

Reflecting on schadenfreude: serious consequences of a misfortune for which one is not responsible diminish previously expressed schadenfreude; the role of immorality appraisals and moral emotions

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Published online: 13 September 2016
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Abstract Participants (Study 1: $N = 138$, Study 2: $N = 153$) responded to a video in which a person suffered a mishap. The studies manipulated whether or not the person was responsible for the mishap and the degree to which the consequences were subsequently found to be serious. Results of Study 1 showed reduction in schadenfreude and more compassion for the victim in the serious condition due to appraisals that it was immoral to laugh about the misfortune. The stronger these appraisals and the stronger the initial schadenfreude, the stronger were moral emotions (guilt, shame, and regret) about initially expressed schadenfreude. Moral emotions and compassion fostered prosocial behavior. Study 2 extended these results by showing that seriousness of the consequences acted as a moderator for most of these findings with significant effects occurring in the serious condition only. Most reduction in schadenfreude occurred when the consequences were serious and when the person was less responsible for the misfortune. The studies extend past research by investigating schadenfreude and other emotions in a context that does not involve social comparison and where participants reflected on their initial expressions of schadenfreude.

Keywords Schadenfreude · Deservingness · Moral appraisals · Emotions · Prosocial behavior

Introduction

When we watch a reality television show in which a boy gets his first bike, we might laugh when he falls off the bike into a puddle on his first attempt to ride. But would we laugh when we learn that he has broken his arm? Would we feel that it would be immoral or unethical to laugh? These questions relate to the emotion of schadenfreude. This emotion occurs when a passive observer reacts with pleasure following another person's misfortune or negative outcome. The person experiencing the emotion is not the agent who caused the misfortune. A direct involvement in causing the negative outcome, as would occur when a person defeats a rival, would elicit gloating rather than schadenfreude Leach et al. (2014b). There is now a considerable literature concerning schadenfreude that spans contributions from psychology, philosophy, sociology, popular culture, and other areas (van Dijk and Ouwerkerk 2014). Schadenfreude has been linked to variables that include the perceived deservingness of the negative outcome (Feather 2006, 2014), envy (Smith et al. 2014), feelings of inferiority (Leach and Spears 2008), and striving for a positive self-evaluation (van Dijk and Ouwerkerk 2014).

In the two studies to be reported we again investigated how appraisals of perceived deservingness affect schadenfreude following a misfortune but our main aim was to fill an important gap in the literature by investigating the dynamics of schadenfreude when information about the consequences was provided. Other studies have investigated schadenfreude in situations where the negative outcome or misfortune is described along with its implied consequences, without separating the two (Combs et al. 2009; Hoogland et al. 2015). Our studies went a step further by investigating how initially expressed schadenfreude

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might change in response to subsequently received information about the consequences of the misfortune. How would people react if they found out that the consequences of the misfortune were serious (e.g., the boy who fell off the bike broke his arm)? Would their feelings of pleasure change? Would they appraise their initial feelings of pleasure as unfair or immoral? Would they also report feeling guilty, regretful, and ashamed as well as compassionate? Would they be willing to support the victim of the misfortune in some way? In other words, the main focus was on how people react to information about the consequences of a misfortune and how these possible reactions might cohere together in a dynamic structure.

Thus the studies make a new contribution by investigating not only deservingness and schadenfreude but also the appraisals and emotions that occur when the misfortune is seen in a new light following information about the seriousness of the consequences. Moreover, in contrast to most previous studies of schadenfreude, we used settings that did not involve concerns about achievement, competition, or social comparison but instead focused on events that subsequently led to either serious consequences or to no serious consequences at all. So in a number of respects our study broadened research into schadenfreude. Figure 1 shows our conceptual model that we describe in more detail below.

Appraisals of deservingness

Our two studies focused on schadenfreude at the interpersonal level where another person suffered a mishap. We expected that the schadenfreude or feelings of pleasure expressed about the other person's mishap would be positively related to appraisals of how much that person deserved the mishap.

There is now a consistent body of evidence showing that the perceived deservingness of a negative outcome is a key appraisal that influences schadenfreude (e.g., Feather 1999b, 2006, 2008, 2014; Feather and Sherman 2002; van Dijk and Ouwerkerk 2014). Feather (1999a, b) provided a conceptual analysis of perceived deservingness and linked this analysis with discrete emotions that were expected to occur for other or for self when a positive or negative outcome was appraised as deserved or undeserved (Feather 1999b, 2006, 2014, 2015; see also Berndsen and McGarty 2012). This conceptual analysis assumed that a person was responsible in whole or in part for the action and its contingent outcome, i.e., that there was a degree of personal causation (Heider 1958) that led to appraisals of deservingness. Schadenfreude was found to occur when other's negative outcome was perceived to be deserved.

In the current two studies we manipulated responsibility for the misfortune in order to produce differences in perceived deservingness. We hypothesized that responsibility

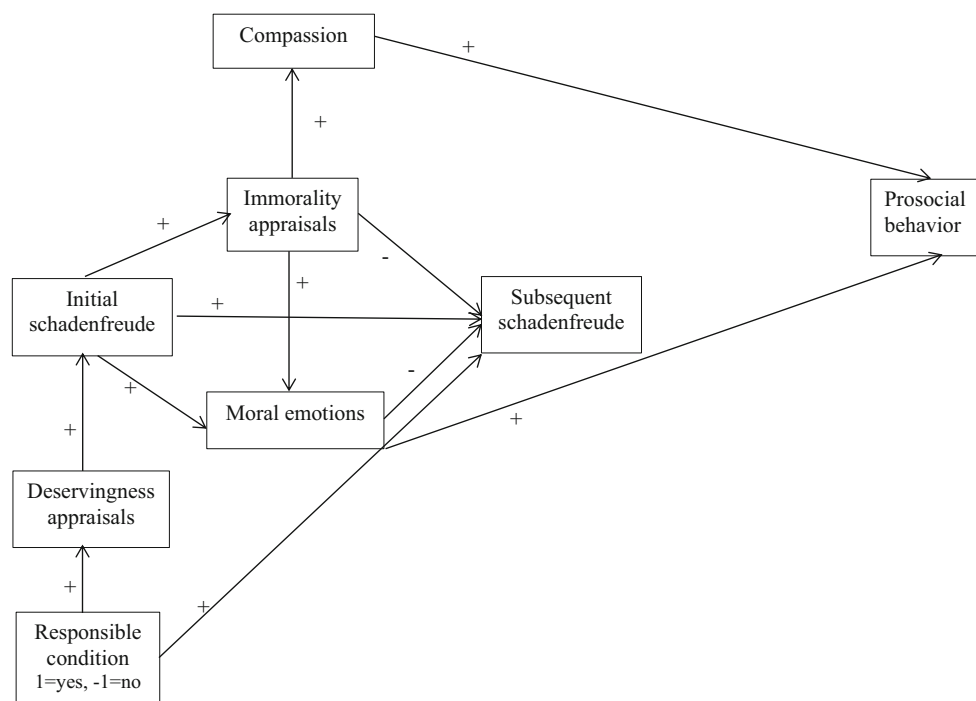


Fig. 1 Conceptual model of the relationship between immorality appraisals and moral emotions about initial schadenfreude and prosocial behavior but only when the consequences of the misfortune are serious

would positively predict deservingness and that deservingness would be positively associated with schadenfreude (see Fig. 1).

Seriousness of consequences of the misfortune and revision of schadenfreude

As noted previously, a handful of studies have investigated the impact of the perceived seriousness of a misfortune on schadenfreude. These studies showed that more serious misfortunes were associated with less schadenfreude (Combs et al. 2009; Hareli and Weiner 2002). In contrast, Hoogland et al. (2015, Studies 3 and 4) did not find that severity of a sports injury had an effect on schadenfreude. Our studies differed from those just mentioned because we used an experimental manipulation in which we separated the misfortune from its consequences (serious or not serious) enabling us to obtain separate measures of schadenfreude following the misfortune and also after its consequences were known.

Separating the misfortune from its consequences enables a deeper analysis of the dynamics of schadenfreude, showing how information about the consequences leads to a revision of this emotion. We expected that information that the consequences of a misfortune were serious would produce lower levels of subsequent schadenfreude when compared with information that the consequences were not serious. In general, feeling pleased when another person suffers a serious misfortune would violate social and moral norms about how one should behave and pleasure would be muted. Exceptions would be serious events that lead to retribution, as when a perpetrator is punished for a crime. In these cases norms may not be violated but upheld and people may feel pleased about the punishment (e.g., Feather 1996, 1998). Other exceptions would be situations where the serious misfortune leads to personal or ingroup gains, as might occur when an opponent or outgroup is defeated in a sporting or political contest (Schurtz et al. 2014).

We expected that the predicted change in schadenfreude following information about seriousness would be qualified by an interaction with the victim's responsibility. People would revise their feelings of schadenfreude more by reporting less pleasure when they learned that the misfortune had serious consequences and when the victim was perceived to be not responsible for the misfortune that was therefore less deserved. Specifically, we expected that when the consequences were more serious and the victim was less responsible, the reduction in schadenfreude would be higher than when the victim was more responsible for the misfortune. When the consequences were less serious, we predicted less difference in the reduction of schadenfreude between higher and lower responsibility conditions.

Thus, severity of consequences was expected to moderate the relationship between responsibility and the change in schadenfreude. However, overall the revised level of schadenfreude was assumed to be positively related to the initial levels of schadenfreude, reflecting individual differences in willingness to express this emotion.

We also argue that, when the misfortune turns out to have serious consequences, the schadenfreude initially expressed about the misfortune would violate beliefs about fairness and concern for others. What at first may be viewed as a trivial misfortune would become an event that should not have attracted laughter when the consequences of the misfortune were found to be serious. This argument leads to the prediction that initially expressed schadenfreude would be positively associated with immoral appraisals when the consequences of the misfortune were serious (see Fig. 1).

Appraisals and emotions

Many theories of emotion are based on the premise that cognitive appraisals are antecedents of emotion (e.g., Arnold 1960; Frijda 1986; Ortony et al. 1988; Roseman 1984; Smith and Ellsworth 1985). In our studies we hypothesized that appraisals of immorality would affect three emotion variables that we assessed, namely subsequent schadenfreude, a composite of moral emotions, and compassion.

First, appraisals of immorality would negatively predict the expression of subsequent schadenfreude. Because we predicted that initial and subsequent expressions of schadenfreude would be related, immoral appraisals were expected to serve as a partial mediator in this relationship when the consequences for the victim were serious (see Fig. 1). Specifically, we predicted a moderated mediation effect: when the consequences for the victim were serious (but less so when the consequences were less serious), the relationship between initial and subsequent expressions of schadenfreude would be partially mediated by appraisals of immorality.

Second, we also expected that, when the consequences were serious, appraisals of immorality would directly and positively predict a composite of moral emotions (guilt, shame, and regret). These moral emotions are based on an appraisal of violation of a standard for which the self is to blame (e.g., Lazarus 1991). Moral emotions have consistently been found to follow negative behavior that violates values and social and moral norms deemed to be important for self (e.g., Berndsen and Gausel 2015; Berndsen and McGarty 2012; Feather 2006; Feather et al. 2011; Gilovich and Medvec 1995; Iyer et al. 2004; Iyer et al. 2007). Displaying pleasure about someone's misfortune would be

perceived as negative behavior once people had learned that the misfortune had negative consequences. Thus, the *schadenfreude* initially expressed about the misfortune would also positively predict moral emotions and these, in turn, would negatively predict subsequent *schadenfreude* once the serious consequences were known (see Fig. 1). Specifically, we predicted a moderated mediation effect: when the consequences for the victim were serious (but less so when the consequences were less serious), the relationship between initial and subsequent expressions of *schadenfreude* would be partially mediated by moral emotions (guilt, shame, and regret).

Third, we expected that, when the consequences were serious, appraisals of immorality would directly and positively predict compassion (see Fig. 1). This emotion tends to be negatively related to *schadenfreude* (e.g., Feather 1999b, Feather and Sherman 2002) and it can be linked to appraisals of harm due to immoral behavior (Harth et al. 2008).

Emotions and prosocial behavior

Appraisals of blame for immoral behaviour can evoke moral emotions such as shame, guilt, and remorse in the agent (e.g., Roseman 1984). Experiencing moral emotions implies that the agent cares about the welfare of others. Hence they often evoke a willingness to contribute to a victim's welfare (Haidt 2003). Previous research has shown that the negatively valenced moral emotions of shame, regret and guilt can lead to prosocial behavior (e.g., Berndsen and Gausel 2015; Berndsen and McGarty 2010, 2012; de Hooge, Breugelmans, and Zeelenberg 2008; Feather et al. 2012; Gausel and Brown 2012; Gausel et al. 2012; Iyer and Leach 2008; Lickel et al. 2014; McGarty et al. 2005; Tangney et al. 2014). Hence we expected that moral emotions (guilt, shame, and regret) would positively predict prosocial behavior. Specifically, we expected that moral emotions would fully mediate the relationship between appraisals of immorality and prosocial behavior (see Fig. 1).

Compassion, is a positively valenced moral emotion and has also been found to enhance commitment to prosocial behavior (e.g., Batson 1991; Dovidio et al. 1990; Harth et al. 2008; Iyer et al. 2004). So our model included a positive link between compassion and prosocial behavior. In addition, just as we predicted that moral emotions would mediate the relationship between appraisals of immorality and prosocial behavior, we also predicted that compassion would fully mediate this relationship (see Fig. 1). We did not include a link between subsequent *schadenfreude* and prosocial behavior because we do not conceive of *schadenfreude* as a moral emotion.

Study 1

To investigate the relationships depicted in Fig. 1, we used a video clip in which participants watched a bride who stood close to a pool during an outdoor wedding ceremony. She ended up falling into the pool and this negative outcome could be attributed either to the fact that she disobeyed instructions and chose where to stand (responsible condition) or to someone else's mistake (not responsible condition). As noted previously, this manipulation was included in order to create differences in the perceived deservingness of the misfortune, consistent with the conceptual analysis provided by Feather (1999b, 2014). More responsibility for a negative action should increase deservingness for a negative outcome. Subsequently in an epilogue new information was provided about the consequences of the fall. The bride was seriously injured (serious condition) or she had no injuries (non-serious condition).

We expected that in the responsible condition perceptions of deservingness would be higher when compared to the non-responsible condition and that higher deservingness would, in turn, be associated with more initial *schadenfreude* (see Fig. 1).

Our main goal was to investigate how people reflect on the *schadenfreude* that they had initially expressed after having been informed about the seriousness of the outcome. Consistent with the model presented in Fig. 1, we predicted that when the consequences were serious, subsequent *schadenfreude* would decrease. Moreover, we predicted a relatively larger reduction in subsequent *schadenfreude* when the consequences of the misfortune were serious and when responsibility for the misfortune was low.

Furthermore, we predicted two moderated mediation effects for the direct relationship between initial and subsequent *schadenfreude*: this relationship would be partially mediated by both appraisals of immorality and moral emotions but only when the consequences of the misfortune were serious. That is, the more participants expressed higher levels of initial *schadenfreude*, the more they would report stronger appraisals of immorality and higher levels of moral emotions about their initial reaction but more so when the consequences were serious. Accordingly, participants would then express less subsequent *schadenfreude*.

Finally, we predicted two mediation effects for the indirect link between appraisals of immorality and prosocial behavior: this link would be fully mediated by moral emotions and also by compassion. The stronger the appraisals of immorality, the higher would be the levels of moral emotions about the initial reaction and the stronger would be compassion for the bride. Compassion and moral

emotions, in turn, would be positively related to prosocial behavior (donating money for a new wedding dress).

Method

Participants and design

Participants were 138 first-year students from Flinders University in South Australia (73 % female; $M_{\text{age}} = 24.15$). The study involved a 2 (responsible for the outcome: yes or no) \times 2 (consequences of the outcome: serious or non-serious) design. Participants were randomly assigned to one of the four conditions.

Procedure

Respondents participated online and accessed the link to the study “watching videos” at a time that suited them. Prior to watching the video, participants read that they would watch a video clip about a wedding. The video showed a wedding ceremony (Bride falls in pool-YouTube 2008). When the best man walked towards the couple to bring the box with the wedding rings, he stumbled and bumped into the bride. As a consequence, the bride fell into a swimming pool that was right behind her. We stopped the video at that moment so that participants could not hear the reactions of the audience.

After watching the video, participants answered questions about how funny and amusing they found the clip. They also indicated whether they had watched the video clip before. Participants then read information designed to vary responsibility for the misfortune. In the *responsible* condition they read the following:

Before the wedding the bride had been told where to stand but she did not follow these instructions and chose her own spot. If she had not been careless and had she paid more attention to the instructions about where to stand during the ceremony rather than making her own choice, the fall into the swimming pool would not have happened.

In the *not responsible* condition participants read:

Before the wedding the bride had been told where to stand. She chose to follow these instructions and took care to stand in the right spot during the ceremony. Despite taking these precautions she fell into the swimming pool, as you saw on the video, due to someone else’s mistake.

Participants then completed questions that measured their perceived responsibility for the misfortune, their perceived deservingness, and their *schadenfreude*.

Next, participants were presented with an epilogue in which the consequences of the bride’s fall into the pool were manipulated in terms of their seriousness. In the *serious* condition, participants read the following:

Unfortunately, the bride was seriously injured. She broke her shoulder in two places due to her fall. She had to undergo complicated surgery. The wedding had to be postponed for more than half a year.

Participants in the *non-serious* condition read:

Fortunately, the bride had no injuries. After getting over the first shock, the bride and bridegroom laughed about the event.

Participants then completed questions that measured their *schadenfreude* as now experienced, compassion at that moment, and their willingness to donate money to help the bride buy a new wedding dress.

Participants were then asked to think back to how much pleasure they had felt when the bride fell into the swimming pool and to indicate their degree of felt moral emotions (shame, regret, and guilt) as now experienced. Finally, they indicated their appraisals of immorality about feeling pleased about the bride’s mishap (see below).¹

Measures

Participants responded on scales anchored *not at all* (1) and *very much* (7) unless otherwise specified. Ratings for each variable were averaged to create composite measures.

The first set of questions presented immediately after the video clip were as follows:

Humor Two items assessed the extent to which participants found the video clip humorous. Participants were asked “how funny [amusing] did you find the video clip”, $r = .92, p < .001$.

Familiarity Participants were asked whether they had seen the video clip before and they responded with either “yes” or “no”.

The second set of questions presented after the responsibility manipulation were as follows:

Manipulation check Two items assessed the manipulation of responsibility for the outcome: “How responsible was the bride for falling into the swimming pool” and “How much is the bride to blame for falling into the swimming pool”, $r = .77, p < .001$.

¹ We included more dependent variables in the study than we reported here. A full version of the measures can be provided by the corresponding author.

Deservingness One item measured deservingness of the outcome: “How much did the bride deserve to fall into the swimming pool”. This item has been used successfully in other studies (Feather 1996, 2006).

Initial schadenfreude Three items, adapted from Feather and Sherman (2002), measured schadenfreude: “How pleased do you now feel about the bride’s fall into the swimming pool”, “How amused do you now feel [How much do you now enjoy it] when the bride fell into the swimming pool”. One item was adapted from van Dijk et al. (2006): “How much do you now smile a little about the bride’s fall into the swimming pool”. The internal validity (Cronbach’s α) for the four items was .89.

Importance One item assessed participants’ opinion about a typical wedding: “How important is it now for you that a wedding runs normally”.

The questions that followed the manipulation of the severity of the consequences in the epilogue consisted of the following measures:

Manipulation check The perceived seriousness of the consequences of the bride’s fall was measured with: “How much did the bride suffer [how badly was the bride injured] from her fall into the pool”, $r = .85, p < .001$.

Subsequent schadenfreude This variable was measured with the same questions as those used to measure initial schadenfreude: “How pleased [amused] do you now feel...”, “How much do you now enjoy ...”, and “How much do you now smile a little ...”, $\alpha = .93$.

Compassion Two items, adapted from Feather and Sherman (2002), measured compassion for the bride: “How much sympathy [pity] do you feel for the bride”, $r = .77, p < .001$.

Donation of money All participants were presented with the following information: “It turned out that the bride’s wedding dress was ruined. She will need a new one. People at the ceremony have set up a fund to help the bride to buy a new wedding dress. If you were a good friend of the bride, how much would you be willing to contribute to the fund”. Participants were asked to tick one of the following response options: \$.00, \$2.50, \$5.00, \$7.50, \$10.00, \$12.50, and \$15.00.

Moral emotions Participants were instructed to think back to how much pleasure they felt when the bride fell into the swimming pool. We then measured the following moral emotions: “How much shame [regret, guilt] do you now experience about how you felt then”, $\alpha = .91$.

Appraisals of immorality Three items were used to measure the perceived immorality of schadenfreude after the fall into the pool: “How immoral [unfair, unethical] do you find it to laugh about the bride’s fall into the swimming pool”. Principal components analysis showed one factor that explained 84.46 % of the variance. The items loaded strongly on the factor (loadings $> .89$), supporting the construct validity of appraisals of immorality ($\alpha = .91$).

Results

Only 14 % of the participants indicated that they had seen the video before.² Familiarity with the video and the importance of a wedding that runs normally did not moderate any of the results (all $ps > .27$). Hence we collapsed the data across these variables.

Correlations between appraisals, emotions, and prosocial behavior

Table 1 shows all scale inter-correlations and descriptive statistics. It can be seen that, consistent with our expectations, initial schadenfreude was positively associated with perceived deservingness of the outcome, moral emotions, and subsequent schadenfreude and the latter was negatively related to compassion. In line with our predictions, immorality appraisals were negatively associated with subsequent schadenfreude and positively associated with compassion and moral emotions. As predicted, compassion and moral emotions were both positively related to donating money to buy a new wedding dress.

Comparisons between the conditions

Table 2 shows the means and standard deviations for all variables in relation to the responsibility and seriousness manipulations.

Below we report all significant results of 2×2 ANOVAs (exceptions are indicated). Both manipulations were successful. A main effect of responsibility condition revealed that perceived responsibility was higher in the responsibility condition than in the non-responsibility condition, $F(1, 134) = 14.38, p < .001, \eta_p^2 = .10$. A main effect of consequence condition showed that perceived suffering was higher in the serious condition than in the non-serious condition, $F(1, 134) = 754.68, p < .001, \eta_p^2 = .85$. Note also that the means for both humorous video and importance of wedding were similar across the four conditions. There were no significant effects for these variables. None were expected.

² Removing these participants in the analyses did not change our main findings.

Table 1 Scale intercorrelations and descriptive statistics (Study 1)

Variable	1	2	3	4	5	6	7	8	9	10	11
1 Perceived responsibility	–										
2 Deservingness appraisal	.79***	–									
3 Initial schadenfreude	.29**	.25**	–								
4 Perceived suffering	.06	.05	.06	–							
5 Immorality appraisal	–.10	–.14	.07	.24**	–						
6 Subsequent schadenfreude	.02	.00	.48***	–.55***	–.28**	–					
7 Compassion	.01	–.01	–.05	.55***	.45***	–.41***	–				
8 Moral emotions	.18*	.19*	.34***	.25**	.54***	–.03	.34***	–			
9 Donation money	.11	.08	.13	.51***	.54***	–.30***	.83***	.68***	–		
10 Importance of wedding	.06	.06	–.10	–.08	–.18*	–.02	.18*	.07	.14	–	
11 Humorous video	.08	.02	.74***	.06	.06	.36***	.08	.29***	.19*	.03	
Mean	1.93	1.75	3.56	4.51	3.78	2.79	4.66	2.82	3.49	4.98	4.38
SD	1.44	1.35	1.69	2.27	1.61	1.69	1.85	1.73	1.76	2.06	1.67

N = 138. * *p* < .05, ** *p* < .01, *** *p* < .001

Table 2 Mean scores (and standard deviations) for all dependent variables as a function of responsible condition and seriousness of consequences condition (Study 1)

	Responsible		Not responsible	
	Non-serious <i>n</i> = 32	Serious <i>n</i> = 34	Non-serious <i>n</i> = 38	Serious <i>n</i> = 34
Humorous video	4.00 (1.59)	4.39 (1.92)	4.38 (1.63)	4.63 (1.48)
Perceived responsibility	2.54 (1.67)	2.60 (1.48)	1.71 (.86)	1.73 (1.10)
Deservingness appraisal	1.80 (1.35)	2.32 (1.78)	1.47 (.95)	1.32 (.84)
Initial schadenfreude	3.45 (1.88)	3.76 (1.83)	3.41 (1.60)	3.59 (1.53)
Importance of wedding ^a	5.08 (2.21)	4.72 (2.08)	5.16 (2.11)	5.00 (1.94)
Perceived suffering	1.96 (.78)	6.43 (.76)	2.42 (1.14)	6.42 (.78)
Immorality appraisal	3.31 (1.62)	4.01 (1.76)	3.44 (1.46)	4.21 (1.48)
Subsequent schadenfreude	3.75 (1.54)	1.97 (1.36)	3.76 (1.65)	1.97 (1.24)
Compassion	3.60 (1.51)	5.39 (1.48)	3.62 (1.74)	5.73 (1.61)
Moral emotions	2.13 (1.33)	3.22 (1.86)	2.49 (1.53)	3.21 (1.87)
Money donation	2.44 (1.19)	4.17 (1.48)	2.66 (1.66)	4.38 (1.72)

^a In all conditions the importance of a normally run wedding differed significantly from the midpoint of the scale (i.e., 4), all *ps* < .05

Table 2 shows that, as expected, perceived deservingness of the negative outcome was higher in the responsible than in the non-responsible condition, $F(1, 134) = 8.53, p = .004, \eta_p^2 = .05$. A $2 \times 2 \times 2$ ANOVA with schadenfreude as a within-subjects factor revealed significant main effects of the within-subjects factor ($F(1, 134) = 31.44, p < .001, \eta_p^2 = .19$) and the serious condition ($F(1, 134) = 39.67, p = .002, \eta_p^2 = .07$) that were qualified by an interaction, $F(1, 134) = 68.11, p < .001, \eta_p^2 = .34$. Consistent with our predictions, subsequent schadenfreude was lower in the serious condition when compared with the non-serious condition, $F(1, 134) = 50.21, p < .001, \eta_p^2 = .27$, and there were no

significant differences for initial schadenfreude. However, the predicted 3-way interaction between responsibility condition, serious condition, and the within-subjects factor of schadenfreude was not significant, $F(1, 134) = .05, p = .816$.

We therefore checked our two moderated mediation hypotheses (mediation by appraisals of immorality and by moral emotions) by conducting mediation analyses (Baron and Kenny 1986) for each level of the serious of consequences condition (moderator). As expected, initial schadenfreude predicted subsequent schadenfreude (serious condition: $\beta = .39$, explaining 15.6 % of the variance in subsequent schadenfreude, $F(1, 73) = 13.47, p < .001$;

less serious condition: $\beta = .82$, explaining 67.6 % of the variance in subsequent schadenfreude, $F(1, 61) = 127.48$, $p < .001$). However, initial schadenfreude did not significantly predict immoral appraisals in both consequences conditions (serious condition: $\beta = .07$, explaining .6 % of the variance in immorality appraisals, $F(1, 73) = .41$, $p = .52$; less serious condition: $\beta = -.15$, explaining 2.2 % of the variance in immorality appraisals, $F(1, 61) = 1.35$, $p = .24$). Thus, we did not find support for the moderated mediation effect of immoral appraisals on the relationship between initial and subsequent schadenfreude. Furthermore, moral emotions did not significantly predict subsequent schadenfreude in both consequences conditions (serious condition: $\beta = -.19$, $p = .11$; less serious condition: $\beta = .08$, $p = .27$). Thus, we also did not find support for the moderated mediation effect of moral emotions on the relationship between initial and subsequent schadenfreude.

Finally, the 2×2 ANOVAs revealed that immorality appraisals of the initial schadenfreude and both reported compassion and the moral emotions were higher in the serious condition, $F(1, 134) = 7.17$, $p = .008$, $\eta_p^2 = .05$, $F(1, 134) = 50.07$, $p < .001$, $\eta_p^2 = .27$, $F(1, 134) = 9.52$, $p = .002$, $\eta_p^2 = .07$, respectively. Participants also donated more money in the serious condition, $F(1, 134) = 41.24$, $p < .001$, $\eta_p^2 = .24$.

Path analysis

We found that the interaction between responsibility condition and seriousness of the consequences condition on the differences between initial and subsequent schadenfreude was non-significant. Hence, we used AMOS 22 to test an unqualified mediation model (see Fig. 2). This model provided an excellent fit to the data (see Kline 1998), Chi square value, $\chi^2(22) = 19.16$, $p = .63$ and χ^2/df ratio = .87, comparative fit index (CFI) = 1.00, and root-mean-square error of approximation (RMSEA) = .00.

Figure 2 displays the standardized regression coefficients. The predicted pathways were significant except for the path from initial schadenfreude to immorality appraisals ($p = .31$) and for the path from moral emotions to subsequent schadenfreude ($p = .99$), as indicated by the results of the moderated mediation analyses presented above.

Table 3 displays the indirect effects. It can be seen that most indirect pathways were significant except in the following cases. Because the path from initial schadenfreude to immorality appraisals was non-significant, the indirect effects that included this path as the only mediator (row 13), or where immorality appraisals were the outcome variable (row 2 and 11), or where immorality appraisals were the only mediator (row 16, 17, and 19) were not

significant. Likewise, because the path from moral emotions to subsequent schadenfreude was not significant, the indirect effect of immorality appraisals on subsequent schadenfreude through moral emotions (row 21), was also not significant.

Discussion

The results supported most of the paths that were predicted in the model. Initial schadenfreude was positively linked to the perceived deservingness of the misfortune. Thus, deservingness of the other's misfortune was again shown to be a key variable that underlies schadenfreude, consistent with previous findings (Feather 2006, 2014).

The introduction of information that the misfortune had serious consequences reduced subsequent schadenfreude and had a positive effect on compassion for the bride. These findings were due to appraisals that it was immoral to laugh about the misfortune. Furthermore, the stronger these appraisals, and the stronger the initially expressed schadenfreude, the stronger were the moral emotions (guilt, shame, and regret) about the initially expressed schadenfreude.

Both moral emotions and compassion predicted how much money participants were willing to donate to help the victim of mishap. The observed association between prosocial behavior and moral emotions (including compassion) is consistent with findings from previous research (e.g., Berndsen and Gausel 2015; Berndsen and McGarty 2010, 2012; de Hooze et al. 2008; Gausel et al. 2012; Feather et al. 2013; Harth et al. 2008; Iyer et al. 2004; Lickel et al. 2014; McGarty et al. 2005; Tangney et al. 2014).

So we provided evidence for a sequence of events in which appraisals of both deservingness and immorality were central, and in which lower schadenfreude and more felt compassion were reported along with morally charged emotions once the seriousness of the consequences became known.

However, the results did not provide evidence for the predicted interaction between responsibility, seriousness and change in schadenfreude and the moderating role of the serious consequences condition in predicting the mediating roles of immorality appraisals and moral emotions in the relationship between initial and subsequent expressions of schadenfreude. Nor did they support the predicted positive path from initial schadenfreude to appraisals of immorality and the predicted negative path from moral emotions to subsequent schadenfreude.

We do not have a plausible explanation for the latter finding. Study 2 will enable a further opportunity to investigate this relationship. Possible reasons for the other unanticipated findings are as follows: First, the situation

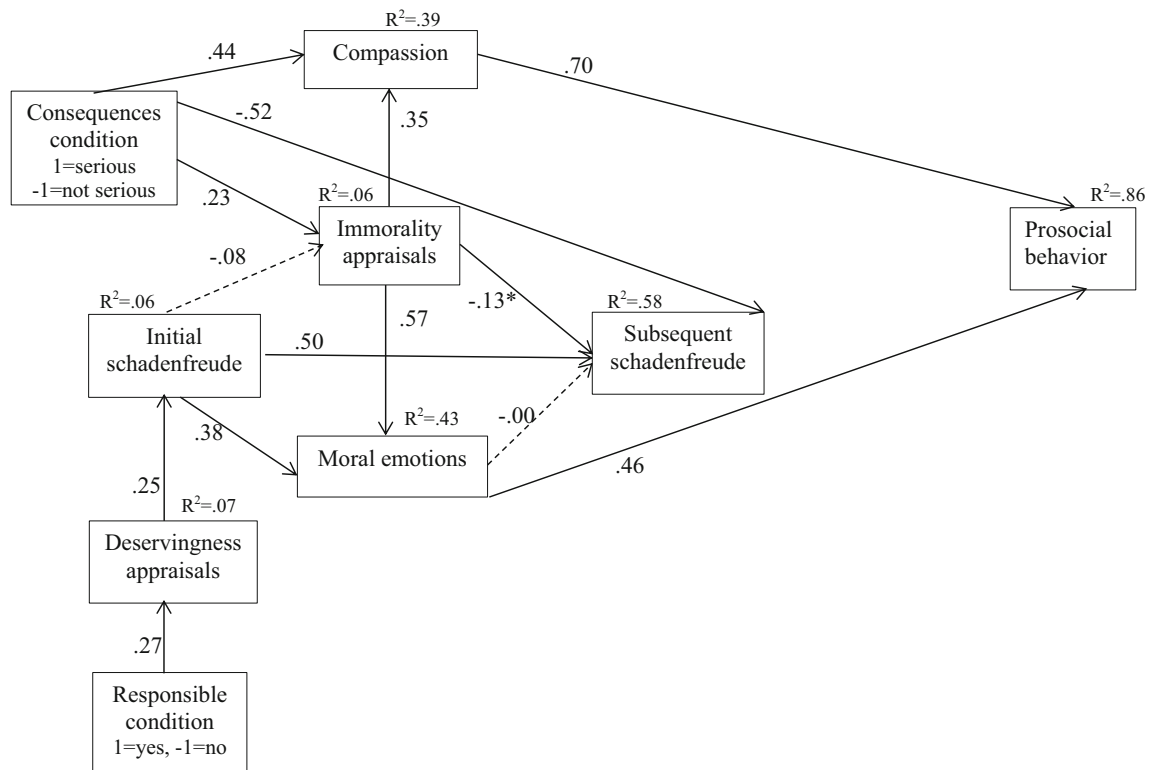


Fig. 2 Path model of the relationship between immorality appraisals and moral emotions about initial schadenfreude and prosocial behavior. *Solid lines* represent statistically significant paths,

$p < .05$, * $p = .068$. The *dashed paths* and all other paths between the variables were non-significant (Study 1)

was one that produced low levels of the bride’s responsibility for the fall and subsequent deservingness (Table 2). Clearly, participants believed that a bride is somehow entitled to good fortune on her wedding day and should not be blamed or held responsible when things go wrong. They perceived the wedding as an important day in a bride’s life (Table 2). The low levels of responsibility across the conditions may explain the lack of the predicted interaction. In Study 2, we used a video that we assumed would elicit higher levels of responsibility.

Second, participants may have been defensive in reporting their moral appraisals. Assessing a particular instance of one’s behavior as immoral has implications for how one assesses one’s own immoral character (Leach 2014). Values concerned with morality (defined in terms of trustworthiness, caring, honesty, justice) are important components of one’s self-concept and they influence how we act towards others (Feather 1999b; Leach et al. 2014a). People are likely to defend their moral character, and the values that make it up, and be reluctant to admit that they behaved immorally.

Alternatively, some participants may have interpreted our questions about appraisals of immorality as general appraisals that were unrelated to their previously reported

schadenfreude. We asked, for example, “how immoral do you find it to laugh about the bride’s fall into the swimming pool”, whereas the preceding questions about moral emotions were clearly directed at participants’ previously expressions of schadenfreude, e.g., “think back to how much pleasure you felt when the bride fell into the swimming pool. How much shame do you now experience about how you felt then”. Moral appraisals that refer more explicitly to participants’ previous responses about their felt pleasure would provide a better test of predictions. For example, one could ask “think back to how much pleasure you felt when the bride fell into the swimming pool. How immoral do you think it was to feel that amount of pleasure?” In Study 2, we improved our question about appraisals of immorality in the belief that we might then find support for the moderating role of the consequence condition on the mediating effect of immorality appraisals on the link between initial and subsequent schadenfreude.

Despite these unanticipated results, Study 1 provided valuable insights into the central role of appraisals of immorality on a set of emotions that comprised subsequently expressed schadenfreude, moral emotions, and compassion for the bride. Moreover, compassion and moral emotions were found to foster prosocial behavior.

Table 3 Tests of indirect effects (Study 1)

Row	Independent variable → mediator(s) → dependent variable	<i>IE</i>	<i>SE</i>	95 % <i>CI</i>	
1	RC → DS → IS	.22	.11	.48,	.06
2	RC → DA/IS → IA	−.02	.02	.01,	−.08
3	RC → DA/IS/IA → ME	.07	.04	.19,	.02
4	RC → DA/IS/IA → C	.01	.01	.00,	.04
5	RC → DA/IS/ME/IA/C → DM	.04	.02	.09,	.00
6	RC → DA/IS → SS	.16	.05	.25,	.03
7	SC → IA → ME	.45	.17	.80,	.14
8	SC → IA → C	.30	.13	.60,	.09
9	SC → IA → SS	−.10	.06	−.01,	−.27
10	SC → C/IA/ME → DM	1.45	.21	1.87,	1.03
11	DA → IS → IA	−.02	.03	.02,	−.10
12	DA → IS → ME	.10	.05	.21,	.03
13	DA → IS/IA → C	−.01	.01	.01,	−.04
14	DA → IS/ME/IA/C → DM	.04	.02	.10,	.00
15	DA → IS → SS	.16	.05	.27,	.05
16	IS → IA → ME	−.05	.05	.05,	−.17
17	IS → IA → C	−.03	.04	.03,	−.12
18	IS → IA/ME/C → DM	.13	.06	.24,	.01
19	IS → IA → SS	.01	.03	.07,	−.05
20	IA → C/ME → DM	.54	.07	.69,	.41
21	IA → ME → SS	.00	.04	.08,	−.08

IE standardized indirect effect, *SE* standard error, *DA* deservingness appraisal, *IS* initial schadenfreude, *DM* donation of money, *IA* immorality appraisal, *ME* moral emotions, *RC* responsible condition, *C* compassion, *SC* serious condition, *SS* subsequent schadenfreude

Study 2

In Study 2, we used a different video that we expected would create more discrimination between the manipulated responsibility conditions when compared with the manipulations used in the bride scenario. Participants watched a video in which a man jumped into a pool that was covered with ice. To boost the contrast between high and low responsibility conditions, participants were told either that the man jumped into the pool despite warnings from his friend (high responsibility for the outcome) or jumped following encouragement from his friend (low responsibility). Relative to Study 1, we anticipated that this manipulation of responsibility would lead to more divergent expressions of deservingness, initial schadenfreude, subsequent immorality appraisals, and emotions (schadenfreude, moral emotions, compassion). We might then expect to find support for the moderating role of the serious consequences condition.

In particular, we again predicted that, when the consequences of the misfortune were serious (but not when they are less serious) and when responsibility for the misfortune was low, there would be a larger reduction in subsequent schadenfreude when compared with the other conditions. As for Study 1, we also predicted that more serious

consequences would moderate the positive link between initial and subsequent schadenfreude that would be mediated by appraisals of immorality, and, also by moral emotions. Furthermore, the use of a new video also enabled us to test whether the significant findings from Study 1 could be replicated in a different context.

Method

Participants and design

Participants ($N = 153$) were recruited from Reddit, an online platform (53 % female; $M_{\text{age}} = 27.63$). As in Study 1, the study used a 2 (responsible for the outcome: high or low) \times 2 (consequences of the outcome: serious or non-serious) between-subjects design. Participants were randomly assigned to one of the four conditions. In order to conduct structural equation modeling, about fifteen times as many cases as variables are needed (Ullman 2001). There were nine variables in Study 2 (responsible condition, consequences condition, deservingness and immorality appraisals, initial and subsequent schadenfreude, moral emotions, compassion, and donation of money). Hence, a sample size of 153 was deemed to be sufficient to detect differences between the four experimental conditions. As

we intended to use multi-group analysis (see below), A G*power analysis (Faul et al. 2007) produced power ratings between .41 and .90 with effect sizes between .30 and .50, respectively.

Stimulus materials and procedure

The procedure differed in two ways from Study 1. First, we presented the manipulation of responsibility prior to the video clip in order to increase the salience of the manipulation. Second, we positioned the appraisal of immorality items directly after the items that were designed to check the effectiveness of the seriousness manipulation. In Study 1, these items were placed at the end of the questionnaire, but because they were designed in Study 2 to refer more explicitly to expressions of the initially expressed *schadenfreude*, it made more sense to place them closer to the items relating to initial *schadenfreude*.

Respondents participated online and accessed the link to the study “A video clip” at a time that suited them. As in Study 1, they responded on scales anchored *not at all* (1) and *very much* (7) unless otherwise specified. Ratings for each variable were averaged to create composite measures. Before watching the video, participants read information designed to vary responsibility for the misfortune. In the *responsible* condition they read the following:

You will now watch a video about a man called John. John tries to jump into his frozen pool in the backyard. His friend warned him not to jump, but John persisted anyway.

In the *not responsible* condition participants read:

You will now watch a video about a man called John. John tries to jump into his frozen pool in the backyard. His friend encouraged him saying that the ice is thin and he will probably break it because of his jump.

Participants watched a video that showed a frozen swimming pool and a man, who we called John, in a swim suit (German man jumps into hard frozen pool-YouTube 2012). Before jumping into the frozen pool, John made bodily gestures showing his physical strength. He then jumps into the pool but the ice does not break. John lies on the ice and his hands are touching his back. We removed the sound in the video so that participants could not hear the reactions of John and his friend and because John used swear words that some participants might find offensive.

After watching the video, participants were presented with the first set of questions that were similar to those presented in Study 1 but adapted to the present video, unless otherwise specified:

Humor Participants answered how humorous they found the video clip, using the same item as in Study 1, $r = .91$, $p < .001$.

Manipulation check Two items (similar to Study 1) assessed the manipulation of responsibility for John’s fall on the ice; “How responsible was John for his fall on the ice” and “How much is John to blame for his fall on the ice”, $r = .73$, $p < .001$.

Deservingness We measured deservingness with two items rather than one as in Study 1, “How much did John personally deserve any consequences that might follow from his fall on the ice”, and “To what extent will John get his just deserts if there are any consequences that might follow from his fall on the ice”, $r = .71$, $p < .001$.

Initial schadenfreude The same four items used in Study 1 measured *schadenfreude* when John fell on the ice: Cronbach’s α for the four items was .93.

Familiarity As in Study 1, participants were asked whether they had seen the video clip before and they responded with either “yes” or “no”.

Next, participants were presented with an epilogue in which the consequences of John’s fall on the ice were manipulated in terms of their seriousness. In the *serious* condition, participants read the following:

Unfortunately, John was seriously injured after his jump. He went to the hospital where he was diagnosed with a serious bone fracture.

Participants in the *non-serious* condition read:

Fortunately, John had no serious injuries. After a visit to the doctor it turned out that he only had a number of bruises.

The second set of questions presented after the serious manipulation were as follows:

Manipulation check The perceived seriousness of the consequences of John’s fall was measured with the same two items used in Study 1, $r = .89$, $p < .001$.

Appraisals of immorality Participants were instructed to think back to how much pleasure they felt when John fell on the ice. In discussing the results of Study 1 we noted that people may be reluctant to admit that they behaved immorally. This possible reaction could have occurred because the items were negatively worded in Study 1 to reflect immorality appraisals. To avoid this possibility, we worded all three items used in Study 1 positively: “How moral [fair, ethical] do you think it was to feel that amount

of pleasure?” The items were then recoded in the direction of immorality appraisals, $\alpha = .94$.

Subsequent schadenfreude This variable was measured with the same four questions used to measure initial schadenfreude. Each referred to how participants felt now about John’s fall on the ice, $\alpha = .97$.

Compassion The same items as in Study 1 were used to measure compassion for John, $r = .67$, $p < .001$.

Moral emotions As in Study 1, participants were instructed to think back to how much pleasure they felt when John fell on the ice. We then measured the same three moral emotions (shame, regret, guilt) that were used in Study 1, $\alpha = .88$.

Donation of money All participants were presented with the following information: “After John fell on the ice, he went to the doctor to check his injuries. The doctor then took X-ray pictures of his body to check for any broken bones. This costs John a lot of money.

How much money would you be willing to contribute to pay for John’s hospital bill? As in Study 1, participants were asked to tick one of the following response options: \$.00, \$2.50, \$5.00, \$7.50, \$10.00, \$12.50, and \$15.00.

Results

Only 15 % of the participants indicated that they had seen the video before². As in Study 1, familiarity with the video did not moderate any of the results (all $ps > .58$). Hence we collapsed the data across this variable.

Correlations between appraisals, emotions, and prosocial behavior

Table 4 shows all scale inter-correlations and descriptive statistics. As in Study 1 and consistent with our predictions, initial schadenfreude was positively associated with perceived deservingness of the outcome, moral emotions, and subsequent schadenfreude and the latter was negatively related to compassion. In line with predictions and as in Study 1, immorality appraisals were positively associated with compassion and moral emotions. Immorality appraisals were positively associated with initial schadenfreude and negatively with subsequent schadenfreude. Consistent with Study 1, and with our predictions, compassion and moral emotions were both positively related to donating money to help John meet his medical costs.

Comparisons between the conditions

Table 5 shows the means and standard deviations for all variables as a function of the responsibility and seriousness conditions.

Below we report all significant results of the ANOVAs. As in Study 1, both manipulations were successful. A main effect of responsibility condition showed that perceived responsibility was higher in the responsibility condition than in the non-responsibility condition, $F(1, 149) = 17.49$, $p < .001$, $\eta_p^2 = .10$. A main effect of consequence condition demonstrated that perceived suffering was higher in the serious condition than in the non-serious condition, $F(1, 149) = 49.74$, $p < .001$, $\eta_p^2 = .25$. In contrast to Study 1, participants in the responsible condition found the video more humorous than participants in the non-responsible condition, $F(1, 149) = 4.75$, $p = .03$, $\eta_p^2 = .03$.

Table 5 shows that, as expected, perceived deservingness of the negative outcome was higher in the responsible than in the non-responsible condition, $F(1, 149) = 26.57$, $p < .001$, $\eta_p^2 = .15$. A $2 \times 2 \times 2$ ANOVA with schadenfreude as a within-subjects factor revealed significant main effects of the within-subjects factor ($F(1, 149) = 5.52$, $p = .02$, $\eta_p^2 = .04$) and the responsibility condition ($F(1, 149) = 6.47$, $p = .01$, $\eta_p^2 = .04$) that were qualified by an interaction, $F(1, 149) = 5.54$, $p = .02$, $\eta_p^2 = .04$. The interaction between the within-subjects factor and the serious condition was marginally significant, $F(1, 149) = 3.51$, $p = .06$, $\eta_p^2 = .02$. Importantly, the predicted 3-way interaction between responsibility condition, serious condition, and the within-subjects factor of schadenfreude was also marginally significant, $F(1, 149) = 3.54$, $p = .06$, $\eta_p^2 = .02$. Consistent with our predictions, the reduction in subsequent schadenfreude was only significant, $F(1, 149) = 18.23$, $p < .001$, $\eta_p^2 = .11$, when the consequences were serious and responsibility for the outcome was low.

Finally, the 2×2 ANOVAs showed that immorality appraisals of the initial schadenfreude, reported compassion, and moral emotions were higher in the serious condition, $F(1, 49) = 14.45$, $p < .001$, $\eta_p^2 = .09$, $F(1, 49) = 22.88$, $p < .001$, $\eta_p^2 = .13$, $F(1, 149) = 7.66$, $p = .006$, $\eta_p^2 = .05$, respectively. Participants also donated more money in the serious condition, $F(1, 149) = 13.18$, $p < .001$, $\eta_p^2 = .08$.

Path analysis

As the main purpose of Study 2 was to test the moderating role of the serious consequences condition, we conducted multi-group structural equation modelling (SEM). According to Byrne (2013), multi-group SEM tests

Table 4 Scale intercorrelations and descriptive statistics (Study 2)

Variable	1	2	3	4	5	6	7	8	9	10
1 Perceived responsibility	–									
2 Deservingness appraisal	.51***	–								
3 Initial schadenfreude	.24**	.28**	–							
4 Perceived suffering	.10	.01	–.11	–						
5 Immorality appraisal	.01	–.13	.17*	.14	–					
6 Subsequent schadenfreude	.26**	.29***	.88***	–.15*	–.20*	–				
7 Compassion	–.02	–.15	–.08	.10	.28***	–.16*	–			
8 Moral emotions	–.03	–.04	.22**	.17*	.35***	.05	.19*	–		
9 Donation money	–.15	–.07	.10	.04	.22**	–.04	.31***	.34***	–	
10 Humorous video	.24**	.20*	.81***	–.06	.17*	.77***	–.03	.26**	.11	
Mean	6.06	4.55	3.07	4.45	3.37	2.89	3.41	1.42	1.41	3.31
SD	1.32	1.69	1.79	1.80	1.69	1.84	1.66	.86	1.19	1.85

N = 158. * *p* < .05, ** *p* < .01, *** *p* < .001

Table 5 Mean scores (and standard deviations) for all dependent variables as a function of responsible condition and seriousness of consequences condition (Study 2)

	Responsible		Not responsible	
	Non-serious <i>n</i> = 36	Serious <i>n</i> = 38	Non-serious <i>n</i> = 40	Serious <i>n</i> = 39
Humorous video	3.67 (1.90)	3.63 (1.81)	2.86 (1.80)	3.14 (1.83)
Perceived responsibility	6.33 (1.37)	6.66 (.77)	5.65 (1.51)	5.64 (1.23)
Deservingness appraisal	4.82 (1.70)	5.58 (1.53)	3.92 (1.45)	3.88 (1.53)
Initial schadenfreude	3.50 (1.74)	3.19 (1.58)	2.81 (1.97)	2.79 (1.79)
Perceived suffering	3.28 (1.68)	5.21 (1.41)	3.80 (1.59)	5.45 (1.58)
Immorality appraisal	2.88 (1.31)	3.50 (1.70)	2.85 (1.61)	4.21 (1.77)
Subsequent schadenfreude	3.51 (1.77)	3.19 (1.79)	2.74 (2.00)	2.19 (1.54)
Compassion	2.76 (1.53)	3.80 (1.44)	2.84 (1.12)	4.01 (2.00)
Moral emotions	1.24 (.49)	1.60 (1.13)	1.21 (.46)	1.61 (1.08)
Money donation	1.06 (.33)	1.58 (1.52)	1.08 (.35)	1.90 (1.63)

whether specific paths are statistically similar or different across different groups. In the current study the serious consequences condition (moderator) is the grouping variable. We hypothesized that directly after the manipulation of the seriousness of consequences all paths (except the path from initial to subsequent schadenfreude, see below) would be augmented when the seriousness of the consequences was known compared to the same paths when the consequences of the misfortune were less serious. We expected that the path from initial to subsequent schadenfreude would be similar in both the serious and less serious conditions because we have argued before, and shown, that these variables are related. In addition to the path from initial to subsequent schadenfreude, there were two other paths that were expected to be the same because they were

established before the information about the seriousness of consequences was provided: the path from the responsibility condition to deservingness appraisals and the path from deservingness appraisals to initial schadenfreude (see Fig. 3).

First, we fixed all paths between the serious conditions to be equal, $\chi^2(42) = 65.03, p = .013$. We compared this model with our hypothesized model in which the following paths were free to vary between the serious conditions (see Fig. 3): initial schadenfreude → immorality appraisals → subsequent schadenfreude; initial schadenfreude → moral emotions → subsequent schadenfreude; immorality appraisals → compassion → donating money; immorality appraisals → moral emotions → donating money. The Chi square for this unconstrained model was

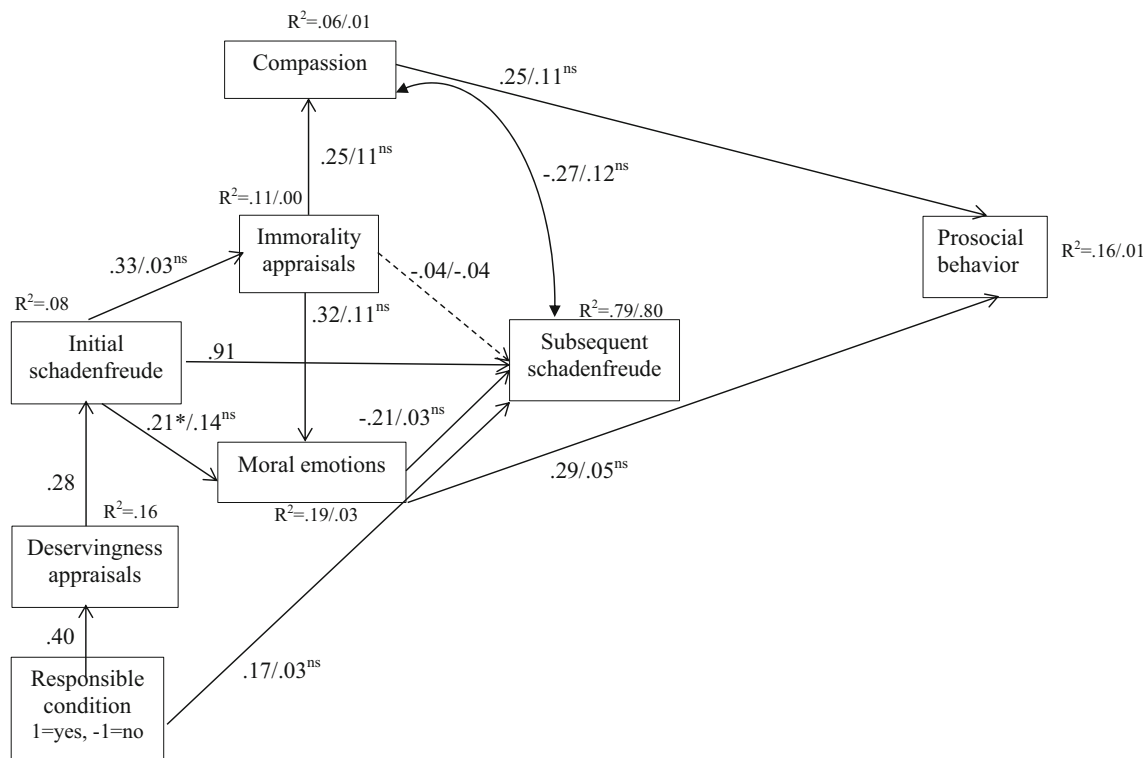


Fig. 3 Multi-group structural equation model of consequences condition moderating (1) the mediating roles of both immorality appraisals and moral emotions in predicting subsequent schadenfreude, and (2) the mediating roles of both compassion and moral emotions in predicting prosocial behavior. Values to the left of the backslash represent standardized weights in the serious condition and

to the right of the backslash represent standardized weights in the less serious condition. Solid lines represent statistically significant paths ($p < .05$, * $p = .05$), unless denoted with superscript ns (non-significant). The dashed path and all other paths between the variables were non-significant (Study2)

lower, $\chi^2(33) = 34.75$, $p = .38$, than that of the constrained model. The difference between the models was significant, $\Delta\chi^2(9) = 30.28$, $p < .001$, indicating that our model in which the paths were free to vary offered a better overall model fit.

The overall model fit for the unconstrained model was good (see Kline 1998); $\chi^2(35) = 44.81$, $p = .12$, χ^2/df ratio = 1.05, CFI = .99, and RMSEA = .02. In the serious condition all standardized regression coefficients were significant, except for the path from immoral appraisals to subsequent schadenfreude (see Fig. 3). In the less serious condition none of these significant effects were observed. In Fig. 3 the standardized regression weights to the left of the backslash represent the seriousness of consequences condition and the values to the right of the backslash refer to the less serious condition.

Table 6 displays the indirect effects. It can be seen that all indirect pathways were significant when the consequences were serious. However, when the consequences were less serious, only the indirect effects of responsibility condition to both initial and subsequent schadenfreude were significant, and so was the indirect effect from deservingness appraisals to subsequent schadenfreude.

Finally, subsequent schadenfreude and compassion were negatively correlated but only in the serious condition.

Discussion

The results of Study 2 provided higher levels of reported responsibility and deservingness when compared to those obtained in Study 1. The reported levels of initial schadenfreude were comparable (some were lower) than in Study 1. The observed levels of initial schadenfreude are similar to those observed in other studies where reported schadenfreude is around or below the scale midpoint (e.g., Combs et al. 2009; Hoogland et al. 2015; Leach and Spears 2008; Van Dijk et al. 2005).

Consistent with our hypotheses, the seriousness of consequences condition was found to be a moderator. When the consequences of the misfortune were serious (but not when they were less serious), subsequently expressed schadenfreude was most strongly reduced when John was perceived as less responsible for and therefore less deserving of the misfortune. Furthermore, appraisals of immorality partly predicted moral emotions, which mediated the relationship between initial and subsequent

Table 6 Tests of indirect effects (Study 2)

Independent variable → mediator(s) → dependent variable	<i>IE</i>	<i>SE</i>	95 % <i>CI</i>
Serious consequences condition			
RC → DA/IS → IA	.13	.06	.28, .04
RC → DA/IS/IA → ME	.08	.04	.19, .02
RC → DA/IS/IA/ → C	.03	.02	.10, .01
RC → DA/IS/ME/IA/C → DM	.04	.03	.12, .01
RC → DA/IS/IA/ME → SS	−.32	.12	−.59, −.12
DA → IS → IA	.10	.04	.19, .03
DA → IS → ME	.06	.03	.13, .02
DA → IS/IA → C	.02	.01	.07, .01
DA → IS/ME/IA/C → DM	.03	.02	.09, .01
DA → IS/ME/IA → SS	.24	.06	.36, .11
IS → IA → ME	.07	.04	.18, .02
IS → IA → C	.09	.04	.20, .02
IS → IA/ME/C → DM	.11	.06	.27, .02
IS → IA/ME → SS	−.08	.05	−.01, −.18
IA → IA/C/ME → DM	.14	.06	.28, .04
IA → IA/ME → SS	−.06	.04	−.16, −.01
Less serious consequences condition			
RC → DA/IS → IA	−.01	.04	.07, −.09
RC → DA/IS/IA → ME	−.01	.01	.00, −.04
RC → DA/IS/IA/ → C	−.00	.01	.00, −.02
RC → DA/IS/ME/IA/C → DM	−.00	.00	.00, −.01
RC → DA/IS/IA/ME → SS	−.35	.13	−.63, −.13
DA → IS → IA	.01	.03	.06, −.05
DA → IS → ME	.01	.01	.03, −.00
DA → IS/IA → C	.00	.00	.01, −.00
DA → IS/ME/IA/C → DM	.00	.00	.00, −.00
DA → IS/ME/IA → SS	.27	.07	.40, .12
IS → IA → ME	.00	.00	.02, −.00
IS → IA → C	.00	.01	.05, −.00
IS → IA/ME/C → DM	.00	.00	.02, −.00
IS → IA/ME → SS	.00	.01	.03, −.02
IA → IA/C/ME → DM	.00	.01	.03, −.00
IA → IA/ME → SS	.00	.01	.04, −.01
Both conditions			
RC → DA → IS	.38	.14	.69, .14

IE standardized indirect effect, *SE* standard error, *DA* deservingness appraisal, *IS* initial schadenfreude, *DM* donating money, *IA* immorality appraisal, *ME* moral emotions, *RC* responsible condition, *C* compassion, *SC* serious condition, *SS* subsequent schadenfreude

schadenfreude only when the consequences were serious, supporting our moderated mediation hypotheses. That is, in this condition the reduction in subsequent schadenfreude was due to higher levels of moral emotions about the initially expressed schadenfreude. In addition, stronger appraisals of immorality were associated with higher levels of both moral emotions and compassion for John but only when the consequences of the misfortune were serious. Both moral emotions and compassion positively predicted

donating money to John’s hospital bill. Subsequent schadenfreude and compassion were negatively related but only in the serious condition. This negative relationship has been observed in previous studies (e.g., Feather 1999b; Feather and Sherman 2002). Finally, as in Study 1, perceived deservingness of the misfortune was positively linked to initial schadenfreude.

These results provide excellent support for the proposal that information about the seriousness of the consequences

of a misfortune promotes reflection about previous expressions of *schadenfreude*. Appraisals of immorality and moral emotions then occur that relate to these expressions, as well as compassion for the victim that eventually fosters willingness to engage in prosocial behaviour that supports the victim of the misfortune.

Although all indirect effects were supported when the consequences were serious, the significant and indirect effect from initial *schadenfreude* to subsequent *schadenfreude* is obviously due to the mediating effect of moral emotions because the path from immoral appraisals to subsequent *schadenfreude* was non-significant, despite the fact that we improved the items designed to measure appraisals of immorality about the initially expressed *schadenfreude*. Perhaps participants felt reluctant to admit that their subsequently expressed *schadenfreude* reflected an immoral act. It may have been easier to admit that the subsequent *schadenfreude* that they expressed was due to higher levels of moral emotions (shame, guilt, and regret) rather than to immoral behavior. As we noted previously, admitting immoral behavior would have negative implications for one's self-concept. Behaving morally is generally perceived as a very important quality in people (e.g., Leach et al. 2008; Leach et al. 2014b).

General discussion

This research was designed to investigate how participants reflect on their initial expressions of *schadenfreude* when the seriousness of the consequences of a misfortune was varied. There is an absence of studies that allows people to reflect on the *schadenfreude* they initially expressed. Thus, our study fills an important gap and enables us to test a dynamic structure that involved perceived deservingness, appraisals of immorality, moral emotions (guilt, shame, regret), compassion, and *schadenfreude* across a sequence in which the seriousness of the consequences became known. In contrast to most previous studies on *schadenfreude*, our study was also set within a non-competitive context where concerns about achievement and social comparison were assumed to be minimized. Thus in a number of respects our study breaks new ground empirically and it also provides theoretical insights about the structure of relations between appraisals and emotions.

Theoretical implications: context effects

There are theoretical implications that relate to the fact that our study did not involve competition or achievement. Participants were presented with a simple mishap—a bride falling into a swimming pool or a man jumping into a frozen pool. In this context participants who reacted to the

mishap would be unlikely to experience envy or resentment, emotions that are clearly more relevant when the context involves deserved or undeserved success or failure that occurs along a status continuum of more or less valued achievement. Emotions like envy and resentment typically result from comparisons between oneself and another person when the self feels inferior to the other. When the context does not provide such comparisons, as in our study, envy and resentment become irrelevant emotions.

The fact that theoretical analyses that relate *schadenfreude* to envy and resentment are not appropriate for the situation we investigated underlines the importance of taking context into account in the study of *schadenfreude* and other emotions. The important theoretical point is that the context dictates the appraisals and the emotions that occur and the context has implications for which theoretical variables are appropriate by way of explanation.

Clearly, the situations that we investigated in our two studies provided different contexts. Social and moral norms relating to how one should react to a bride who suffered a mishap on her wedding day would influence how participants reacted in Study 1. Participants would be less inclined to blame her for her misfortune. If she made a mistake where to stand during the wedding ceremony it was with the best of intentions and she should be judged generously on such an important day in her life. On the other hand, John's fall on the ice in Study 2 would not involve social and moral norms associated with a significant life event that most people experience. Participants probably perceived his behavior as foolish given the risks of harm to himself, but he was clearly less responsible for jumping into the pool when he was persuaded by his friend to make the jump.

So the comparison between the contexts used in our two studies suggests that generally held social and moral norms and perceived responsibility were important variables to consider. There will be situations where shared social and moral norms influence how people perceive another person's responsibility for an action that he or she undertakes. Responsibility is a complex concept. It implies personal ownership of an action [a unit relation in Heider's (1958) terms] but other variables are also involved. Some authors distinguish between blame and responsibility. Both concepts have been analyzed elsewhere (for different approaches see Feather 1999b; Hamilton and Sanders 1992; Malle et al. 2014; Schlenker et al. 1994; Shaver 1985; Weiner 1995). People can be responsible for both positive and negative actions that, within an evaluative structure of relations, determine judgments of deservingness or undeservingness for a positive or negative outcome (Feather 1999b, 2006).

Thus we would expect different forms of analysis of *schadenfreude* to occur according to its definition and as

the context varies (e.g., Fischer et al. 2003; Leach et al. 2014b). But our results suggest that perceived deservingness of the misfortune is a common thread that runs through most studies of schadenfreude that have so far been conducted (e.g. Feather 2006, 2014).

Directions for future research

The situations used in the present research were clearly different from a competitive, achievement situation where social comparisons would be an important part of the fabric, where emotions such as resentment and envy might occur, and where other's misfortune might lead to increases in self-enhancement on the part of the observer. Ben-Ze'ev (2014) has argued that, when comparisons between people are meaningless (i.e., do not affect one's self-esteem), pleasure at others' negative outcome will be absent or low. Nevertheless, our results imply that schadenfreude is not restricted to situations that involve social comparisons. It is possible, however, that in situations where social comparisons are less relevant, there might still be some personal gain in expressing schadenfreude, involving an enhancement of one's self-evaluation. So we consider enhancement of self-evaluation as a possible outcome of schadenfreude. This proposal is opposite to that made by van Dijk and colleagues (e.g., van Dijk and Ouwerkerk 2014) who argued that schadenfreude is an outcome of a concern for positive self-evaluation, i.e., the path goes from self-evaluation to schadenfreude rather than the reverse (see also van Dijk et al. 2015). This would be an interesting area for future research.

It would be also interesting in future studies to investigate people's assessments of the consequences of a misfortune before they receive actual information about seriousness. This would enable comparisons to be made between initial appraisals and reappraisals that might occur subsequently once information about the seriousness is received.

In conclusion, our studies add to the literature by investigating immorality appraisals, subsequent emotions, and prosocial behaviors that were predicted to occur when people reflect on their initial schadenfreude about another's misfortune. The studies provide further evidence about the importance of considering appraisals of deservingness and immorality in relation to emotions and they do so in novel contexts that do not involve competition and achievement and that therefore minimize possible effects of variables that relate to social comparison.

Compliance with ethical standards

Conflict of interest The authors declare that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. The authors contributed equally to this article.

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