Predicting Envy and Schadenfreude: The Role of Stereotype Content and Deservingness

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Abstract

According to the stereotype content model, envy can be evoked only by out-groups that are seen as cold and competent (Fiske et al., 2002). This research however hypothesized that the stereotypic warmth of an out-group isn’t as important in evoking envy as the stereotype content model claims it is; in two studies it was shown that envy can also be evoked by an out-group that was seen as warm and competent. This research also addressed inconsistencies in findings of earlier research on the relationship between envy and schadenfreude. Study 1 ($N = 181$) found significant effects of envy and deservingness of the advantage on schadenfreude. These effects were independent of other variables that are considered to influence schadenfreude (such as disliking the target, feelings of inferiority, anger and resentment). The effect of deservingness on schadenfreude was not replicated in study 2 ($N = 202$). No effect was found of malicious and benign envy on schadenfreude in study 1. Study 2 however did find a (marginally) significant effect of malicious envy on schadenfreude.
When does envy lead to schadenfreude? And which characteristics make groups more prone to becoming targets of envy and schadenfreude? These are two questions that have been receiving an increasing amount of attention by social psychologists. Yet, there are some inconsistencies in their findings and contradictions in their theorizing. For example, a relationship between envy and schadenfreude was found by some researchers (Cikara & Fiske, 2012; Krizan & Johar, 2012; Smith, Turner, Garonzik, Leach, Urch-Druskat, & Weston, 1996; Van Dijk, Ouwerkerk, Goslinga, Nieweg, & Galluci, 2006), while others did not find this relationship (Feather & Sherman, 2002; Feather & Nairn, 2005; Hareli & Weiner, 2002; Leach & Spears, 2008). And, Fiske, Cuddy, Glick & Xu (2002) state that envy is reserved for out-groups that score high on the competence dimension and low on the warmth dimension of their stereotype content model (SCM), which we will discuss later, while Parrot and Smith’s (1993) definition of envy only mentions elements of the competence dimension to be important factors in eliciting envy and does not mention aspects of the warmth dimension.

This research aimed to reconcile the contradicting findings on the relationship between envy and schadenfreude and it further investigated the effects of stereotype content on envy and schadenfreude. Next to this, exploratory research on the role of deservingness in the relation between stereotype content, envy and schadenfreude was conducted. We will first discuss recent research on schadenfreude and envy.

Schadenfreude and envy. Heider (1958) defined schadenfreude as “the experience of pleasure at another’s misfortune” and according to Parrot and Smith (1993) envy is often described as “a powerful emotion that arises when a person lacks another’s superior quality,
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achievement, or possession and either desires it or wishes that the other lacked it”. According to these definitions, envy activates a desire to restore equality with the envied person or group and therefore it seems logical that a sort of joy, schadenfreude, will be experienced by an observer when the envied other suffers a misfortune and equality is somewhat restored. But, as stated earlier, mixed results have been found on the relationship between envy and schadenfreude.

Van de Ven, Hoogland, Smith, Van Dijk, Breugelmans & Zeelenberg (2013), however, addressed this issue by hypothesizing that only a malicious type of envy leads to schadenfreude while a benign type of envy does not. In three studies they found evidence for this hypothesis. This research was based on earlier research that found evidence for the existence of these two distinct kinds of envy (Van de Ven, Zeelenberg and Pieters, 2009). One type of envy, benign envy (in Dutch: benijden), makes people desire the better outcome and motivates them to do better. It motivates moving up the self to level with the source of envy (Van de Ven, Zeelenberg and Pieters, 2012). The other type of envy, malicious envy (in Dutch: afgunst), leads to derogating the superior other and wishing that the other lacks his or her advantage. It motivates behavior that is aimed at pulling down the source of envy in order to level with this person or group (Van de Ven et al., 2012).

Although Van de Ven et al. (2009) found these two types of envy experiences across several different cultures, most languages only have one word to the describe them both. This could be a reason for that research in the past has predominantly focused on envy as an emotion that motivates derogation of its source (malicious envy), possibly overlooking the other, more friendly type of envy (benign envy) (Miceli and Castelfranchi, 2007; Smith and Kim, 2007).

Stereotype content. As mentioned earlier, research on the characteristics of groups that make them more prone to becoming targets of (malicious or benign) envy and schadenfreude
also includes inconsistencies; Fiske et al. (2002) stated that envy is evoked primarily by outgroups that are seen as high in warmth and high in competence, while Parrot and Smith’s (1993) definition of envy only mentions competence, and not warmth, as an important factor in evoking envy.

In their article, Fiske et al. (2002) proposed a stereotype content model (SCM) that consists of two dimensions: stereotypic warmth and stereotypic competence. The stereotypic warmth dimension includes traits like ‘good-natured, trustworthy, tolerant, friendly, and sincere’, and the stereotypic competence dimension includes traits like ‘capable, skillful, intelligent, and confident’. According to this model, subjectively negative stereotypes on one dimension can be combined with subjectively positive stereotypes on the other dimension. For example, people from an out-group can be seen as high in warmth and low in competence (e.g. elderly people), low in warmth but high in competence (e.g. Asians), low in both warmth and competence (e.g. welfare recipients) or high in both warmth and competence (e.g. close allies) (Fiske et al., 2002). Fiske et al. (2002) argue that different combinations of stereotypic warmth and stereotypic competence elicit unique emotions that are directed at various kinds of groups in society. More specifically, the authors state that pity is elicited by the warm but not competent out-groups, envy targets out-groups that are seen as competent but not warm and contempt is reserved for out-groups deemed neither warm nor competent (Fiske et al., 2002).

In contrast to Fiske et al. (2002), who stated that envy will only be elicited by out-group stereotypes that score high on the competence dimension and low on the warmth dimension, the main hypothesis of this research is that envy can be elicited by any out-group that scores high on the competence dimension, regardless of their score on the warmth dimension: Someone can be envious of a disliked colleague, but also of a friendly colleague that gets a promotion you would have liked as well. In addition to this hypothesis, we predict
that stereotypes that score low on the warmth dimension and high on the competence dimension of Fiske’s SCM will elicit more malicious envy while stereotypes that score high on both the warmth and the competence dimension will elicit more benign envy. Furthermore, we predict that out-groups that are maliciously envied evoke more schadenfreude when someone from this out-group experiences a minor misfortune. Less schadenfreude will be experienced when someone from a benignly envied group befalls a misfortune. We predict that these effects exist independent of other predictors of schadenfreude that have been found by earlier research (like deservingness of the better outcome, anger, resentment, inferiority and disliking the other). We will now discuss the effects of these other predictors on envy and schadenfreude.

*Deservingness of the better outcome.* Next to stereotype content, the extent to which the advantage of an out-group is deserved or undeserved has been shown to affect envy and ultimately schadenfreude. Van de Ven et al. (2012) found that deservingness of the outcome is an important determinant of whether benign or malicious envy will be evoked. These researchers found that deservingness of the outcome did not influence the intensity of the experienced envy but that it did have an influence on the type of envy that was elicited. When the outcome is highly deserved (i.e. the other person is deservedly better off) then benign envy is likely to be elicited. Malicious envy is likely to arise when the outcome is undeserved (Van de Ven et al., 2012). As mentioned before, the malicious envy type of envy in turn leads to more schadenfreude (Van de Ven et al., 2013).

In line with Van Ven et al. (2012, 2013), we predict that more benign envy will be elicited when the advantage of an out-group that is better off is perceived as deserved and that more malicious envy will be elicited when this situation is perceived as undeserved. Furthermore, we expect that the experience of malicious envy will lead to more schadenfreude when the envied out-group suffers a minor misfortune. These predictions
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contradict Feather and Sherman (2002) who found that an underserved advantage led to more resentment but not envy. Though, like Van de Ven et al. (2013), we think that their lack of finding an effect of deservingness on envy is at least partly due to the fact that they did not distinguish between the two types of envy. An important objective of this research therefore is to replicate their findings.

Anger, resentment, inferiority and dislike. Other emotions such as anger, resentment, dislike and feelings of inferiority have also been shown to be related to schadenfreude; Hareli and Weiner (2002) found that dislike towards someone who suffered a misfortune increased levels of schadenfreude in participants, while envy didn’t. The researchers conceptualized envy as “to have something the other has and wishing to be like the other”. This conceptualization of envy is similar to Van de Ven’s (2009) description of benign envy, which again might have caused the lack of finding an effect.

Leach and Spears (2008) found that feelings of in-group inferiority lead to more schadenfreude when a successful out-group experiences a negative event. As with the studies on dislike and resentment, Leach and Spears (2008) found no effect of envy on schadenfreude. These researchers too assessed envy with questions that typically measure the benign type of envy that has been shown not to have an effect on schadenfreude (Van de Ven et al., 2013). Even though we predict that resentment, anger, dislike and inferiority will have a significant impact on schadenfreude, we expect that malicious) envy will still have an independent, significant effect on schadenfreude.

In summary, we predict that envy can be elicited by out-groups that score high on the competence dimension, disregarding their score on the warmth dimension. We predict that out-groups that are seen as high in competence and low in warmth will elicit more of the malicious type of envy and out-groups that are seen as high in both competence and warmth elicit more of the benign type of envy. Furthermore we predict that more benign envy will be
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elicited when the situation is perceived as deserved and that more malicious envy will be
elicited when the situation is perceived as undeserved, and we predict that maliciously envied
groups elicit more schadenfreude while to benignly envied groups don’t.

Pilot study

The general aim of this research is to investigate whether out-groups that are seen as high in both stereotypic warmth and competence can elicit envy. To be able to test this later, two out-groups (from the view of our participants) were needed to build a scenario that would be used in study 1, one of these groups had to be high in competence but low in warmth, the other equally high in competence but high in warmth. To find groups with these characteristics, the following pilot study was conducted.

Methods

Participants, design and procedure

The pilot study used a within subjects design. Participants were approached during the break of a statistics class and were asked to fill out a short questionnaire. Fifty-two sophomore psychology students complied with this request, of which 96% was female. The mean age of participants was 21.5 (SD = 2.7) years. All subjects participated anonymously, and could drop out of the study at anytime they wanted.

Measures

The pilot study consisted of a questionnaire that was based on Fiske’s (2002) short stereotypic warmth and competence questionnaire. Participants had to rate six occupational groups (accountants, physicians, bankers, businessmen, university teachers and primary school principals) on how competent and confident (competence dimension) they are and on how warm and sincere they are (warmth dimension).

The list of occupational groups of which stereotypic warmth and competence was
measured, was based on expectations about their scores on these variables; we selected groups that we expected to be seen as about equally high in competence but either high in stereotypic warmth (university educated teachers, primary school principals and physicians) or low in stereotypic warmth (accountants, bankers and businessmen). The two out-groups that were rated by participants as equally high in stereotypic competence and either low or high in stereotypic warmth were used in the warmth manipulation of study 1.

**Results**

As expected, a within-subjects ANOVA with stereotypic warmth as the dependent variable showed significant differences in stereotypic warmth between the out-groups:

$$F(3.73, 189.87) = 107.23, p < .001, \eta_p^2 = .68.$$ Post-hoc analysis with paired samples t-tests on all 15 possible combinations of groups indicated that accountants, bankers and businessmen were seen as significantly lower in warmth than primary school principals, university teachers and physicians (see table 1). No other differences were found between these groups.

A second within subjects ANOVA on stereotypic competence showed a significant difference in the competence of out-groups: $$F(4.232, 215.856) = 9.79, p < .001, \eta_p^2 = .16.$$ Post-hoc analysis with paired samples t-tests on all 15 combinations of out-groups indicated that physicians & bankers, physicians & businessmen, accountants & primary school principals, and bankers & university teachers are the only combinations of out-groups that significantly differ from each other on the warmth dimension but not significantly differ from each other on the competence dimension (see table 1).

We chose to use the accountants as the low warmth group and primary school principals as the high warmth group in the stereotypic warmth manipulation of study 1 and 2 because these groups significantly differ from each other on stereotypic warmth, paired-$$t(51) = 12.3, p < .001,$$ and do not significantly differ from each other on stereotypic competence, paired-$$t(51) = -.98, p = .331.$$

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Study 1

Study 1 consisted of a scenario study. As mentioned earlier, the goal of this study was to investigate the effects of stereotype content on (malicious and benign) envy and schadenfreude, and to address the inconsistencies and contradictions in the results of earlier research.

Method

Design and participants

A sample of 181 Dutch undergraduate psychology students participated in this study. Their average age was 20.6 years ($SD = 2.36$, range 17 – 34) and 84% (152) was female. The sample consisted exclusively of psychology students to ensure that subjects saw accountants and primary school principals as an out-group.

Participants were presented with a scenario in which an out-group was better off, followed by a short questionnaire. In this scenario, stereotypic warmth of the out-group having the advantage and deservingness of this advantage were manipulated. This created a high warmth-deserved advantage condition (N = 44), a high warmth-undeserved advantage condition (N = 47), a low warmth-deserved advantage condition (N = 44) and a low warmth-undeserved advantage condition (N = 46). Participants were randomly assigned to one of these conditions.

Procedure

Participants read a short scenario that states that an out-group, on average, earns a higher salary than psychologists do. In this scenario, deservingness of the higher salary and stereotypic warmth of the out-group having the higher salary were manipulated.

Deservingness was manipulated by altering several words in the scenario (see the words between brackets in the scenario below). Stereotypic warmth of the out-group was manipulated by using either ‘accountants’ (low warmth, high competence) or ‘primary school principals’ (high warmth, low competence).
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principals’ (high warmth, high competence) as the out-group that has the advantage in the scenario (see the scenario below). The out-groups that were used as the stereotypic warmth manipulation were chosen after pilot testing.

Scenario (translated from Dutch):

An important reason for why primary school principals (accountants) deservedly (undeservedly) earn a higher salary than psychologists is that they, on average, work more (less) hours a week. Figures show that primary school principals (accountants) on average (only) work 43 (37) hours a week while psychologist only work 37 (43) hours a week. Recent scientific research also shows that primary school principals (accountants) run a higher (lower) risk of having a burn-out than psychologist do; primary school principals (accountants) often have a workload that is too high (lower workload) and too little (more) control over their work-environment and working hours. In addition, primary school principals (accountants) are more (less) prone to experiencing a burn-out because their tasks and responsibilities are less (more) clear than those of psychologists.’

After reading one of the four scenarios that were created by manipulating stereotypic warmth (low/high) and deservingness of the situation (deserved/undeserved), participants answered questions that served as a manipulation check for our stereotypic warmth and deservingness manipulations and an emotion measure that included the main dependent variable, namely envy. Next, participants had to complete a measure that determines which type of envy they have experienced, followed by a schadenfreude measure. At the end of the study, participants were debriefed and thanked for their participation.

Measures

To measure competence, subjects answered “How . . . are members of this group? [competent, confident, independent, competitive, intelligent]”. To measure warmth, subjects answered “How . . . are members of this group? [tolerant, warm, good natured, sincere]”. These warmth and competence measurements were adopted from research by Fiske and colleagues (Fiske et al., 2002).
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The appraisal of deservingness was measured with the following question: “Do you have the feeling that it is undeserved or deserved that this other group earns more than you will when you start working?” (-4 = very undeserved; +4 = very deserved). This measure is based on a measure used by Van de Ven and colleagues (Van de Ven et al., 2012).

Next, participants were asked to imagine how they would feel when they would have worked for a couple of years, and then noticed that they earn a lower salary than an accountant (primary school principal). Then participants indicated how much they agreed with the following statements: “I would feel envious” (referred to as our envy measure), “I would not really like the accountant (primary school principal)” (disliking), “I would feel inferior” (inferiority), “I would feel angry” (anger), and “I would resent the accountant (primary school principal)” (resentment). All questions were answered on a scale from 0 (not at all) to 6 (very much so). This measure is based on a study by Van de Ven and colleagues (Van de Ven et al., 2013).

To determine whether benign or malicious envy was recalled, participants were first given some information in order to help them distinguish between the two types of envy. Specifically, participants read: ‘Research has found that there are actually two types of envy. Both types of envy feel frustrating, but one type focuses mainly on that you miss something that you desire (and typically activates a desire to improve oneself), the other type of envy focuses more on the other person who holds the advantage (and typically includes a wish that the other did not have this advantage). Research found that everyone experiences these emotions once in a while, and both occur equally often. When you think about the accountant (primary school principal) that earns more than you will when you’ll start working, which type of envy do you feel? (If you had not felt any envy, than you do not need to answer this question).’
Envy Type A: the envy that focuses most on what you miss yourself.

Envy Type B: the envy that focuses most on the other person and his or her advantage.

Participants then answered the question “My envy type was”, with a scale ranging from -3 (Envy Type A) to +3 (Envy Type B). The more they scored in the direction of Type A, the more benign envy they experienced, while the more they responded towards Type B the more they experienced malicious envy. This measure is based on a study by Van de Ven and colleagues (Van de Ven et al., 2013).

The schadenfreude measure consisted of three items and was based on a measure that was successfully used in the past by Van de Ven and colleagues (Van de Ven et al., 2013). First, participants were asked to imagine that the accountant (primary school principal) would suffer a minor misfortune: “The person stumbles clumsily over his or her shoelaces in a busy street for everyone to see”. They then indicated on three items how they would feel: “I would have been a little amused by what happened to him/her”, “I would have been pleased by the little misfortune that happened to him/her”, and “I’d find it difficult to resist a little smile” (all on a scale from 0 not at all to 6 very much so).

Results

The means and standard deviations of all questions and the correlations between them are reported in table 2. The results showed that envy, dislike, resentment and deservingness were correlated with schadenfreude. Like in earlier research by Van de Ven et al. (2013), inferiority was not correlated with schadenfreude. Stereotypic warmth and competence were also both not correlated to schadenfreude.

Main analysis. To test which of the feelings when someone else was better off than led to more schadenfreude, multiple regression analysis was conducted. The regression
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analysis contained the following independent variables: envy, envy type, stereotypic warmth, deservingness, anger, resentment, inferiority and disliking. This created a model that explained a small proportion of the variance in schadenfreude, \( F(8, 172) = 4.81, p < .001, r^2 = .18 \). The results of this analysis are reported in table 3.

As expected, deservingness of the advantage and general envy were significant predictors of schadenfreude while stereotypic warmth did not have a significant influence on feelings of schadenfreude. Though, unexpectedly, the type of envy that was elicited did not significantly predict schadenfreude. We’ll come back to why this may have occurred in the discussion section. Furthermore, anger and resentment had a significant effect on schadenfreude while inferiority and disliking the out-group did not. Unexpectedly, anger had a negative effect on the amount of schadenfreude that was elicited, \( t(172) = -2.37, \beta = -.26, p = .019 \). We don’t have an explanation for why this was the case.

**Effects of the manipulations.** Table 4 contains the means and standard deviations of all variables per condition.

**Manipulation checks.** An ANOVA on perceived deservingness of the advantage by manipulated deservingness and stereotypic warmth showed that participants rated the advantage of out-groups as significantly more deserved in the deserved conditions (\( M = -0.06, SD = 1.93 \)) compared to the undeserved conditions (\( M = -1.09, SD = 1.37 \)), \( F(1, 177) = 17.15, p < 0.001, \eta^2_p = .09 \). Neither an effect of manipulated warmth, nor an interaction effect of manipulated warmth and manipulated deservingness on perceived deservingness of the advantage were found. This indicates that our deservingness manipulation worked as intended.

Analysis of variance on stereotypic warmth by manipulated stereotypic warmth and deservingness showed that subjects rated primary school principals as significantly higher in stereotypic warmth (\( M = 19.23, SD = 3.43 \)) than accountants (\( M = 16.32, SD = 2.72 \)), \( F(1, \)
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Again, no effect of manipulated warmth and no interaction effect of manipulated warmth and manipulated deservingness on perceived deservingness of the advantage were found. This indicates that our deservingness manipulation worked as intended.

An ANOVA on competence with manipulated stereotypic warmth and manipulated deservingness as independent variables showed a significant effect of manipulated stereotypic warmth on the perceived competence of out-groups. Accountants were perceived as significantly more competent ($M = 5.31, SD = 0.72$) than primary school principals ($M = 4.78, SD = 0.74$), $F(1, 176) = 23.03, p < 0.001, \eta^2_p = .12$. Neither a significant effect of manipulated deservingness nor an interaction effect was found. Contrary to what was found in the pilot test, this analysis indicated that our assumption that accountants and primary school principals are seen as equally high in competence did not hold. We’ll come back to this in the discussion.

**Envy.** To test the hypothesis that envy can be elicited by any out-group that scores high on the competence dimension, disregarding their score on the warmth dimension, a 2x2 ANOVA was conducted. The dependent variable in this analysis was envy (measured by “I would feel envious”, translated from Dutch). Manipulated stereotypic warmth and manipulated deservingness of the situation served as independent variables.

As predicted, envy was elicited in all four conditions (see table 4). The results revealed no significant effect of stereotypic warmth on envy; the amount of envy that was elicited by the primary school principal that was better off ($M = 3.14, SD = 1.49$) did not significantly differ from the amount of envy that was elicited by the accountant that was better off ($M = 2.83, SD = 1.29$), $F(1, 177) = 2.38, p = .124, \eta^2_p = .01$.

Manipulated deservingness of the advantage had no significant effect on envy; the average amount of envy that was experienced in the undeserved conditions ($M = 3.14, SD = 1.49$) did not significantly differ from the amount of envy that was elicited in the deserved conditions ($M = 3.14, SD = 1.49$).
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1.49) did not significantly differ from the amount of envy experienced in the deserved conditions ($M = 2.83, SD = 1.29$), $F(1, 177) = 2.28, p = .133, \eta_p^2 = .01$. This result was expected because the general envy measure did not distinguish between benign and malicious envy and therefore should not be affected by whether the advantage was deserved or not.

Also, a marginally significant interaction effect of manipulated deservingness of the situation and manipulated stereotypic warmth on envy was found, $F(1, 177) = 2.77, p = .098, \eta_p^2 = .02$. Though, the effect size of this effect is so small that we don’t consider this interaction effect to be important.

**Envy type.** To test the hypothesis that out-groups that are seen as high in competence and low in warmth will elicit more malicious envy and out-groups that are seen as high in both competence and warmth elicit more benign envy, a 2x2 analysis of variance was conducted with type of envy as the dependent variable and manipulated stereotypic warmth and manipulated deservingness as independent variables. The results were not in line with our predictions; no significant effect of manipulated stereotypic warmth of the out-group having the advantage, accountants ($M = .10, SD = 1.67$) or primary school principals ($M = -.18, SD = 1.72$), on type of envy was found, $F(1, 177) = 1.23, p = .269, \eta_p^2 = .01$. Manipulated deservingness of the advantage did also not have a significant effect on which type of envy was experienced more: undeserved condition ($M = .10, SD = 1.67$), deserved condition ($M = -.18, SD = 1.72$), $F(1, 177) = 1.23, p = .269, \eta_p^2 = .01$.

**Schadenfreude.** A 2x2 ANOVA showed that manipulated stereotypic warmth and manipulated deservingness of the advantage had a significant interaction effect on schadenfreude, $F(1, 177) = 13.22, p < .001, \eta_p^2 = .07$. A post-hoc Tukey test showed that especially the out-group that scored low on the warmth dimension (accountants) that was undeservedly better off elicited more schadenfreude when it suffered a minor misfortune (see table 4).
Anger, resentment, inferiority and dislike. As expected, analysis of variance showed that resentment, dislike, anger and inferiority were all significantly higher in the low warmth conditions compared to the high warmth conditions (for mean scores see table 4). People felt significantly more resentment against the cold out-group ($M = 4.13$, $SD = 1.53$) than against the warm out-group ($M = 1.85$, $SD = 1.48$), $F(1, 177) = 103.48$, $p = .005$, $\eta^2_p = .37$ and more anger against the cold out-group ($M = 3.42$, $SD = 1.67$) than against the warm out-group ($M = 2.65$, $SD = 1.75$), $F(1, 177) = 9.31$, $p = .003$, $\eta^2_p = .05$. No significant interaction effects of the manipulations were found on both variables.

Participants felt significantly more feelings of inferiority against the out-groups that is low in warmth ($M = 3.92$, $SD = 1.57$), than against the out-group that is high in warmth ($M = 2.15$, $SD = 1.73$), $F(1, 177) = 58.43$, $p < .001$, $\eta^2_p = .25$. The cold out-group was also disliked more ($M = 3.84$, $SD = 1.59$), compared to the warm out-group ($M = 2.22$, $SD = 1.63$), $F(1, 177) = 45.72$, $p < .001$, $\eta^2_p = .21$. Again, no significant interaction effects of the manipulations were found on both variables. Deservingness of the advantage did not have a significant effect on any of these variables, for means and standard deviations see table 4.

Discussion

In line with our main hypothesis, study 1 showed that out-groups that score high on both the competence and the warmth dimension of Fiske’s SCM can indeed evoke envy. This indicates that the warmth dimension of Fiske’s SCM may be not as important as these researchers think it is in predicting whether envy will be elicited or not. This is an interesting finding because it contradicts earlier research who stated that only out-groups that are rated as high in competence and low in stereotypic warmth elicit envy (Fiske et al., 2002). Our findings are in line with Parrot and Smiths’ definition of envy that mentions only elements of the competence dimension, and not the warmth dimension (Parrot and Smith, 1993).

Even though a pilot study was performed that confirmed our hypothesis that
accountants and primary school principals were seen as equally high in competence, a
significant difference in the stereotypic competence of these two groups was found in study 1.
Primary school principals were seen as significantly lower in competence compared to
accountants. According to the stereotype content model this should have impacted our results
in the way that the chance of finding a significant difference in envy between primary school
principals and accountants would have been ever bigger. As our results show, no significant
difference in envy was found between any of the conditions (see table 4).

The hypothesis that malicious envy will be evoked more by out-groups that are low in
stereotypic warmth (accountants) compared to out-groups that are high in warmth (primary
school principals) was not confirmed in the data of study 1. An effect of deservingness of the
advantage on type of envy was also not found in the first study. Van de Ven et al. (2013),
however, did find a significant effect of deservingness on type of envy in their studies. A
plausible explanation for the lack of finding significant effects of deservingness and
stereotypic warmth on envy type in our study is that the envy type measure that was used did
not work as intended. It could very well be that we would have found significant effects on
envy type when an alternative envy type measure was used.

As expected, general envy had a significant effect on schadenfreude (see table 3). This
finding is in line with some earlier research (Cikara & Fiske, 2012; Krizan & Johar, 2012;
Smith, Turner, Garonzik, Leach, Urch-Druskat, & Weston, 1996; Van Dijk, Ouwerkerk,
Goslinga, Nieweg, & Galluci, 2006), while other research did not find this effect (Hareli and
Weiner, 2002; Leach and Spears, 2008). We hypothesized that these seemingly contradicting
findings were caused by the fact that earlier research did not distinguish between malicious
and benign envy, and that making this distinction would lead to finding a significant effect of
malicious (but not benign) envy on schadenfreude. Study 1, however, did not find evidence
for this hypothesis. Again, this can be due to the possibility that our envy type measure was
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not sensitive enough. Therefore, type of envy was measured in an alternative way in study 2.

Dislike and inferiority both did not have a significant effect on schadenfreude. Hareli and Weiner (2002), however, did find significant effects of inferiority and dislike on schadenfreude. Both anger and resentment had a significant effect on schadenfreude. Surprisingly, this effect of anger on schadenfreude was negative. We don’t have a suitable explanation for this finding.

Study 2

The first study showed that envy can be elicited by competent out-groups that score low on Fiske’s warmth dimension as well as by competent out-groups that score high on the warmth dimension. It also showed that especially out-groups that are cold and competent who are undeservedly better off elicit schadenfreude. Yet, our predictions about why these effects would occur did not match the data. Study 2 was designed to find an explanation for these findings and to replicate our first study. In study 2, type of envy (malicious/benign) was measured in an alternative way because we hypothesized that our measurement in study 1 was not sensitive enough and therefore could have caused the lack of finding effects of stereotypic warmth and deservingness on malicious or benign envy.

Method

Participants and design

Study 2 was carried out using a diverse sample of the population. Two-hundred-and-two Dutch participants with an average of 23.5 (SD = 7.1) years participated in this study. Of this sample, 61.5 % (123) was male. Participants participated in an online version of the study 63.4 % (128) or an offline version which contained exactly the same content.

As in study 1, participants were presented with a scenario in which an out-group was better off, followed by a short questionnaire. In this scenario, stereotypic warmth of the out-
group having the advantage and deservingness of this advantage were manipulated. This created a high warmth-deserved advantage condition (N = 49), a high warmth-undeserved advantage condition (N = 48), a low warmth-deserved advantage condition (N = 57) and a low warmth-undeserved advantage condition (N = 48). Participants were randomly assigned to one of these conditions.

**Procedure**

Participants had to read a scenario that was based on the scenario in study 1 but differed in the way that the word “psychologist(s)” was replaced by “average Dutchman”. This adjustment was made because the sample did not consist solely of psychology students (as in study 1) and we still wanted to create an out-group and an in-group. It was expected that participants identified most with the average Dutchman and that accountants or primary school principals would be seen as out-groups. Subsequently, participants had to fill in a short questionnaire.

**Measures**

The questionnaires that were used in study 2 contained the same measures as were used in study 1, except for some minor adjustments. Namely, envy type was measured in an alternative way. The new envy type measure consisted of two questions: “I maliciously envied the other person a little” (in Dutch: “Ik was een beetje afgunstig op de ander”) for measuring malicious envy and “I benignly envied the other person” (In Dutch: “Ik benijdde de ander”) for measuring benign envy. It was expected that by using two separate questions for malicious and benign envy, type of envy would be measured more sensitively.

The stereotypic warmth and competence measurements were moved to the end of the questionnaire in order to decrease the distance between the scenario (and its manipulations) and the main dependent measures. All other measures were identical to the ones that were used in study 1.
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Results

The mean scores and standard deviations of all independent variables are presented in Table 5, as are the correlations between them. It was found that deservingness of the advantage, malicious envy, dislike, anger and resentment were correlated with schadenfreude. As expected, benign envy was not significantly correlated with schadenfreude. Contrary to what was found in study 1, no significant correlation was found between inferiority and schadenfreude.

Main analysis. To test which of the feelings when someone else was better off than led to more schadenfreude, multiple regression analysis was conducted. The regression analysis contained the following independent variables: malicious envy, benign envy, stereotypic warmth, deservingness, stereotypic competence, anger, resentment, inferiority and dislike. This created a model that explained a small proportion of the variance in schadenfreude, $F(9, 191) = 2.63, p = .007, r^2 = .135$. The results of this analysis are reported in Table 6.

As expected, benign envy had no significant effect on schadenfreude. The effect of malicious envy on schadenfreude was marginally significant and in the expected direction, $t(191) = 1.78, \beta = .19, p = .077$. Furthermore, only inferiority was a significant predictor of schadenfreude, $t(191) = 2.08, \beta = -.24, p = .039$. This goes against the findings of study 1 where inferiority had no significant effect on schadenfreude while resentment anger and deservingness of the advantage did.

Effects of the manipulations. Table 7 contains the means and standard deviations of all variables per condition.

Manipulation checks. An ANOVA on perceived deservingness of the advantage by manipulated deservingness and manipulated warmth showed that participants rated the advantage of out-groups as significantly more deserved in the deserved conditions ($M = 0.71$,
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$SD = 1.72$) compared to the undeserved conditions ($M = -0.93, SD = 1.81$), $F(1, 185) = 40.79, p < 0.001, \eta^2_p = .18$. Neither an effect of manipulated warmth nor an interaction effect was found. This indicates that our deservingness manipulation worked as intended.

Analysis of variance on stereotypic warmth by manipulated stereotypic warmth and manipulated deservingness showed that subjects rated primary school principals as significantly higher in stereotypic warmth ($M = 4.73, SD = 1.15$) than accountants ($M = 3.80, SD = 0.90$), $F(1, 195) = 40.74, p < 0.001, \eta^2_p = .17$. Neither an effect of manipulated deservingness nor an interaction effect was found. This indicates that our stereotypic warmth manipulation also worked as intended.

An ANOVA on competence with manipulated stereotypic warmth and manipulated deservingness as independent variables showed a significant effect of manipulated stereotypic warmth on the perceived competence of out-groups. Accountants were perceived as significantly more competent ($M = 4.96, SD = 0.81$) than primary school principals ($M = 4.63, SD = 0.93$), $F(1, 192) = 6.87, p = 0.009, \eta^2_p = .04$. Again, no significant effect of manipulated deservingness and no interaction effect was found.

**Envy type.** Analysis of variance with malicious envy as the dependent variable and manipulated warmth and deservingness as independent variables showed that there was a significant interaction effect of manipulated warmth and deservingness on malicious envy, $F(1, 193) = 8.21, p = 0.005, \eta^2_p = .04$. Post-hoc analysis using a Tukey test showed that, as expected, participants in the deserved, high warmth condition reported significantly less malicious envy compared to the other conditions (see table 7).

An ANOVA on benign envy with manipulated warmth and deservingness as independent variables showed two significant main effects. Participants experienced significantly more benign envy in the undeserved conditions ($M = 2.94, SD = 1.64$) compared to the deserved conditions ($M = 2.35, SD = 1.50$), $F(1, 187) = 8.06, p = 0.005, \eta^2_p = .04$. And
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significantly more benign envy was evoked by accountants ($M = 2.88$, $SD = 1.65$) compared to primary school principals ($M = 2.37$, $SD = 1.50$), $F(1, 187) = 5.88$, $p = 0.016$, $\eta^2_p = .03$.

**Schadenfreude.** Analysis of variance with schadenfreude as the dependent variable and the manipulations of deservingness and stereotypic warmth as independent variables showed a marginally significant effect of stereotypic warmth on schadenfreude. This effect was in the expected direction; more schadenfreude was evoked by accountants ($M = 2.40$, $SD = 1.41$) compared to primary school principals ($M = 2.03$, $SD = 1.33$), $F(1, 171) = 3.16$, $p = 0.077$, $\eta^2_p = .02$. Surprisingly, no significant effect of deservingness of the advantage on schadenfreude was found.

**Anger, resentment, inferiority and dislike.** As in study 1, anger, resentment, inferiority and dislike were all experienced significantly more in the low warmth conditions (for mean scores see table 7). People felt more anger towards accountants ($M = 2.77$, $SD = 1.09$) compared to primary school principals ($M = 1.42$, $SD = 1.44$), $F(1, 175) = 26.83$, $p < .001$, $\eta^2_p = .13$, and more resentment towards accountants ($M = 2.60$, $SD = 2.11$) than against primary school principals ($M = 1.41$, $SD = 1.42$), $F(1, 174) = 20.50$, $p < .000$, $\eta^2_p = .11$. People felt more feelings of inferiority towards accountants ($M = 2.69$, $SD = 2.12$) compared to primary school principals ($M = 1.47$, $SD = 1.62$), $F(1, 186) = 20.84$, $p < .001$, $\eta^2_p = .10$, and more dislike towards accountants ($M = 2.86$, $SD = 1.88$) than against primary school principals ($M = 1.58$, $SD = 1.43$), $F(1, 181) = 28.09$, $p < .000$, $\eta^2_p = .13$.

In contrast to study 1, deservingness of the advantage had a significant effect on anger, resentment and dislike. People felt more anger when the out-groups advantage was undeserved ($M = 2.46$, $SD = 1.95$) compared to when the out-groups advantage was deserved ($M = 1.82$, $SD = 1.86$), $F(1, 175) = 7.65$, $p = .006$, $\eta^2_p = .04$, and more resentment when the out-groups advantage was undeserved ($M = 2.36$, $SD = 1.94$) compared to when the out-groups advantage was deserved ($M = 1.72$, $SD = 1.82$), $F(1, 174) = 7.05$, $p = .009$, $\eta^2_p = .04$. 

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Also more dislike was felt when the advantage was undeserved \((M = 2.53, SD = 1.80)\), compared to when the advantage was deserved \((M = 2.00, SD = 1.76)\), \(F(1, 181) = 5.97, p = .016, \eta_p^2 = .03\). No significant interaction effect between manipulated warmth and deservingness was found on any of these variables.

**Discussion**

In line with our hypothesis, study 2 again showed that any out-group that scores high on the competence dimension can elicit envy, see table 7. This strengthens our belief that the stereotypic warmth of an out-group isn’t as important in evoking envy and schadenfreude as described by Fiske’s SCM (Fiske et al., 2002).

In contrast to study 1, no significant effect of perceived deservingness of the advantage on schadenfreude was found. But, like in study 1, the non-significant effect was in the predicted direction \((\beta = -0.11, p = .179)\) and a correlation between perceived deservingness and schadenfreude was significant (see table 5). This indicates that a higher deservingness of the advantage might indeed lead to less feelings of schadenfreude, like was found in earlier research (Feather & Nairn, 2005; Feather & Sherman, 2002; Van Dijk et al., 2005).

As expected, both the manipulation of deservingness and the manipulation of stereotypic warmth had an effect on the amount of malicious envy that was elicited; out-groups that are seen as cold and competent that are undeservedly better off evoked more malicious envy than warm out-groups with a deserved advantage. Benign envy was also significantly influenced by the manipulation of stereotypic warmth but surprisingly not by the deservingness of the advantage manipulation. Unexpectedly, the effect of stereotypic warmth on benign envy was similar to its effect on malicious envy; both were evoked more by the low warmth out-group than by the high warmth out-group. A plausible explanation for this finding is that participants were not familiar enough with the Dutch word for benign envy (*benijden*).
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and therefore couldn’t really tell the difference in meaning between the two words. Though, further research is needed.

Study 2 partially confirmed the hypothesis that experiencing the malicious type of envy increases schadenfreude when an out-group befalls a small misfortune and that experiencing benign envy does not increase schadenfreude. As expected, no significant effect of benign envy on schadenfreude was found, but the effect of malicious envy on schadenfreude was marginally significant (and in the predicted direction $\beta = 0.19, p = 0.077$). A possible explanation for finding an only marginally significant effect of malicious envy on schadenfreude is that our sample size ($N = 202$) could have been too small, since we’ve used a rather heterogeneous sample of the population.

Unlike what was found in study 1, inferiority had a significant effect on schadenfreude in study 2. Surprisingly this effect was negative $\beta = -0.24, p = 0.039$. Earlier research by Leach and Spears (2008), however, found a positive effect of feelings of inferiority on schadenfreude when an out-group experiences a misfortune. We don’t have an explanation for this finding.

**Conclusion**

In line with our main hypothesis, the current two studies showed that not only advantaged out-groups that are seen as cold and competent evoke envy but also advantaged out-groups that are seen as warm and competent. This is an important finding because it challenges the stereotype content model that states that only out-groups that are cold and competent elicit envy (Fiske et al., 2002).

Study 1 found that envy has an effect on schadenfreude independent from disliking the target, feelings of inferiority, anger and resentment. When envy was broken down into two types of envy in study 2 (malicious and benign), a marginally significant effect of (malicious) envy on schadenfreude was found. This finding is in line with earlier research by Van de Ven
et al. (2013), but caution has to be taken when interpreting this results because of its marginal significance. A theoretical implication of our work is that the SCM may not be very accurate in predicting envy (and schadenfreude). Though, more research on the effects of stereotype content on envy and schadenfreude is needed in order to draw this conclusion.
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References


Predicting Envy and Schadenfreude: The Role of Stereotype Content and Deservingness


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Table 1. Stereotypic warmth of out-groups, means (SDs).

<table>
<thead>
<tr>
<th></th>
<th>Accountants</th>
<th>Bankers</th>
<th>Businessmen</th>
<th>Primary school principals</th>
<th>University teachers</th>
<th>Physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmth</td>
<td>6.62&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.21&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10.31&lt;sup&gt;b&lt;/sup&gt;</td>
<td>10.19&lt;sup&gt;b&lt;/sup&gt;</td>
<td>10.38&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(1.94)</td>
<td>(2.06)</td>
<td>(2.14)</td>
<td>(1.84)</td>
<td>(1.63)</td>
<td>(2.00)</td>
</tr>
<tr>
<td>Competence</td>
<td>10.96&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.54&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12.21&lt;sup&gt;c&lt;/sup&gt;</td>
<td>10.67&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.54&lt;sup&gt;b&lt;/sup&gt;</td>
<td>11.75&lt;sup&gt;bc&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(1.53)</td>
<td>(1.41)</td>
<td>(1.26)</td>
<td>(1.32)</td>
<td>(1.23)</td>
<td>(1.72)</td>
</tr>
</tbody>
</table>

Paired samples t-tests show that means with a different superscript differed between those groups at \( p < .05 \).
Table 2. Mean responses, Standard Deviations and Correlations between Variables of Study 1

<table>
<thead>
<tr>
<th>Question</th>
<th>M</th>
<th>(SD)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deservingness*</td>
<td>-0.059</td>
<td>(1.74)</td>
<td>0.09</td>
<td>0.14</td>
<td>-0.03</td>
<td>-0.03</td>
<td>0.01</td>
<td>-0.03</td>
<td>-0.08</td>
<td>-0.24***</td>
<td>0.04</td>
</tr>
<tr>
<td>Warmth</td>
<td>4.45</td>
<td>(0.86)</td>
<td>0.06</td>
<td>0.09</td>
<td>-0.23**</td>
<td>-0.23**</td>
<td>-0.10</td>
<td>-0.26</td>
<td>-0.09</td>
<td>-0.11</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>5.04</td>
<td>(0.77)</td>
<td>0.01</td>
<td>0.22**</td>
<td>0.20**</td>
<td>-0.05</td>
<td>0.19*</td>
<td>0.07</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Envy</td>
<td>2.99</td>
<td>(1.40)</td>
<td>0.33***</td>
<td>0.25***</td>
<td>0.48***</td>
<td>0.28***</td>
<td>0.24**</td>
<td>0.15*</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dislike</td>
<td>3.03</td>
<td>(1.80)</td>
<td>0.58***</td>
<td>0.62***</td>
<td>0.74***</td>
<td>0.27***</td>
<td>0.07</td>
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</tr>
<tr>
<td>Inferiority</td>
<td>3.03</td>
<td>(1.78)</td>
<td>0.58***</td>
<td>0.67***</td>
<td>0.17*</td>
<td>0.18**</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Anger</td>
<td>3.03</td>
<td>(1.75)</td>
<td>0.70***</td>
<td>0.14</td>
<td>0.18*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resentment</td>
<td>2.98</td>
<td>(1.89)</td>
<td>0.27***</td>
<td>0.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Schadenfreude</td>
<td>2.51</td>
<td>(1.48)</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Envy Type</td>
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<td>(1.69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note. *p < .05, **p < .01, ***p < .001. All questions were measured on a scale from 0 to 6, except Deservingness and Envy Type that were answered on a scale from -3 to +3. Higher scores on these two variables indicate higher perceptions of deservingness and malicious envy.
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Table 3. Multiple Regression Analysis of the Effect of Predictors on Schadenfreude in Study 1.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>t(172)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deservingness of Advantage</td>
<td>-.21</td>
<td>-3.05</td>
<td>.003</td>
</tr>
<tr>
<td>Stereotypic Warmth</td>
<td>-.02</td>
<td>-.22</td>
<td>.826</td>
</tr>
<tr>
<td>Stereotypic Competence</td>
<td>-.03</td>
<td>0.42</td>
<td>.679</td>
</tr>
<tr>
<td>Envy</td>
<td>.23</td>
<td>2.78</td>
<td>.006</td>
</tr>
<tr>
<td>Dislike</td>
<td>.16</td>
<td>1.50</td>
<td>.135</td>
</tr>
<tr>
<td>Inferiority</td>
<td>-.02</td>
<td>-0.24</td>
<td>.813</td>
</tr>
<tr>
<td>Anger</td>
<td>-.26</td>
<td>-2.37</td>
<td>.019</td>
</tr>
<tr>
<td>Resentment</td>
<td>.26</td>
<td>2.06</td>
<td>.041</td>
</tr>
<tr>
<td>Envy Type</td>
<td>.05</td>
<td>0.65</td>
<td>.517</td>
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### Table 4. Means and Standard Deviations per Condition in Study 1

<table>
<thead>
<tr>
<th></th>
<th>High Warmth</th>
<th></th>
<th>Low Warmth</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undeserved</td>
<td>Deserved</td>
<td>Undeserved</td>
<td>Deserved</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Deservingness of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advantage*</td>
<td>-1.00(^{a}) (1.35)</td>
<td>-0.07(^{b}) (2.10)</td>
<td>-1.17(^{a}) (1.40)</td>
<td>-0.05(^{b}) (1.77)</td>
</tr>
<tr>
<td>Stereotypic warmth</td>
<td>4.91(^{a}) (0.92)</td>
<td>4.71(^{a}) (0.79)</td>
<td>4.04(^{b}) (0.73)</td>
<td>4.12(^{b}) (0.63)</td>
</tr>
<tr>
<td>Stereotypic competence</td>
<td>4.75(^{a}) (0.72)</td>
<td>4.81(^{a}) (0.76)</td>
<td>5.36(^{b}) (0.82)</td>
<td>5.25(^{b}) (0.60)</td>
</tr>
<tr>
<td>Envy</td>
<td>3.13 (1.56)</td>
<td>3.16 (1.43)</td>
<td>3.15 (1.45)</td>
<td>2.50 (1.02)</td>
</tr>
<tr>
<td>Dislike</td>
<td>2.23(^{a}) (1.68)</td>
<td>2.20(^{a}) (1.59)</td>
<td>4.04(^{b}) (1.53)</td>
<td>3.64(^{b}) (1.63)</td>
</tr>
<tr>
<td>Inferiority</td>
<td>1.91(^{a}) (1.43)</td>
<td>2.41(^{a}) (1.60)</td>
<td>4.07(^{b}) (1.54)</td>
<td>3.77(^{b}) (1.61)</td>
</tr>
<tr>
<td>Anger</td>
<td>2.70(^{a}) (1.86)</td>
<td>2.59(^{a}) (1.65)</td>
<td>3.26(^{b}) (1.72)</td>
<td>3.59(^{b}) (1.62)</td>
</tr>
<tr>
<td>Resentment</td>
<td>1.89(^{a}) (1.62)</td>
<td>1.80(^{a}) (1.34)</td>
<td>4.28(^{b}) (1.43)</td>
<td>3.98(^{b}) (1.64)</td>
</tr>
<tr>
<td>Envy Type*</td>
<td>0.00 (1.72)</td>
<td>-0.36 (1.17)</td>
<td>0.20 (1.63)</td>
<td>0.00 (1.73)</td>
</tr>
<tr>
<td>Schadenfreude</td>
<td>2.25(^{a}) (1.22)</td>
<td>2.17(^{a}) (1.40)</td>
<td>3.57(^{b}) (1.39)</td>
<td>2.02(^{a}) (1.39)</td>
</tr>
</tbody>
</table>

*Note.* Variables marked with an asterisk were measured on a scale from -3 to +3, the other variables on a scale from 0 to 6 or 1 to 7. Posthoc Tukey tests show that for that question means with a different superscript differ between those conditions at \( p < .05 \).
Table 5. Mean responses, Standard Deviations, and Correlations between Variables of Study 2

<table>
<thead>
<tr>
<th>Question</th>
<th>M</th>
<th>(SD)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deservingness*</td>
<td>-0.07</td>
<td>(1.94)</td>
<td>.12</td>
<td>.14</td>
<td>-.16*</td>
<td>-.11</td>
<td>-.21**</td>
<td>-.05</td>
<td>-.18*</td>
<td>-.19*</td>
<td>.18*</td>
</tr>
<tr>
<td>Warmth</td>
<td>4.26</td>
<td>(1.13)</td>
<td>.26**</td>
<td>-.23**</td>
<td>.04</td>
<td>-.18*</td>
<td>-.11</td>
<td>-.10</td>
<td>-.12</td>
<td>-.10</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>5.81</td>
<td>(0.88)</td>
<td>.01</td>
<td>.02</td>
<td>.11</td>
<td>.07</td>
<td>.11</td>
<td>.09</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malicious envy</td>
<td>2.91</td>
<td>(1.53)</td>
<td></td>
<td></td>
<td>.50***</td>
<td>.60***</td>
<td>.46***</td>
<td>.58***</td>
<td>.60**</td>
<td>.26**</td>
<td></td>
</tr>
<tr>
<td>Benign envy</td>
<td>2.63</td>
<td>(1.59)</td>
<td></td>
<td></td>
<td>.52***</td>
<td>.47***</td>
<td>.55***</td>
<td>.54***</td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dislike</td>
<td>2.25</td>
<td>(1.79)</td>
<td></td>
<td></td>
<td>.65***</td>
<td>.84***</td>
<td>.81***</td>
<td>.24**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inferiority</td>
<td>2.10</td>
<td>(2.00)</td>
<td></td>
<td></td>
<td>.73***</td>
<td>.64***</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Anger</td>
<td>2.12</td>
<td>(1.93)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.87***</td>
<td>.19*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resentment</td>
<td>2.02</td>
<td>(1.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.20**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schadenfreude</td>
<td>2.21</td>
<td>(1.38)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Note. *\(p < .05\), **\(p < .01\), ***\(p < .001\). All questions were measured on a scale from 0 to 6, except Deservingness and Envy Type that were answered on a scale from -3 to +3. Higher scores on these two variables indicate higher perceptions of deservingness and malicious envy.
Table 6. Multiple Regression Analysis of the Effect of Predictors on Schadenfreude in Study 2

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>t(191)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deservingness of Advantage</td>
<td>-.11</td>
<td>-1.35</td>
<td>.179</td>
</tr>
<tr>
<td>Stereotypic Warmth</td>
<td>-.10</td>
<td>-1.16</td>
<td>.246</td>
</tr>
<tr>
<td>Competence</td>
<td>.13</td>
<td>1.53</td>
<td>.127</td>
</tr>
<tr>
<td>Malicious Envy</td>
<td>.19</td>
<td>1.78</td>
<td>.077</td>
</tr>
<tr>
<td>Benign Envy</td>
<td>.03</td>
<td>0.30</td>
<td>.763</td>
</tr>
<tr>
<td>Dislike</td>
<td>.21</td>
<td>1.33</td>
<td>.185</td>
</tr>
<tr>
<td>Inferiority</td>
<td>-.24</td>
<td>-2.08</td>
<td>.039</td>
</tr>
<tr>
<td>Anger</td>
<td>-.01</td>
<td>-0.07</td>
<td>.945</td>
</tr>
<tr>
<td>Resentment</td>
<td>.02</td>
<td>0.13</td>
<td>.896</td>
</tr>
</tbody>
</table>
Table 7. Means and Standard Deviations per Condition in Study 2

<table>
<thead>
<tr>
<th></th>
<th>High Warmth</th>
<th></th>
<th>Low Warmth</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undeserved</td>
<td>Deserved</td>
<td>Undeserved</td>
<td>Deserved</td>
</tr>
<tr>
<td>Deservingness of Advantage*</td>
<td>-1.20&lt;sup&gt;a&lt;/sup&gt; (1.67)</td>
<td>0.78&lt;sup&gt;b&lt;/sup&gt; (1.35)</td>
<td>-0.66&lt;sup&gt;a&lt;/sup&gt; (1.93)</td>
<td>0.64&lt;sup&gt;b&lt;/sup&gt; (1.99)</td>
</tr>
<tr>
<td>Stereotypic Warmth</td>
<td>4.65&lt;sup&gt;a&lt;/sup&gt; (1.16)</td>
<td>4.81&lt;sup&gt;a&lt;/sup&gt; (1.14)</td>
<td>3.71&lt;sup&gt;b&lt;/sup&gt; (1.00)</td>
<td>3.88&lt;sup&gt;b&lt;/sup&gt; (0.82)</td>
</tr>
<tr>
<td>Stereotypic Competence</td>
<td>4.53&lt;sup&gt;a&lt;/sup&gt; (0.90)</td>
<td>4.74&lt;sup&gt;a&lt;/sup&gt; (0.96)</td>
<td>4.98&lt;sup&gt;b&lt;/sup&gt; (0.86)</td>
<td>4.95&lt;sup&gt;b&lt;/sup&gt; (0.77)</td>
</tr>
<tr>
<td>Malicious Envy</td>
<td>3.00&lt;sup&gt;a&lt;/sup&gt; (1.47)</td>
<td>1.96&lt;sup&gt;b&lt;/sup&gt; (1.35)</td>
<td>3.24&lt;sup&gt;a&lt;/sup&gt; (1.48)</td>
<td>3.38&lt;sup&gt;a&lt;/sup&gt; (1.45)</td>
</tr>
<tr>
<td>Benign Envy</td>
<td>2.77&lt;sup&gt;ab&lt;/sup&gt; (1.65)</td>
<td>1.96&lt;sup&gt;a&lt;/sup&gt; (2.25)</td>
<td>3.14&lt;sup&gt;b&lt;/sup&gt; (1.66)</td>
<td>2.67&lt;sup&gt;ab&lt;/sup&gt; (1.62)</td>
</tr>
<tr>
<td>Dislike</td>
<td>2.00&lt;sup&gt;ab&lt;/sup&gt; (1.53)</td>
<td>1.18&lt;sup&gt;a&lt;/sup&gt; (1.21)</td>
<td>3.09&lt;sup&gt;c&lt;/sup&gt; (1.91)</td>
<td>2.70&lt;sup&gt;bc&lt;/sup&gt; (1.86)</td>
</tr>
<tr>
<td>Inferiority</td>
<td>1.63&lt;sup&gt;ab&lt;/sup&gt; (1.68)</td>
<td>1.30&lt;sup&gt;a&lt;/sup&gt; (1.56)</td>
<td>2.98&lt;sup&gt;c&lt;/sup&gt; (2.32)</td>
<td>2.48&lt;sup&gt;bc&lt;/sup&gt; (1.95)</td>
</tr>
<tr>
<td>Anger</td>
<td>1.95&lt;sup&gt;b&lt;/sup&gt; (1.51)</td>
<td>0.88&lt;sup&gt;a&lt;/sup&gt; (1.16)</td>
<td>3.00&lt;sup&gt;c&lt;/sup&gt; (2.23)</td>
<td>2.60&lt;sup&gt;bc&lt;/sup&gt; (1.98)</td>
</tr>
<tr>
<td>Resentment</td>
<td>1.93&lt;sup&gt;b&lt;/sup&gt; (1.49)</td>
<td>0.88&lt;sup&gt;a&lt;/sup&gt; (1.14)</td>
<td>2.80&lt;sup&gt;b&lt;/sup&gt; (2.26)</td>
<td>2.43&lt;sup&gt;b&lt;/sup&gt; (1.99)</td>
</tr>
<tr>
<td>Schadenfreude</td>
<td>2.15 (1.41)</td>
<td>2.16 (1.37)</td>
<td>2.41 (1.38)</td>
<td>2.39 (1.45)</td>
</tr>
</tbody>
</table>

Note. Variables marked with an asterisk were measured on a scale from -3 to +3, the other variables on a scale from 0 to 6 or 1 to 7. Posthoc Tukey tests show that for that question means with a different superscript differ between those conditions at \( p < .05 \).