDED QUESTIONS

**What comes to mind when you think about single men/women?** (Please list any characteristics that you think generally describe them below.)

**What comes to mind when you think about attached men/women?** (Please list any characteristics that you think generally describe them below.)

APPENDIX J  
DEBRIEFING STATEMENT

I would like to tell you more about the purpose of the study. The goal of the study is to look at how a target's current relationship status influences a perceiver's moral judgments. Previous research has shown that single people are perceived as less caring, less desirable, and less warm than married people or people currently in a romantic relationship. I thought that perceivers' negative stereotypes towards single people may influence their moral judgments as well.

If you want learn more about single stereotypes, please click following link:  
<http://belladepaulo.com/>

We apologize for not being able to tell you exactly what you would be doing at the beginning of the study, as knowing what would be asked of you could change how you would respond. This could change our results, and confuse the understanding of any findings that come of them.

For the same reason, we would like to ask that you please not discuss your participation with anyone on M-Turk who hasn't done the study yet. Thank you in advance.

If you have any questions about the study, please contact primary investigator, Peng Zhang at [zhangpab@uni.edu](mailto:zhangpab@uni.edu).

APPENDIX K  
STUDY PROTOCOL

1. Have all the computers pre-set to the Qualtrics survey. But put a piece of numbered paper in front of each computer.
2. Distribute the hard copy of consent form as well as the seat number (randomly) to each student (in order to avoid the situation that people who know each would sit close) when they come in to the lab, then ask them to sit at the computer that matches their number and at the same time tell them “While you are waiting for other participants, please read this consent form carefully. If you agree to participate, please sign both your signature and print name on it”.
3. When everyone come (or after 5 minutes of scheduled time), introducing self after getting every consent form back. “Hi, there. My name is Evan, I am a second year social grad student at UNI. First of all, I just want to thank you guys for participating in my study. Now, please click the next button to start”
4. During the study, I will walk around to make sure that they don’t talk to each other.
5. When they leave, make sure they get a copy of the consent form.

Things need to bring and consider:

- (1) several pens, in case some of them do not have a pen with them.
- (2) consent form as well as paper copy.
- (3) do not wear sports pants.