

UC San Diego

UC San Diego Electronic Theses and Dissertations

Title

Appraisals and Envy: The Influence of Situational Factors on Envious Feelings and Motivations

Permalink

<https://escholarship.org/uc/item/823902nj>

Author

Henniger, Nicole E.

Publication Date

2016

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Appraisals and Envy:

The Influence of Situational Factors on Envious Feelings and Motivations

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor

of Philosophy

in

Psychology

by

Nicole E. Henniger

Committee in charge:

Professor Christine Harris, Chair
Professor Gail Heyman
Professor Wendy Liu
Professor Christopher Oveis
Professor Piotr Winkielman

2016

Copyright

Nicole E. Henniger, 2016

All rights reserved

The Dissertation of Nicole E. Henniger is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Chair

University of California, San Diego

2016

DEDICATION

For my family.

EPIGRAPH

Go placidly amid the noise and the haste, and remember what peace there may be in silence. As far as possible, without surrender, be on good terms with all persons.

Speak your truth quietly and clearly; and listen to others, even to the dull and the ignorant; they too have their story.

Avoid loud and aggressive persons; they are vexatious to the spirit. If you compare yourself with others, you may become vain or bitter, for always there will be greater and lesser persons than yourself.

Enjoy your achievements as well as your plans. Keep interested in your own career, however humble; it is a real possession in the changing fortunes of time.

“Desiderata” - Max Ehrmann

TABLE OF CONTENTS

Signature Page	iii
Dedication	iv
Epigraph	v
Table of Contents	vi
List of Tables	vii
List of Figures	viii
Acknowledgments	ix
Vita	xi
Abstract of the Dissertation	xii
Introduction	1
Chapter 1 Envy Across Adulthood: The What and the Who	6
Chapter 2 The Interpersonal Experience of Envy: Examining the Relationship Between Appraisals and Motivations	49
Chapter 3 The Influence of Similarity and Closeness on Envy	86
Conclusions	134
References	140

LIST OF TABLES

Table 1.1 Demographics	13
Table 1.2 Study 1.1 and 1.2 Domains envied by more than 15% of people in age group	19
Table 2.1 Study 2.1a Associations between the envier’s appraisals and responses, reported by enviers.....	63
Table 2.2 Associations between the envier’s and target’s responses, reported by enviers	67
Table 2.3 Study 2.1b Replication of associations between the enviers’ appraisals and responses, reported by enviers	71
Table 2.4 Study 2.1b Replication of associations between the envier’s and target’s responses, reported by enviers	72
Table 2.5 Study 2.2 Associations between the enviers’ appraisals and responses, reported by envied targets	80
Table 2.6 Study 2.2 Associations between the envier’s and target’s responses, reported by envied targets	81
Table 3.1 Study 3.3 Relationship characteristics (Friend Better condition).....	124
Table 3.2 Study 3.3 Spearman's rank order correlation coefficients (Friend Better condition)	125
Table 3.3 Study 3.4 Relationship characteristics (Friend Better condition).....	128
Table 3.4 Study 3.4 Spearman's rank order correlation coefficients (Friend Better condition)	130

LIST OF FIGURES

Figure 0.1 Model of envy elicitation and moderation.....	3
Figure 1.1 Gender of envier and envied target.	15
Figure 1.2 Relative Age of Envier and Envied Target by Participant Gender	16
Figure 1.3 Relative Age of Envied Target/Envier by Participant Age	17
Figure 1.4 Study 1.1 Domains Envied by Participants' Gender and Age.....	22
Figure 1.5 Study 1.2 Envier Gender by Gender Composition of Social Groups.....	30
Figure 1.6 Study 1.2 Envier Gender by Gender Composition of Social Groups.....	33
Figure 1.7 Study 1.2 Domains Envied by Participants' Gender and Age.....	35
Figure 2.1 Frequencies of envier's responses.	60
Figure 2.2 Frequencies of target's responses.....	62
Figure 3.1 Study 3.1 Manipulation Check (before feedback).....	97
Figure 3.2 Study 3.1 Envy elicitation	98
Figure 3.3 Study 3.1 Self-improvement motivation outcomes	100
Figure 3.4 Study 3.1 Motivations toward superior other	102
Figure 3.5 Study 3.2 Manipulation checks (before feedback).....	113

ACKNOWLEDGMENTS

I would like to thank my advisor Christine Harris for her insight, direction, and investment in my work. This dissertation would never have happened without her.

Many thanks also to Piotr Winkielman, Chris Oveis, and Wendy Liu for their advice and support. I would particularly like to thank Gail Heyman for always being willing to generously provide her thoughtful guidance.

This research was made possible by the best lab manager in the world, Noriko Coburn, and my army of intrepid research assistants: Delara, Alex, Bobby, Cameron, Auti, Michelle, Rebekah, Jessica, Kim, Nick, Anan, Michael, Juan, Tess, Madeline, Jazzmin, Heather, Peter, Jenny, Sena, Connie, Sherry, Alex, Jeannine, Aundrea, Christine, Lawrence, Reina, Andria, Margo, and Zach. Louise Chan deserves special acknowledgment for her work on two of the studies in Chapter 3 as part of her Honors project.

Thanks to Mary McKay and Shiloh Beckerley for being my mentors, role models, and friends. Thanks also to my lab sister Mingi Chung and my friends who kept me both sane and insane throughout these six years. I'm so lucky to know you all.

Most of all, thank you to my parents, Mary and Rich Henniger, my sister Melissa, and the rest of my wonderful family. Their love is the foundation of everything I do.

Chapter 1, in full, is a reprint of the material as it appears in *Basic and Applied Social Psychology*, 2015. Henniger, N.E. & Harris, C.R. The dissertation author was the primary investigator and author of this paper.

Chapter 2, in full, has been submitted for publication of the material as it may appear in *Personality and Social Psychology Bulletin*. Henniger, N.E. & Harris, C.R. The dissertation author was the primary investigator and author of this paper.

Chapter 3, in full, is currently being prepared for submission for publication of the material. Henniger, N.E., Heyman, G.D., Chan, L., & Harris, C.R. The dissertation author was the primary investigator and author of this paper.

VITA

- 2010 Bachelor of Arts in Psychology, Knox College
- 2011 Master of Arts in Psychology, University of California, San Diego
- 2016 Doctor of Philosophy in Psychology, University of California, San Diego

ABSTRACT OF THE DISSERTATION

Appraisals and Envy:

The Influence of Situational Factors on Envious Feelings and Motivations

by

Nicole E. Henniger

Doctor of Philosophy in Psychology

University of California, San Diego, 2016

Professor Christine Harris, Chair

This dissertation investigates the situational appraisals that are theorized to influence envy. When someone experiences an upward comparison, their response may be influenced by appraisals about the other person (e.g., similarity, closeness), the desired object (e.g. attainability), and the surrounding situation (e.g. fairness). These appraisals may elicit envy or moderate how an envier is motivated to respond. The studies in this dissertation use a variety of perspectives to investigate these appraisals and their associations with envious responses.

Chapter 1 finds that recalled envy experiences primarily occur towards superior others who are similar, in both close and distant relationships. These two studies use

diverse samples to explore envy across adulthood, including differences with age in what domains people envy.

Three studies in Chapter 2 find complex, replicable patterns of relationships between appraisals and envious responses in recalled envy experiences. These studies look at envy both from the internal perspective of enviers and from the external perspective of targets of envy.

Chapter 3 uses an in-lab social comparison manipulation in order to investigate the effects of two appraisals about the superior person: similarity and closeness. These appraisals are manipulated in strangers (Study 3.1 & 3.2) and measured in pairs of established friends (Study 3.3 & 3.4). In all four studies, these appraisals have few effects on the feelings and motivations of envy immediately after a comparison, suggesting that there is not a direct causal relationship between these appraisals and envious responses.

Together, these studies uncover many nuances in the appraisal-response relationships of envy. Although envy may occur more often in particular contexts, and certain appraisals may be associated with specific responses, these appraisals do not necessarily directly elicit envy. Additionally, this research supports the contention that envy can motivate of a range of potential responses, highlighting the complexity in this social emotion.

INTRODUCTION

Imagine someone who is better than you in some way. Perhaps they have an impressive accomplishment, a laudable personality trait, or simply a desirable object. This person might be a colleague or friend, or they may be a stranger. You might see yourself as similar to this person in every other way, or your lives may be completely disparate. How do you respond to such a comparison? The range of potential responses to a superior person is broad and complex, including feelings and motivations. What determines how a person responds when someone is better? In particular, this dissertation will examine what predicts when and how someone responds with the emotion of envy. Overall, we see that although appraisals like similarity do predict envious responses, these appraisals may not directly affect the elicitation or moderation of envious responses. We also argue that each appraisal is only associated with particular aspects of an envious response, rather than envy as a whole cohesive pattern of response. These findings have implications for how we think of envy as an emotion.

What is Envy?

Envy is a subjectively negative emotion that occurs in response to an upward comparison, when another person is superior in some way. Like other specific emotions, envy is thought to motivate responses that help the envier deal with the eliciting situation (Frijda, 1986; Smith & Kim, 2007). A variety of motivations can successfully alleviate a painful contrast, including hostile motivations that aim to pull down the superior person and self-improvement motivations that aim to elevate the status of the envier (Cohen-Charash, 2009; Hoogland, Thielke, & Smith, in press; van de Ven, Zeelenberg, & Pieters, 2009). Other response options include avoidance of the superior person, ingratiation and

affiliation with the superior person, and self-focused depression. Envy researchers have varied in which measures they use to define envy, with some focusing more on the subjective experience of envy (e.g., Cohen-Charash & Larson, in press) and others on the functional behavioral components (e.g., van de Ven, 2016).

In this dissertation, we use a range of measures in order to capture these different aspects of envy. When someone is experiencing envy, their subjective feeling of the emotion can be measured through self-report. We also measure behavioral motivations, both towards the superior person and focused on the self. By assessing this range of responses, we provide a rich picture of how envy relates to situational factors. The variety of measures also allows our results to be placed in context with the diversity of measures used in existing literature (Cohen-Charash & Larson, in press).

Appraisals and Envy

We examine the influence of situational appraisals on two processes: the elicitation of envy, and the moderation of envy responses (see Figure 0.1). Specific emotions like envy are thought to be elicited by certain situational factors (Henniger & Harris, 2014). In envy, the key appraisal is an upward comparison (Parrott & Smith, 1993); however, this cannot be the only appraisal required to produce envy, since many other emotions (e.g. admiration, pride) also can result from upward comparisons. What other appraisals must occur in order for the situation to elicit envy specifically? Many factors have been proposed, including similarity with the superior person, closeness (or distance) in the interpersonal relationship, unfairness in the situation, and inability to attain the desired object (e.g. Smith, 2004). In addition to determining when envy occurs

(given that a comparison is occurring), these factors have also been theorized to determine which envious responses occur (given that envy is occurring). This dissertation considers how situational factors relate to envy in the context of both elicitation and response moderation.

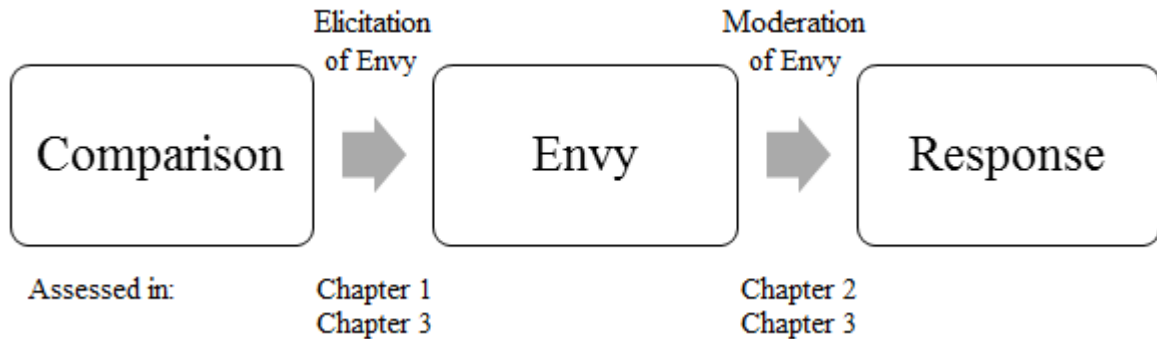


Figure 0.1 Model of envy elicitation and moderation.

Chapter 1 investigates the elicitation of envy by examining the characteristics of envy experiences across the lifespan – who envies whom about what. If envy is elicited by particular situational appraisals (e.g. by similar versus dissimilar others), then we would expect that most envy experiences should occur in those types of situations. This study also takes advantage of diverse samples in order to examine who and what are envied across the lifespan. If we see changes in the elicitation of envy with age, then this may have implications for a field that has primarily developed an understanding of envy from research conducted in college-age students.

Once envy has been elicited, the specific resulting behaviors can still vary (Cohen-Charash, 2009; Hoogland et al., in press; van de Ven et al., 2009). As was discussed above, there are many different potential motivations associated with envy (e.g. hostility towards the other person, or the motivation to self-improve). Are particular

situational appraisals associated with patterns in envious responses? Chapter 2 focuses on how appraisals relate to the moderation of envious responses. In this chapter, we examine the individual correlations between envious responses and a wide range of appraisals that are theorized to influence envy. If one of these appraisals influences envy as a whole, then we should see that it is associated with many different types of envious response. If the envious responses break down into more basic categories (e.g. constructive responses versus destructive responses), then we should see that particular appraisals are associated with those responses but not with others.

Chapter 3 takes the factors that were identified in Chapter 1 and examines their effects in a more controlled lab setting, using experimental manipulations of comparisons. Through these studies, we test whether being similar and close to the superior person changes the likelihood of eliciting envy in an upward comparison. These studies also assess whether these factors moderate envious responses by measuring subsequent behavioral responses, both towards the other person and focused on the self. We look at these associations both in pairs of strangers and in pairs of friends, providing different interpersonal contexts in which to investigate the behavioral motivations of envy.

Overview

This dissertation is composed of three chapters examining envy-related appraisals and situational factors from three perspectives: characteristics that recalled envy experiences have in common (Chapter 1), variation within recalled envy experiences (Chapter 2), and controlled in-lab comparison manipulations (Chapter 3). These chapters

each were written as separate manuscripts, and therefore they overlap somewhat in their introductions and discussions. The conclusion of this dissertation will re-examine the findings of the studies as a whole.

Overall, we will see that envy occurs in particular types of situations, and that appraisals are associated with differences in envious responses. However, we will not find strong support for the assumed causal relationship between appraisals and responses. As will be discussed, situational factors may be related to envious responses, but it is possible that their effects may take place either 1) upstream, by promoting social comparison, rather than specifically eliciting envy, or 2) downstream, by directly affecting responses, without influencing the comparison or envy elicitation. We also will see great variation in potential envious responses, challenging the simple schemes that currently attempt to categorize envious responses. A person may be green with many shades of envy, and we are still discovering intricacies of this complex social emotion.

CHAPTER 1

ENVY ACROSS ADULTHOOD: THE WHAT AND THE WHO

As one of the seven deadly sins in the Christian tradition, envy has been proposed to motivate the acts of people ranging from evil stepmothers in folk stories to Occupy Wall Street protestors in modern times. This subjectively negative emotion arises in response to the superiority of another person in some domain (Parrott & Smith, 1993; Smith & Kim, 2007). However, every objectively superior person is not envied. Who do people envy, and about what? It has been theorized that similar, close others who are superior in self-relevant domains are most likely to elicit envy (e.g. Smith & Kim, 2007; Tesser, 1980, 1988). However, studies exploring these factors have primarily focused on samples selected from only one stage of life (particularly college students) or have not analyzed the potential effect of age. In the present studies, we investigate experiences of envy in diverse samples of adults in order to assess who and what is envied across the lifespan.

Based on the little work that has been done with older individuals, one hypothesis is that older people may be less prone to envy than their younger counterparts. Some research suggests that older people are better at down-regulating their general negative affect (e.g. Charles & Carstensen, 2007, 2009), which may result in decreased experiences of envy overall in older populations. However, envy may function differently than general negative affect. When discrete emotions are examined across the lifespan, it appears that some negative emotions do decrease with age, while others may stay the same or even increase (e.g. Grühn, Kotter-Grühn, & Röcke, 2010; Kunzmann, Richter, & Schmuckle, 2013). These studies did not examine envy, and therefore, the effect of age

on the occurrence of envy is currently unknown. The current work examines how the experience of envying and being envied differs with age, using samples with ages ranging from 18 to 80 years.

Who envies whom?

Similarity has long been theorized to be important in social comparisons (e.g. Festinger, 1954) and specifically in the elicitation of envy (e.g. Alicke & Zell, 2008; Henniger & Harris, 2014; Salovey & Rodin, 1984; Salovey & Rothman, 1991; Smith & Kim, 2007). Why might similar others be more likely to be envied? One of the key proposed motivations of envy is to eliminate the envier's inferiority, either 1) by bringing the superior person down or 2) through self-improvement (e.g. Cohen-Charash, 2009; Miceli & Castelfranchi, 2007; Smith & Kim, 2007, Van de Ven, Zeelenberg, & Pieters 2009, 2011). Similarity may increase the chances of success for both tactics. Similar others are particularly relevant to the goal of self-improvement because they likely provide the most valuable information about possibilities for one's own success (e.g. Collins, 1996; Suls, Martin, & Wheeler, 2002; Wheeler, Martin, & Suls, 1997). Moreover, similar others may also be more vulnerable to being bested, allowing movement up a status hierarchy (D'Arms & Kerr, 2008; Smith & Kim, 2007). For example, a high school athlete can do little to surpass a professional athlete. However, envy of a fellow high school player could potentially be beneficial. If they are similar, the envious player has the potential to best the other player and accrue the benefits of a relatively superior status. For these reasons, it may be adaptive for people to focus their

envy on similar superior others rather than the person who is the absolute best in any given domain.

Despite the frequent theorizing of the relationship between similarity and envy, the number of studies directly assessing this connection is small. Perhaps the strongest empirical support for the similarity hypothesis comes from a study within the workplace, which found that perceived similarity with a coworker predicted subsequent envy over that person's promotion (Schaubroeck & Lam, 2004). Some research with college students also hints at the importance of similarity in eliciting envy (e.g. Hill & Buss, 2006; Rodriguez Mosquera, Parrott, & de Mendoza, 2010; Salovey & Rodin, 1984). However, what counts theoretically as similar or dissimilar in social comparisons has remained somewhat unclear (Harris & Salovey, 2008).

The current work focuses on the roles that two key features of a person, gender and age, play in experiences of envy. These characteristics may seem surface-level in that they are easily identified and compared between individuals, and yet their inherent ties with self-concept go far deeper. If envy arises when the self is threatened (e.g. Smith & Kim, 2007), then these two characteristics may be particularly salient markers for envy-inducing social comparisons.

One study finds that college students often report being envied by their peers (Rodriguez Mosquera, Parrott, & de Mendoza, 2010). However, without direct comparison across age groups, it is impossible to conclude that people are more likely to envy (and be envied by) others of a similar age at all points throughout the lifespan. A rival hypothesis is that older people may envy the greater potential of younger people, or

may compare younger versions of themselves to currently younger individuals. For example, in the classic fairy tale *Snow White*, the evil stepmother envies the beauty of her young stepdaughter. On the other hand, older people have had more time to accrue enviable successes in many domains, such as building stable relationships or achieving occupational success. Once young people become full-fledged adults who are attempting to build careers and families, they may more often envy these successful older people. Young people envying older people and vice versa may also simply reflect the pool of available comparison targets; for young people, most of the population is older, and for old people, most of the population is younger. If availability leads to envy, then we would expect to find both types of cross-age envy: younger people should report more envy of older people, and older people should report more envy of younger people. The present work examines these possibilities.

Consistent with the idea that similarity is more likely to produce envy, people also may be more likely to envy others of the same gender. High school students most often choose same-gender others as comparison targets (Blanton, Buunk, Gibbons, & Kuyper, 1999), and college students most often report envy of same-gender friends (Hill & Buss, 2006). However, as individuals age and enter the work force, cross-gender comparisons may become more important and more likely to provoke envy. In a world that facilitates male accomplishment, women may envy the privileges (including higher incomes) of men. In two studies, we use a large sample of males and females of diverse ages to examine whether people are more likely to envy others of the same gender, and whether this pattern is consistent across the lifespan.

What do people envy?

Envy is most likely when people are outperformed in a self-relevant domain (Bers & Rodin, 1984; Salovey & Rodin, 1991; Smith & Kim, 2007; Tesser, 1980, 1988). For example, a study by Salovey and Rodin (1984) found that college students receiving feedback on a career aptitude test reported the most envy when outperformed in their desired career, but not other careers. Other work with college students finds that scholastic achievement (Rodriguez Mosquera, Parrott, & de Mendoza, 2010) may be particularly enviable and that male and female students may differ in how often they report envying some features of others (e.g., physical attractiveness, DelPriore, Hill, & Buss 2012). However, while research has assessed envy in noncollege samples in particular settings (e.g., employees; Cohen-Charash & Mueller, 2007; Vecchio, 2005), no past research has examined how envy of specific domains varies across different phases of adulthood. The current work helps to fill this gap in the literature.

The present studies

In the present work, we used online questionnaires in order to investigate experiences of envy in large samples of adults. In the first study, we asked participants to recall a time when they had envied someone else. In Study 1.2, we asked participants to remember a time when another person had envied them. In each study, we examined whether the gender and age of the envier were associated with 1) experiencing envy, 2) the characteristics of the person who was envied, and 3) the domain of what was envied.

Following the guidelines advanced by the Editor of *Basic and Applied Social Psychology* in his recent editorial (Trafimow & Marks, 2015), we offer descriptive

statistics rather than traditional null significance hypothesis testing.¹ Although these analyses may rightly be considered exploratory, this exploration has uncovered similar patterns across our two studies that we hope will lay the groundwork for further experimental investigation.

Study 1.1

Method

Participants. Participants (N = 987) were recruited from the StudyResponse.com internet research panel, a demographically diverse panel composed of adults of all ages (Stanton & Weiss, 2002). These participants completed a web-based questionnaire in exchange for enrollment in a cash prize lottery. This method affords a high degree of anonymity, and it has repeatedly been found to elicit more candid responses to questions about socially undesirable behaviors and emotions than paper and pencil or interview methods (cf. Levine, Ancill, & Roberts, 1989; Locke & Gilbert, 1995; Musch, Broder, & Klauer, 2001). For the present purpose, in which the questions of interest pertain to participants' feelings of envy, this greater openness represents a major advantage.

Survey Design. Participants completed a series of demographic questions, including age, gender, marital status, sexual orientation, national origin, and education. Then, respondents were asked if they could think of a time in the last year when they had experienced envy of someone they knew personally. Participants who could recall such

¹ Our data analysis began last year before the change in the BASP policy. Therefore, we had performed traditional statistical tests in most of our analyses for this manuscript. These are available from the authors. In the current work, we include correlations as a measure of effect size, as well as odds ratios for gender effects.

an event then responded to a series of questions pertaining to their experiences of envy, including the gender and relative age of the envied person (on a 9-point scale, from 1 = “More than 15 years younger than you” to 9 = “More than 15 years older than you” with midpoint 5 = “Within 1 year of your age”). Participants also reported the domain of what they envied using a checklist in which they could choose more than one domain (occupational achievements, scholastic achievements, romantic successes, social successes, looks, money, good luck, and other). As an attention check, participants also answered an arithmetic problem and selected the meaning of the phrase “pipe down” from four options. The anonymous nature of the survey was emphasized, as was the need for completely frank and honest answers.²

Results and Discussion

The original sample included 987 participants (442 male/545 female). For the full demographics of this sample, see Table 1.1. Sixty-two participants (41 male/21 female) answered one or both attention-check questions incorrectly and were excluded from further analysis. After these exclusions, the remaining sample size was 925 participants (401 male/524 female; age $M = 33.3$ years, $SD = 12.1$, range 18-78 years).

² Other unrelated items were included in this questionnaire that are not discussed in the present report.

Table 1.1 Demographics

Study 1 (n = 987)			Study 2 (n = 843)		
Gender	Male	44.8%	Gender	Male	40.5%
	Female	55.2%		Female	59.5%
Country	Living in the United States	83.8%	Country	Living in the United States	99.5%
	Living in Canada, Australia, or UK	9.7%		Living in Other Country	0.5%
	Living in Other Country	6.5%	Relationship Status	Married	34.9%
Sexual Orientation	Heterosexual	93.5%		Living together	11.9%
	Homosexual	3.0%		Dating	18.7%
	Bisexual	3.5%	Single/Non-committed	34.6%	
Relationship Status	Married	41.1%	Employment Status	Unemployed	14.0%
	Living together	13.3%		Student	14.9%
	Dating	16.3%		Part time	14.6%
	Single	28.3%		Full time	49.6%
Employment Status	Unemployed	14.6%	Retired	6.9%	
	Student	20.8%	Education	Did not finish high school	1.9%
	Part time	13.6%		High School	49.5%
	Full time	45.9%		University	37.5%
	Retired	5.1%	Advanced degree	11.2%	
Ethnicity			Ethnicity	Black/African-American	9.4%
				Asian	12.7%
				White/Caucasian	69.5%
				Hispanic/Latino/a	5.2%
				Other	3.2%

Remembering envy. Envy was a common experience in our sample, with over three-quarters of participants reporting that they had experienced envy in the last year. Proportionately, slightly more women (n = 416, 79.4%) than men (n = 297, 74.1%) reported envy experiences, *OR* = 1.35. A substantial proportion of people of all ages

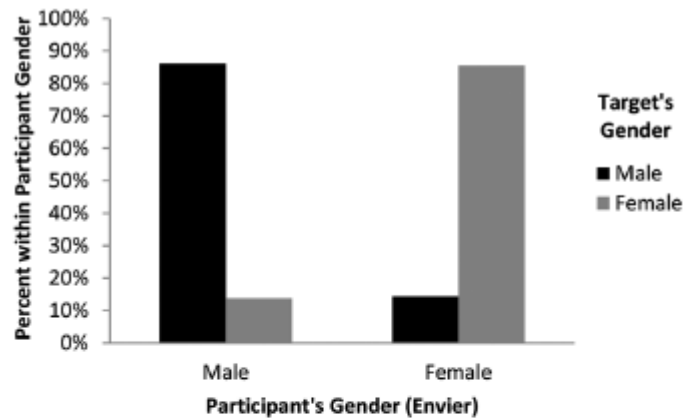
reported experiencing envy in the last year: 80% (n = 339) of people under 30, 79% (n = 177) age 30-39, 73% (n = 122) age 40-49, and 69% (n = 75) age 50+. However, looking at age as a continuous measure, there was a small tendency for older people to be less likely to report such an experience, point-biserial correlation $r(925) = -.097$.³ The decreased experience of this specific emotion in older participants is consistent with other findings of decreased general negative affect and improved emotion regulation with age (Charles & Carstensen, 2007, 2009).

The remaining analyses will focus on the experiences of the participants who reported having had an envy experience.

Gender and age of the envier and the envied person. Of those who reported envy, the vast majority of both men (86.2%) and women (85.6%) reported envying a person of the same gender (see Figure 1.1), $OR = 1.05$. Thus, we do not find support for the idea that women particularly envy the privileges of men. The propensity to envy someone of the same gender did not noticeably differ with age (point-biserial correlation: $r(713) = -.006$). This suggests that, although people's life circumstances change with age, the tendency to envy same-gender others is consistent across the lifespan. This effect also was not driven by any particular domain; in every reported domain, people were more likely to envy someone of the same gender (ranging from 79% of people envying social success to 92% of people envying looks).

³ For ease of display and discussion, we often present age in categories by decade (e.g., 20s, 30s, 40s). However, throughout this paper, any correlations with age are based on the full continuous range of ages, not on the constructed categories.

Study 1 (Experiencing Envy) Gender of Participant and Envied



Study 2 (Being Envied) Gender of Participant and Envier

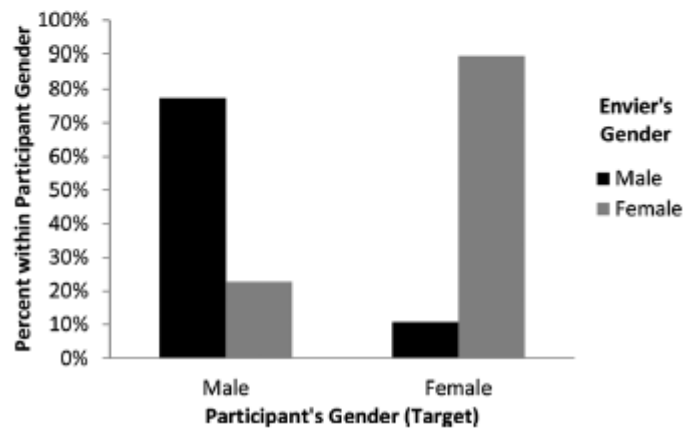
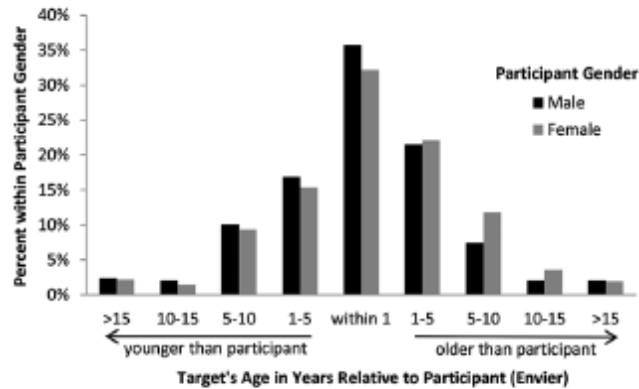


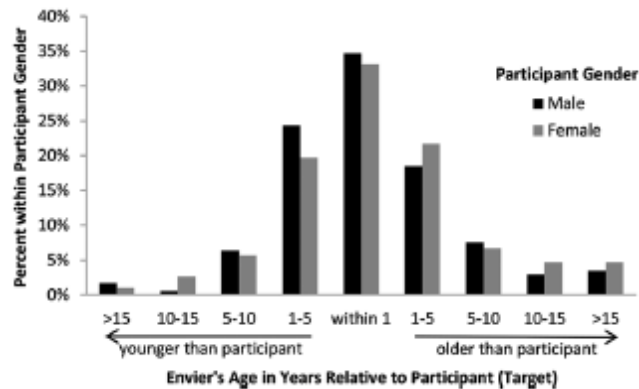
Figure 1.1 Gender of envier and envied target.

In support of the similarity hypothesis, participants of both genders were more likely to envy someone close in age to themselves. As can be seen in Figure 1.2, 74.1% ($n = 220$) of men and 69.7% ($n = 290$) of women reported envying someone within 5 years of their own age.

Study 1 (Experiencing Envy) Relative Age of Envied Target by Participant

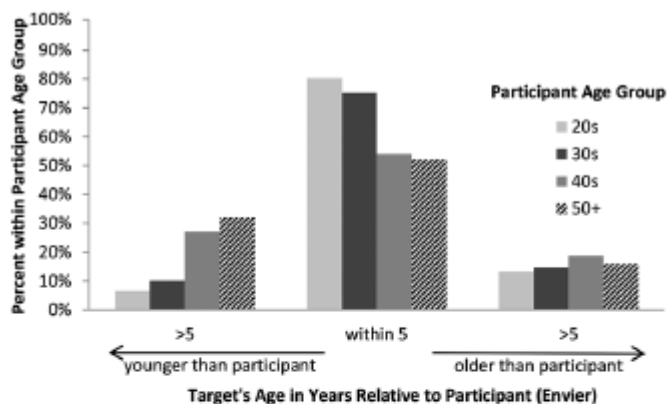


Study 2 (Being Envied) Relative Age of Envier by Participant Gender

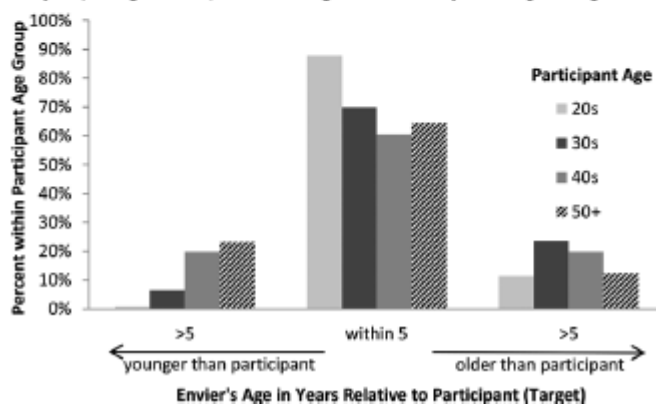
**Figure 1.2** Relative Age of Envier and Envied Target by Participant Gender

In Figure 1.3, we examine the age of the target relative to the participant using three categories: more than five years younger than the participant, within 5 years of the participant's age, and more than five years older than the participant. These categories are condensed from the original 9-point scale for ease of interpretation, with the intent of considering people within five years to be "close in age" to the participant. Looking at Figure 1.3, it appears that older people were more likely than younger people to envy someone more than five years younger than themselves.

Study 1 (Experiencing Envy) Relative Age of Envied Target by Participant Age



Study 2 (Being Envied) Relative Age of Envier by Participant Age

**Figure 1.3** Relative Age of Envied Target/Envier by Participant Age

Note: The categories for age relative to the participant (younger, older, or within 5 years) are binned versions of the 9-point scale presented to participants.

This pattern may seem to support the availability hypothesis, reflecting the increased pool of younger targets available to older participants. However, if the pool of available targets had influenced who was envied, then we would expect that younger participants would be more likely than older participants to envy someone more than five years older than themselves. This was not the case, and therefore older people's greater envy of younger people may be better explained by the enviability of younger people, rather than their proportional availability. However, people of all ages still direct their

envy most often towards similarly aged others. Even in the oldest age group, a majority (52%) of people over age 50 envied someone within 5 years of their own age.

Although these data may suggest that similarity provokes envy, an alternative hypothesis is possible: people may most often envy those to whom they are most frequently exposed, who may tend to be same-gender and similarly aged. In Study 1.2, we will explore this exposure hypothesis.

Domains of envy. The next analyses examined the domains that participants envied in the target person. On average, participants reported envying a little less than two domains (males: $M = 1.86$ domains, $SD = 1.21$; females: $M = 1.85$ domains, $SD = 1.19$). Not only were older people less likely to report experiencing envy, as noted earlier, but also those older people who did experience envy tended to report envying fewer domains, $r(713) = -.173$.

The domains of the participants' envy differed depending on their age. Table 1.2 shows the domains that were most reported in each age group (i.e. the domains in which at least 15% of participants in that age group reported envying that domain). In Figure 1.4, the percentage of participants reporting each domain is displayed by gender-and-age group. Noting that several domains seemed to increase or decrease in importance with age, we performed a series of post-hoc point-biserial correlations to provide some estimate of the strength of the relationship between the continuous measure of age and the binary measure of whether or not participants reported envy in that domain. However, although useful for description, we do not propose that a linear model would fully capture the relationship between age and likelihood of envy in each of these domains.

Table 1.2 Study 1.1 and 1.2 Domains envied by more than 15% of people in age group

Study 1.1 (Experiencing Envy)			
Age 18-29 (n = 339)	Age 30-39 (n = 177)	Age 40-49 (n = 122)	Age 50+ (n = 75)
Scholastic success (22%)			
Social success (22%)			
Looks (30%)			
Romantic success (40%)	Romantic success (24%)	Romantic success (16%)	
Monetary success (28%)	Monetary success (29%)	Monetary success (35%)	Monetary success (39%)
Occupational achievements (22%)	Occupational achievements (39%)	Occupational achievements (43%)	Occupational achievements (36%)
<i>Luck (26%)</i>	<i>Luck (22%)</i>	<i>Luck (21%)</i>	<i>Luck (24%)</i>
Other (20%)	Other (26%)	Other (21%)	Other (29%)
Study 1.2 (Being Envied)			
Age 18-29 (n = 219)	Age 30-39 (n = 92)	Age 40-49 (n = 86)	Age 50+ (n = 73)
Scholastic success (30%)			
Social success (17%)			
Looks (22%)	Looks (22%)		
Romantic success (29%)	Romantic success (26%)	Romantic success (16%)	
		Monetary success (17%)	Monetary success (24%)
Occupational achievements (28%)	Occupational achievements (30%)	Occupational achievements (37%)	Occupational achievements (24%)
<i>Overall better life (18%)</i>	<i>Overall better life (16%)</i>	<i>Overall better life (29%)</i>	<i>Overall better life (20%)</i>
<i>Talents (20%)</i>	<i>Talents (16%)</i>	<i>Talents (17%)</i>	
		<i>Family (23%)</i>	
		Other (23%)	Other (23%)

Note: Answers were not mutually exclusive; each participant could select more than one domain. In both studies, younger participants selected more domains than older participants. Italics indicate response choices that were only included in one study.

There tended to be three main patterns in the data: domains that were less often envied with age, domains that were more often envied with age, and domains that showed little relationship with age. As can be seen in Table 1.2, more young people reported envy in the domains of scholastic success, social success, looks, and romantic success, but with age these domains were less a source of envy (scholastic success: $r(713) = -.155$; social success: $r(713) = -.175$; looks: $r(713) = -.262$; romantic success: $r(713) = -.231$). For example, 40% of participants under 30 reported envying romantic success, but less than 15% of participants over 50 envied this domain. This pattern seemed to fit with differences in relationship status across the age groups: only 21% of the youngest group was married while 63% of the oldest group was married.

Envy of monetary success and occupational success was common across all age groups, but these two domains were unique in being more often envied by older people (occupation: $r(713) = .169$; money: $r(713) = .077$). Occupational success may be better described by a curvilinear relationship with age; the percentage of people envying occupation climbed from 22% in the youngest age group to 43% in the forty-something group, but fell back down to 36% for people age 50+. In a nominal logistic regression, a model with a quadratic term (McFadden $R^2 = .03$) better predicted whether or not people envied occupational success than a model with only a linear age term (McFadden $R^2 = .02$). These changes may demonstrate that, although career success is important throughout adulthood, its importance peaks at midlife and then perhaps declines as people retire or look ahead towards retirement. The differences may also be due to cohort effects, as the importance of career success may have changed across the generations.

Roughly a fourth of participants reported envying another's luck, and this did not appear to change much with age ($r(713) = -.055$). By definition, luck occurs by chance, which presumably would apply equally across various ages. However, many kinds of success may be considered lucky, and it is possible that people at different stages of life were thinking of different kinds of luck – a point we will follow up on in the next study. The “other” category was also often selected, and this did not noticeably differ across age group ($r(713) = .061$). Thus, the response options available did not fully categorize all of the domains envied by participants.

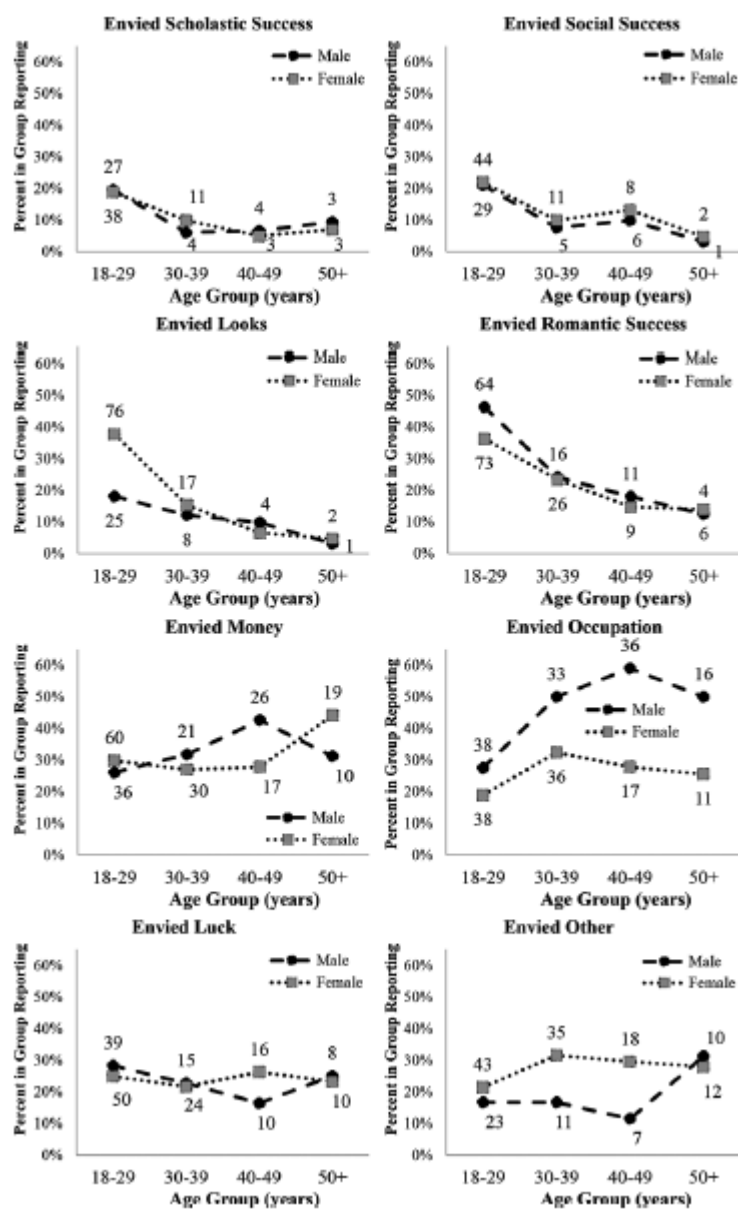


Figure 1.4 Study 1.1 Domains Enviied by Participants' Gender and Age

Note: Answers were not mutually exclusive; each participant could select more than one domain. Younger participants selected more domains than older participants. Raw numbers are included as data labels for the number of the participants in that gender-and-age group reporting envy in that domain.

We next examined the similarities and differences in what men and women envied. The genders did not show any clear difference in their likelihood of envying five out of the eight domains. However, males (41.4%) did envy occupational success more than females (24.5%, $OR = 2.18$), while females (23.8%) envied looks more often than males (13.5%; $OR = 2.01$). More females (26.0%) than males (17.2%) also selected the “other” category, indicating that the domain choice options in Study 1.1 captured fewer of the domains envied by females than males.

We examined potential interactions between age and gender in more detail in the graphs in Figure 1.4. Visual inspection of the figures suggests one strong pattern: looks were most important for young (18-29) females. This finding is consistent with several theoretical positions and will be further discussed in the General Discussion. As noted above, older participants were less likely to report envy experiences, and those who did, reported envying fewer domains. As a result, for the oldest age group (50+ years) some domains contained small numbers ($n < 5$) of participants of each gender (for example, out of the 109 participants who were age 50+, 75 participants recalled experiencing envy; of these, only 3 men and 3 women age 50+ envied looks). Therefore, interpretation of changes in the oldest group by gender must be made tentatively.

Study 1.2

In the previous study, we asked participants to report their own experiences with feeling envy, which is commonly considered to be a malicious, shameful emotion (e.g. Foster, 1972; Parrott & Smith, 1993; Smith & Kim, 2007). Although the questionnaires were conducted in an anonymous online setting, people still may have underreported or

altered their reports of this socially undesirable emotion. In order to reduce the potential stigma of reporting envy, in Study 1.2 we asked participants to describe a time when someone else envied them. This method also allowed us to investigate the extent to which the perceptions of envied targets matched the general perceptions of envious in Study 1.1. We again focused on changes and consistencies across the lifespan in who reported these experiences, whether envious were similar in age and gender to the envied participants, and which domains were envied.

As discussed above, one possibility is that the perception of similarity directly provokes envy in upward social comparisons because it signals that “I am in competition with this person,” and “We are so alike that I should be able to do anything that this person can do.” Indeed, counterfactual statements like “It could have been me,” are associated with greater envy (Van de Ven & Zeelenberg, 2014). However, another possibility is that people might simply envy the people they are most frequently exposed to, who may tend to be others of the same gender and age. This would be consistent with findings that repeated exposure intensified negative responses to social comparisons (Chambers & Windschitl, 2009). An exposure hypothesis would predict that if people are around females, they will envy females; if people are around males, they will envy males. Accordingly, the preponderance of same-gender (and age) envy would be due to people spending the most time among others of the same gender (and age), rather than being directly caused by similarity per se. In Study 1.2, we assessed the effect of the composition of participants’ social groups by asking participants to report the gender and relative age of the people with whom they normally interacted and were close. We then

assessed whether the predominant age and gender of one's social group predicted the age and gender of one's enviers.

We also assessed the nature of the relationship between the envier and the envied person in order to examine whether envy occurs more often in certain relationship types (e.g., friends, siblings). Studies of college students have found that young people reported most frequently envying friends (Hill & Buss, 2006) and being envied by peers they know, such as their friends and fellow students, rather than by family members (Rodriguez Mosquera, Parrott, & de Mendoza, 2010). In older adults, one study found envy to be a source of anger towards friends but rarely towards parents or children (Fisher, Reid, & Melendez, 1989); another study found that envy occurred most strongly towards siblings, but also often towards spouses and siblings-in-law (Yoshimura, 2010). However, each of these studies looked only at a restricted range of relationships, and did not ask whether envy occurs more frequently in these relationships versus other types of relationships. Across the lifespan, envy may occur more frequently in friendships than in family relationships (Alicke & Zell, 2008).

If envy occurs more often in some types of relationship than others, this effect may be due to the closeness of that type of relationship. Only a limited number of previous studies of envy have assessed relationship closeness, and the empirical and theoretical literature in this area presents a mixed picture of how closeness should affect envy. One hypothesis is that people respond with envy towards distant successful others and with pride towards close successful others; accordingly, envy should be most common in distant relationships (e.g. Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, &

Glick, 2007). However, a rival hypothesis is that closeness functions like similarity – any increase in “unit relatedness” with a person who is superior in a self-relevant domain may create a greater threat to self-evaluation. This would predict that most of the envious responses would occur in close relationships (Cohen-Charash, 2009; Tesser, 1980, 1988). In Study 1.2, we asked participants to characterize the closeness of their relationship with their envier in order to test these hypotheses.

Method

Participants. Participants (N = 843) were recruited from Amazon Mechanical Turk and an online participant pool to take an online survey about social and emotional experiences in exchange for payment. The present questions about a recalled incident were included as part of a larger questionnaire about the experience of envy⁴.

Survey Design. Similar to Study 1.1, participants were asked a series of demographic questions. Participants also reported the typical gender and relative age of people they “interact with” and separately “are close to”. They did so with a 5-point scale, from “Almost all of the people I (regularly interact with/am close to) are male” to “Almost all of the people I (regularly interact with/am close to) are female”, and reported

⁴ The focus of the present paper is on what triggers envy: the characteristics of the people and domains that are envied. In this questionnaire, we also asked about subsequent envious behaviors (e.g. hostility, ingratiation) and the envied person’s responses to those behaviors (e.g. helping, avoidance). However, the full theoretical background and analyses of these items would not fit the focus of the present paper and would greatly lengthen it. The authors welcome correspondence about these findings and intend to publish them in future work. Relationship closeness, gender, and age are the only variables that are used in both sets of analyses. Elsewhere, the connection between political ideology and dispositional envy (Harris & Henniger, 2013) was examined using a subset of this sample.

the typical age of each group on a 9-point scale, from >15 years younger to >15 years older.

Participants then were asked if they could think of a recent time they had the feeling that someone was experiencing envy of them. Those who could remember such a time responded to a series of questions about their experience being envied. Participants reported the gender and relative age of the envious person and categorized what the person envied about them. As in Study 1.1, a checklist of possible domains of envy was provided, and participants could choose more than one domain. Most domains matched those used in Study 1.1 (occupational achievements, scholastic achievements, romantic successes, social successes, looks, money, and other). However, the domain of luck, which was used in Study 1.1, likely incorporated and overlapped with various domains. Therefore, this domain was substituted with several other options (talents, health, family, and overall better life) in order to better capture the experiences that participants were thinking of when indicating “luck” or “other” in Study 1.1. In their study of college students, Rodriguez Mosquera et al. (2010) identified talents and an overall “better life” as potential domains of envy; based on pilot research, we also added health and family as domains that could be more often envied by older participants.

Participants also reported the envious person’s relationship to them (romantic partner, sibling, relative (non-sibling), best friend, close friend, casual friend, acquaintance, stranger/just met once, or other) and how close their relationship was to this person on a Likert-type scale from 1 = “Not At All Close” to 10 = “Extremely Close”.

Results and Discussion

The original sample included 843 participants (340 male/499 female/4 unreported gender). For the full demographics of this sample, see Table 1.1. Thirty-four participants (18 male/16 female) answered one or both attention-check questions incorrectly. At the request of a reviewer, we confirmed that these participants were similar to retained participants in education level, income, or employment status. The remaining sample size was 809 participants (322 male/483 female/4 unreported gender; age $M = 35.8$ years, $SD = 13.5$, range 18-80 years). Of these participants, 477 (59%) could recall a time when they had been the target of envy (174 male, 299 female, 4 unreported; age $M = 34.3$ years, $SD = 13.0$, range 18-72 years).

Remembering being envied. We examined whether gender and age affected the likelihood of recalling being the target of envy. More women (62%) than men (54%) reported having been the target of envy ($OR = 1.38$). In examining age, older participants were less likely to report being envied recently, point-biserial correlation $r(803) = .134$. These findings generally parallel the age and gender effects on remembering envy in Study 1.1.

The remainder of the analyses will focus on the participants who reported having been envied.

Gender of the envier and envied participant. Bolstering the findings from Study 1.1, the vast majority of participants reported on envy experiences involving someone of the same gender; as can be seen in Figure 1.1, 89% of women ($n = 267$) and 77% of men ($n = 133$) were targets of same-gender envy. Interestingly, in this study,

same-gender envy was more pronounced in females than in males ($OR = 2.45$). If the genders really are equally likely to envy opposite-gender others, as found in the first-person accounts of envy in Study 1.1, then the current difference may indicate two intriguing possibilities: 1) women may be less likely to perceive themselves as enviable by men, and/or 2) men may be less likely to communicate their envy in general or perhaps specifically towards women.

Similar to Study 1.1, the likelihood of envying someone of the same gender did not noticeably differ with age, point biserial correlation $r(468) = .023$. Moreover, people were more likely to report being envied by someone of the same gender across all domains (ranging from 74% of people envied for their money to 94% of people envied for their looks).

Same-gender envy could reflect 1) a direct effect of similarity in social comparisons or 2) an exposure effect in which people envy those whom they encounter most often, who may tend to be same-gender. If the exposure hypothesis is correct, participants who interact with males more should be envied by males, while those who interact with females more should be envied by females (regardless of participant gender). Figure 1.5 displays the relative proportion of males versus females whom participants interacted with and were close to, along with the participant's own gender and that of their envier. The exposure hypothesis predicts that for both male and female participants, the far most left bar should be predominately gray (participants who interact primarily with women should report being envied by women). The amount of gray should decrease as one moves to the right of the graph (i.e., as the proportion of men the

participant interacts with increases). In contrast, if similarity of gender is driving effects exclusively, then all of the columns should be primarily gray for female participants and primarily black for male participants.

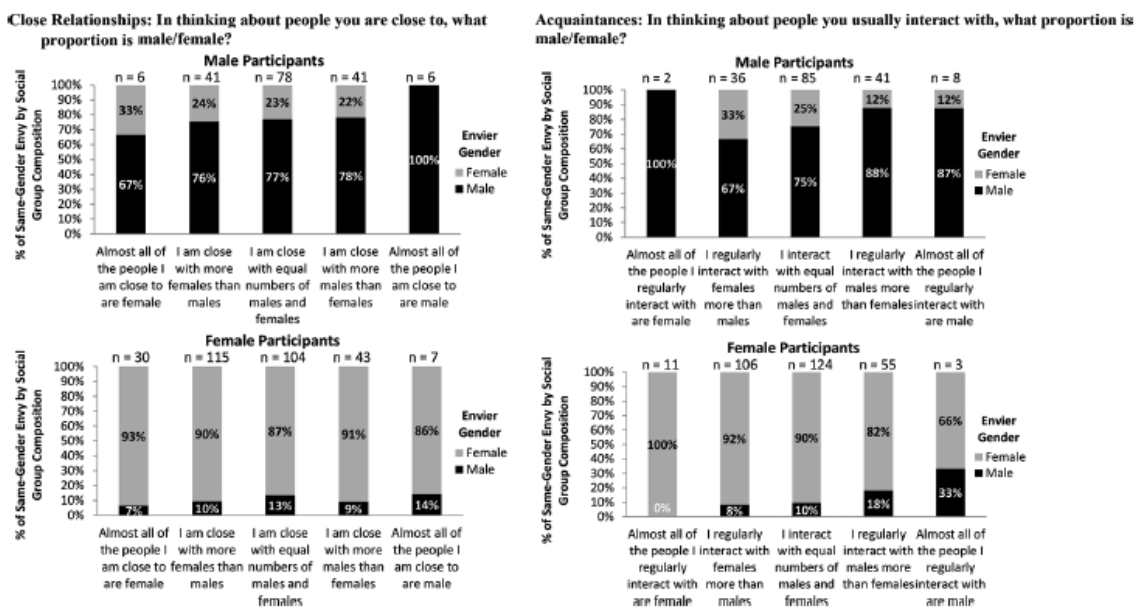


Figure 1.5 Study 1.2 Envier Gender by Gender Composition of Social Groups

Note: Four participants did not report gender.

The data revealed a pattern somewhere in between these two predictions. Gender composition of social groups likely has some influence on who is envied.⁵ However, overall the majority of envy was same-gender even when participants were associating more with opposite-gender others. (Note that the n's at the end of the scales are very

⁵ This is also supported by point-biserial correlations. When people's acquaintances ($r(475) = .222$) and close relationships ($r(475) = .177$) consisted of more women (or more men), they were more likely to be envied by a woman (or man).

small, and therefore likely unreliable, but the pattern we describe here also holds for the three center groups where n's are substantial.)

Thus, the high proportion of participants reporting envy by someone of the same gender is partially but not completely explained by participants being more likely to interact with and be close to others of the same gender.

Age of the envier and envied participant. We next examined whether participants were more likely to be envied by someone close in age to themselves, as suggested by Study 1.1. As can be seen in Figures 1.2 and 1.3, 76% ($n = 360$) of participants reported being envied by someone within 5 years of their own age; this pattern held for both men and women. Across the lifespan, older people were slightly more likely to envy someone older or younger than themselves. However, even in the oldest age group, a majority (64%) of people over age 50 reported being envied by someone within 5 years of their own age. Thus, similarity of age was important for all age groups, but more so in the younger participants.

People may be envied by others of similar ages because they spend more time with such people. As described in the methods, participants characterized 1) the extent to which their acquaintances and close relationships were younger or older than themselves, and 2) the extent to which their envier was younger or older than themselves. As might be expected, people were more likely to interact with and be close to others of a similar age. Furthermore, the age of one's social group was related to the age of one's envier. People whose acquaintances ($r(476) = .253$) and close relationships ($r(476) = .209$) were predominantly younger (or older) than themselves were more likely to be envied by

someone younger (or older) than themselves. However, these correlations only partially accounted for the variance in the other person's age, suggesting that another factor besides exposure to similar others lead to the high rates of similar-age envy. For example, the participants who primarily interacted with people at least 10 years older or younger than themselves ($n = 58$) had high exposure to others of dissimilar ages. However, despite this increased exposure, 69% ($n = 40$) of this group were envied by someone within 5 years of their own age. Being of a similar age may increase the likelihood of envy regardless of how often one is exposed to similar-age others.

Relationship with the envier. The next analyses examined the connection between envy and relationship closeness. We used two measures to assess this: 1) a continuous self-report rating of relationship closeness (from 1 = not at all close to 10 = extremely close) and 2) a categorical report of the nature of the relationship between the participant and the envious person. The mean closeness between the participant and envier on the continuous scale was 5.6 ($SD = 3.1$). This suggested that people on average remembered being envied by someone who was somewhat but not extremely close; however, the large standard deviation revealed that people varied widely in this respect. This finding suggests that there is not a "characteristic" relationship closeness, whether close or distant, in which envy most often occurs.

Figure 1.6 displays the categories of relationships in which envy occurred, along with the mean relationship closeness of these categories. People rarely reported being envied by someone they had only met once (3.6%), suggesting that envy relies on the existence of some type of relationship (or at least is only detected when there is a

relationship). The most frequently reported relationships between the enviers and participants were acquaintance (17.6%, average closeness rating = 2.3), casual friend (18.3%, average closeness rating = 5.0), and close friend (21.4%, average closeness rating = 7.4), as can be seen in Figure 1.6.

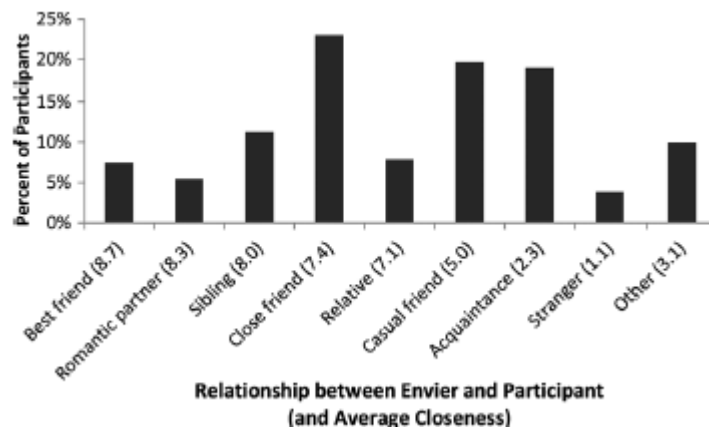


Figure 1.6 Study 1.2 Envier Gender by Gender Composition of Social Groups

Note: In parentheses is the average closeness rating reported by participants for enviers from that category of relationship.

These three types of relationships varied widely in self-reported closeness, and participants did not report substantially more instances of envy in closer relationships. However, there did seem to be a division between what might be considered family-like relationships (if, along with siblings and other relatives, romantic partners and best friends could be considered family,) and non-family relationships (including close friends, casual friends, and acquaintances). This difference was not explained by reports of the closeness of the relationships. For example, people were much more likely to report being envied by close friends than by relatives, even though they felt equally close

to both groups. Overall, only 30% of the incidents reported occurred in family-like relationships.

In sum, both the continuous and categorical measures indicated great variability in the nature of the relationship between the envier and the envied. People were envied by close others, but not predominantly so.

Domains of envy. We next examined the nature of the traits and successes for which participants perceived that others envied them. Similar to Study 1.1, participants reported being envied for a little less than two domains on average (males: $M = 1.74$ domains, $SD = 1.26$; females: $M = 1.96$ domains, $SD = 1.33$). There was a slight trend for older participants to report being envied in fewer domains, $r(474) = -.078$, congruent with Study 1.1's older participants reporting envy in fewer domains.

The relationship between age and domains of envy was similar across the two studies. Table 1.2 shows the most reported domains in each age group. Figure 1.7 displays the percentage of people in each gender-and-age group being envied for each domain. Young participants were the most likely to be envied for scholastic success, social success, looks, and romantic success, just as the young people in Study 1.1 were most likely to report feeling envy for these same domains. With age, reports of being envied in these domains decreased (scholastic success: $r(474) = -.235$; social success: $r(474) = -.109$; looks: $r(474) = -.126$; romantic success: $r(713) = -.170$).⁶

⁶ As in Study 1.1, point biserial correlations are provided as a description of the relationship between age and the binary measure of whether or not participants reported being envied in that domain. However, we do not propose that the actual model of these relationships is strictly linear.

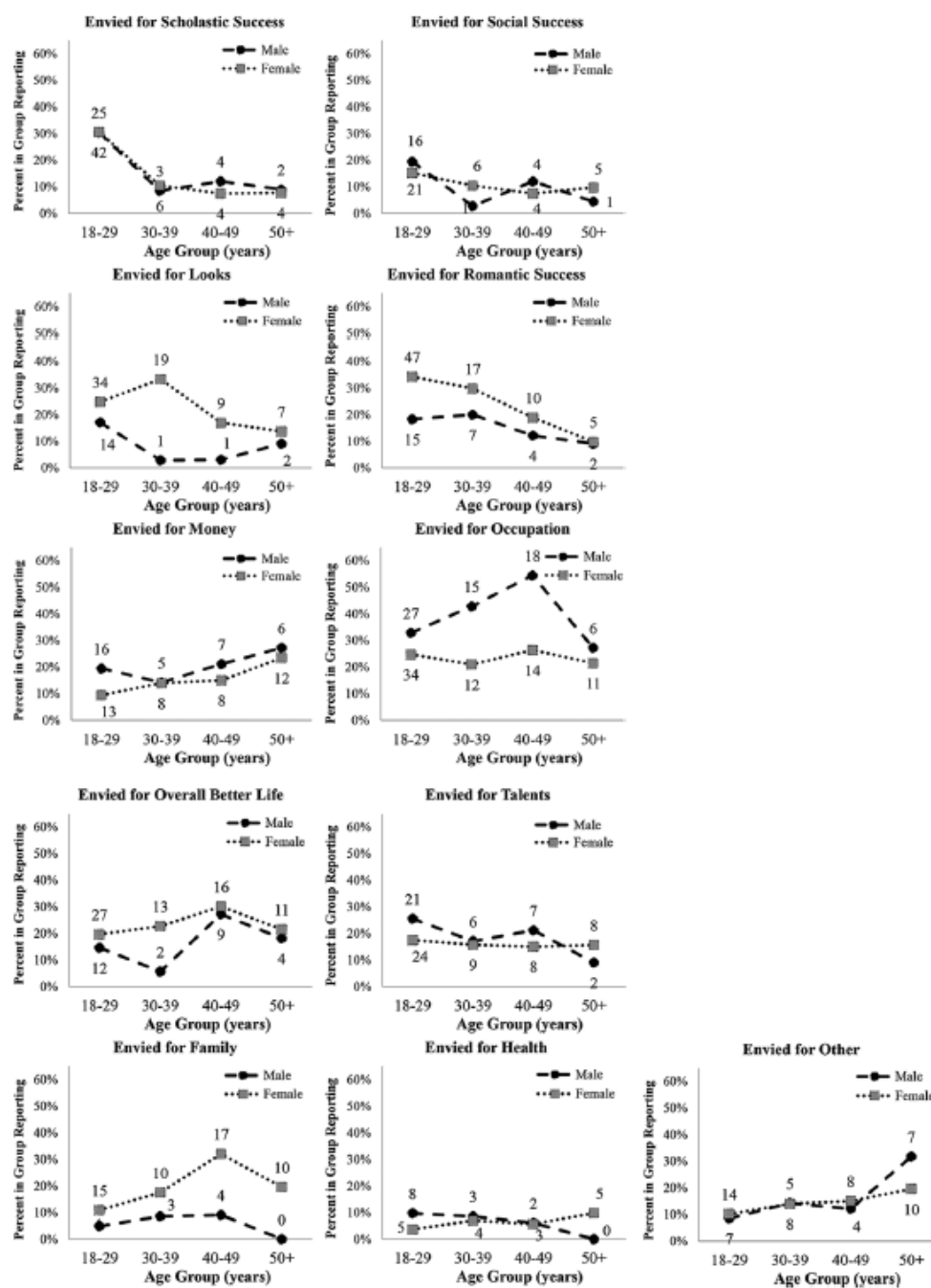


Figure 1.7 Study 1.2 Domains Envied by Participants' Gender and Age.

Note: Answers were not mutually exclusive; each participant could select more than one domain. Younger participants selected more domains than older participants. Raw numbers are included as data labels for the number of the participants in that gender-and-age group reporting being envied in that domain.

In contrast, older people were more likely than younger people to report being envied for monetary success ($r(474) = .102$). This pattern is consistent with Study 1.1's finding that the proportion of participants envying monetary success increased with age. Participants with higher incomes were slightly more likely to be envied for their money ($r(473) = .110$), but income did not increase with age ($r(473) = -.076$). Therefore, the increased envy of money with age likely is not simply due to older people having higher incomes. These findings may reflect a greater salience of money with age, making older people more likely to envy their better-off peers. However, there was one interesting difference across the two studies. In Study 1.1, substantial proportions of participants in all age groups reported experiencing envy over someone else's money (ranging from 28% of people in their 20s to 39% of people 50+). In contrast, in Study 1.2, there were fewer people in each age group who reported being envied for money (ranging from 14% of the 20s to 24% of the 50+). This difference may reflect many people wanting money (as examined in Study 1.1) but a smaller number of people actually possessing enviable amounts of money (as examined in Study 1.2). Envy of monetary success also may be difficult to detect, or may be perceived as envy of occupational success or an overall better life. Nonetheless, although the absolute numbers were different, the pattern of changes across age was consistent in both studies.

Being envied for occupational success was frequently reported in all age groups, but appeared to peak in the 40s. It may be that work success is particularly important at that stage of life, and then later decreases as people reach the end of their careers and retire. However, it is also possible that this is not a developmental change but rather a

generational cohort effect. Unlike Study 1.1, there was not a clear association between age and being envied in this domain ($r(474) = .034$).

In Study 1.2, we included four new domain choice options in order to disambiguate the nature of success implied by the choice of “luck” or “other” in Study 1.1. As can be seen in Table 1.2, participants of all ages reported being envied for their overall better life ($r(474) = .064$). Talents were also envied across age groups ($r(474) = -.056$). In contrast, older people were more likely to report being envied for family ($r(474) = .109$); Table 1.2 suggests this was particularly the case for participants in their 40s. It may be that family and home life increase in importance with age, or that older people are more likely than younger people to perceive their family as being enviable. This may also reflect a cohort effect. The only new category that was not highly reported by any age group was health, which was reported by a mere 6.4% of participants ($n = 30$) and showed very little association with age ($r(474) = .020$). This was surprising, as we expected that health would be an important domain for older adults. These new categories may account for some of the people reporting “luck” or “other” in Study 1.1. However, the “other” category was still often selected by older participants, indicating that Study 1.2 was still missing domain options that fully categorized the enviable aspects of these participants.

We next examined whether different domains were more envied in males or females. There were four such domains, one of which clearly interacted with age (see

Figure 1.7).⁷ Occupational success was the only domain in which males (37.9%) more often reported being envied than females did (23.7%), $OR = 1.96$. The pattern was similar to that of the first study. Also consistent with Study 1, females (23.1%) more often reported being envied for looks than males did (10.9%, $OR = 2.45$). This was primarily the case for participants under 40 (whereas in Study 1, gender differences in this domain exclusively occurred in subjects in their 20s). Females also more often reported being envied for romantic success (female: 26.4%, male: 16.7%, $OR = 1.80$). This effect was not found in Study 1 (and, if anything, romantic success was more envied by males); therefore, any interpretation should be cautious. However, one potential explanation is that women may perceive themselves as envied in this domain more often than they actually are envied. Finally, there was a gender difference in envy over family (female: 17.4%, male: 5.7%, $OR = 3.45$). This domain was not examined in Study 1 but may be one area that women were thinking of when they chose the “other” option more often than men did in that study. There were no other significant differences in the proportion of males and females reporting being envied for the remaining seven domains.

What is Envied Across the Lifespan. The present work examined domains in which envy might occur. There were a number of robust findings across both studies not

⁷As in Study 1.1, older people were less likely to report being envied and tended to report fewer domains when they were envied, resulting in some domains having small numbers ($n < 5$) of older participants of each gender. Therefore, we do not comment on possible interactions at the oldest age group because these analyses may not be reliable.

only in what people found envy-provoking, but also in how these envy-provoking domains differed across the lifespan.

Young adults were particularly prone to envy. In both studies, scholastic success, social success, looks, and romantic success were most often envied by young people. Previous research also identified these domains as eliciting envy in college students (Rodriguez Mosquera et al., 2011). However, in looking across the lifespan, there was a sharp decrease with age in envy of these domains. The finding that envy of social successes was primarily the province of the young was somewhat surprising given the importance of social relationships throughout life (House, Landis, & Umberson, 1988). It may be that once a person has reached their 30s, their ability to obtain and maintain friendships has stabilized, and they have come to accept their social status. Other types of relationships, like family relationships, may become a stronger indicator of relative success than friendships. Indeed, people most often reported being envied for family in their 40s. In the youngest cohort, the emerging prominence of social media may also have made social success comparisons more salient.

Other domains of envy (occupational and monetary success), while common across the lifespan, tended to particularly plague older participants. Shifts in what is envied at different ages may provide clues about the goals of people at those stages in life. The decline and growth of envy in particular domains corresponded well with the progression of major challenges in Erikson's stages of psychosocial development (Erikson, 1950). If the decline in envy of a domain could be taken as the resolution of conflict in that domain, participants appeared to first resolve their conflicts in academic

achievement and social relationships, then romantic relationships, then career and family, and finally to focus on larger reflection on life.

The proportions of people envying particular domains in Study 1 generally appeared to match the proportions of people reporting being envied for those domains in Study 1.2. However, these proportions were conditionalized on people recalling an experience – fewer people overall recalled being envied (Study 1.2) than recalled envying (Study 1.1), suggesting that people may not always realize that they are being envied. While we have confidence in patterns among domains relative to each other that replicate across studies, differences between the studies in any single domain must be interpreted more cautiously.

The one clear difference in domains across studies was in rates of envying and being envied for money. Overall, a far greater proportion of participants from all age groups reported envying money in Study 1 than reported being envied for money in Study 1.2. There are several possible interpretations of this difference. People may not realize that they are being envied for money as often as they actually are. Alternatively, people may be accurate in detecting others' envy of money; in this case, the results might be reflecting a smaller number of wealthier people who are envied (in Study 1.2) by a larger number of less well-off people (in Study 1.1). A third possibility, which we cannot rule out, is that the difference is due to sampling error.

General Discussion

In large studies of envy in adults of varying ages, we looked at envy from two different perspectives: participants' reports of their own envious feelings (Study 1) and

participants' descriptions of being the target of another's envy (Study 1.2). There were a number of findings that were strikingly consistent. In fact, most of the findings replicated. In both studies, envy most often occurred between people of the same age and gender. Both studies also found several robust patterns in what was envied at different ages, suggesting that the importance of different domains changes across the lifespan. Given that we assessed envy in two different samples using two different perspectives, it seems fairly likely that such effects are real (at least for the primarily American samples examined here).

Envy and Similarity

Although theories have proposed that similarity provides fodder for envy, the number of studies empirically examining this are limited, particularly in older samples. The present work examined two prominent forms of similarity, gender and age, across the lifespan. In both studies, we found support for the hypothesized link between envy and similarity. The effect of gender similarity was particularly robust. The vast majority of people, regardless of age, reported envying and being envied by someone of their same gender. Interestingly, this same-gender effect was not confined to domains that might be perceived as directly related to sexual competition (i.e., looks, romantic success, social success).

For the most part, people also envied and were envied by others who were similar in age to themselves. The effect of age similarity was particularly strong for young people, while older people tended to have more variability in the relative age of their comparison partners. This difference across the lifespan points to the importance of

examining envy in populations other than college students. An examination of an exclusively young sample would have concluded that 80-90% of people envy someone or are envied by within 5 years of their own age, missing that almost half of older people envied someone more than 5 years older or younger (Study 1.1); and nearly a third of older people reported being envied by someone outside of this range (Study 1.2). Thus, while similarity plays a role in envy, not all forms of similarity are equal.

Although both gender and age are visible characteristics that are strongly intertwined with self-concept, envy experiences seemed to be more strongly associated with gender-similarity than with age-similarity. A key difference between these attributes is that age changes throughout the lifespan while gender is more consistent over time. Since people have experience with being younger and can imagine being older, similarity in current age may be less relevant in selecting comparison targets. People may compare their past self with a successful younger person, and their potential future self with a successful older person. Thus, envy can arise despite seeming dissimilarity in current age because our sense of success and competition spans our past and future selves.

In Study 1.2, we examined whether the high rates of similar-other envy might be due to greater exposure to others of similar age and gender, since exposure may intensify social comparisons (e.g. Chambers & Windschitl, 2009). We found that the age and gender of the envier was predicted by the typical age and gender of the participant's acquaintances and close relationships, offering some support for the exposure hypothesis. However, this association only partially accounted for variation in the gender and age of the enviers, suggesting that mere increased exposure may not be the only reason that

people envy similar others. Similar others may be targeted for envy because they are particularly informative about one's chances for success and are likely to be the individuals one can best in a social hierarchy (Alicke & Zell, 2008; Henniger & Harris, 2014; Smith & Kim, 2007).

Gender Differences and Similarities

Overall, the two genders were similar in many aspects of their emotional experiences. Men and women both envied same-gender others who were relatively close to their own age. Moreover, they reported similar rates of envy across a number of domains (e.g., scholastic success, social success, money, talents). Although the literature often highlights gender differences in behavior and emotion, researchers have noted that reports of differences may exaggerate the actual state of affairs or are context dependent (Adams, Hess, & Kleck, 2015; Fischer & LaFrance, 2015).

However, there were two consistent gender differences found in both studies. Younger women were particularly likely to envy and be envied for their looks, while men of all ages were particularly likely to envy and be envied for their occupational success (peaking in the 40s). While these differences were substantial, envy of these domains was by no means exclusive to one gender; the data of Study 1 showed that nearly 1 in 4 women envied occupational success and nearly 1 in 5 young men envied looks.

What might account for the gender differences that we did see? One possibility is that these might reflect "hard-wired" sex differences (DePriore et al., 2012). It could be argued that physical attractiveness (a purported indicator of fertility) may be particularly important to men when selecting female mates, while a male's status and financial

resources could be particularly important for attracting females. As a result, women may have evolved a specific innate envy “trigger” that focuses on other females’ looks, while men may have evolved a specific innate envy “trigger” that focuses on other males’ economic resources and status (DelPriore et al., 2012). However, other aspects of our data argue against this hypothesis. Importantly, males reported no more envy than women of others’ monetary resources. Indeed, in the youngest age group, 26% of men and 30% of women envied money. This age group is the most likely to be directly involved in competition for mates, and therefore would be expected to show the greatest sex difference if the sex-specific innate trigger hypothesis were correct. We also did not see any sex differences in envy over other domains like academic achievement, contrary to the evolutionary-psychology perspective offered by DelPriore et al. (2012).

Simply finding a gender difference can rarely, in and of itself, inform us about the degree to which the difference reflects specific biological adaptations (Harris & Pashler, 1995). Although it is possible that each gender has evolved an innate tendency to envy particular attributes of other people, a more domain-general rational choice explanation might also explain gender differences in envy quite well. For example, if women know the value of physical beauty in attracting mates (and it can hardly be doubted that they do), rational thought might lead them to experience enhanced envy over attractiveness without their necessarily having any *innate* tendency to focus envy on this type of attribute. Envy could have evolved to be evoked by the appraisal that someone else has something valuable, allowing value to vary with cultural context. Such a view would be consistent with a number of theories of distinct emotions (e.g., Frijda, 1986; Frijda &

Parrott, 2011; Roseman, 2011; see also Harris, 2003 for similar analysis of jealousy).

This type of account could easily mimic the “hard-wired” adaptation theories favored by many contemporary evolutionary psychologists, and it would not require the assumption that the natural selection has created a host of highly specific innate sex-differentiated emotional mechanisms.

Relationships and Envy

In Study 1.2, we examined whether envy tends to occur more often in close or distant relationships by asking participants to report on their closeness with the envier. Different theoretical predictions exist about whether closeness should make envy more likely or less likely (e.g. Fiske, Cuddy, & Glick 2007; Cuddy, Fiske, & Glick 2008; Tesser, 1980, 1988). However, rather than finding that envy occurred most often at a particular closeness level, we found that people were envied by both distant and close others; therefore, the association between closeness and envy may be quite complex (e.g. Alicke & Zell, 2008). This is not the first study to find a null relationship between closeness and envy. Yoshimura (2010) looked only at spouse/sibling/sibling-in-law relationships, and found that envy was not related to relationship closeness as measured with the Inclusion of Other in the Self (IOS) Scale. Other studies have similarly found that relationship closeness plays an ambiguous role in envy and responses to upward comparisons (e.g. Tesser, 1990; Tesser & Collins, 1988; Tesser, Millar, & Moore, 1988). Therefore, it may be that closeness neither potentiates nor protects against envy.

People also ranged widely in the category of relationship that they had with their enviers, from mere acquaintances to close friends. Closeness did not explain which

categories showed the most envy; categories with nearly equal closeness ratings (e.g. close friends and relatives) showed very different rates of envy (envy by close friends was reported nearly three times as often as envy by relatives). However, looking at superordinate categories, it appears that family-like relationships (siblings, relatives, best friends, and romantic partners) produced fewer envy incidents than non-family-like relationships (close friends, casual friends, acquaintances, strangers, and other). Family relationships may reflect on the self differently, producing pride and happiness when the other succeeds, rather than envy (e.g. Alicke & Zell, 2008; McFarland, Buehler, & McKay, 2001).

Limitations and Areas for Future Research

The cross-sectional nature of the data prevents us from making strong developmental claims. The differences between the age groups may reflect changes in envy with age, or these differences may reflect cohort effects across the generations. Either finding is interesting, but only future longitudinal research can distinguish between these two options.

In sampling primarily from Americans who participate in online surveys, we were not able to access a random selection of the population. However, the robustness of the effects across studies suggests some generalizability, at least to people in the United States with internet access. Other research (e.g. Rodriguez Mosquera et al., 2010) has found that while a number of aspects of envy are similar across some cultures, there also are differences. For example, the experience of being envied differed in people from cultures valuing achievement (i.e. the United States), who expected more negative

responses from the envious person but also enjoyed their superiority more, versus people from cultures valuing cooperation (i.e. Spain), who expected the other to feel positively for them but also saw more costs in their success (Rodriguez Mosquera et al., 2010). Other cultural differences, such as respect for age or the strength of gender roles, may also alter who and what people envy in those cultures. This would be an interesting avenue for future research. Certainly, the envied domains would be expected to differ depending on the importance that a culture places on success in particular domains (Salovey & Rothman, 1991).

Although the present studies provide evidence that people of all ages envy similar others, experimental research will be needed to evaluate what mediates the influence of similarity on envy. Does similarity elicit envy directly, or does similarity elicit social comparison, which can result in envy or not depending on other factors? Some theories have proposed that appraising the superior person as similar specifically leads to envy - for example, similarity may produce envy by invoking a sense of competition or unfairness at the unequal success of an equivalent other (e.g. Schaubroeck & Lam, 2004; Smith & Kim, 2007). On the other hand, envy of similar others may simply be a downstream effect of the established finding that people most often compare themselves with similar others (e.g. Festinger, 1954; Suls, Martin, & Wheeler, 2002); if so, all forms of response to social comparison should increase with similarity, not just envy. A key question for future research will be to disambiguate these possibilities.

Conclusions

Overall, these studies provide an important perspective on the experience of envy across the lifespan. Across all ages, people appear to consistently envy others who are similar to themselves. However, the changing enviability of different domains with age suggests the importance of examining social emotions such as envy in adults who are beyond their late teens and early 20s. Some domains, like social and scholastic success, were most envied by young people, while others, like money and family, grew in importance with age. In addition, the decreased frequency of envy experiences with age provides evidence in a specific emotion that is consistent with the decreased frequency of more negative affect with age (e.g. Charles & Carstensen, 2007, 2009). Many useful findings have emerged from the study of college students, but a more full understanding of these phenomena requires the extension of these methods to more diverse populations. We hope that the present study provides a foundation for understanding who and what is envied across the lifespan.

Chapter 1, in full, is a reprint of the material as it appears in *Basic and Applied Social Psychology*, 2015, reprinted by permission Taylor & Francis LLC, (<http://www.tandfonline.com>). Henniger, N.E. & Harris, C.R. The dissertation author was the primary investigator and author of this paper.

CHAPTER 2

THE INTERPERSONAL EXPERIENCE OF ENVY: EXAMINING THE RELATIONSHIP BETWEEN APPRAISALS AND MOTIVATIONS

When you envy someone, what are you motivated to do? Your answer to this question might depend on whether you feel the situation is unfair, whether you think you can attain what you envy, and what your relationship is to the superior person. Situational appraisals like these are often discussed as eliciting envy (e.g. Parrott & Smith, 1993, Salovey & Rodin, 1986, Smith, 2004). However, envy is a “two-headed monster” (Harris & Salovey, 2008) that struggles with both the superiority of the other person and the inferiority of the self. The envier may approach this disparity in a variety of ways, and different appraisals may moderate the extent to which envious responses focus on the self (e.g. depression, motivation) or the other (e.g. hostility, ingratiation). Although some studies have looked at the influence of single appraisals on particular envious responses, no previous research has attempted to capture a more comprehensive view of the appraisal-response patterns within this multifaceted emotion. In three studies, we asked people about their experiences with envy. Their responses shed light on the connection between specific appraisals and envious reactions and can inform existing debates about the fundamental nature of envy. We examined both the internal perspective of enviers (Study 2.1a and 2.1b) and the external perspective of targets of others' envy (Study 2.2) in order to better understand the intricate cycle of interpersonal emotion regulation in this complex emotion.

Appraisals in Envy

The Desired Object. One of the key appraisals of an envy situation is that the envier desires something that someone else has (Smith & Kim, 2007). Presumably, greater desire would be associated with stronger responses. Other appraisals about the attainability and exclusivity of the object might also affect envious responses. The present studies test these associations.

When people believe that they can attain what they envy, they may have more positive responses and work harder to attain the envied object (Henniger & Harris, 2014). In one study of envy, participants who were primed to believe that change was easy reported being more motivated to increase their study hours after being exposed to a superior student (van de Ven, Zeelenberg & Pieters, 2011). Research on more general upward comparisons suggests that increasing attainability results in decreased depression (Testa & Major, 1990), increased intentions to try harder (Lockwood & Kunda, 1997), and increased persistence on subsequent tasks (Testa & Major, 1990). Therefore, we would expect enviers who believe they are able to obtain the desired object would be both less depressed and more motivated.

These studies primarily measured self-focused motivations, leaving the question: does manipulating perceived attainability also influence responses towards the envied person? Only a few studies have assessed this, with mixed results with regard to effects on both malicious feelings (Testa & Major, 1990; van de Ven et al., 2011) and admiration (Onu, Kessler, & Smith, 2016; van de Ven et al., 2011; van de Ven, 2015).

Being unable to obtain the desired object may only affect responses towards the superior person when that person is perceived to be the source of the unattainability. If

enviers think that they cannot obtain the desired object because the target has it (a zero sum situation), they are hypothesized to be more likely to engage in hostility towards the superior person (Henniger & Harris, 2014; Rodriguez Mosquera, Parrott, & Hurtado de Mendoza, 2010; Smith & Kim, 2007; Zizzo, 2008).

Fairness. Unfairness has been proposed to increase envy, and particularly to increase envious hostility (Cohen-Charash & Mueller, 2007; Heider, 1958; Smith, 1991; Smith, Parrott, Ozer, & Moniz, 1994). In theoretical explanations of the effect of fairness, it is often suggested that fairness is connected to perceived attainability, either because 1) being unable to obtain the desired object could make enviers feel that the situation is unfair (Smith, 1991; Smith et al., 1994), or because 2) unfairness could make people believe that what they desire is unobtainable (Hoogland et al., in press; van de Ven et al., 2012). In these accounts, when situations are viewed as unfair, people shift from focusing on attaining the desired object to attempting to level the situation by bringing down the superior person. Therefore, the fairness-attainability hypothesis suggests that unfairness should be associated with 1) decreased perceived attainability of the envied object, 2) decreased motivation to self-improve, and 3) increased hostility towards the envied target (specifically with intent to tear down the other person). However, these predictions have not been explicitly tested together, and alternate connections have been proposed (e.g., people may experience greater envy when the superior person's success is deserved; Miceli & Castelfranchi, 2007). In the present studies, we examine these associations.

Previous studies offer support for the connection between unfairness and hostility in comparison situations. Injustice, unfairness, and inequality have been associated with

hostility both in recalled envy experiences (Cohen-Charash & Mueller, 2007; Smith, et al., 1994) and in unequal economic situations the lab (Parks, Rumble, & Posey, 2002; Zizzo & Oswald, 2001). However, these studies did not measure non-hostile aspects of envious responses (e.g. avoidance or motivation), which may not aim to change the status of the superior person. In the present studies, we test the associations between unfairness and a larger range of responses. Because there may be different sources of unfairness (Cohen-Charash & Mueller, 2007; Miceli & Castelfranchi, 2007; Smith et al., 1994, van de Ven et al., 2012), we examine three different unfairness appraisals: whether the superior person did something improper, whether they deserved their success, and whether their success was due to luck.

The Envied Person. How enviers view the superior person is theorized to influence the nature of their envy (Alicke & Zell, 2008; Henniger & Harris, 2014; Smith & Kim, 2007). In the present studies, we examine the roles of perceived similarity, relationship closeness, liking, and arrogance. Someone who envies a close, similar friend would likely behave differently than someone who envies an arrogant, disliked acquaintance.

Previous research suggests that people most often envy others who are objectively similar (Henniger & Harris, 2015/Ch. 1; Hill & Buss, 2006; Salovey & Rodin, 1984; Salovey & Rothman, 1991; Schaubroeck & Lam, 2004), but it remains unknown whether similarity also affects subsequent motivations after envy elicitation. One possibility is that people may be more in competition with similar others, and therefore may respond with greater hostility (Alicke & Zell, 2008; D'Arms & Kerr, 2008; Smith & Kim, 2007).

Alternatively, people may see similar others as in-group members whose success reflects positively on themselves, thereby producing less hostility and more admiration and affiliation with the superior person (Alicke & Zell, 2008; Tesser, 1980, 1988). Moreover, people may see the success of similar others as being indicative that they themselves have a chance at success, producing greater motivation (Collins, 1996; Suls, Martin, & Wheeler, 2002; Wheeler, Martin, & Suls, 1997).

Like similarity, relationship closeness with the superior person could intensify the negative aspects of the comparison or could have a protective effect as envious people enjoy basking in the reflected glory of a successful close other (Alicke & Zell, 2008; Lin & Utz, 2015; Tesser, 1980, 1988). Although it is often assumed that people like close others, it is possible to feel close to someone without necessarily liking them (e.g. relatives), and vice versa (e.g. celebrities). Liking may provide protection from hostility beyond relationship closeness. Relatedly, the envied person's attitude about their own superiority might influence envious responses. People who are arrogant may face more destructive forms of envy than people who are more modest (e.g. Lange & Crusius, 2015). In the present studies, we will assess these perceptions of the envied person and how they relate to the envious person's responses.

Aspects of an Envious Response

Envy contains a range of potential responses: constructive and destructive, self-focused and other-focused. The present studies measure some responses, like admiration and resentment, that could be distinct from envy proper (Onu et al., 2016; Smith & Kim, 2007; van de Ven et al., 2011, 2012). In order to capture the real-world experience of this

emotion, we take a holistic view of what constitutes an envious response: if a participant reports a response while feeling envy, then that response is considered part of the envy experience.

Other-Focused Responses. We examine six potential responses towards the superior person – three negative (hostility, avoidance, and ill will) and three positive (admiration, ingratiation, and communication).

Envy has often been defined by *hostility*, which attempts to tear the superior person down (e.g. Miceli & Castelfranchi, 2007; Smith & Kim, 2007). However, envy may also motivate *avoidance*, which acts more like situation selection, removing the envier from the comparison situation (Tesser, 1988). *Ill will* is another more passive negative response: the envier may harbor negative feelings towards the target without necessarily affecting their superior status.

Envy may also be associated with positive motivations towards the target. The envier may feel *admiration* for the superior person and attempt to affiliate more strongly with them through *ingratiation*. They might also engage in *communication* about their envious feelings, which can convey vulnerability and praise (Rodriguez Mosquera et al., 2010).

Self-Focused Responses. Envy is theorized to produce motivation to achieve the desired object and level the playing field by self-improving (e.g. van de Ven et al., 2009). However, enviers are also theorized to feel depression associated with not having the desired object (e.g. Smith & Kim, 2007). Depression may simply be a lack of motivation, or it may be an independent response that is influenced by different appraisals.

Responses by the Envied Target

Envy always occurs in an interpersonal context, as the emotion arises over another's superiority. Past research has identified a range of potential responses that a target can have to being envied (Exline & Lobel, 1999; Rodriguez Mosquera et al., 2010). In the present study, we build on these findings to examine how the enviers' own responses are related to their perceptions of how the target responds (e.g. with help or avoidance).

Study 2.1a

Method

Participants. A sample of 1041 online participants was recruited on Amazon Mechanical Turk to participate in a "15-25 minute anonymous survey/questionnaire." A large sample was used in order to increase the power of the analysis; the specific sample size was determined by available funds to compensate participants.

Only participants who could recall an experience of envy were invited to complete the full survey; 281 participants were excluded because they could not recall an experience of envy, and 13 participants were excluded for failing attention check questions (a simple addition problem and/or a definition of an English phrase). The final sample size was 747 participants (259 male/477 female/11 unreported; age $M = 35.3$ years, $SD = 12.4$ years, range 18-75 years).

Measures. Participants first completed demographic measures (including gender, age, ethnicity, native language, employment, education, income, and relationship status).

Then, participants were asked to think of the most recent time that they felt envious of someone and to respond to questions about that experience.⁸

Participants reported about three aspects of the envy experience: situational appraisals, the envier's behavioral response, and the envied target's response to being envied. Unless noted, for all questions, participants answered categorically "Yes" or "No", as well as continuously "to what extent?" on a 4-point Likert-type scale, with 1 = "N/A", 2 = "A little", 3 = "Somewhat", and 4 = "A lot".

Situational Appraisals. Participants reported their appraisals regarding 1) the fairness of the situation, 2) the desired object and its attainability, and 3) their perception of the envied target.

Perceived fairness was assessed with three items asking whether the other person 1) did something unfair or improper (*Improper*), 2) deserved their success (*Deserved*; adapted from Taylor, Lord, McIntyre, & Paulson, 2011), and 3) had advantages because of lucky circumstances (*Lucky*; adapted from Smith et al., 1994).⁹ An additional item also assessed whether the participants thought that the *targets* believed their own actions to be unfair or improper.

⁸ This study was included as part of a larger questionnaire on envy. In the present paper, we report all measures related to appraisals and responses to a particular recalled envy experience. The questionnaire also included measures of political ideology (intended to extend Harris & Henniger, 2013) and envy triggers (intended to replicate Henniger & Harris, 2015/Ch. 1), which are not reported here. The full questionnaire is available from the authors.

⁹ Although these three items were intended to create a composite measure of fairness, a low Cronbach's alpha in both Study 2.1a and 2.1b led us to analyze each fairness item separately.

Three items focused on appraisals about the desired object. Participants were asked whether they 1) wanted or desired the thing that the other person had (*Desire for the Object*), 2) felt like they could obtain what they envied about the other person (*Attainability*), and 3) felt like they could not have the thing they desired because the other person had it (*Zero Sum*).

Three items assessed the participants' relationship with the envied target. Participants rated 1) how close their relationship was (*Closeness*), 2) how much they liked the other person (*Liking*), and 3) how similar they and the other person were in general (*Similarity*; adapted from Schaubroeck & Lam, 2004, and Fox, Ben-Nahum, & Yinon, 1989). In order to maintain consistency with other literature, these items were rated on a 7-point Likert-type scale from 1 = "Not at all" to 7 = "Extremely" or "Very much" rather than the 4-point scale used for other items in the present study.

The target's perceived trait arrogance was assessed with three items: whether the person 1) thought he/she was better than others, 2) was an arrogant person, and 3) was a modest person (reverse scored; Cronbach's alpha = .83). These items were adapted from the perceived arrogance and modesty scale used by Hareli and Weiner (2000); the items were rated using the original 5-point Likert scale from 1 = "Strongly Disagree" to 5 = "Strongly Agree" rather than the 4-point scale used for other items in the present study.

Envier's Responses. In order to evoke their memories, participants wrote about how they behaved when they were feeling envious. Then, they were given a list of potential envious responses and asked which behaviors they engaged in and to what extent. These options included other-directed responses (e.g. hostility towards the envied

target) and self-directed responses (e.g. depression); each category contained both negative and positive responses.

Negative Other-Directed Responses. Three types of negative responses towards the target were assessed: hostility, avoidance, and ill will. *Hostility* was assessed with three items: whether participants 1) behaved in a hostile way, 2) said negative things about the other person, and 3) were unfriendly (Cronbach's alpha = .76). Two items assessed the envious' *Avoidance*: whether the participants 1) acted coldly towards the other person, and 2) became distant or avoided the other person (Cronbach's alpha = .76). *Ill Will* included four items about negative feelings directed towards the superior person: whether the envier 1) felt negatively about the other person, 2) liked the other person less, 3) harbored ill feelings towards the other person, and 4) resented what the other person had (Cronbach's alpha = .88).

Positive Other-Directed Responses. Participants were asked three items about potential positive responses towards the envied person: whether the participants 1) admired the other person (*Admiration*), 2) tried to get the other person to like them (*Ingratiation*), and 3) said that they were envious (*Communication*).

Self-Directed Responses. Three items assessed the envier's negative self-focused responses (*Depression*): whether participants 1) were unhappy with themselves, 2) felt depressed, and 3) felt negatively about themselves (Cronbach's alpha = .88). Participants were also asked one item about whether they felt motivated (*Motivation*), a positive self-focused response.

Results and Discussion

Descriptives.

Situational Appraisals. The most common appraisal was a desire for the object (94% of participants), supporting the assertion that this is a core appraisal for eliciting envy (e.g. Hoogland et al., in press).

Contrary to the prediction that envy most often occurs towards undeserved success, the second-most-common appraisal was that the targets deserved their success (74%). Very few participants (17%) reported that targets did something improper to attain their success, and even fewer (7%) reported that targets would agree that they did something unfair or improper. However, 60% of participants also reported that targets had advantages due to luck. Therefore, although the enviers did tend to believe that targets benefited from lucky circumstances, they did not see that inequality as being driven by improper or undeserving actions. This distinction is consistent with the theory that envy occurs when the envier cannot establish that the superior person did anything objectively wrong, but still feels a subjective sense of injustice at the target's superior accomplishment (Smith, 1991).

Many enviers saw the superior person's success as attainable for themselves. Almost three-fifths of participants felt like they could obtain what they envied about the other person (58%), and only 24% felt like the other person's success prevented them from having the thing that they desired.

On average, the other person was perceived to be of middling similarity ($M = 4.0$, $SD = 1.6$, range 1-7), middling closeness ($M = 3.7$, $SD = 2.0$, range 1-7), and somewhat liked ($M = 4.9$, $SD = 1.8$, range = 1-7).

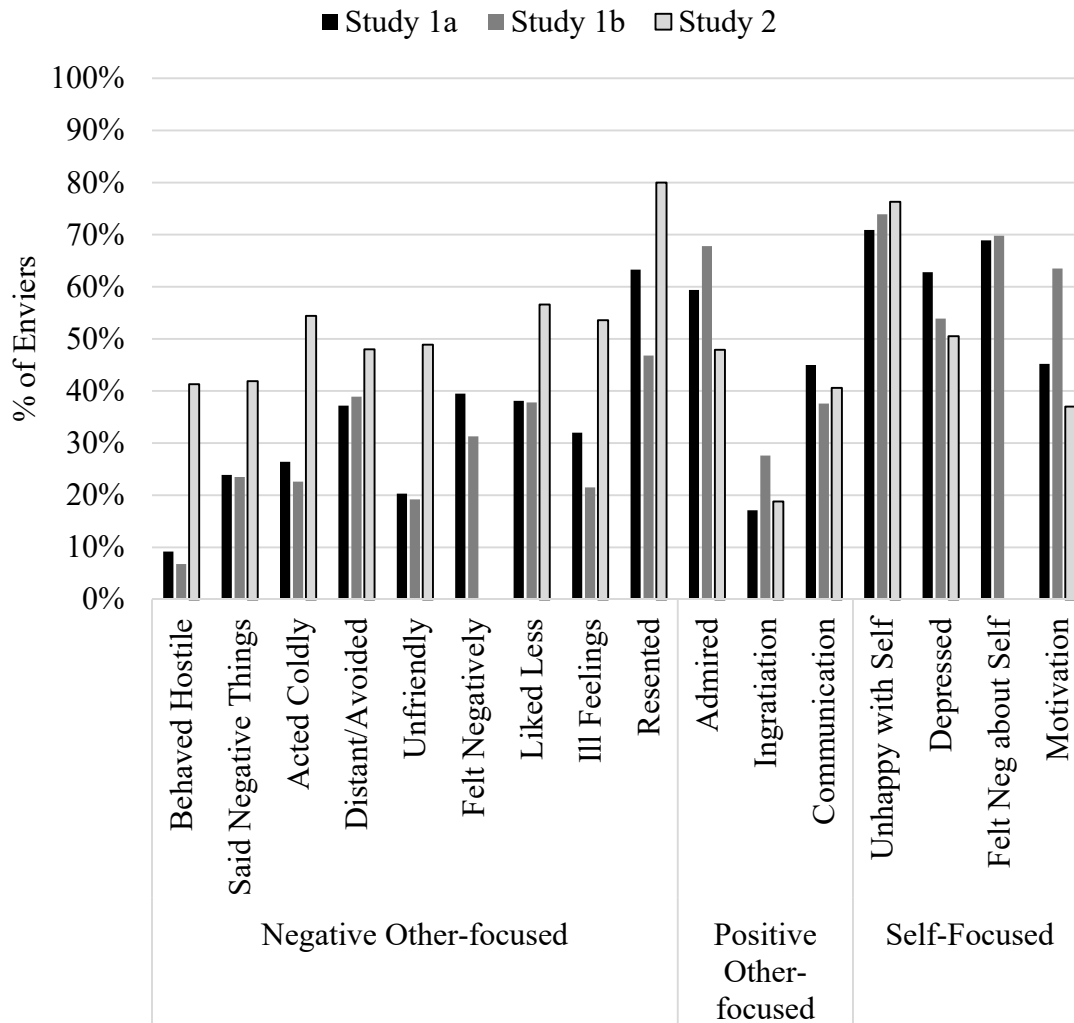


Figure 2.1 Frequencies of envious responses.

Note: Feeling negatively about the other person and about the self were only measured continuously in Study 2.2.

Envious Responses. Figure 2.1 shows the frequencies of the responses reported by participants in Study 2.1a. The majority of participants reported resenting what the other person had (63%) and admiring the other person (59%), highlighting the variation that can occur in envious responses towards the superior person. The experience of envy was predominantly negative. In particular, a large portion of participants reported not

feeling happy with themselves (71%) and feeling negatively about themselves (69%). This self-directed focus on inferiority supports the definition of core envy proposed by Smith (Hoogland et al., in press). Very few participants reported behaving with overt hostility: 24% reported saying negative things about the other person, and 9% said they behaved in a hostile way. Therefore, hostility aimed at tearing down the other person may not be the most defining feature of an envious response (contrary to Miceli & Castelfranchi, 2007; Smith & Kim, 2007). However, this socially undesirable response is strongly subject to report bias; Study 2.2 will attempt to deal with this bias by assessing envious hostility from a different perspective.

Perceptions of Target's Responses to Being Envied. The envier most frequently reported that the target responded positively toward being envied (see Figure 2.2) - specifically that the superior person was open about their success (70%) and appeared self-affirmed (53%) and self-confident (52%). Most participants did report that the target was nice to them (70%), but fewer participants reported that the envier engaged in deflection, gloating/bragging, and other envier-directed responses (whether positive or avoidant). Therefore, from the envier's point of view, the envied target primarily experienced positive self-focused responses and often did not respond towards the envier.

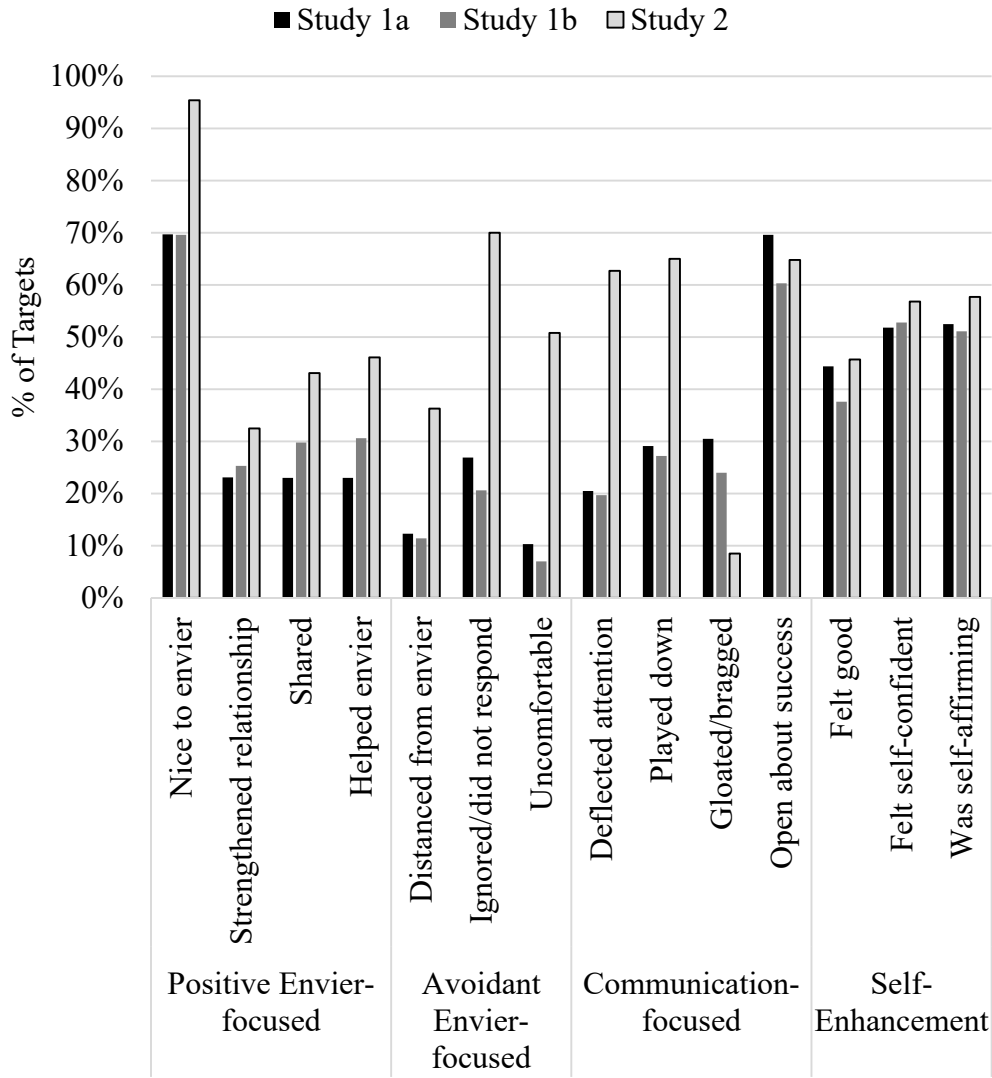


Figure 2.2 Frequencies of target's responses.

Table 2.1 Study 2.1a Associations between the envier's appraisals and responses, reported by enviers

Envier's Responses (Participant)	Appraisals																			
	Fairness					Object														
	Improper	Deserved	Lucky	Zero Sum	Desire for Object	Attainability	Closeness	Liking	Similarity	Arrogance										
Self-Focused																				
Other-Focused	Hostility	.46***	-.42***	.14***	.21***	.01	-.01	-.07	-.29***	-.15***	.44***									
	Avoidance	.44***	-.43***	.21***	.21***	-.02	.01	-.11**	-.32***	-.17***	.42***									
Positive	Ill Will	.49***	-.53***	.33***	.25***	.10**	-.03	-.18***	-.38***	-.23***	.47***									
	Admiration	-.38***	.60***	-.25***	-.10**	.14***	.02	.14***	.39***	.27***	-.46**									
Negative	Ingratiation	.02	.11**	-.02	.03	.06	-.01	.06	.11**	.12**	-.06									
	Communi- cate Envy	.09*	.05	-.002	.14***	.10**	.09*	.06	.05	.10**	-.02									
Focused	Depression	.03	-.01	.13***	.13***	.31***	-.13***	-.04	-.04	-.03	.05									
	Motivation	-.04	.17***	-.09*	-.001	.02	.43***	.05	.08*	.14***	-.10**									

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ All analyses were Spearman's rank-order correlations.

Associations between Situational Appraisals and the Envier's Responses.

To investigate how situational appraisals about fairness, the desired object, and the other person were related to the envier's behaviors, we conducted a series of Spearman rank correlations using the continuous scale measures (see Table 2.1). Spearman rank correlation was used in order to account for skewed distributions for several variables; this nonparametric statistic also provides the benefit of capturing nonlinear monotonic relationships.

Below, we discuss the overall patterns in the data by appraisal and type of response. One important general finding is that different appraisals were linked with different types of envious responses; each appraisal was related to some aspects of envy while remaining unrelated to other responses. To some extent, appraisals appeared to be associated with particular categories of response: positive versus negative responses, or responses focused on the self versus on the superior person. However, there were also interesting nuances and exceptions to these patterns.

Appraisals about Fairness. Fairness appraisals were most consistently associated with other-directed responses (see Table 2.1). In particular, greater perceptions of fairness correlated with decreased negative responses towards the target (hostility, avoidance, and ill will). Fairness appraisals were also strongly associated with increases in one positive other-directed response (admiration), but were less associated with the other-directed responses of ingratiation and communication. We also did not see a consistent relationship between fairness appraisals and feeling more motivated or less depressed, suggesting that fairness may not strongly affect self-directed responses. However, there

were some individual associations that were consistent with theoretical predictions. Participants reported feeling more motivated when the superior person was more deserving of success, consistent with the idea that deserved success can be inspirational (Taylor et al., 2011). Additionally, greater depression and less motivation were associated with the appraisal that the superior person had advantages due to luck. This finding supports the hypothesized association between the perception of subjective injustice and self-focused blame in envy situations (Smith et al., 1994).

Appraisals about the Desired Object. Overall, the object-focused appraisals (zero-sum, attainability, and desire for the object) each showed distinct patterns of relationships with envy responses, suggesting that these appraisals may be tapping into different constructs. The one similarity among all three object-focused appraisals was that they all were associated with depression. However, only the appraisal of greater attainability was associated with increased motivation.

Some theories have predicted that an unattainable envied object will produce greater hostility towards the target because the envier's only option for leveling the painful comparison is to tear down the superior person. As predicted, zero sum situations were associated with more negative behaviors towards the superior person and less admiration. However, contrary to this prediction, perceptions of attainability did not decrease negative other-directed responses. The items assessing both zero sum and attainability asked whether the participant could obtain the desired object; the difference between these measures was that the zero sum item asked whether the envier could not obtain the object *because the other person had it*. By itself, the frustration of not being

able to obtain the desired object may not influence other-directed responses; instead, the other person may need to be the source of the deprivation in order to predict a change in responses towards the superior person.

Appraisals Regarding the Envied Target. The envier's appraisals of the superior person were good predictors of how the envier responded towards that person. A better relationship with the target (higher closeness, similarity, and liking) and less arrogance were associated with less negative and more positive responses towards the superior other (see Table 2.1).

Although the envier's appraisals of the envied target were strongly correlated with their responses towards that target, these appraisals were less related to the envier's self-focused responses. None of these appraisals were associated with depression, and they showed a mixed pattern of association with motivation. Perceived similarity with the target was correlated with the envier feeling greater motivation, supporting the theory that people use similar others as a proxy in determining their own potential for success and subsequent motivation (Collins, 1996; Suls et al., 2002; Wheeler et al., 1997). Greater liking and less perceived arrogance also showed a small association with motivation, while closeness did not.

Association between Attainability and Fairness. In the next analysis, we examine the proposition that attainability and fairness are linked, either because unattainable success is felt to be unfair or because unfair situations lead people to feel that they cannot attain the desired object (which can then produce compensatory hostility towards the target). Contrary to the fairness-attainability hypothesis, perceived

attainability showed no association with the appraisal that the target did something unfair/improper ($r(739) = .03, p = .50$), deserved their success ($r(735) = .04, p = .28$), or had advantages due to lucky circumstances ($r(733) = .03, p = .47$). As was discussed above, decreased attainability also was not associated with increased hostility. Therefore, we do not find support for the fairness-attainability hypothesis or for a mediational role for attainability in the relationship between unfairness and hostility.

Associations between the Envier's and Envied Target's Responses. Next, we examine the dynamics between the behaviors and feelings of the envier and those of the envied target with a series of Spearman rank correlations (see Table 2.2).

Table 2.2 Associations between the envier's and target's responses, reported by enviers

	Envied Target's Responses					
	Positive to Envier	Avoidance	Deflection	Gloating/bragging	Open about Situation	Self-Enhancing
Hostility	-.21***	.37***	.02	.40***	.08*	.26***
Avoidance	-.22***	.46***	.03	.36***	.10*	.25***
Ill Will	-.33***	.38***	-.04	.39***	.12**	.29***
Admiration	.35***	-.18***	.17***	-.31***	.01	-.12**
Ingratiation	.25***	.12**	.17***	-.01	.01	.04
Communicate	.12**	.07	.12**	.06	.16***	.15***
Depression	-.08*	.18***	.004	.02	.02	.06
Motivation	.20***	-.11**	.13***	-.003	.08*	.07*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ All analyses were Spearman's rank-order correlations.

The superior person behaving positively towards and not avoiding the envier were consistently associated with downregulation of the envier's negative reactions and

increased positive responses. The superior others' deflection of attention away from themselves also appeared to be associated with the envier behaving more positively.

In contrast, when the targets communicated their superiority more (gloating/bragging and openness about the situation) or were perceived to find the situation more self-enhancing, enviers generally responded more negatively towards the targets. However, the envier also was more motivated and communicated their envy more when the target was more self-enhanced and open about the situation. Self-satisfied superiority primarily may provoke retaliation by the envier, but may also stir some motivation to achieve a similar state.

These associations could reflect interpersonal emotion regulation, in which targets modulate the envier's behaviors and enviers elicit different target responses. However, it should be noted that these correlations cannot capture the complexity of a situation unfolding over time and may be subject to recall bias. After exploring the envier's perspective in Study 2.1a and 2.1b, we refine our understanding of this interaction in Study 2.2 by asking the same questions from the targets' perspective.

Study 2.1b

Although the analyses in Study 2.1a were theoretically motivated, the necessary multiple comparisons increased the likelihood of Type II errors. In order to assess the replicability of these findings, we conducted a similar study using a sample of college students.

Method

Participants. A sample of 345 participants at a large public university in California took a survey in exchange for class credit. Of these, 265 participants could recall an experience of envy; within this group, 234 participants passed the two attention check questions and were included in the final sample (97 male/136 female/1 unreported; age $M = 20.2$, $SD = 1.8$ years, range 18-28 years). The sample size was determined by a power analysis and the size of the available sample pool.

Measures. As in Study 2.1a, participants first completed demographic measures and then thought of the most recent time that they felt envious of someone. Participants responded to the same items used in Study 2.1a.

Results and Discussion

It should be noted that non-replications of weaker correlations could be due to spurious correlations in Study 2.1a or a lack of power in the present study. With the sample size of Study 2.1b ($n = 234$), we had power of .98 to detect correlations of .25, a power of .92 to detect correlations of .2, a power of .74 to detect correlations of .15, and a power of .45 to detect correlations of .1. Therefore, we did not expect to be able to detect all of the associations found in the large sample in Study 2.1a ($n = 747$).

Associations between Situational Appraisals and the Envier's Responses. As can be seen in Table 2.3, the overall patterns seen in the associations between appraisals and envier behaviors in Study 2.1a were replicated in Study 2.1b. Unfairness was most strongly associated with other-directed responses. The associations between deservingness and motivation and between depression and luck were also replicated, strengthening the support for these correlations. Perceived attainability was associated

with self-focused motivation but not other-directed responses, while zero sum situations were associated with both other-directed and self-directed responses. Closeness with targets neither protected against nor intensified envious responses, while other appraisals about the targets (liking, similarity, and decreased arrogance) had a protective effect on responses directed towards the target.

Interestingly, in Study 2.1b but not Study 2.1a, depression was significantly related to the perception that the target did something improper to achieve their success. Although this could be a spurious correlation, it is also possible that our young college sample was more likely to have a negative self-focused response to improper behavior.

Association between Attainability and Fairness. Unlike Study 2.1a, Study 2.1b found that one measure of fairness was related to attainability. There was a small correlation between perceiving that the superior person had advantages due to lucky circumstances and decreased perceptions of attainability ($r(230) = -.16, p = .02$). As in Study 2.1a, there were no significant correlations between perceived attainability and the perception that the other person did something improper ($r(230) = -.06, p = .33$) or deserved their success ($r(230) = -.02, p = .80$).

Associations between the Envier's and Envied Target's Responses. As in Study 2.1a, the envier's responses towards the target generally matched the target's responses towards the envier (see Table 2.4). Enviars also responded negatively when targets confronted them with the upward comparison, i.e., when the targets bragged or were perceived to find the situation more self-enhancing. However, as in Study 2.1a, target openness about the situation was met with more positive envier responses.

Table 2.3 Study 2.1b Replication of associations between the enviers' appraisals and responses, reported by enviers

Envier's Responses (Participant)	Appraisals						Other Person			
	Fairness			Object			Liking	Similarity	Arrogance	
	Improper	Deserved	Lucky	Zero Sum	Desire for Object	Attainability				Closeness
Self-Focused										
Depression	.21**	.02	.27***	.14*	.37***	-.06	-.06	.02	.13	
Motivation	.008	.16*	-.06	.04	.04	.27***	-.04	.10	.18**	-.18**
Other-Focused										
Hostility	.34***	-.35***	.12	.14*	.09	-.02	-.08	-.19**	-.13*	.37***
Avoidance	.28***	-.33***	.23**	.14*	.07	-.06	-.002	-.16*	-.18**	.36***
Ingratiation	.08	.08	.05	-.06	-.03	-.02	.03	.04	.19**	-.01
Communi- cate Envy	.22**	.004	.15*	.07	-.03	.03	.02	-.01	.01	.06
Admiration	-.18**	.46***	-.15*	-.08	.15*	.05	.11	.29***	.25***	-.32***
Ill Will	.44***	-.41***	.30***	.24***	.14*	-.04	-.12	-.29***	-.13*	.39***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. All analyses were Spearman's rank-order correlations.

Table 2.4 Study 2.1b Replication of associations between the envier's and target's responses, reported by enviers

	Envied Target's Responses					
	Positive to Envier	Avoidance	Deflection	Gloating/bragging	Open about Situation	Self-Enhancing
Hostility	-.25***	.42***	-.12	.36***	.10	.22**
Avoidance	-.25***	.50***	-.09	.25***	-.09	.14*
Ill Will	-.23***	.33***	-.11	.28***	.05	.16*
Admiration	.38***	-.10	.20**	-.08	.23***	.09
Ingratiation	.27***	.01	.19**	-.07	.02	.03
Communicate	.05	.16*	.11	-.001	.07	.21**
Depression	.01	.17*	.02	.23***	.07	.17*
Motivation	.10	-.15*	.09	-.06	.20**	-.001

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ All analyses were Spearman's rank-order correlations.

Discussion of Study 2.1a & 2.1b

We found support for the hypothesis that certain situational appraisals can influence one aspect of envy without affecting other parts of an envious response. In particular, we saw envier responses dividing generally into self-focused versus other-focused: some appraisals (e.g. fairness) more strongly influenced other-focused responses, while other appraisals (e.g. object-focused) more strongly influenced self-focused responses. However, most appraisals did not exclusively influence only one category of response, and envier responses did not always behave neatly as a unified category (e.g., particularly, the positive other-focused responses: admiration, ingratiation, and communication).

These complex findings highlight the problem of concluding that a particular appraisal (like similarity or attainability) has a uniform effect on all aspects of envy,

based only on findings from one type of envy response. For example, we found that similarity was associated with decreased hostility, increased motivation, and was not associated with depression. Attainability was associated with decreased depression, increased motivation, and was not associated with hostility. If one of our single measures of envy were taken to represent envy as a whole, the present findings could support a wide variety of conclusions about what appraisals produce “envy,” when in fact each appraisal had a more precise relationship with only certain aspects of the envy response.

Malicious and Benign Envy

Some theorists have attempted to address the heterogeneity of envy responses by splitting envy into two distinct emotions: malicious envy and benign envy. A primary feature of malicious envy is other-directed hostility while a key aspect of benign envy is self-directed motivation. Importantly, the distinction between these two emotions is not simply a divide between other-directed and self-directed responses. For example, items categorized as belonging to benign envy include other-directed responses such as “I liked the other,” and “I felt inspired by the other” (van de Ven et al., 2009). This malicious/benign division is based on a linguistic distinction that is present in some languages (e.g. Dutch). Malicious envy is theorized to be elicited by unfair situations with low perceived control, while benign envy is theorized to be elicited in fair situations with high attainability (e.g. Hoogland et al., in press).

Some of our results fit into predictions made by the malicious/benign envy model. Hostility was associated with a lack of fairness, while greater motivation was associated with perceptions of attainability. However, other aspects of our data do not fit as well

with the benign versus malicious envy model. With such a wide range of envy responses showing such a nuanced pattern of relationships with appraisals, it is difficult to clearly categorize each responses as fitting in one of the two envy subtypes. Additionally, we do not see the hypothesized link between unfairness and perceived unattainability.

Overall, we see stronger evidence for conceptually separating positive and negative self-directed and other-directed responses than for dividing envy into benign and malicious categories. However, even this division did not fully explain all of the patterns of response.

Study 2.2

In Study 2.1a and 2.1b, envious did not often report hostility towards the target; instead, their accounts of envy were predominated by depression and desire for the envied object. This finding is significant because researchers often define envy by hostility (e.g. see Smith & Kim, 2007 for a review). This discrepancy may be due to differences between the internal and external experience of envy. Observers of an envious person may rely on hostile actions to know that the other person is experiencing envy. Indeed, when college students in the United States and Spain were asked to recall an experience of being the target of envy, they reported that they identified the other person's envy through behavioral markers such as being less friendly (Rodriguez Mosquera et al., 2010).

Study 2.1a and 2.1b also found complex relationships between appraisals and envious behaviors; each appraisal was only associated with particular aspects of the envious response. However, from the external perspective of the envied target, these

situational appraisals may show different associations with envy. If targets do identify envy based on the envier's negative behaviors towards the targets, then they may miss the subtle relationships between the situation and other types of envier responses, like motivation and depression. One previous study has examined envy from the perspective of the envied target (Rodriguez Mosquera et al., 2010); however, that study primarily focused on describing individual and cultural differences in the experience of being envied, rather than appraisal-response patterns.

To understand how envy is perceived by those who are the objects of another's envy, we asked a new sample of participants in Study 2.2 to report about a time when someone envied them. Envy is an inherently social emotion (involving the one who has and the one who does not). The targets of envy may discern different causes and outcomes of envy, and they likely have a different view of their own actions in these situations.

Method

Participants. Participants were recruited on Amazon Mechanical Turk and an online participant pool to take a survey about social and emotional experiences in exchange for payment. The sample size was determined by available funds to pay participants. Of the initial sample of 843 participants, 332 were excluded because they could not recall a time when someone else had envied them, and 34 were excluded for incorrectly answering attention check questions. A total of 477 participants were included in the final sample (174 male/299 female/4 unreported, age $M = 34.3$ years, $SD = 13.0$ years, range 18-72 years).

Measures. Participants completed demographic measures and then were asked to “think of the most recent time that you had the feeling that someone was experiencing envy of you (even if they did not say that they were, and even if you were not sure that they were).” Participants who could remember an incident were asked to answer questions about the envier’s appraisals, the envier’s behaviors, and their own behaviors as the target of envy.¹⁰

The envier and target behaviors assessed in Study 2.2 were identical to those assessed in Study 2.1a and 2.1b, except that they were worded from the perspective of the target of envy. For example, the Study 2.1 item for enviers, “I said negative things about the other person,” was changed to “They said negative things about me,” for the targets in Study 2.2. As in Study 2.1a and 2.1b, the questions were first answered “Yes” or “No” and then to what extent with 4 response options: 1 = “N/A”, 2 = “A little”, 3 = “Somewhat”, and 4 = “A lot”. The one exception was that unlike in Study 2.1, the target used a 7-point scale from 1 = “Not at all” to 7 = “A great deal” to rate the extent to which the envier felt negatively about him/herself and about the target.

Participants were asked about fewer situational appraisals in Study 2.2 than in Study 2.1a and 2.1b, and only answered “Yes” or “No,” not to what extent (unless

¹⁰ This study was part of a larger questionnaire, which also included measures of political ideology (data reported in Harris & Henniger, 2013) and envy triggers (data reported in Henniger & Harris, 2015/Ch. 1). Of the variables examined in this paper, only relationship closeness, age, and gender were examined with the same data in our other work – age and gender to describe the sample, and closeness to test different hypotheses. The full questionnaire is available from the authors.

noted).¹¹ The participant reported whether the envier thought they (the target) did something improper, whether the envier thought the situation was zero sum, the envier's desire for the object (on a 7-point scale from 1 = "Not at all" to 7 = "A great deal"), whether the envier perceived the desired object was attainable, and the closeness of the relationship between themselves and the envier (on a scale from 1 = "Not at all close" to 10 = "Extremely close").

Results & Discussion

Descriptives.

Situational Appraisals. As in Study 2.1a and 2.1b, participants reported that the envier desired the envied object ($M = 3.28$, $SD = .73$, scale range 1-4), and many participants (71%) perceived that the envier could obtain what they envied (see Figure 2.1). Thirty-two percent of participants thought that the envier saw the situation as zero sum, but few participants (16%) said that the envier thought they (the target) did something unfair or improper to attain the envied object. Participants reported that their relationship with the envier was of middling closeness on average ($M = 5.6$, $SD = 3.1$, range 1-10).

Envier's Responses. Overall, negative envier behaviors towards the targets were much more frequently reported by targets in Study 2.2 than by enviers in Study 2.1a and 2.1b (see Figure 2.1). However, targets did recognize that enviers felt badly about themselves (e.g. 76% endorsed that "They weren't happy with themselves") and that

¹¹ Study 2.2 contains fewer measures of appraisals and slightly different scales on some items because this study was conducted before Studies 1a and 1b.

enviers had some positive responses (e.g. 48% thought that the envier admired the target and 37% thought that the envier felt motivated).

Perceptions of Target's Responses to Being Envied. Figure 2.2 shows the frequencies of target behaviors reported by the targets in Study 2.2. As recognized by enviers in Study 2.1a and 2.1b, targets often responded positively toward being envied – many were open about their success (65%), and found that the experience was self-affirming (58%) and made them feel self-confident (57%). Targets also overwhelmingly reported being nice to their enviers (95%), which was also reported by enviers in Study 2.1a (although at a slightly reduced rate, 70%).

However, the targets in Study 2.2 reported engaging in more varied responses towards the envier than described by enviers in Study 2.1. In Study 2.2, 46% of targets said that they tried to help the envier (vs. 23% reported by enviers in Study 2.1), and 70% of targets said that they tried to ignore the envier's envy (vs. 27% reported by enviers in Study 2.1).

Associations between Situational Appraisals and the Envier's Responses.

Links between situational appraisals and enviers' behaviors (from targets' perspectives) were examined with Spearman rank correlations, reported in Table 2.5. Overall, targets seem unaware of the nuanced relationships between situational appraisals and the enviers' behaviors.

In Study 2.1a and 2.1b, we saw complex associations between the envier's reports of their appraisals and responses to the situation. However, the targets in Study 2.2 showed less subtlety in the variance of their reports. From the superior person's

perspective, every situational appraisal was correlated with the envier's negative responses towards the target – hostility, avoidance, and ill will. Few appraisals were associated with positive responses towards the target. The one clear exception was relationship closeness, which had a positive, protective effect on envier responses towards the target.

From the perspective of the targets, few appraisals were associated with the envier's self-focused responses. Based on the enviers' reports in Study 2.1a and 2.1b, we would have expected attainability in particular to be associated with increased motivation and decreased depression. However, in targets' reports of being envied, attainability only was associated with decreased negative responses towards the targets themselves. Although the targets did recognize that the enviers engaged in self-focused responses (see Figure 2.1), their reports of the occurrence of these responses were largely unrelated to their perceptions about the nature of the situation. The targets may not have been sensitive to the relationships between appraisals and these more internal envier experiences.

Association between Attainability and Fairness. We examined whether targets were more likely to perceive the situation to be unfair when the desired object was unattainable. As in Study 2.1a and 2.1b, the appraisals of attainability and targets' improper/unfair behavior were unrelated, $\chi^2(1, n = 476) = 1.85, p = .17$. Most participants thought that the envier perceived their actions to be fair (84%), regardless of whether they thought the desired object was attainable (86%) or unattainable (81%). This finding further diminishes support for the theorized link between fairness and attainability

Table 2.5 Study 2.2 Associations between the enviers' appraisals and responses, reported by envied targets

		Situational Appraisals					
		Fairness	Object		Other Person		
		Improper	Zero Sum	Desire for Object	Attainability	Closeness	
Envier's Responses	Other-Focused Negative	Hostility	.32***	.30***	.17***	-.13**	-.37***
		Avoidance	.27***	.26***	.12**	-.10**	-.31***
		Ill Will	.33***	.29***	.26***	-.15***	-.38***
	Positive	Admiration	-.10	-.16**	.07	.04	.22***
		Ingratiation	.10	-.02	.06	-.03	-.08
		Communicate Envy	.001	-.09	.05	.03	.21***
Self-Focused	Depression	.15**	.06	.35***	.03	.05	
	Motivation	.02	.01	.03	.001	-.06	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ Improper, Zero Sum, and Attainability were answered "Yes" or "No" and analyzed with point-biserial correlations. Desire and Closeness were continuous, as in Study 2.1a and 2.1b, and analyzed with Spearman's rank-order correlations.

Table 2.6 Study 2.2 Associations between the envier's and target's responses, reported by envied targets

	Envied Target's Responses (Participant)					
	Positive to Envier	Avoidance	Deflection	Gloating/bragging	Open about Situation	Self-Enhancing
Hostility	-.19***	.68***	-.03	.05	-.09*	-.11*
Avoidance	-.19***	.60***	-.01	.03	-.12*	-.08
Ill Will	-.24***	.69***	-.01	.01	-.12*	-.12*
Admiration	.35***	-.35***	.04	.08	.23***	.24***
Ingratiation	.17***	.15**	.01	.21***	.12*	.12**
Communicate Envy	.25***	.26***	.10*	.06	.11*	.10*
Depression	.20***	.19***	.21***	.05	.07	-.02
Motivation	.23***	-.04	.08	.10*	.20***	.19***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ All analyses were Spearman's rank-order correlations.

Associations between the Envier's and Envied Target's Responses. As was found in Study 2.1a and 2.1b, targets generally responded positively towards constructive envier responses and avoided destructive envier responses (see Table 2.6). However, in Study 2.2, the targets reported that their own communication of superiority and self-enhancement were associated with positive envier responses. In contrast, the enviers in Study 2.1a and 2.1b reported much more negative responses to the targets' communication (through gloating/bragging, openness, and lack of deflection) and self-enhancement.

As in the previous studies, it is impossible to determine causality from these correlations. However, it is clear that the targets in Study 2.2 saw their own

communication and enjoyment of their superiority as being much less linked to negative envier behaviors than the enviers in Study 2.1a and 2.1b did.

General Discussion

In three studies of recalled envy experiences, we saw wide variation in the motivations and behaviors that occurred during envy. From the perspective of enviers (Study 2.1a and 2.1b), each response showed unique associations with particular appraisals, while remaining unrelated to other appraisals. For example, enviers experienced greater motivation to obtain the desired object when they believed that it was attainable, but this perceived attainability did not affect their admiration of or hostility towards the superior person. In contrast, from the perspective of envied targets (Study 2.2), every situational appraisal was associated primarily with envious responses towards the targets themselves, like hostility and avoidance. The simplicity of this external perspective of envy may be one reason why theories of envy have often assumed that 1) hostility is the most important feature of envy, and 2) appraisals that affect hostility also affect envy as a whole, rather than only specific aspects of an envy response. The present studies suggest caution in such interpretations.

What is Envy?

It has been proposed that envy only occurs when a situation is unfair, an object is unattainable, and the superior person is similar (e.g. Smith, 2004). In the hundreds of accounts of envy that were analyzed for the present studies, we saw envy occurring in fair and unfair situations, over attainable and unattainable objects, towards similar and dissimilar superior others. Based on these data, it is difficult to identify what appraisals

and responses might be necessary and sufficient for an experience to be labeled “envy.” The one most common appraisal was desire for the envied object, and the most common response was the envier feeling bad about themselves. Therefore, all of these experiences might fall under the most basic definition of core envy: “the painful feeling of inferiority caused by perceiving that another person has something we desire but lack” (Hoogland et al., in press). The other appraisals that are theorized to be central to envy experiences may primarily be moderating the nature of the subsequent envious motivations.

Dividing Envy. By contending that envy can exist without hostility, models of benign/malicious envy have made a valuable contribution to the envy literature. However, these models still perpetuate a constrained conceptualization of envy. Envy is broader than hostility, but hostility and self-improvement do not describe the full range of potential responses either.

With some conceptual flexibility, some of our results are interpretable within the benign/malicious envy model (e.g. negative other-directed responses could be considered malicious envy, and motivation could be considered benign envy). However, if all of the data are to be interpreted under this model, questions remain. Should avoidance be considered a form of malicious envy, even though it does not motivate the envier to pull down the superior person? Are positive feelings towards the superior person a form of benign envy (e.g. van de Ven et al., 2009), even though they do not motivate the envier to pull themselves up? Can ingratiation be categorized in this model? Is depression a characteristic of both forms of envy, and if so, should it be related to a wider range of

appraisals? Theories of envy subtypes should consider whether their accounts fully address the breadth of responses associated with envy.

Fairness and Attainability

Our findings contradict predictions made about the inverse relationship between fairness and attainability. We expected that in fair comparison situations, people would feel that the envied object was attainable and could focus on removing the comparison through motivated self-improvement. In contrast, unfairness could make the object unattainable, and therefore enviers in unfair situations would only be able to remove the painful comparison by bringing the other person down through hostile actions. Several implicit predictions in this mediational model were not supported by our findings: 1) fairness did not always predict motivation, 2) a lack of attainability did not predict hostility, and 3) perhaps most importantly, the fairness appraisals were not consistently associated with perceived attainability. The greater hostility that occurs in response to unfair situations may be due to another source that is not unique to envy, such as anger at an unjust world.

Limitations

The present work is subject to a number of limitations. These studies asked participants to report experiences with envy, but all of the reported responses might not be specifically motivated by envy. However, these responses all occurred during the experience of envy and showed relationships with the appraisals that are theorized to influence envy. Therefore, they are valuable to study within that context.

In order to assess strong, memorable envy experiences, we used a recall methodology. Participants' reports were undoubtedly subject to recall bias and self-presentational concerns, which could only be partially mitigated by looking at envy from the perspective of targets in Study 2.2. With correlational methods, we also cannot determine whether appraisals caused changes in responses, responses caused changes in appraisals, or a third factor (like personality) caused both (see Cohen-Charash, 2009). Relatedly, we cannot speak to the temporal aspects of these episodes (see Hoogland et al., in press). The present work should be seen a complimentary to studies assessing these processes in the lab, which often are limited to weak, temporary evocations of envy.

Final Thoughts

When people recount experiences of envy, they describe a wide range of responses: negative and positive, self-focused and other-focused. In three studies, we see unique patterns in the relationships between these responses and envy-related appraisals. We hope that these findings will illuminate both the consistent associations and interesting nuances that can occur in responses motivated by this fascinating, nebulous emotion.

Chapter 2, in full, has been submitted for publication of the material as it may appear in *Personality and Social Psychology Bulletin*. Henniger, N.E. & Harris, C.R. The dissertation author was the primary investigator and author of this paper.

CHAPTER 3

THE INFLUENCE OF SIMILARITY AND CLOSENESS ON ENVY

“Envy is pain at the sight of such good fortune...we feel it towards our equals... and by ‘equals’ I mean equals in birth, relationship, age, disposition, distinction, or wealth.” (Aristotle, *Rhetoric*)

On a daily basis, people are exposed to comparisons with others who are better off. In a single day, you might encounter news about a coworker who received a desirable grant or promotion; a friend who purchased a new house in a great part of town; a family member who went on a fantastic vacation; or news about a celebrity who seems to have it all. One potential response to these upward comparisons is envy, which is a subjectively negative emotional response to another’s superiority. In the present studies, we examine how envious responses to a superior person’s success are affected by the nature of the relationship between these two people. In particular, we examine whether stronger ties protect against envy, or whether they intensify the emotional response to the comparison.

Besides measuring how appraisals about the superior person affect feelings of envy, we also look at how these appraisals affect motivations associated with this emotion. Although envy feels bad and can motivate hostile behaviors towards the superior person (Smith & Kim, 2007), this emotion may not always have destructive consequences. Recent work has identified a range of potential envious motivations, including the motivation to self-improve (e.g. Belk, 2011; Cohen-Charash, 2009; Henniger & Harris, 2016; van de Ven et al., 2009, 2011). When people are feeling envious, their relationship with the target of their envy may affect both their responses towards the other person and their more self-focused responses.

In four studies, we created social comparisons in the lab and examined whether manipulations of similarity (Study 3.1 & 3.2) and closeness (Study 3.2) affected envious responses, as well as whether these relationship factors predicted different responses in more established friendships (Studies 3.3 & 3.4). We used a comprehensive range of envy measures, including self-reported feelings of envy, self-improvement behaviors, and behaviors towards the superior person.

Comparisons with Similar Others

Similarity has been proposed to have varied effects on responses to upward comparisons (e.g. Schaubroeck & Lam, 2004; Smith & Kim, 2007; Suls, Martin, & Wheeler, 2002). Similar others might be closer on a status hierarchy, leading to more direct competition and more hostile motivations towards the superior person (e.g. D'Arms & Kerr, 2008; Schaubroeck & Lam, 2004; Smith & Kim, 2007). Compared to similar person, one's lack of success also might stand out more starkly, leading to greater self-focused frustration or depression (Smith & Kim, 2007). However, similarity with the superior person could also have positive effects. Seeing someone similar to you achieve success might increase your belief that success is possible for you too, resulting in greater motivation to self-improve (Suls, Martin, & Wheeler, 2002; Wheeler, Martin, & Suls, 1997). A similar other's success could also reflect well on your in-group, allowing you to bask in their reflected glory (Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007).

Measuring Similarity

People can be similar in different ways, leading to a lack of clarity in this construct (Alicke & Zell, 2008; Harris & Salovey, 2008). One approach is for researchers

to determine objectively whether the two people share certain characteristics. The word “similar” has been used to describe similarity in age (Henniger & Harris, 2015/Ch. 1; Lockwood & Kunda, 1997) or gender (Henniger & Harris, 2015/Ch. 1; Hill & Buss, 2006), the extremity of comparison (e.g. Feather & Sherman, 2002; Hoyt & Simon, 2011), and the domain of comparison (e.g. Salovey & Rodin, 1984). One downside to these more objective measures is that despite sharing some characteristics, participants may not perceive the other person to be similar. An alternate approach is to measure a more global of similarity by asking participants how similar they think the other person is to them (e.g., Schaubroeck & Lam, 2004). In the present study, we manipulate similarity in objective characteristics while also measuring perceived similarity.

Similarity and the Elicitation of Envy

Empirically, objective similarity appears to make the elicitation of envy more likely. In recalled envy experiences, people most often reported envying same-gender and similarly aged others (i.e. more similar others; Henniger, & Harris, 2015; Hill & Buss, 2006). People also reported greater envy at the success of coworkers whom they had rated as being more similar (Schaubroeck & Lam, 2004). These findings suggest that similarity increases the likelihood that envy will occur in response to a comparison.

However, an alternative explanation of these findings is that similarity simply increases the likelihood that a comparison will occur in general, not specifically envy. People most often choose to compare themselves with similar others (e.g. Festinger, 1954; Suls, Martin, & Wheeler, 2002). Since a comparison is necessary for envy to occur, the high levels of similarity seen in recalled envy experiences may be due to similarity

eliciting comparisons, rather than similarity eliciting envy specifically. Other upward comparison emotions would also be expected to most frequently occur towards similar others. In support of this hypothesis, people are more likely to be inspired by similar role models (Latu, Mast, Lammers, & Bombari, 2013; Lockwood & Kunda, 1997; Meichenbaum, 1971). However, no study has directly manipulated the similarity between two people and measured its effects on envy.

In the present study, we manipulate whether participants see a comparison (or not) with a similar other (or dissimilar other). If similarity specifically elicits envy, then we should see the greatest envy when participants compare themselves to a similar other. However, if making a comparison is what makes envy more likely, then we should only see that participants feel greater envy in the comparison condition, with no difference between whether that comparison is with a similar or dissimilar other.

Similarity and the Moderation of Envious Responses

Although similarity may elicit envy, similarity does not necessarily increase the destructive motivations that are commonly associated with envy. In two studies of recalled envy experiences (Henniger & Harris, Ch. 2), envious individuals described the motivations that they experienced while feeling envy. When the envious individuals saw themselves as more similar to the envied person, they reported feeling more motivated and engaging in more positive (e.g., admiration and ingratiation) and less negative (e.g., hostility and avoidance) responses towards the other person (Henniger & Harris, Ch. 2).

One interpretation of these findings is that greater initial perceived similarity with the envied person could be protective when a comparison occurs and could promote more

positive responses. However, the opposite causality is also possible: envious who behaved more constructively in a comparison situation could have changed their perception of their relationship with the superior person. Some researchers have suggested that people making social comparisons will change their own views of themselves and their similarity to the superior person (e.g. Collins 1996 & 2000, Mussweiler, 2003).

Therefore, it is important to assess the effect of a comparison on perceived similarity – does a comparison itself change perceived similarity with the superior person? In recalled envy experiences, similarity could be associated with envious outcomes without causing them if an upward comparison produces both a change in perceived similarity and a change in envious outcomes. This possibility will be assessed by measuring similarity before and after a comparison and examining the associations between this change and envious responses.

Study 3.1

Method

Participants. A sample of 200 participants was recruited from a large public university in California to participate in a 1-hour in-lab study in exchange for course credit (58 male/142 female, age $M = 20.2$, $SD = 1.9$, range 18-30 years). When participants arrived at the lab, they were told a cover story: that this study was investigating online communication, and that they would be interacting on a computer with a partner. They were told that this partner would be another participant on a computer in a different part of the lab. In reality, there was no partner; responses that the

participant thought came from the partner were in fact generated by the computer program.

Procedure. On the computer, participants completed a series of demographic questions, which they were told would be private from their (actually fictional) partner. Then, the participants created a profile to be shown to their partner. The profile consisted of six multiple choice items: gender (Male/Female), residential community at their university (six options), major (Engineering/Social Sciences/Humanities and Arts/Natural Sciences and Health/Other or Undeclared), origin (California/United States (not California)/Outside the U.S.), political party preference (Republican/Democrat/Neither or another party), and favorite color (Red/Orange/Yellow/Green/Blue/Purple/None or a different color).

Similarity Manipulation. Participants then saw their supposed partner's profile, which was actually generated by the computer program. Participants were randomly assigned to see the profile of a partner who was Similar or Dissimilar to themselves. In the Similar condition, the partner was of the same major, origin, and political party preference as the participant; in the Dissimilar condition, the partner was different from the participant on these three variables. In order to maintain a believable level of similarity and variation, in both conditions, the partner was the same gender as the

participant, from a different residential community at their university,¹² and had a different favorite color.

As a manipulation check, the participants rated how similar they thought their partner was to them on a scale from 1 = “not at all similar” to 7 = “extremely similar”. In order to assess the related constructs of closeness and liking, the participants also rated how close they felt to their partner (from 1 = “not at all close” to 7 = “extremely close”) and how much they liked their partner (from 1 = “not at all” to 7 = “very much”).

Comparison Manipulation. Participants then took a test of “pattern perception and fluid intelligence” called the New England Standardized Aptitude Test (NESAT). This test was created by the authors and was not intended to measure performance; instead, the test was designed to be convincing as an aptitude test, mimicking pattern-finding tasks like Raven’s Progressive Matrices. Participants were presented three cards that varied on three dimensions (e.g. shape, number of objects) and ten possible answer choices. They were instructed to select the answer choice that would best complete patterns in the dimensions in the three cards, based on a complicated scoring mechanism. The optimal answer choice was never presented, so participants could never be sure if they had identified the best possible answer. This was done to make it difficult for participants to track their own progress in order to avoid skepticism when they received

¹² Based on informal discussions with students during the design of this study, their residential community was not a significant in-group or important to their individual identity.

the experimentally manipulated feedback. In debriefing, participants generally reported trying hard and desiring a good score on the NESAT.

In order to increase the self-relevance of the NESAT score, participants were told that if they scored in the 90th percentile or above, they would have the opportunity to participate in another study for up to \$100 in compensation.

All participants were shown false feedback that their own score was in the 72nd percentile. Then, participants were randomly assigned to one of two conditions: either to see a comparison with their partner or to see no comparison. In the Comparison condition, participants saw that their partner was in the 96th percentile. In the No Comparison condition, participants did not see anything about their partner's score, and simply moved on to the next task after seeing their own score.

Outcome Measures. Responses to the feedback were assessed with three types of measures: self-reported feelings, self-improvement motivations, and behaviors towards the other person. These measures were chosen to capture different aspects of envy, which can motivate the envier to eliminate an upward comparison by leveling themselves up or leveling the other person down (e.g. van de Ven et al., 2009).

Self-Reported Feelings. Participants were told to think about the score that they got on the NESAT, and were reminded of that score. In the Comparison condition, they were also reminded of their partner's score. All participants rated how they felt about the NESAT feedback on a 7-point scale, from 1 = "Not at all" to 7 = "Very", on sixteen specific emotions. Envious directly assessed envy, and Motivated assessed feelings of motivation that can be associated with envy. Inspired, Admiring, Proud, and Hopeful

assessed other positive emotional responses to upward comparisons; Jealous, Angry, Resentful, Sad, and Depressed assessed other negative emotions that may be part of the experience of envy; Guilty, Ashamed, and Embarrassed assessed self-conscious emotions; and Happy and Content assessed more basic positive emotions.

Self-Directed Responses - Reading Task. In order to assess self-improvement motivations following the feedback, we examined whether participants engaged in behaviors that could help them perform better on a reading task. Participants read instructions explaining that they would be shown a passage of text from an online news article and would later be given a test of memory and reading comprehension in order to test their understanding and attention to detail. The article was about the 2015 Nobel Prize in Chemistry, and it contained many details about the scientific achievement and the individuals receiving the awards. The amount of time that participants spent on the passage was measured, with the expectation that participants who were more motivated to achieve highly on the reading test would spend longer studying the text, while discouraged participants would spend less time studying.

Participants were then asked to write a brief summary of the article to send to their partner. The length of the summary was calculated by counting the number of written characters, with the expectation that participants who were more motivated would write longer summaries, while discouraged participants would write shorter summaries.

Other-Directed Responses – Game Task. Next, we assessed motivations towards the other person by telling participants to imagine that they and their partner were playing

an online game together. They then were presented with three opportunities to act prosocially towards their partner:

Participants were given the choice between going to a location that would provide themselves with 100 points and their partner with 50 points (Selfish Choice), or to a location that would provide themselves with 85 points and their partner with 85 points (Prosocial Choice).

Participants were given 45 points and told that they could give some of these points to their partner. Participants typed a number of points between 0 and 45 to give to their partner; giving more points was considered to be more prosocial.

Participants read “You are done with the game, but your partner wants to keep playing by themselves. However, they are out of levels, and they need \$10 to buy more. Would you buy the levels for them?” They answered Yes or No, with Yes being considered to be more prosocial.

Measuring Changes in Perception of Partner. In order to see whether the feedback changed perceptions of the partner, participants were again asked to rate their similarity, closeness, and liking of their partner. The initial ratings from the similarity manipulation check (before the feedback) were subtracted from these post-feedback ratings in order to create a change score for each of the three items.

Debriefing. The experimenter led the participant through a funnel debriefing, in which participants first commented generally on their thoughts and feelings during the experiment, and then more specifically on what they thought the purpose of the study was. Participants were marked for exclusion if they suspected that 1) the feedback was

false, or 2) the partner was not real. The experimenter then debriefed the participant about this deception and the purpose of the experiment, and confirmed that the participant had not identified the deception during the experiment. Thirty-six participants were excluded from further analysis, leaving a final sample of 164 (44 male/120 female; age $M = 20.1$, $SD = 1.8$, range 18-30 years).

Results

This study had a 2 (Similar or Dissimilar) by 2 (Comparison or No Comparison) design, with approximately 40 participants in each cell. Of the 84 participants randomized into the Similar condition, 43 were in the Comparison condition and 41 were in the No Comparison condition. Of the 80 participants in the Dissimilar condition, 37 were in the Comparison condition and 43 were in the No Comparison condition.

Similarity Manipulation Check. The Similarity manipulation was successful in manipulating participants' perceptions of their partners. As can be seen in Figure 3.1, participants who saw a Similar partner's profile rated their partner as significantly more similar ($M = 4.7$, $SD = 1.1$) than did participants who saw a Dissimilar partner's profile ($M = 3.2$, $SD = 1.0$; $F(1, 162) = 81.4$, $p < .001$). Participants in the Similar condition also rated significantly higher closeness with (Similar: $M = 2.9$, $SD = 1.5$; Dissimilar: $M = 2.1$, $SD = 1.2$; $F(1,162) = 15.2$, $p < .001$) and liking of (Similar: $M = 4.0$, $SD = 1.1$; Dissimilar: $M = 3.6$, $SD = 1.0$; $F(1, 162) = 6.8$, $p = .01$) their partner.

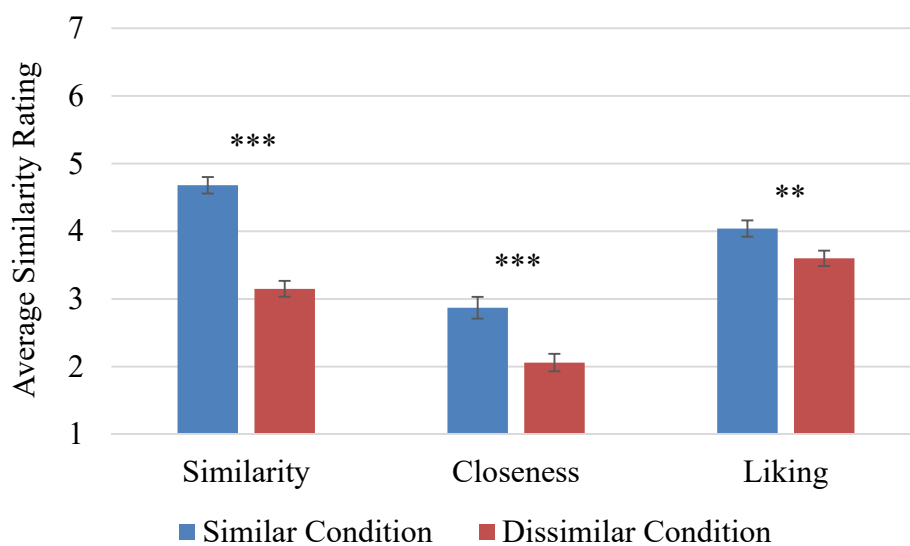


Figure 3.1 Study 3.1 Manipulation Check (before feedback)

Envy Elicitation. We conducted a 2 (Comparison condition) x 2 (Similarity condition) ANOVA in order to examine 1) whether the comparison condition successfully elicited envy, and 2) whether similar partners were envied more or less than dissimilar partners. The partner's superior performance on the NESAT in the Comparison condition did appear to successfully elicit envy: participants in the Comparison condition reported significantly greater envy ($M = 2.9, SE = .17$) than participants in the No Comparison condition ($M = 1.8, SE = .17; F(1,160) = 22.5, p < .001$). Contrary to the prediction that similarity increases envy, the main effect of the Similarity condition and interaction term were not significant (see Figure 3.2).

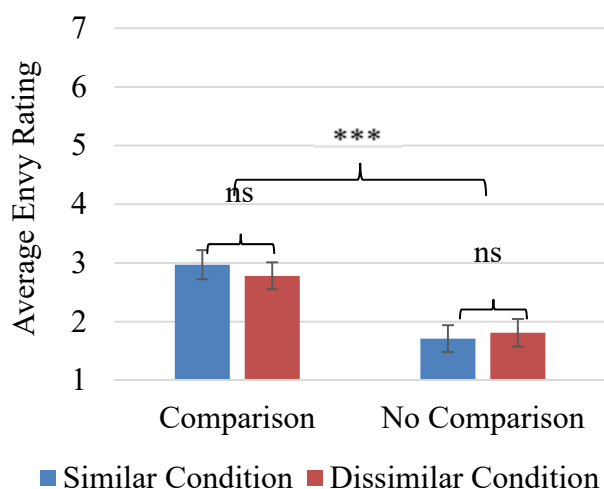


Figure 3.2 Study 3.1 Envy elicitation

Envy and Perceived Relationships. We found that exposure to an upward comparison elicited greater envy on average, but participants within this condition varied greatly (range: 1 to 7) in how much envy they felt. They also varied in their perceived similarity, closeness, and liking of the other person. Could variation in envious feelings be predicted by participants' ratings of perceived similarity, closeness, and liking? As noted above, we did not find that the manipulation of objective similarity affected feelings of envy; however, perceived similarity could provide a more sensitive measure of how participants actually thought of the other person, and has been found to be associated with feelings of envy in previous research (Schaubroeck & Lam, 2004).

Within the Comparison condition, feeling envious was not significantly correlated with the degree of perceived similarity ($r(80) = -.07, p = .53$) or perceived closeness ($r(80) = -.14, p = .22$). Therefore, similarity and closeness may neither potentiate nor protect against envy in a comparison situation. However, greater liking of the partner was

associated with decreased feelings of envy ($r(80) = -.22, p = .045$). Therefore, liking someone may provide some protection against envy when faced with a comparison.

Self-Improvement Motivation Outcomes. One potential response to an upward comparison is to feel motivated and try harder at subsequent tasks; however, people facing upward comparisons might also become discouraged and depressed. Similarity may contribute towards whether people have constructive self-focused responses to an upward comparison; people who see a similar other succeed might believe that the success of the similar other is possible for themselves. With a series of 2 (Comparison or No Comparison) x 2 (Similar or Dissimilar) ANOVAs, we assessed whether participants in each condition felt more motivated, spent longer studying a reading passage, and wrote longer summaries of the reading passage.¹³ As we shall see, upward comparisons had a stronger effect on self-reports of motivation than they did on actual motivated behavior in this study.

¹³ Time spent reading the passage was correlated with both self-reported motivation ($r(164) = .25, p = .002$) and length of written summary ($r(164) = .38, p < .001$). Length of written summary was not correlated with self-reported motivation ($p = .95$).

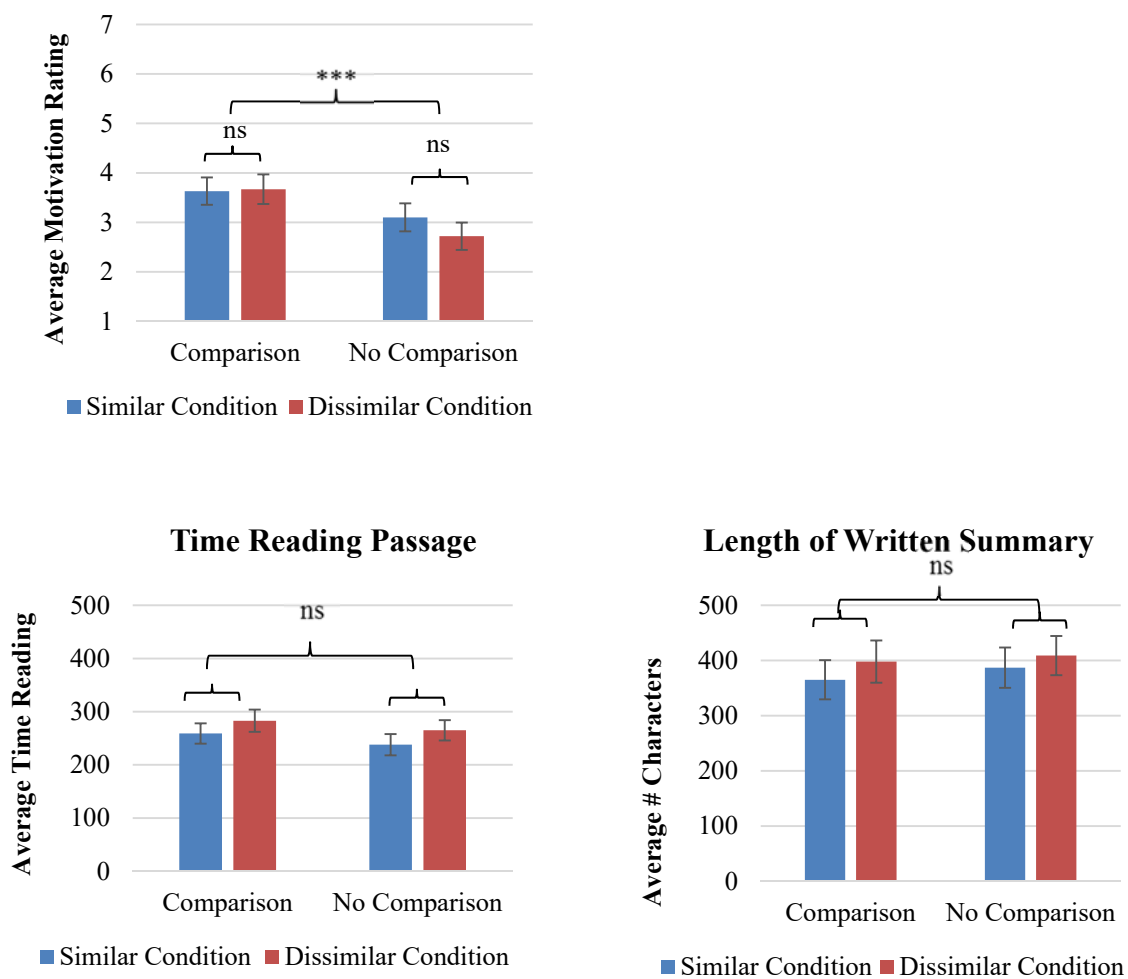


Figure 3.3 Study 3.1 Self-improvement motivation outcomes

Being exposed to a comparison did appear to elicit greater feelings of motivation than not seeing a comparison. As can be seen in the top panel of Figure 3.3, participants in the Comparison condition reported significantly greater motivation ($M = 3.7, SE = .2$) than participants in the No Comparison condition ($M = 2.9, SE = .2; F(1,160) = 6.8, p = .01$). Comparing with someone similar did not make motivation more likely. There was no main effect of Similarity ($p = .56$) or interaction between the two conditions ($p = .46$).

However, despite this effect of comparison on self-reported motivation, there were no differences by condition in the behavioral measures of motivation, as can be seen in the bottom to graphs in Figure 3.3. Participants in the Comparison condition did not spend any more time studying the reading passage than participants in the No Comparison condition ($p = .33$), and did not write longer written summaries ($p = .65$). There was no main effect of Similarity condition for time ($p = .21$) or summary length ($p = .46$), and there was no interaction between Similarity and Comparison for these measures (time: $p = .92$; summary length: $p = .88$).

Among people exposed to a comparison, those who felt greater envy might be hypothesized to also experience greater motivation, based on envy's theorized motivation of self-improvement. However, in the comparison condition, self-reported envy was not associated with greater self-reported motivation ($r(80) = .16, p = .15$), longer study times ($r(80) = -.10, p = .35$), or longer written summaries ($r(80) = .05, p = .70$).

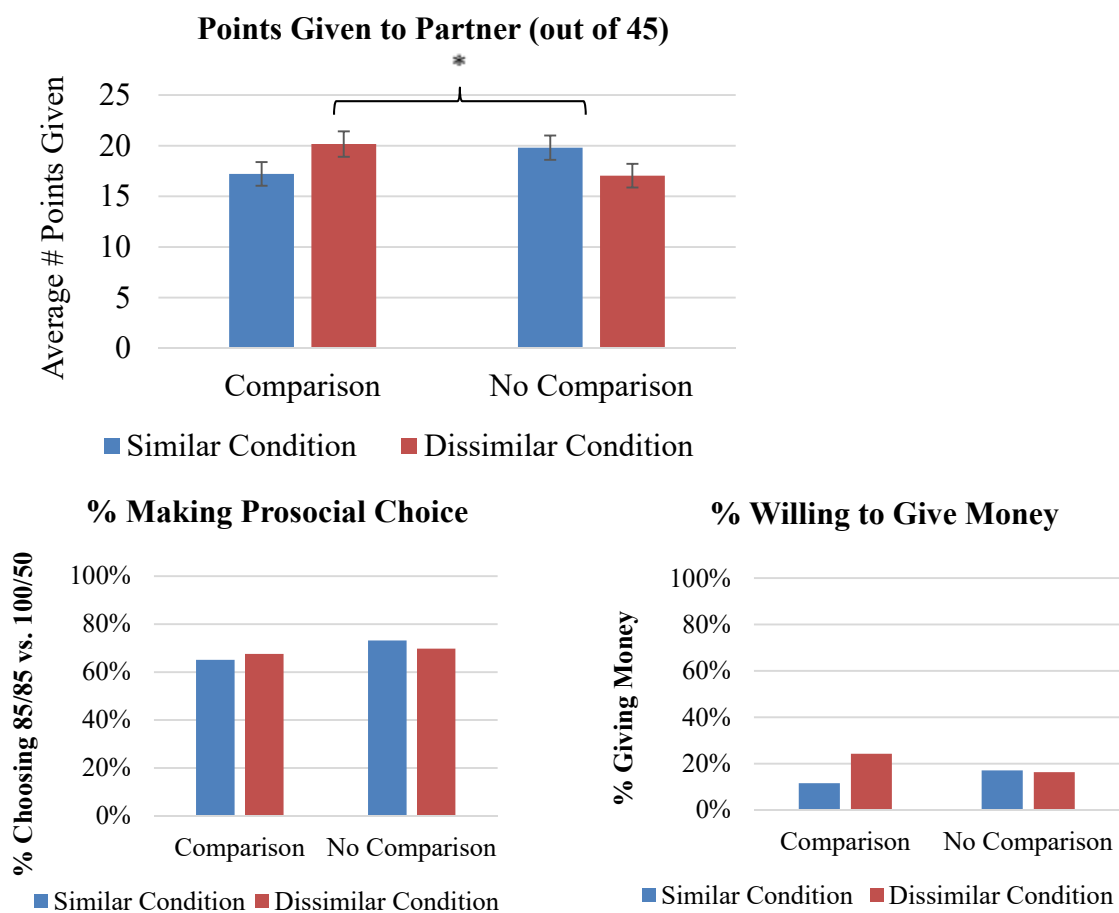


Figure 3.4 Study 3.1 Motivations toward superior other

Motivations toward Superior Other. In order to assess prosocial motivations towards the superior person, the participant imagined playing an online game with their partner, in which they were given three opportunities to help their partner at a small cost to themselves.¹⁴ Only one of these measures showed differences by condition.

Participants received 45 points and were given the opportunity to send some of those points to their partner. The number of points sent ranged from 0 to 45, $M = 18.5$, $SD = 7.7$. In a 2 (Comparison or No Comparison) by 2 (Similar or Dissimilar) ANOVA, the main effects of Comparison ($p = .84$) and Similarity ($p = .95$) were not significant, but there was a significant interaction between these two conditions ($F(1, 160) = 5.8$, $p = .02$). As can be seen in the top panel of Figure 3.4, when participants saw no comparison, they gave more points to similar partners than to dissimilar partners. However, when participants saw a comparison, they gave more points to dissimilar partners than to similar partners. Therefore, although people may tend to be prosocial towards similar others, similarity may actually decrease prosocial behavior towards a superior other.

However, this conclusion should be taken with caution because there were no differences by condition in the other two measures: participants choosing a more prosocial point distribution and participants willing to give money to their partner (in binary logistic regressions, all main effect and interaction p values $> .05$). These results can be seen in the bottom panels of Figure 3.4.

¹⁴ Prosocial choice was associated with giving more points (point-biserial $r(164) = .27$, $p < .001$) and being more likely to give money ($\chi^2(1, n=164) = 5.6$, $p = .02$). Giving money did not correlate with giving more points (point-biserial $r(164) = -.12$, $p = .14$).

Although seeing a comparison may not have robustly changed behavior towards the superior person, the people who experienced greater envy over that comparison might be expected to behave less prosocially, given the hostile characteristics of that emotion. However, in the comparison condition, self-reported envy was not associated with significantly fewer points given ($r(80) = -.06, p = .59$), less prosocial choices ($r(80) = -.12, p = .29$), or less willingness to give money ($r(80) = .06, p = .57$).

Change in Relationship Perceptions. Do upward comparisons change how people perceive their relationship with the superior person? In order to assess this possibility, we examined whether people changed their ratings of similarity, closeness, and liking after experiencing a comparison. A two-way mixed effects ANOVA examined whether similarity, closeness, and liking changed with time (within subjects; Before and After feedback) depending on whether the participant saw a comparison or not (between subjects; Comparison or No Comparison).

Being exposed to a comparison appeared to decrease perceptions of similarity, but not closeness or liking. There was a general decrease in perceived similarity (main effect of time, $F(1,161) = 110.0, p < .001$), which was qualified by a significant interaction between time and comparison condition ($F(1, 161) = 4.9, p = .03$). Participants in the Comparison condition showed a greater decrease in perceived similarity (before feedback: $M = 4.1, SE = .15$; after feedback: $M = 3.1, SE = .13$) than participants in the No Comparison condition (before feedback: $M = 3.8, SE = .15$; after feedback: $M = 3.1, SE = .12$). Perceived liking also decreased across time ($F(1,161) = 13.3, p < .001$), but this decrease did not differ for people who saw a comparison versus no comparison

(interaction $p = .45$; full sample Before feedback: $M = 3.8$, $SE = .09$; after feedback: $M = 3.6$, $SE = .09$). Participants did not significantly differ in perceived closeness across time, whether they saw a comparison or not (interaction $p = .53$; full sample before feedback: $M = 2.5$, $SE = .11$; after feedback: $M = 2.4$, $SE = .10$). Therefore, seeing the superiority of the other person only had a small effect on one aspect of the perceived relationship (similarity), while not affecting other aspects (liking and closeness). However, both similarity and liking faded slightly over time across the experiment, regardless of whether the participant saw a comparison.

Envy and Changes in Relationship Perceptions. Does feeling envy towards someone make the envier change their perception of their relationship with that person? Among participants who saw a comparison, the participants who felt more envious were not more likely to change their assessment of the other person. Self-reported envy was not associated with changes in perceived similarity ($r(80) = -.07$; $p = .52$), perceived closeness ($r(80) = -.04$; $p = .73$), or liking ($r(79) = -.07$; $p = .52$). Therefore, greater envy may not cause a greater change in relationship perception after the fact of the comparison, eliminating one potential interpretation of the correlational association between envy and relationships found in previous studies.

Discussion

Although Study 3.1 successfully elicited envy with the comparison manipulation and successfully manipulated the perceived similarity of participants' partners, participants did not respond differently to comparisons with similar partners than to comparisons with dissimilar partners. Similarity did not produce greater envy, did not

produce greater (or diminished) motivation, and did not consistently affect prosocial behavior towards the superior person. The one exception was that participants gave more points to similar others when there was no comparison, but gave fewer points to similar others when there was a comparison. However, two other measures of prosocial behavior did not show a difference. Therefore, similarity may not directly affect envy. Instead, the associations between similarity and envy that were in previous studies may be due to 1) people most frequently choosing similar others as comparison partners, which is a necessary precondition for envy, or 2) recall bias, in which people who recall more constructive envy behaviors may also recall feeling more warmly towards the superior person initially, regardless of their actual initial perceived similarity.

Within people exposed to a comparison, greater self-reported envy was not associated with differences in self-focused motivational or other-focused prosocial behaviors. This lack of association highlights a problem in studying envy – participants may not apply this label to their feelings, or may not want to report this socially undesirable emotion (e.g. Smith, 2004). This difficulty with self-report suggests that behavioral measures may be a better way of assessing envy; however, any behavior could be motivated by a wide variety of emotions. For example, self-improvement can be motivated by envy or by inspiration, while hostile behavior can be motivated by envy or by general frustration. The present study attempts to provide a comprehensive view of envy by measuring both feelings and motivations associated with this emotion. However, increases in one aspect of envy were not necessarily accompanied by increases in other aspects of envy. When envy studies measure only a single aspect of envy, such as

subjective feelings or hostile behaviors, it should not be assumed that other aspects of envy would show the same patterns.

Study 3.2

In Study 3.1, we successfully manipulated perceived similarity with a partner by changing demographic information on the partner's profile. However, these differences in perceived similarity did not appear to cause differences in envious feelings or behaviors, contrary to expectation (e.g. Alicke & Zell, 2008; Henniger & Harris, 2015/Ch. 1, Ch 2; Smith & Kim, 2007). However, our participants were not given the opportunity to interact with their partner on a more personal level, and may not have had a strong enough tie to them for the comparison to elicit differences in behavior. In addition to similarity, participants might also need to be close to the comparison target in order for the other's superiority to elicit envy. In Study 3.2, we manipulate both similarity and closeness.

Our manipulation of similarity in Study 3.1 also might have neglected an important characteristic for social comparisons: gender. In Study 3.1, all of the partner profiles were the same gender as the participant, in both the Similar and Dissimilar conditions. In Study 3.2, we changed our manipulation of similarity to include gender. Since envy is most often reported towards same-gender others, particularly in college-age samples (Henniger & Harris, 2015/Ch. 1; Hill & Buss, 2006), we strongly expected that being the same gender as the comparison partner (in the Similar condition) would elicit envy more often than being opposite-gender (in the Dissimilar condition).

Closeness and Upward Comparisons. Closeness might be expected to have the same effects as similarity on envy because they are both forms of “unit relatedness.” Unit relatedness describes a way of mapping the connectedness of two people, including “shared family name, similarity of background, age, appearance, close physical proximity” (Tesser, 1980).¹⁵ These ties between two people have been hypothesized to increase the intensity of the emotional response to a social comparison, including envy (e.g. Tesser 1980, 1988). When a superior other is similar or close (i.e. more unit-related), their success in a valued domain is theorized create a more acute self-threat. Therefore, according to this model, increased similarity and closeness should increase the likelihood that the success of the other person in an important domain would elicit envy.

However, empirical support for this model is mixed (e.g., Tesser, Millar, & Moore, 1988; Tesser & Smith, 1980). Additionally, because this work has focused on helping behavior towards friends (high unit relatedness) versus towards strangers (low unit relatedness), results are difficult to interpret since friends differ from strangers in many ways. In the present study, we manipulate both similarity and closeness to see whether these factors both intensify responses to a comparison.

An alternate prediction is that people generally have positive responses towards the success of close others and negative responses towards the success of distant others

¹⁵ The concept of unit relatedness was originally developed as part of the balance theory of attitude change (Heider, 1958). Tesser also calls this construct “psychological closeness,” but for the sake of clarity, this paper will use the term “closeness” in its colloquial sense referring to the warmth, interdependence, etc. of a close interpersonal relationship.

(e.g. Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007). Close relationships may be a valuable resource to be preserved, resulting in the moderation of envious responses even when envious feelings do occur.

Evidence for Effects of Closeness. Despite strong theoretical predictions that closeness affects envy, the empirical evidence for this association is slim. In one study, recalled envy was not found to occur more frequently in close versus distant relationships (Henniger & Harris, 2015/Ch. 1), and in another study, degree of closeness within family relationships was not associated with envy (Yoshimura, 2010). When considered in a model with other appraisal dimensions, Tesser and Collins (1988; also reported in Tesser 1990) found that closeness did not add any additional power in predicting envy.

However, these studies all used recalled envy experiences. Recalled closeness could be subject to response bias, or could have changed across time as a result of the comparison.

The present study manipulated closeness between partners by having participants complete a task designed to create interpersonal closeness in the lab (Fast Friends; Aron, Melinat, Aron, Vollone, & Bator, 1997). Participants in Close condition got to know their partners by answering questions about themselves and reading their partners' answers. Those in the Distant condition answered the same questions without interacting with their partner. By creating closeness with a partner and then exposing participants to an upward comparison with that partner, we assessed whether closeness causes differences in envious feelings and behaviors in response to a comparison.

Method

Participants. Students from a large public university came to the lab for a 1-hour study in exchange for course credit. A sample of 423 participants was recruited (128 male/293 female/2 other, age $M = 20.1$, $SD = 2.1$, range 18-35 years). As in Study 3.1, participants were told a cover story that this study was investigating online communication with a partner (whose responses were in reality all computer-generated).

Procedure. The procedure and measures in Study 3.2 were identical to the methods used in Study 3.1, with two exceptions: the characteristics were targeted by the similarity manipulation, and the addition of the closeness manipulation before the comparison.

As in Study 3.1, participants completed demographic measures and then created a profile to show their partner. Participants' profiles consisted four of the same items used in Study 3.1: gender, residential community at their university, major, and origin. The other two items from Study 3.1 (political party preference and favorite color) were not used in this study.

Similarity Manipulation. Participants then saw their partner's computer-generated profile. In the Similar condition, this profile matched their own gender, major, and origin. In the Dissimilar condition, this profile mismatched their own on all of these characteristics. In order to prevent participants from becoming suspicious of a profile that was completely the same as their own, participants in both conditions saw that their partner was from a different residential community.

Closeness Manipulation. After seeing their partner's profile, participants were randomly assigned to the Close or Distant condition. In the Close condition, participants

were told that they would answer some questions in order to get to know their partner, that their partner would answer different questions, and that they would see each other's answers. In the Distant condition, participants simply were told that they would answer some questions and that their answers would not be shown to their partner. Then, all participants answered three questions from the Fast Friends task (Aron et al., 1997): "Would you like to be famous? In what way?" "What would constitute a 'perfect day' for you?" and "If you could change anything about the way you were raised, what would it be?" After writing their answers, participants in the Distant condition moved on to the next part of the study. In the Close condition, participants saw three answers that were ostensibly written by their partner in response to three other questions from the Fast Friends task.

All participants completed the same manipulation checks that were used in Study 3.1, rating their perceived similarity with, closeness with, and liking of their partner.

Comparison and Outcome Measures. As in Study 3.1, participants completed the NESAT (a fabricated intelligence test) and saw that their own score was in the 72nd percentile. Participants in the Comparison condition (but not the No Comparison condition) also saw that their partner was in the 96th percentile. All participants then completed the same reading task, game task, and final relationship measures as in Study 3.1, and were finally debriefed. During the debriefing, 61 participants indicated that they believed either the feedback was false or the partner was not real; these participants were excluded from further analysis. The final sample size was 362 (104 male/256 female/2 other; age $M = 20.0$, $SD = 2.2$, range 18-35 years).

Results

Three independent variables were manipulated in this study: Similarity (similar/dissimilar), Closeness (close/distant), and Comparison (comparison/no comparison). Each of the cells in this 3x3x3 design had approximately 40 participants; due to random assignment, cell counts ranged from 39 to 51.

Manipulation Checks. Before the comparison took place, participants rated their perceived closeness, similarity, and liking of their partner. To check the effect of the Similarity and Closeness manipulations on these ratings, we conducted 2 (Similar or Dissimilar) by 2 (Close or Distant) ANOVAs. As can be seen in 3.5, participants in the Similar condition felt more similar ($F(1, 362) = 26.3, p < .001$) and close ($F(1, 362) = 4.6, p = .03$) to their partner than participants in the Dissimilar condition (although they did not like their partners more, $p = .55$). Figure 3.5 also shows that participants in the Close condition felt significantly more close ($F(1, 362) = 113.9, p < .001$) and similar ($F(1, 362) = 65.9, p < .001$) to their partner, and also liked their partner more ($F(1, 362) = 17.7, p < .001$) than participants in the Distant condition. There was a significant interaction between the Similarity and Closeness manipulations in their effects on perceived similarity ($F(1, 362) = 29.5, p < .001$), which can be seen the bottom panel of Figure 3.5. Participants who were in both the Distant and Dissimilar conditions felt particularly dissimilar from their partner, but being in either the Similar condition or the Close condition (or both) produced equivalent levels of similarity. The interaction terms for closeness ($p = .82$) and liking ($p = .25$) were not significant.

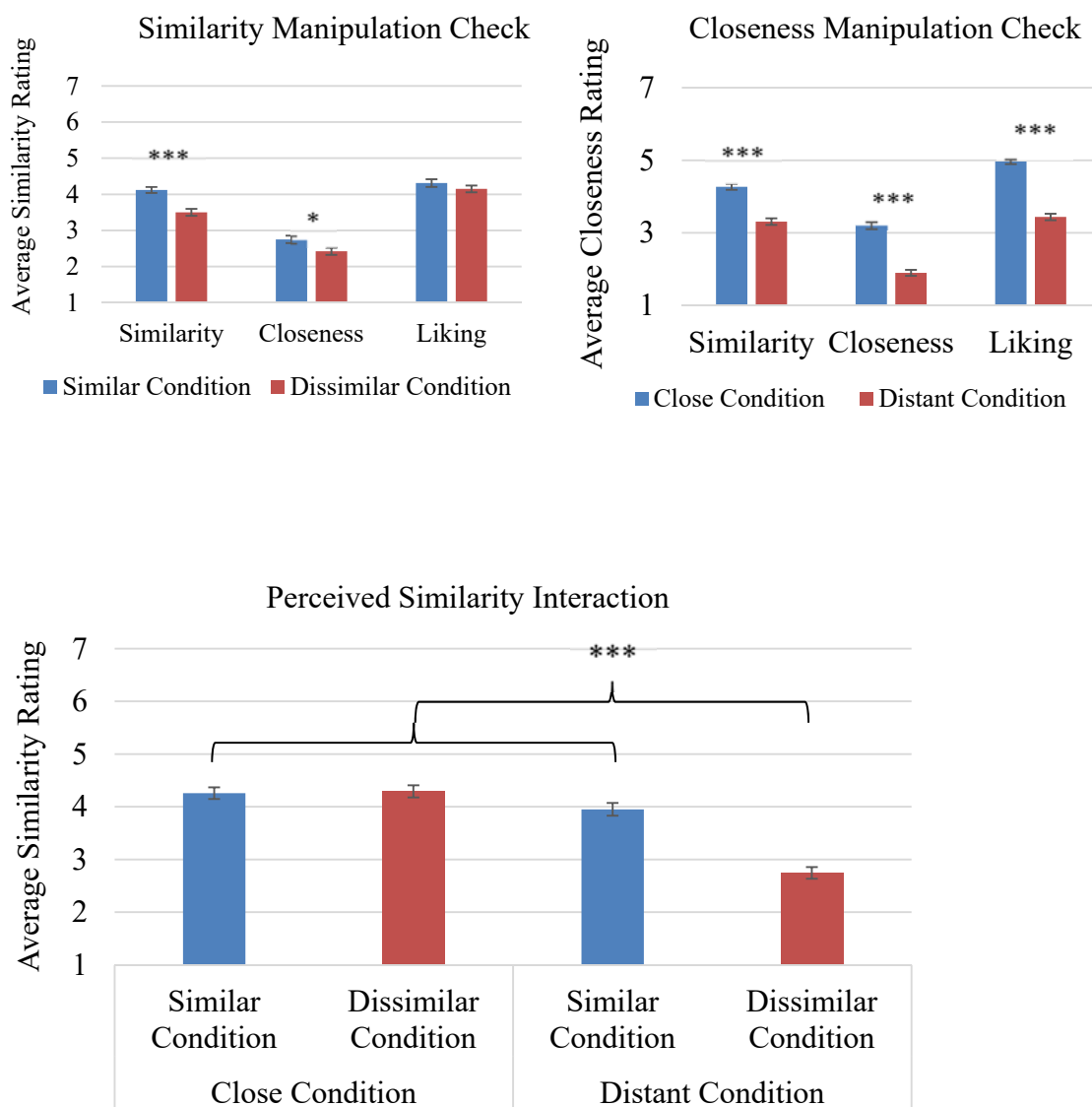


Figure 3.5 Study 3.2 Manipulation checks (before feedback)

Envy Elicitation. In Study 3.1, the comparison condition elicited feelings of envy, regardless of whether the participant was in the Similar or Dissimilar condition. In the present study, we tested whether self-reported envy would show the same pattern if the participant had a closer relationship with their partner, using a 2 (Comparison condition) x 2 (Similarity condition) x 2 (Closeness condition) ANOVA.

Only the Comparison condition showed a significant effect on participants' self-reported envy. Participants felt more envy when they saw a comparison ($M = 2.13$, $SE = .13$) versus when they saw no comparison ($M = 2.83$, $SE = .13$; $F(1, 360) = 15.5$, $p < .001$). The Similarity ($p = .23$) and Closeness ($p = .16$) conditions did not have significant main effects, interact with each other ($p = .54$), interact with the Comparison condition (Similarity x Comparison: $p = .32$; Closeness x Comparison: $p = .28$), or show a three-way interaction together with the Comparison condition ($p = .71$). Therefore, being more (or less) similar or more (or less) close to a superior person does not appear to affect the elicitation of envy.

Envy and Perceived Relationships. Among people who see a comparison, do those with stronger ties to the other person feel more or less envy of them? In Study 3.1, we found that participants felt less envy at a comparison when they liked their partners more, while feeling similar or close did not affect envious feelings. In Study 3.2, none of these relationship perceptions were associated with differences in envy in the comparison condition (similarity $p = .79$; closeness $p = .98$; liking $p = .84$). Therefore, the continuous measures of the perceived relationship with the superior person did not have any more association with envy than the manipulations of these factors did.

Self-Improvement Motivation Outcomes. In Study 3.1, participants who saw a comparison reported feeling more motivated; however, they did not show any more self-improvement behaviors than participants who saw no comparison. This finding might suggest that people feel motivated in response to a comparison, but they do not act on that motivation. In contrast, the participants in Study 3.2 wrote shorter summaries when they saw a comparison and did not show any differences in self-reported motivation or (consistent with Study 3.1) the amount of time they spent reading a passage.

Three 2 (Comparison Condition) by 2 (Similarity Condition) by 2 (Closeness Condition) ANOVAs were run to assess the effect of these comparisons on self-reported motivation, time spent reading passage, and length of written summary.¹⁶ Participants wrote shorter summaries when they saw a comparison ($M = 321$ characters, $SD = 16$ characters) than when they saw no comparison ($M = 380$ characters, $SD = 16$ characters; $F(1,361) = 7.04, p = .008$). This effect was not qualified by interactions with the Similarity ($p = .29$) or Closeness ($p = .65$) conditions or a three-way interaction ($p = .10$), and there was no main effect of the Similarity ($p = .41$) or Closeness ($p = .06$) manipulations on length. Rather than feeling more motivated, people may have been discouraged by the comparison and written shorter summaries as a result.

Self-reported motivation (full sample $M = 2.97, SD = 1.81$, range 1-7) did not significantly differ by Comparison condition ($p = .11$), Similarity condition ($p = .78$), or

¹⁶ All three measures were correlated: feeling motivated showed a small correlation with time spent reading the passage ($r(362) = .17, p = .002$) and length of written summary ($r(362) = .12, p = .03$), and the two behavioral measures showed a stronger correlation ($r(362) = .35, p < .001$).

Closeness condition ($p = .76$). There were no significant interactions (p -values ranging .15 to .96). The time spent reading the passage (full sample $M = 248$ seconds, $SD = 113$ seconds, range 2-729 seconds) also did not differ by any of these conditions (p -values ranging .18 to .91).

Self-improvement motivations have been theorized to result from envy; however, within participants who saw a comparison in Study 3.1, the participants who felt greater envy were not more motivated. In the present study, feelings of envy were associated with feeling more motivated ($r(180) = .28, p < .001$), but not with spending more time reading ($r(180) = .09, p = .23$) or writing longer summaries ($r(180) = .14, p = .07$). This pattern suggests that envy may be more strongly associated with subjective feelings of motivation than with actual self-improvement behaviors.

Motivations toward Superior Other. When people face an upward comparison, their similarity and closeness with the superior person have been theorized to influence motivations towards that person. In an imagined online game, we gave participants the chance to engage in more or less prosocial behavior towards their partner.

In Study 3.1, participants gave more points to a similar (versus dissimilar) other in the no comparison condition, but gave fewer points a similar other in the comparison condition. This finding suggested that participants might respond negatively towards similar others who outperform them. In Study 3.2, we additionally looked at the effect of the Closeness condition with a 2 (Comparison condition) by 2 (Similarity condition) by 2 (Closeness condition) ANOVA. None of these conditions significantly influenced the number of points given (Comparison $p = .38$; Similarity $p = .68$; Closeness $p = .31$). The

interaction between the Comparison and Similarity conditions was not significant ($p = .72$), and neither was the interaction between the Closeness and Comparison ($p = .21$) or Similarity ($p = .27$) conditions. The three-way interaction also was not significant ($p = .71$). As in Study 3.1, the proportion of participants making a prosocial choice (full sample 72%) and willing to give money to their partner (full sample 27%) did not differ by any of the conditions in a binary logistic regression (all main effect and interaction p -values $> .05$). Therefore, none of the responses towards the other person were affected by the comparison or by the manipulations of similarity and closeness.

Although participants who saw a comparison did not show changes in their behavior towards the other person overall, variation in their responses might be associated with envy. Greater envy might be expected to be correlated with changes in behavior towards the superior person. However, Study 3.1 found no such associations among participants in the comparison condition, and Study 3.2 replicated these null results for two measures: prosocial choices ($r(180) = -.02, p = .78$) or willingness to give money ($r(180) = .03, p = .68$). The one exception was that participants who saw a comparison and felt more envious did give fewer points to their partner ($r(180) = .15, p = .047$), supporting a small association between envy and this one form of hostile behavior.

Change in Relationship Perceptions. In Study 3.1, we found that participants who saw a comparison decreased their perceived similarity with their partner more than participants who saw no comparison, and perceived similarity and liking (but not closeness) decreased over the course of the experiment for all participants. In the present study, these findings generally replicated. Changes in similarity, closeness, and liking

across time (within subjects; Before and After feedback) were examined in participants who saw a comparison or not (between subjects; Comparison or No Comparison) with three two-way mixed effects ANOVAs.¹⁷

Replicating Study 3.1, there was a decrease in perceived similarity across time ($F(1, 360) = 86.1, p < .001$) that was qualified by an interaction with comparison condition ($F(1, 360) = 5.8, p = .02$): participants who saw their partner's superior score decreased their perceived similarity with their partner (before feedback: $M = 3.8, SE = .09$; after feedback: $M = 3.1, SE = .09$) more than participants who did not see a comparison (before feedback: $M = 3.8, SE = .09$; after feedback: $M = 3.5, SE = .09$). Also replicating Study 3.1, there was a decrease in perceived liking across time regardless of comparison condition (interaction $p = .77$; main effect of time $F(1, 360) = 29.0, p < .001$; full sample before feedback: $M = 4.2, SE = .07$; after feedback: $M = 4.0, SE = .07$). The main effects of comparison condition were not significant for any of the three measures (similarity: $p = .08$; closeness: $p = .24$; liking: $p = .47$).

As in Study 3.1, perceived closeness did not significantly change across time on average ($p = .08$). However, unlike in Study 3.1, there was a significant interaction between comparison condition and time, $F(1, 360) = 4.2, p = .04$. Participants who saw a comparison did not change their perceived closeness with the partner (before feedback: $M = 2.56, SE = .10$; after feedback: $M = 2.55, SE = .10$), but participants who did not see a

¹⁷ The interactions found in these analyses remained significant when Similarity condition and Closeness condition were included in the model. For ease of interpretation, the simpler model is reported here.

comparison actually showed a slight increase in their perceived closeness across time (before feedback: $M = 2.60$, $SE = .10$; after feedback: $M = 2.81$, $SE = .10$). It is possible that making an upward comparison prevents an increase in closeness that would otherwise occur; however, since we did not see this interaction in Study 3.1, the effect may be relatively weak or unreliable.

Envy and Changes in Relationship Perceptions. In Study 3.1, we saw that people who felt more envious in response to a comparison did not decrease their perceived similarity, closeness, or liking for their partner any more than did participants who felt less envious. In Study 3.2, we replicated this lack of association: within participants who were exposed to a comparison, self-reported envy was not associated with changes in perceived similarity ($r(180) = -.08$, $p = .27$), perceived closeness ($r(180) = .06$, $p = .41$), or liking for their partner ($r(180) = -.03$, $p = .73$). If envy is not associated with changes in relationship perceptions, then recalled associations between envy and relationship perceptions likely are not due to envy immediately altering cognitions about the relationship (although we cannot make any conclusions about more long-term changes).

Discussion

In Study 3.2, we successfully manipulated participants' perceptions of similarity and closeness with their partner. We also successfully induced envy through an upward comparison with a (fictitious) partner. However, despite these effective manipulations, similarity and closeness did not appear to have any consistent, replicable effects on

responses to upward comparisons. Participants who felt stronger envy also did not have more intense self-improvement motivations or responses towards the superior person.

The lack of associations among these measures is puzzling, given the strong theoretical predictions that both similarity and closeness should influence envious responses. It is possible that despite the closeness manipulation, participants simply were not invested in their partner or any potential outperformance by them. Participants never saw their partners in person or interacted freely with them, and their connection would have been cut once they left the lab (if the partner had existed in the first place). The design of this study was intended to control for many of the complexities of real-world relationships while still maintaining some ecological validity, as people interact more and more frequently online with others about whom they know very little except a sparse profile. However, similarity and closeness may only have an effect in upward comparisons between two people who are more enmeshed in one another's lives.

Study 3.3

In order to assess whether relationship ties affect responses to upward comparisons, we brought pairs of friends to the lab in Study 3.3. We examined whether an upward comparison elicited envy in the participants, and whether their perceived similarity to and closeness with their friend predicted differences in their feelings and motivations.

Method

Participants. Participants were recruited from a large research university in exchange for course credit; participants were asked to bring a same-gender friend to the

lab with them. One hundred pairs of friends were recruited ($n = 200$ individuals; 64 male /136 female; age $M = 20.1$, $SD = 1.6$, range 18-29 years). When they arrived in the lab, the friends were told that this was a study of online communication, and they were split into separate rooms from which they would ostensibly be interacting with each other on a computer (in fact, the experiment did not contain any interactive tasks). The participants then completed demographic questions and provided information about their relationship with their friend.¹⁸

Procedure.

Relationship Measures. In order to comprehensively assess their relationship, participants completed multiple measures of closeness and similarity. Participants answered how long they had known their friend and how long they had been friends. They also responded to the Inclusion of Other in the Self (IOS) scale (Aron, Aron, & Smollan, 1992), which asks the rater to pick which set of circles best describes their current relationship with their friend. The circles are labeled “Self” and “Other,” and the degree of overlap between the circles ranges from no overlap to almost completely overlapping. Participants also rated the extent to which eight words (e.g. supportive, friendly, honest) described their relationship (based on Exline & Lobel, 2001) on a scale from 1 = “not at all” to 7 = “extremely”. These items were averaged to create a composite measure of relationship quality (Cronbach’s $\alpha = .84$). Similarity was assessed with

¹⁸ Other exploratory measures were included that are outside the scope of the present investigation (e.g. personality traits, perceived fairness and control, disclosure intentions). Overall, these factors were unrelated to the variables of interest in this paper.

two items, rated on a scale from 1 = “not at all similar” to 7 = “very similar”: “how similar are you and your friend” and “how similar are you and your friend’s goals in life?”

Comparison Manipulation. As in Study 3.1 and 3.2, the participants were told that they were taking a “fluid intelligence test” called the NESAT, which was actually designed by the experimenters to be challenging and difficult to self-monitor. The experimenter randomly assigned one friend to receive false feedback that they had performed better than their friend (Self Better condition), while the other participant received false feedback that their friend had performed (Friend Better condition). After completing the test, participants were shown a score sheet containing their score, as well as the score of their friend. Although the experimenter only called attention to the participant’s own score, almost all participants took note of their friend’s score as well. This was confirmed at the end of the study by asking participants what each person’s score was.

Emotional Response Measures. Participants were asked to rate the extent to which they were feeling 18 different emotion words. The words “envious” and “motivated” were of particular interest, in keeping with the previous studies. They also rated how much they thought their friend felt these emotions.

Then, participants were given a task choice as a measure of prosocial action towards the friend. Participants were told that the final task was to summarize scientific articles. Because of supposed time constraints, participants were asked to choose one article for themselves and the other for their friend. The article choices were 1) a pleasant

article from a popular psychology magazine 2) an unpleasant article from a quantitative psychology journal. The choice to give the more pleasant article to their friend was considered a more prosocial choice.

Debriefing. At the end of the experiment, the experimenter debriefed the participant. Participants were excluded if they thought that the feedback was false or guessed the hypothesis of the experiment. Nine participants were excluded for these reasons, and 5 additional participants were excluded for reporting extremely incorrect scores for themselves and/or their friends because these participants may not have properly processed the feedback manipulation. The remaining analyses were conducted with the remaining 186 subjects: 91 in the Self Better condition (29 male/62 female), and 95 in the Friend Better condition (28 male/67 female).

Results

Participants tended to be close to their friends, but they described a wide range of relationships. Table 3.1 reports the means and ranges of each of the measures within the participants in the Friend Better condition. The two conditions (representing a random division of the pairs) did not significantly differ in their descriptions of any of these relationship factors.

Table 3.1 Study 3.3 Relationship characteristics (Friend Better condition)

	Mean	SD	Min	Max
Length of Acquaintanceship (months)	23.7	37.4	0	221
Length of Friendship (months)	19.1	29.0	0	221
Inclusion of Other in the Self	4.1	1.6	1	7
Relationship Quality	6.0	0.8	4.1	7.0
Similarity with Friend	4.2	1.3	1	7
Similarity of Goals	4.0	1.5	1	7

Comparison Effects. The comparison was successful in producing envy.

Participants whose friends did better than them felt significantly more envious ($M = 1.9$, $SD = 1.4$) than participants who did better than their friends ($M = 1.5$, $SD = 1.0$, $t(185) = -2.1$, $p = .04$). Participants whose friends did better than them also felt less motivated ($M = 3.3$, $SD = 1.6$) than the participants who did better than their friends ($M = 3.9$, $SD = 1.7$, $t(184) = 2.5$, $p = .01$), contrary to the prediction that comparisons produce self-improvement motivation.

However, the comparison did not produce a significant difference in whether the participants chose the pleasant or unpleasant task for their friend ($\chi^2(1, n = 182) = 2.96$, $p = .09$): 36% of participants in the Friend Better condition and 24% of participants in the Self Better condition chose to give their friend the more pleasant article and keep the

unpleasant article for themselves. Therefore, the comparison may have affected feelings of envy more than envious actions towards the other person.

Variation in Responses to Upward Comparisons. Within the upward comparison, participants varied in their feelings and behaviors after receiving the feedback. Do differences in the closeness and similarity of the friends predict differences in feelings and behaviors following the upward comparison? As can be seen in Table 3.2, none of the relationship factors related to feeling more envious, motivated, or choosing a pleasant task for their friend after seeing the comparison. Feeling envious at the upward comparison also was unrelated to feeling motivated ($r(92) = .02, p = .89$) or making a prosocial article choice ($r(90) = -.04, p = .73$). These associations also were not significant in full regression models controlling for condition.

Table 3.2 Study 3.3 Spearman's rank order correlation coefficients (Friend Better condition)

Relationship Factors	Responses to Comparison		
	Envious	Motivated	Prosocial Article Choice
Length of Acquaintanceship (months)	-.06	.04	.05
Length of Friendship (months)	-.09	.07	.07
Inclusion of Other in the Self	.01	.06	-.004
Relationship Quality	.005	.001	.11
Similarity with Friend	-.01	.17	-.03
Similarity of Goals	.06	.14	-.01

Note: All p-values > .05. Article choice coefficients are point-biserial correlations.

Discussion

In established pairs of friends, who experienced envy at an upward comparison, relationship closeness or similarity did not change the feelings or motivations of an envious response. When one friend did better than the other friend, it did not matter whether they had known each other longer, felt more interconnected, described a higher quality relationship, or felt more similar overall or specifically in their life goals (which might relate more closely to an aptitude test). Feelings of envy, motivation, and choices of task for the other person all were unrelated to these relationship measures. Therefore, as suggested in the previous studies, the relationship with the superior person may not strongly influence responses to being outperformed by that person.

However, one potential weakness in Study 3.3 is that the behavioral measure was ambiguous. When participants chose an unpleasant article for their friend, they were also choosing the pleasant article for themselves. Participants could have chosen each article for many reasons (interest, desire to show off, self-soothing with a pleasant task). Therefore, this measure might not have been sensitive to envious motivations.

Study 3.4

The procedure in Study 3.4 replicated the procedure in Study 3.3, except for the behavioral measure. Rather than choosing an article as in Study 3.3, participants in Study 3.4 were asked to describe their friend's traits. Describing a friend more negatively could be a passive way of decreasing their status (e.g. Salovey & Rodin, 1984; Smith, 2004). We again examined whether the comparison produced differences in the envy measures,

and whether differences in the relationship with the superior person affected participants' envious responses.

Method

As in Study 3.3, participants from a large research university received course credit for their participation and brought a same-gender friend to the study (134 pairs; $n = 268$ individuals; 54 male/214 female; age $M = 19.9$, $SD = 1.5$, range 18-24 years). The pairs were told the same cover story: that this was a study of online communication that they would complete at computers in separate rooms of the lab. The participants then completed demographic questions, provided information about their relationship with their friend,¹⁹ took the supposed intelligence test, received false feedback about their own score and their friend's score, and reported their emotional state. However, in Study 3.4, the participants did not choose an article for their friend. Instead, they were asked to write about their friend's positive and negative traits. The number of positive and negative traits were coded by raters who were blind to the purpose of the study. Describing fewer positive aspects and more negative aspects of a friend was considered to be more derogatory of that friend, a form of hostility. Similar to the previous study, participants were excluded if they exhibited any suspicious about the manipulations in the study. One hundred thirty-seven participants were retained (32 male/105 female; 66 Self Better condition; 71 Friend Better condition; age $M = 19.9$, $SD = 1.5$, range 18-24).

¹⁹ As in Study 3.3, other exploratory measures were included which were largely unrelated to the variables examined in this paper.

Results

As in Study 3.4, participants had close relationships with their friends on average. Table 3.3 shows the relationship characteristics reported by participants in the Friend Better condition. The pairs were randomly split into the two conditions, and individuals in the conditions did not significantly differ in their perception of the friendship.

Table 3.3 Study 3.4 Relationship characteristics (Friend Better condition)

	Mean	SD	Min	Max
Length of Acquaintanceship (months)	29.9	38.8	1	228
Length of Friendship (months)	26.8	36.5	0	228
Inclusion of Other in the Self	4.5	1.5	1	7
Relationship Quality	6.0	0.9	2.9	7.0
Similarity with Friend	4.8	1.1	2	7
Similarity of Goals	4.3	1.4	1	7

Comparison Effects. The comparison manipulation again was successful in eliciting envy. Participants felt envious when their friend did better than them. Those in the Friend Better condition reported stronger envy ($M = 2.0$, $SD = 1.2$) than participants in the Friend Worse condition ($M = 1.5$, $SD = 1.1$; $t(134) = 2.66$, $p = .009$).

However, participants did not differ by condition in how many positive or negative traits they used to describe their friends (positive traits: $t(134) = 1.17$, $p = .24$; negative traits: $t(133) = -.41$, $p = .68$). On average, participants in each condition described their friend with 5 positive traits ($SD = 2$; range 2-14) and 2 negative traits (SD

= 1, range 0-7). Unlike in Study 3.3, there was no difference in motivation between the conditions ($t(134) = .46, p = .65$; total sample $M = 3.6, SD = 1.6$). Therefore, as in Study 3.3, the comparison manipulation may have affected feelings of envy rather the behaviors associated with envy.

Variation in Responses to Upward Comparisons. Although the comparison only significantly affected feelings of envy, not envious motivations and behaviors, participants did vary in their responses to the feedback. Are particular relationship qualities associated with particular types of responses to being outperformed? Table 3.4 shows the Spearman rank correlations between relationship characteristics and the responses of participants in the Friend Better condition. Feelings of envy or motivation following an upward comparison did not differ depending on the participants' relationship with the superior person. The closeness or similarity of the relationship also was unrelated to how many negative traits the participant used to describe their friends. However, participants in closer relationships did describe their friends more positively. As can be seen in Table 3.4, more positive traits were described by participants in relationships that were longer, more interdependent, higher quality, and more similar. Closeness may not protect against negative responses, but closer ties may promote more positive responses towards the other person. These positive responses were not mediated by decreased feelings of envy, since envy and positive traits were not associated ($r(71) = -.10, p = .40$). In a full regression model, condition was not a significant factor in these relationships.

Table 3.4 Study 3.4 Spearman's rank order correlation coefficients (Friend Better condition)

Relationship Factors	Responses to Comparison			
	Envious	Motivated	Positive Traits	Negative Traits
Length of Acquaintanceship (months)	-.07	-.19	.25*	.23
Length of Friendship (months)	-.06	-.18	.25*	.21
Inclusion of Other in the Self	-.07	.03	.42***	.20
Relationship Quality	-.02	.04	.40**	.15
Similarity with Friend	-.002	-.05	.33**	-.002
Similarity of Goals	.005	.08	.13	.19

Note: * $p < .05$; ** $p < .01$, *** $p < .001$

General Discussion

In four studies, we found that being outperformed by a partner elicited feelings of envy. However, participants' closeness and similarity with the superior person were consistently unrelated to differences in their responses to the upward comparison. In attempting to find this association, we looked at manipulations of these factors in strangers (Studies 1 and 2) and measures of these factors before comparisons in established friendships (Studies 3 and 4). Participants who were closer or more similar to the other person did not feel more (or less) envious, engage in more (or less) motivated self-improvement, or behave more (or less) prosocially towards the superior person. The one exception was in Study 3.4, in which participants with stronger ties described their friend more positively (but not less negatively). This effect was not mediated by any

differences in envious feelings, and therefore may reflect more general positivity within the friendship rather than an envy-specific process.

Alternate Explanation

Any studies finding that envy is associated with effects of similarity (e.g., Henniger & Harris, 2015/Ch. 1; Ch. 2) and closeness (e.g., Henniger & Harris, Ch. 2) may in fact be measuring an effect of comparison partner choice. Our studies did not give participants a choice in who they compared themselves with – all were forced to compare themselves with their friend or partner, whether that partner was close or similar. Envy might most frequently occur towards similar others (Henniger & Harris, 2015/Ch. 1) because comparisons most frequently occur towards similar others (e.g., Festinger, 1954; Suls, Martin, & Wheeler, 2002), not because similarity makes envy in particular more likely. Closeness may be associated with more positive responses towards the envier (Henniger & Harris, Ch. 2) because closeness generally increases positive responses towards the other person in all contexts, not because closeness particularly affects responses towards envied others.

Limitations and Future Directions

The present studies all created a comparison using false feedback on a fabricated intelligence test. Although we designed this test to seem important in order to increase its self-relevance, including a potential cash reward, the task may have been too far removed from impacting participants' everyday lives to elicit strong responses. Self-relevance is important for eliciting envious responses (e.g. Salovey & Rodin, 1984), and participants may not have been willing to take strong action in response to the elicitor used in these

studies. However, participants did generally appear to care about the feedback, and did report feeling envious. Future research may need to sacrifice more experimental control in order to tailor the comparison to be more self-relevant for each individual participant.

These studies also could only measure a limited range of behavioral responses. Participants feeling envy can experience many different motivations that are not necessarily related to each other (Henniger & Harris, Ch. 2), and it is possible that our measures were not sensitive to the correct spectrum of behavioral changes. For example, participants may not have been motivated to perform well on the reading task because reading is a slightly different domain than the task in which the comparison occurred (a pattern-finding test). Further research is needed in order to explore the effects of these factors on other potential envious outcomes.

Conclusion

Although the present studies primarily produced null results, these findings are valuable in the development of envy theories. Given our successful manipulations of envy, similarity, and closeness, any ties that exist between these appraisals and responses must be at best fragile and context-specific. When theorists describe similarity and closeness (or lack thereof) as producing envy, it should be noted that these factors may be more related to eliciting the comparison than to eliciting envy specifically. Additionally, it should be noted that feelings of envy are not necessarily associated with differences in motivations and behaviors towards the other person. Although we think of emotions as a pattern of responses, variation within those patterns may be more sensitive to some appraisals than to others (Henniger & Harris, Ch. 2), and each outcome should be

separately considered. Much future research will be necessary in order to tease out the details of how appraisals affect responses within this complex emotion.

Chapter 3, in full, is currently being prepared for submission for publication of the material. Henniger, N.E., Heyman, G.D., Chan, L., & Harris, C.R. The dissertation author was the primary investigator and author of this paper.

CONCLUSIONS

In nine studies, we investigated the relationship between appraisals and envious responses. Although extensive theoretical work has hypothesized that these appraisals will affect envy (e.g. Hoogland et al., in press; Parrott & Smith, 1991; Smith, 2000, 2004; Smith & Kim, 2007), few studies have directly tested these predictions. In recalled envy experiences, we found that certain appraisals were common in envy and were associated with differences in envious responses (Chapters 1 & 2). However, we did not find evidence that these appraisals affected immediate responses to an upward comparison in a more controlled lab setting (Chapter 3).

Causality in the Relationship between Appraisals and Envy

Why might appraisals be associated with envious responses without causing those responses? We consider three possibilities: 1) the appraisal may not specifically affect envy; 2) the appraisal may have a greater effect as envy unfolds over time, rather than immediately after the comparison; 3) the appraisal may only affect specific pieces of the envy response, which were not measured in all studies.

Specificity

Envy is a complex social emotion, and it may be difficult to develop an appraisal-response model for the conditions that specifically elicit envy, as opposed to other emotional responses to upward comparisons. Theoretically, there should be an appraisal (or set of appraisals) that increases the likelihood that a person will experience envy (e.g., Scherer, 2009). Candidates include self-relevance, similarity with the superior person, closeness (or distance) in the relationship with the superior person, unfairness, and

inability to obtain the desired object (e.g., Smith 2000, 2004; Smith & Kim, 2007). Indeed, we see that each of these appraisals is related to particular aspects of envy responses (Chapter 2). However, some of these appraisals may elicit a precondition for envy (such as a comparison), rather than specifically provoking envy (van de Ven, 2016).

For example, similarity has long been recognized as an important factor in determining whom people choose to compare themselves with (Festinger, 1954; Suls & Wheeler, 2000). People may prefer to compare themselves with similar others in order to more accurately assess their own potential for success (Wheeler, Martin, & Suls, 1997). In Chapter 1, we found that recalled envy experiences usually occurred towards objectively similar others. One interpretation of this finding is that similarity elicits envy; however, another interpretation is that similarity elicits comparisons, and a comparison must take place in order for envy to occur. In Chapter 3, our manipulations of objective similarity did not affect envious feelings or motivations (Ch. 3 Studies 1 & 2). We also failed to find a correlational association between greater perceived similarity in established friendships and envious responses in the lab (Ch. 3 Studies 3 & 4). However, none of the participants in Chapter 3 were given a choice in whom to compare themselves with. Given that a comparison is occurring, similarity may not increase the likelihood that envy occurs. Instead, similarity may increase the probability that a comparison occurs in the first place.

The potential distinction between comparison-elicitation and envy-elicitation may be more important in some contexts than others. Being similar to someone would still increase the likelihood of envying that person, regardless of the mediating mechanism.

However, empirical support for this distinction would help clarify the process through which envy occurs: first, certain appraisals lead to a comparison, and then other appraisals produce envy in response to that comparison. Further research is needed in order to assess this possibility.

Similarly, relationship closeness likely affects responses towards the other person in any interpersonal context, not just in the context of envy. People did not show any “typical” level of closeness with the people they envied, suggesting that closeness does not influence the elicitation of envy (Chapter 1). However, closeness did seem to be associated with more positive responses by people experiencing envy (Chapter 2). Chapter 3 clarified that when people behaved more positively towards closer others (by describing them with more positive traits), they did so both in the context of a comparison and in the context of no comparison. Once again, an appraisal (closeness) could influence envious responses without being a key appraisal in eliciting envy specifically. In this case, closeness may be affecting responses without interacting with the comparison or envy itself.

Timing

In models of specific emotions like envy, appraisals are often described as the first step in the emotional experience (e.g., Scherer, 2009). However, emotional responses are not static. Initial judgments about a situation can be altered by reappraisal, and situations can be changed (Gross, 1998). Envy may be best conceptualized as an “evolving episode” in which both initial and ongoing cognitions can affect responses (Hoogland et al., in press; Parrott, 1991).

The evolving nature of an envy response might explain some of the differences in findings between our recall and in-lab measures. In Chapter 2, we found that perceived closeness and similarity with the superior person (i.e., a stronger tie) were associated with more positive and less negative envious responses in recalled envy experiences. However, in Chapter 3, stronger ties (in pairs of new acquaintances or established friends) were unrelated to our in-lab measures of envy. Although these findings would appear to be contradictory, the timing of these measures differed. In Chapter 2, participants looked back on the entire envy episode. In Chapter 3, we only measured responses immediately after the comparison. Stronger ties might primarily influence motivations that occur on a longer timescale.

Longer timescales might particularly be of interest in social emotions like envy. More basic emotions, like fear, may motivate immediate action to deal with more immediate threats. In a social dilemma such as an upward comparison, the best solution may not be as instant or direct as fight-or-flight. If this is true, then studies of envy may benefit from using recall methodology in order to assess enduring envious responses, despite the potential bias that these methods can introduce. Another option is to conduct longer-term prospective studies (e.g., Schaubroeck & Lam, 2004). Such studies may provide a better view of how continuous appraisals affect an unfolding envy episode.

Response Differentiation

An outcome can only be assessed if it is properly measured. It is possible that the responses we measured in Chapter 3 were not the responses influenced by similarity and closeness in those studies. For example, we measured the motivation to self-improve on a

reading task, but participants may have only been motivated to self-improve specifically on the task in which they were outperformed. Further research on motivations following a comparison can tease apart these details.

However, this possibility also raises the point that envious responses do not always move as a cohesive whole. As was seen in Chapters 2 and 3, responses directed towards the other person often were not influenced by the same appraisals as more self-focused responses. As researchers struggle to define envy by feelings or motivations (e.g. Cohen-Charash & Larson, in press; Hoogland et al., in press; van de Ven, 2016), it should be considered that the appraisals that are theorized to influence “envy” as a whole may only influence part of the envy response.

Although emotions are thought to be patterns of responses, it is clearly adaptive to have variation in the specific constructive and destructive motivations of envy (Henniger & Harris, 2014). When the envied object is attainable, it may be more effective for the envier to focus on attaining that object; when the superior person is engaging in improper behavior, it may be more effective for the envier to prevent that behavior through hostility; and when the superior person is a close, similar friend, it may be more effective for the envier to affiliate with them and share in the benefits of their superiority. These responses do not need to all vary in tandem, nor do they need to be mutually exclusive. For the person experiencing envy, any behavior that affects the envy-eliciting situation could be an envy-motivated response. Research that only measures one or two responses and concludes that only one or two forms of envy exist may be missing the full picture of this complex emotion.

Conclusion

Despite its status as one of the seven deadly sins in the Catholic tradition, being green with envy may not always have harmful effects. Envy can motivate self-improvement and promote affiliation just as well as it can cause depression and break down relationships. The appraisals that predict envious motivations do not necessarily cause those motivations, and envy may not always act as a cohesive pattern of responses. It is valuable to build our understanding of these associations in order to understand what types of situations elicit and moderate the constructive and destructive motivations of this complex and fascinating emotion.

REFERENCES

- Adams, R.B., Hess, U., Kleck, R.E. (2015) The intersection of gender-related facial appearance and facial displays of emotion. *Emotion Review*, 7, 5-13.
- Alicke, M.D., & Zell, E. (2008). Social comparison and envy. In R. H. Smith (Ed.) *Envy: Theory and research* (pp. 39-59). New York: Oxford University Press.
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63(4), 596-612.
- Aron, A., Melinat, E., Aron, E. N., Vallone, R. D., & Bator, R. J. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin*, 23(4), 363-377.
- Belk, R. (2011). Benign envy. *Academy of Marketing Science Review*, 1(3-4), 117-134.
- Bers, S.A., & Rodin, J. (1984) Social-comparison jealousy: A developmental and motivational study. *Journal of Personality and Social Psychology*, 47(4), 766-779.
- Blanton, H., Buunk, B.P., Gibbons, F.X., & Kuyper, H. (1999). *Journal of Personality and Social Psychology*, 76(3), 420-430.
- Chambers, J.R., & Windschitl, P.D. (2009). Evaluating one performance among others: The influence of rank and degree of exposure to comparison referents. *Personality and Social Psychology Bulletin*, 35(6), 776-792.
- Charles, S.T. & Carstensen, L.L. (2007). Emotion regulation and aging. In J.J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 307-327). New York, NY: Guilford Press.
- Charles, S.T. & Carstensen, L.L. (2009). Social and emotional aging. *Annual Review of Psychology*, 61, 383-409.
- Cohen-Charash, Y. (2009). Episodic envy. *Journal of Applied Social Psychology*, 39(9), 2128-2173.
- Cohen-Charash, Y., & Larson, E. (in press). What is envy, and what is it not? In U. Merlone, M. Duffy, M. Perini, & R.H. Smith (Eds.), *Envy at work and in organizations: Research, theory, and applications*. New York: Oxford University Press.
- Cohen-Charash, Y., & Mueller, J. S. (2007). Does perceived unfairness exacerbate or mitigate interpersonal counterproductive work behaviors related to envy? *Journal of Applied Psychology*, 92(3), 666-680.

- Collins, R.L. (1996). For better or worse: The impact of upward social comparison on self-evaluations. *Psychological Bulletin*, *119*(1), 51-69.
- Collins, R. L. (2000). Among the better ones: Upward assimilation in social comparison.
- Cuddy, A. J., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in Experimental Social Psychology*, *40*, 61-149.
- D'Arms, J. & Kerr, A.D. (2008) Envy in the philosophical tradition. In R. H. Smith (Ed.) *Envy: Theory and research* (pp. 39-59). New York: Oxford University Press.
- DelPriore, D.J., Hill, S.E., & Buss, D.M. (2012). Envy: Functional specificity and sex-differentiated design features. *Personality and Individual Differences*, *53*(3), 317-322.
- Erikson, E. (1950). *Childhood and society*. New York: Norton.
- Exline, J. J., & Lobel, M. (1999). The perils of outperformance: sensitivity about being the target of a threatening upward comparison. *Psychological Bulletin*, *125*(3), 307-337.
- Exline, J. J., & Lobel, M. (2001). Private gain, social strain: Do relationship factors shape responses to outperformance?. *European Journal of Social Psychology*, *31*(5), 593-607.
- Feather, N. T., & Sherman, R. (2002). Envy, resentment, schadenfreude, and sympathy: Reactions to deserved and undeserved achievement and subsequent failure. *Personality and Social Psychology Bulletin*, *28*(7), 953-961.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117-140.
- Fischer, A., & LaFrance, M. (2015) What drives the smile and the tear: Why women are more emotionally expressive than men. *Emotion Review*, *7*(1), 22-29.
- Fisher, C.B., Reid, J.D., & Melendez, M. (1989). Conflict in families and friendships of later life. *Family Relations*, *38*(1), 83-89.
- Fiske, S.T., Cuddy, A.J., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, *11*(2), 77-83.
- Foster, G. (1972). The anatomy of envy. *Current Anthropology*, *13*, 165-202.
- Frijda, N. H. (1986). *The Emotions*. Cambridge: Cambridge University Press.

- Frijda, N.H., & Parrott, W.G. (2011). Basic emotions or ur-emotions?. *Emotion Review*, 3(4), 406-415.
- Grühn, D., Kotter-Grühn, D., & Röcke, C. (2010). Discrete affects across the adult lifespan: Evidence for multidimensionality and multidirectionality of affective experiences in young, middle-aged and older adults. *Journal of Research in Personality*, 44(4), 492-500.
- Hareli, S., & Weiner, B. (2000). Accounts for success as determinants of perceived arrogance and modesty. *Motivation and Emotion*, 24(3), 215-236.
- Harris, C.R. (2003). A review of sex differences in sexual jealousy, including self-report data, psychophysiological responses, interpersonal violence, and morbid jealousy. *Personality and Social Psychology Review*, 7, 102-128.
- Harris, C.R., & Henniger, N.E. (2013). Envy, politics, and age. *Frontiers in Psychology*, 4(67).
- Harris, C.R. & Pashler, H.E. (1995). Evolution and human emotions. *Psychological Inquiry*, 6, 44-46.
- Harris, C.R. & Salovey, P. (2008). Reflections on envy. In Smith, R.H. (Ed.) *Envy: Theory and research*. (pp. 335-356). New York, NY: Oxford University Press.
- Heider, F. (1958) *The psychology of interpersonal relations*. New York: Wiley.
- Henniger, N.E. & Harris, C.R. (2014). Can negative social emotions have positive consequences? An examination of embarrassment, shame, guilt, jealousy, and envy. In W.G. Parrott (Ed.), *The positive side of negative emotions* (pp. 76-97). New York: Guilford Press.
- Henniger, N.E. & Harris, C.R. (2015). Envy across adulthood: The what and the who. *Basic and Applied Social Psychology*, 37(6), 303-318.
- Hill, S.E., & Buss, D.M. (2006). Envy and positional bias in the evolutionary psychology of management. *Managerial and Decision Economics*, 27(2-3), 131-143.
- Hoogland, C. E., Thielke, S., & Smith, R. H. (in press). Envy as an evolving episode. In U. Merlone, M. Duffy, M. Perini, & R.H. Smith (Eds.), *Envy at work and in organizations: Research, theory, and applications*. New York: Oxford University Press.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241(4865), 540-545.

- Hoyt, C. L., & Simon, S. (2011). Female leaders: Injurious or inspiring role models for women? *Psychology of Women Quarterly*, 35(1), 143-157.
- Kunzmann, U., Richter, D., & Schmukle, S.C. (2013). Stability and change in affective experience across the adult life span: Analyses with a national sample from Germany. *Emotion*, 13(6), 1086-1095.
- Latu, I. M., Mast, M. S., Lammers, J., & Bombari, D. (2013). Successful female leaders empower women's behavior in leadership tasks. *Journal of Experimental Social Psychology*, 49(3), 444-448.
- Lange, J., & Crusius, J. (2015). The tango of two deadly sins: The social-functional relation of envy and pride. *Journal of Personality and Social Psychology*, 109(3), 453-472.
- Levine, S., Ancill, R. U., & Roberts, A. P. (1989). Assessment of suicide risk by computer-delivered self-rating questionnaire: preliminary findings. *Acta Psychiatrica Scandinavica*, 80(3), 216-220.
- Lin, R., & Utz, S. (2015). The emotional responses of browsing Facebook: Happiness, envy, and the role of tie strength. *Computers in Human Behavior*, 52, 29-38.
- Locke, S. D., & Gilbert, B. O. (1995). Method of psychological assessment, self-disclosure, and experiential differences: A study of computer, questionnaire, and interview assessment formats. *Journal of Social Behavior & Personality*, 10(1), 255-263.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, 73(1), 91-103.
- Meichenbaum, D. H. (1971). Examination of model characteristics in reducing avoidance behavior. *Journal of Personality and Social Psychology*, 17(3), 298-307.
- McFarland, C., Buehler, R., & MacKay, L. (2001). Affective responses to social comparisons with extremely close others. *Social Cognition*, 19(5), 547-586.
- Miceli, M. & Castelfranchi, C. (2007). The envious mind. *Cognition & Emotion*, 21(3), 449-479.
- Musch, J., Bröder, A., & Klauer, K. C. (2001). Improving survey research on the World-Wide Web using the randomized response technique. *Dimensions of Internet Science*, 179-192.
- Mussweiler, T. (2003). Comparison processes in social judgment: mechanisms and consequences. *Psychological Review*, 110(3), 472-489.

- Onu, D., Kessler, T., & Smith, J. R. (2016). Admiration: A conceptual review. *Emotion Review*, DOI:10.1177/1754073915610438
- Parks, C. D., Rumble, A. C., & Posey, D. C. (2002). The effects of envy on reciprocation in a social dilemma. *Personality and Social Psychology Bulletin*, 28(4), 509-520.
- Parrott, W. G., & Smith, R. H. (1993). Distinguishing the experiences of envy and jealousy. *Journal of Personality and Social Psychology*, 64(6), 906-920.
- Rodriguez Mosquera, P.M., Parrott, W. G., & Hurtado de Mendoza, A. (2010). I fear your envy, I rejoice in your coveting: on the ambivalent experience of being envied by others. *Journal of Personality and Social Psychology*, 99(5), 842-854.
- Roseman, I.J. (2011). Emotional behaviors, emotivational goals, emotion strategies: Multiple levels of organization integrate variable and consistent responses. *Emotion Review*, 3(4), 434-443.
- Salovey, P., & Rodin, J. (1984). Some antecedents and consequences of social-comparison jealousy. *Journal of Personality and Social Psychology*, 47(4), 780.
- Salovey, P., & Rodin, J. (1991) Provoking jealousy and envy, Domain relevance and self-esteem threat. *Journal of Social and Clinical Psychology*, 10, 395-413.
- Salovey, P., & Rothman, A. J. (1991). Envy and jealousy: Self and society. In P. Salovey (Ed.) *The Psychology of Jealousy and Envy*. (pp. 271-286). New York: Guilford Press.
- Schaubroeck, J., & Lam, S.S. (2004). Comparing lots before and after: Promotion rejectees' invidious reactions to promotees. *Organizational Behavior and Human Decision Processes*, 94(1), 33-47.
- Smith, R. H. (1991). Envy and the sense of injustice. In P. Salovey (Ed.), *Psychological perspectives on jealousy and envy* (pp. 79-99). New York: Guilford.
- Smith, R. H. (2004). Envy and its transmutations. In L.Z. Tiedens & C.W. Leach (Eds.), *The social life of emotions* (pp. 43-63). Cambridge: Cambridge University Press.
- Smith, R.H., & Kim, S.H. (2007). Comprehending envy. *Psychological Bulletin*, 133(1), 46-64.
- Smith, R. H., Parrott, W. G., Ozer, D., & Moniz, A. (1994). Subjective injustice and inferiority as predictors of hostile and depressive feelings in envy. *Personality and Social Psychology Bulletin*, 20, 705-711.

- Stanton, J.M. & Weiss, E.M. (2002) Online panels for social science research: An introduction to the StudyResponse Project. (Tech. Rep. No. 13001). Syracuse, NY: Syracuse University, School of Information Studies.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect?. *Current Directions in Psychological Science*, *11*(5), 159-163.
- Taylor, C. A., Lord, C. G., McIntyre, R. B., & Paulson, R. M. (2011). The Hillary Clinton effect When the same role model inspires or fails to inspire improved performance under stereotype threat. *Group Processes & Intergroup Relations*, *14*(4), 447-459.
- Tesser, A. (1980). Self-esteem maintenance in family dynamics. *Journal of Personality and Social Psychology*, *39*(1), 77-91.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. *Advances in Experimental Social Psychology*, *21*, 181-228.
- Tesser, A. (1990). Smith and Ellsworth's appraisal model of emotion: A replication, extension and test. *Personality and Social Psychology Bulletin*, *16*(2), 210-223.
- Tesser, A., & Collins, J.E. (1988). Emotion in social reflection and comparison situations: intuitive, systematic, and exploratory approaches. *Journal of Personality and Social Psychology*, *55*(5), 695-709.
- Tesser, A., Millar, M., & Moore, J. (1988). Some affective consequences of social comparison and reflection processes: the pain and pleasure of being close. *Journal of Personality and Social Psychology*, *54*(1), 49-61.
- Testa, M., & Major, B. (1990). The impact of social comparisons after failure: The moderating effects of perceived control. *Basic and Applied Social Psychology*, *11*(2), 205-218.
- Trafimow, D. & Marks, M. (2015) Editorial. *Basic and Applied Social Psychology*, *37*(1), 1-2.
- van de Ven, N. (2015). Envy and admiration: emotion and motivation following upward social comparison. *Cognition and Emotion*, DOI: 10.1080/02699931.2015.1087972
- van de Ven, N. (2016). Envy and its consequences: Why it is useful to distinguish between benign and malicious envy. *Social and Personality Psychology Compass*, *10*(6), 337-349.

- van de Ven, N., Zeelenberg, M., & Pieters, R. (2009). Leveling up and down: the experiences of benign and malicious envy. *Emotion*, 9(3), 419-429.
- van de Ven, N., Zeelenberg, M., & Pieters, R. (2011). Why envy outperforms admiration. *Personality and Social Psychology Bulletin*, 37(6), 784-795.
- van de Ven, N., Zeelenberg, M., & Pieters, R. (2012). Appraisal patterns of envy and related emotions. *Motivation and Emotion*, 36, 195–204.
- van de Ven, N., & Zeelenberg, M. (2014). On the counterfactual nature of envy: “It could have been me.” *Cognition and Emotion*, 1-18.
- Vecchio, R. (2005). Explorations in employee envy: Feeling envious and feeling envied. *Cognition & Emotion*, 19(1), 69-81.
- Wheeler, L., Martin, R., & Suls, J. (1997). The proxy model of social comparison for self-assessment of ability. *Personality and Social Psychology Review*, 1(1), 54-61.
- Yoshimura, C. G. (2010). The experience and communication of envy among siblings, siblings-in-law, and spouses. *Journal of Social and Personal Relationships*, 27(8), 1075-1088.
- Zizzo, D.J. (2008) The cognitive and behavioral economics of envy. In R.H. Smith (Ed.), *Envy: Theory and research*. (pp. 190-210). New York, NY: Oxford University Press.