




Social Psychological Bulletin

I “Knew” They Wouldn’t Last: Hindsight Bias in Judgments of a Dating Couple

April Bleske-Rechek¹ , Michaela M. Gunseor¹ , Kai Nguyen¹ 

[1] *Psychology Department, University of Wisconsin-Eau Claire, Eau Claire, WI, USA.*

Social Psychological Bulletin, 2023, Vol. 18, Article e9967, <https://doi.org/10.32872/spb.9967>

Received: 2022-07-23 • Accepted: 2023-01-27 • Published (VoR): 2023-05-15



Handling Editor: Štěpán Bahnik, Prague University of Business and Economics, Prague, Czech Republic

Corresponding Author: April Bleske-Rechek, Psychology Department, University of Wisconsin-Eau Claire, Hibbard Humanities Hall 277, 124 Garfield Avenue, Eau Claire, WI 54701, United States. E-mail: bleskeal@uwec.edu

Supplementary Materials: Data, Materials [see [Index of Supplementary Materials](#)]



Abstract

When a romantic relationship ends, individuals often look back and wish they had done things differently. What may seem clear in hindsight, however, is often unclear in foresight. We investigated the effects of outcome knowledge on individuals’ judgments of a dating couple. In Study 1 (181 U.S. college students, 334 U.S. community adults), participants read about a couple with an uncertain relationship trajectory; then, experimental group participants received knowledge about the couple’s status six months down the road as broken up or still together, while control group participants received no outcome knowledge. Individuals who were told the dating couple broke up perceived that outcome as more likely and obvious compared to those who were not given outcome knowledge or who were told the couple stayed together. In Study 2 (262 U.S. college students, 333 U.S. community adults), participants in the experimental conditions received knowledge about the couple’s status six months later as broken up or engaged, while control group participants received no outcome knowledge. In both samples, outcome knowledge of a breakup had a negative effect on individuals’ judgments about the couple. Among community adults, but not among college students, outcome knowledge of an engagement positively affected judgments of the couple. We offer directions for future research and discuss the mechanisms by which hindsight bias might affect evaluations of our own and others’ relationships.

Keywords

hindsight bias, relationship breakup, outcome knowledge, obviousness, relationship judgments, relationship dissolution



This is an open access article distributed under the terms of the [Creative Commons Attribution 4.0 International License](#), CC BY 4.0, which permits unrestricted use, distribution, and reproduction, provided the original work is properly cited.

Highlights

- We investigated the effects of positive versus negative outcome knowledge on people's judgments about a dating couple.
- After reading about a couple with an uncertain relationship trajectory, individuals who were subsequently told the couple ended up breaking up perceived that outcome as more likely than individuals who were given no outcome knowledge perceived it to be.
- Our findings provide systematic evidence of a tendency for others to feel like they knew all along that a breakup was on the horizon after the breakup has occurred.

Romantic relationship breakups are unpleasant events that most individuals experience or witness at some point in their life (Morris & Reiber, 2011; Morris et al., 2015). In the weeks following a breakup, people tend to report an increase in negative emotions (Perilloux & Buss, 2008) and a decrease in life satisfaction (Rhoades et al., 2011). They often blame themselves (Choo et al., 1996) and wish they had handled things differently (Boelen & Reijntjes, 2009). At the same time, friends and family members may claim they saw the writing on the wall. But really, could anyone have seen it coming? What seems clear in hindsight may have been unclear in foresight (Bernstein et al., 2011).

Hindsight bias is the inclination, after an event has occurred, to perceive the event as having been predictable (Bryant & Guilbault, 2002; Kahneman, 2011; Kahneman et al., 2021). Fischhoff (1975) was one of the first scholars to document evidence of hindsight bias. In his seminal experiments, participants read about an event for which the outcome was difficult to predict but multiple outcomes were plausible. After reading about the event, some participants received outcome knowledge while other groups did not. Participants who were told a specific outcome prior to judging how the event would turn out perceived the outcome they received as more likely to occur than did participants who were not given any specific outcome.

Hindsight bias has been demonstrated in a variety of settings, including clinical diagnoses (Arkes et al., 1981), eyewitness testimonies (Neisser, 1981), rape (Carli, 1999; Janoff-Bulman et al., 1985), employee evaluations (Mitchell & Kalb, 1981), and suicide (BeBeau & Bleske-Rechek, 2021; Goggin & Range, 1985). The prevalence of hindsight bias is important because it can lead people to derogate others. For example, in Goggin and Range's (1985) study, participants read a vignette about an adolescent girl who showed signs of being at risk for death by suicide. Participants given one additional sentence stating that she died by suicide perceived that outcome as more likely, and placed more blame on the girl's family members, compared to those who were not told of the suicide. In other research, participants who read a scenario about a couple and subsequently received knowledge about an eventual rape placed more blame on the rape victim than those who read only the scenario did (Carli, 1999; McCaul et al., 1990). In

the current research, we extend previous research on how hindsight bias might operate in interpersonal judgments (Bradfield & Wells, 2005; Carli, 1999). Specifically, we test the hypothesis that hindsight bias occurs in a circumstance that nearly everyone undergoes at some point in their life, personally or by witnessing others: a romantic relationship breakup.

Researchers have argued that hindsight bias is a byproduct of humans' ability to update their knowledge and make sense of new information (Bernstein et al., 2011; Hawkins & Hastie, 1990; Roese & Vohs, 2012). As explained by decision scientist Daniel Kahneman (2011, p. 202), "The mind that makes up narratives about the past is a sense-making organ. When an unpredicted event occurs, we immediately adjust our view of the world to accommodate the surprise." Research suggests that such adjustments require cognitive effort; indeed, the sensemaking process can be quite laborious (Nestler, et al., 2008; Pezzo, 2003). As individuals update their knowledge and use newly acquired outcome information to make sense of experiences, they may forget or reinterpret thoughts and predictions they previously had. In the current research, we propose these same sense-making activities occur in the context of relationships. Once a breakup has happened, signs (or causal antecedents; Carli, 1999; Roese & Olson, 1996) of the impending breakup that were ignored or unnoticed in foresight may become more relevant, as they now supply ideas for how things *could* have been different. For example, lapses of attention or affection that previously went unnoticed may, after a breakup, take on a more central role in one's memories of the relationship. Thus, memory might be reconstructed with more weight placed on the negative elements of the relationship. Likewise, aspects of the relationship might be reinterpreted to make sense of the outcome. After a breakup, for instance, what was previously interpreted as constant attention and affection may be reinterpreted as neediness of an overbearing partner. Similarly, differences in beliefs that were previously interpreted as opportunities for perspective-taking and negotiation may be reinterpreted as insurmountable barriers.

In the current research, we describe two experiments designed to test the proposal that hindsight bias occurs in the context of romantic relationship judgments. We aimed to manipulate people's perceptions of a romantic couple by providing different forms of outcome knowledge. Each participant received information about a dating couple who had both positive and negative elements in their relationship and therefore an uncertain relationship trajectory. In Study 1, one group of participants received outcome knowledge, via a final sentence, that six months later the couple had *broken up*; a second group received outcome knowledge, via a final sentence, that six months later the couple was *still together*; and a third group received no outcome knowledge. We predicted that providing outcome knowledge would color people's evaluations of the couple and their relationship, such that those told of the eventual *breakup* would see the breakup as more likely and judge the couple's relationship more negatively compared to those who were told they stayed together or were told nothing at all. Similarly, we predicted that those

who were told the couple was *still together* down the road would see staying together as more likely and judge the couple's relationship more positively compared to those who were told they had broken up or told nothing at all.

Our complete data files and supplementary tables are available online (see [Supplementary Materials](#)). We report all measures, manipulations, and exclusions. We collected all data prior to data entry and analysis. Both studies were approved by the institutional review board (IRB) at the University of Wisconsin-Eau Claire.

Study 1

Method

Participants

We first collected a sample of 181 undergraduate students (51% male) in lower-division business courses at a regional university in the Midwestern United States. Students participated in the study as part of a voluntary class activity. This sample size provided 85% power to detect a moderate-sized omnibus effect ($f = .25$) in a between-subjects analysis of variance (ANOVA) with three conditions, and 80% power to detect moderate differences ($d = .5$) between any two means (Faul et al., 2007). Most participants were heterosexual (94%) and white (91%). Participants were 18 to 43 years old ($M = 21.23$, $SD = 2.63$). Approximately half (45%) of the participants were involved in a romantic relationship, and a majority (77%) reported that their parents were still together. No participants were excluded from the data analysis.

We obtained a second sample, this time comprising 335 adults in a large Midwestern city who were attending community events or visiting a commercial area on weekday evenings in the summer. We omitted one participant who said they did not understand the content of the vignette, which left 334 participants (39% male). This sample size provided 98% power to detect a moderate-sized omnibus effect ($f = .25$) in a between-subjects analysis of variance (ANOVA) with three conditions, and 95% power to detect moderate differences ($d = .5$) between any two means (Faul et al., 2007). Most participants were heterosexual (89%) and white (86%), with an age range of 18 to 81 ($M = 42.89$, $SD = 14.80$). A majority (80%) of participants were involved in a romantic relationship, and 63% had children or stepchildren. The parents in the sample had, on average, two children ($M = 2.08$, $SD = 0.90$); the average age of the children of these parents was 20 years old ($M = 20.04$, $SD = 12.16$).

Materials

Participants reviewed a vignette about a hypothetical couple, Sofia and Daniel. The vignette included introductory information about Sofia and Daniel. One paragraph highlighted the strengths of their relationship, and another highlighted potential issues in

their relationship. We designed the vignette to include both positive and negative aspects of the couple's relationship so that participants could imagine either outcome for the couple—staying together or breaking up—as plausible. Participants in all three conditions read the same vignette with the order of positive and negative information counterbalanced across participants; the vignette is displayed in Table 1.

Table 1

The Vignette Used in Study 1 and Study 2

Sofia and Daniel have just begun dating. It is their sophomore year of college and they hit it off after being introduced by a mutual friend at the homecoming football game.

The couple has a lot going for them. They always have something to talk about and can be open and honest with each other without feeling judged. Daniel says that he has never felt so comfortable with a romantic partner. Sofia, too, feels secure and safe around Daniel. She goes to all of his soccer games and he surprises her with flowers and candy. They have many of the same hobbies, like camping, kayaking, and listening to live music. For all of these reasons, Sofia and Daniel have grown close very quickly. They spend hours talking about their possible future together – where they'll get married, their favorite baby names, and where they want to live.

However, the couple also has some potential issues. Sofia is very religious and spends a lot of time with her campus ministry while Daniel is a firm disbeliever. They are also pursuing opposite careers. She aims to work for a nonprofit and he is majoring in finance. Because of these differences, they tend to hang out with different crowds and don't share a lot of friends. In fact, their friends don't really support their relationship. They think the relationship is moving too fast and that Sofia and Daniel are too into each other to recognize that they are on different life paths. For all of these reasons, when certain topics come up there is some tension between Daniel and Sofia.

Note. The order of the second and third paragraphs was counterbalanced across participants. In Study 2, the couple was described as being in their senior year of college instead of their sophomore year.

The manipulation happened immediately after the vignette. By random assignment (the paper questionnaires were shuffled before data collection began), participants were placed into one of the two experimental conditions or the control condition. Participants in the experimental conditions received one of two stand-alone sentences that provided outcome knowledge: *Six months later, Sofia and Daniel have broken up* (“breakup knowledge”) or *Six months later, Sofia and Daniel are still together* (“still-together knowledge”).

Control participants did not receive any information about Sofia and Daniel's relationship six months later (no outcome knowledge). Instead, immediately after reading the vignette, they used an 11-point rating scale to rate where they expected the couple to be in six months (*They will have broken up* to *It's hard to say* to *They will still be together*). Using a seven-point rating scale (*Strongly Disagree, Disagree, Slightly Disagree, Neutral, Slightly Agree, Agree, Strongly Agree*), they provided their level of agreement with each of six statements about the quality of the relationship: (1) Sofia and Daniel's relationship is unstable; (2) Sofia and Daniel are a good fit for one another; (3) Sofia and

Daniel have a lot in common; (4) Sofia and Daniel need to date other people; (5) In Sofia and Daniel's relationship, negatives outweigh positives; and (6) In Sofia and Daniel's relationship, positives outweigh negatives. Finally, they rated the obviousness of two hypothetical outcomes (counterbalanced): "Suppose we told you that Sofia and Daniel had broken up in six months. That outcome seems..." and "Suppose we told you that Sofia and Daniel were still together in six months. That outcome seems..." Participants provided their ratings on a seven-point scale (*Surprising to Neither surprising nor obvious to Obvious*).

Participants in the two experimental conditions, who were given outcome knowledge (i.e., that six months later, Sofia and Daniel were still together/had broken up), immediately rated the obviousness of that outcome. Participants then used an 11-point scale to report where they had expected the couple to be in six months based on what they had read in the vignette (*They would be broken up to It's hard to say to They would still be together*). Then, they responded to the six statements regarding the quality of Sofia and Daniel's relationship. Finally, these participants rated the obviousness of the alternative outcome (i.e., that after six months Sofia and Daniel had broken up/were still together).

For data analysis, we coded all items so that higher scores represented more favorable judgments of the couple and their trajectory. We focused on three components: (1) participants' expectation about the couple's six-month trajectory as broken up versus still together (relationship "forecast"; 1 item); (2) participants' judgments of the *obviousness* of a positive trajectory for the couple (two items; college student $\alpha = .79$; community adult $\alpha = .77$); and (3) participants' responses to the statements regarding the quality of Sofia and Daniel's relationship. For this third component, we omitted the statement, *Sofia and Daniel have a lot in common* because it demonstrated substantially lower fit relative to the other items (e.g., item-rest correlations of .3–.4 compared to .6–.7). We labeled this third component *relationship quality* (college student $\alpha = .87$; community adult $\alpha = .86$).¹

Following the judgment questions, all participants reported their age, biological sex, race/ethnicity, sexual orientation, current romantic involvement, and parents' current relationship status. The community adults were asked if they had children and (if applicable) the age of their children.

Procedure

Researchers followed standard consent procedures. For college students, the researchers (all female) provided information about the study verbally, noting that the study involved

1) On the advice of a reviewer, we omitted responses to the statement about the stability of the relationship because it is conceptually tied to the outcome knowledge of breaking up versus staying together. As the reviewer noted, logically a relationship that has broken up six months later is less stable than one that is still going after six months. Notably, in both samples of Study 1 and the community sample of Study 2, participants in the breakup outcome knowledge conditions perceived the relationship as significantly less stable than those in the still-together (Study 1) and engagement (Study 2) conditions.

reading and responding to a hypothetical vignette about a romantically involved couple. The researchers stated that completion of the questionnaire would imply students' consent to participate, and then distributed the questionnaire. When all participants had finished, researchers collected the questionnaires and verbally debriefed participants.

For the community adult sample, the researchers (all female) approached people who were outside enjoying a local music event or who were visiting an outdoor shopping center and invited them to participate in a questionnaire study involving relationship judgments. After giving interested participants a basic description of the participation requirements (reading and responding to a hypothetical vignette about a romantically involved couple), researchers asked for verbal consent; when that was given, the researchers handed each participant a copy of the questionnaire and then provided space and time to complete it. After an average wait time of 10 minutes, the researchers retrieved each participant's questionnaire, placed it with other completed questionnaires, and gave each participant a written debriefing form.

Results

College Student Sample

Participants were distributed about equally across the three conditions (Control $n = 62$, Still Together $n = 59$, Broken Up $n = 60$). Descriptive statistics, by condition, are displayed in Table 2. Because the control participants received no outcome knowledge about the couple, they provide a measure of how individuals perceived the couple based only on the information given in the vignette. Control group participants' ratings were close to neutral.

We ran single factor between-subjects ANOVAs to test the hypothesis that outcome knowledge would bias participants' perceptions of Sofia and Daniel's relationship. Outcome knowledge affected each of the three components of participants' responses: relationship forecasts, $F(2, 177) = 10.20, p < .001, \omega^2 = .09$; obviousness judgments, $F(2, 178) = 6.01, p = .003, \omega^2 = .05$; and judgments of relationship quality, $F(2, 177) = 7.00, p = .001, \omega^2 = .06$.

Table 2
Study 1 Relationship Judgments, by Condition

Judgment	Outcome Knowledge Condition				Post Hoc Comparison				
	Broken Up		Still Together		Broken Up vs. Control		Broken Up vs. Still Together		
	M [95% CI]	M [95% CI]	M [95% CI]	M [95% CI]	p	d	p	d	
College Student Sample									
Relationship forecast	5.43 [4.84, 6.02]	6.66 [6.07, 7.24]	7.32 [6.73, 7.92]		.004*	-0.53	< .001*	-0.82	.117
Obviousness of a positive trajectory	3.53 [3.24, 3.83]	4.10 [3.81, 4.39]	4.22 [3.92, 4.52]		.008*	-0.49	.001*	-0.59	.558
Relationship quality	4.16 [3.85, 4.47]	4.45 [4.14, 4.76]	4.99 [4.67, 5.30]		.191	-0.24	< .001*	-0.68	.017
Community Adult Sample									
Relationship forecast	4.99 [4.52, 5.46]	6.46 [5.98, 6.95]	6.86 [6.43, 7.29]		< .001*	-0.61	< .001*	-0.77	.231
Obviousness of a positive trajectory	3.32 [3.07, 3.57]	3.93 [3.67, 4.19]	3.97 [3.74, 4.20]		< .001*	-0.47	< .001*	-0.50	.825
Relationship quality	3.55 [3.33, 3.80]	4.23 [3.97, 4.48]	4.32 [4.09, 4.55]		< .001*	-0.52	< .001*	-0.59	.598

Note. The control group received no outcome knowledge. The six-month relationship forecast was on an 11-point scale ranging from “they will have broken up” (scored as 1) to “they will still be together” (scored as 11). The other items were rated on seven-point scales (surprising to obvious; strongly disagree to strongly agree).

*Correcting for three comparisons for each dependent variable, only *p* values below .0167 are considered statistically significant.

The specific results of the post hoc comparisons are displayed in Table 2. Consistent with the hypothesis, knowledge of an eventual *breakup* had a negative effect on college students' judgments about the couple. Specifically, as displayed in Table 2, participants given breakup knowledge reported a stronger expectation that Sofia and Daniel would be broken up six months later (or a weaker expectation that they would still be together) than participants in the other two conditions did; these differences were moderate to strong in magnitude. Also as shown in Table 2, participants given breakup knowledge perceived a positive trajectory for the couple as less obvious than participants in the other two conditions did. Further, participants who were given breakup knowledge gave less favorable judgments of relationship quality compared to participants who were given still-together knowledge; they did not, however, differ reliably from the control group participants.

Contrary to expectation, knowledge of the couple *staying together* did not have a clear, positive effect on college students' judgments relative to being told nothing (all $ps \geq .017$; correcting for three comparisons for each dependent variable, only p values below .0167 are considered statistically significant).

Community Adult Sample

Participants were distributed about equally across the three conditions (Control $n = 99$, Still Together $n = 128$, Broken Up $n = 107$). As displayed in Table 2, the control group was neutral in their ratings of the couple.

We again tested the primary hypothesis that outcome knowledge would bias participants' perceptions of Sofia and Daniel's relationship. Outcome knowledge affected each of the three components of participants' responses: relationship forecasts, $F(2, 320) = 17.62, p < .001, \omega^2 = .09$; obviousness judgments, $F(2, 328) = 8.66, p < .001, \omega^2 = .04$; and judgments of relationship quality, $F(2, 327) = 11.32, p < .001, \omega^2 = .06$. Consistent with the hypothesis, and as shown in Table 2, participants who received *breakup* knowledge reported a stronger expectation that Sofia and Daniel would be broken up six months later, perceived a positive trajectory for the couple as less obvious, and gave lower relationship quality ratings to the couple than did participants in either of the other conditions.

Similar to our pattern of findings for the college student sample, however, our hypothesis was not fully supported. That is, participants who were given outcome knowledge that the couple was *still together* six months down the road did not judge the couple more positively compared to participants in the control condition (all post hoc comparison $ps \geq .231$).

Discussion

Overall, the results of Study 1 provided support for the hypothesis that hindsight bias plays a role in the way people judge a romantic relationship. The effects of *negative*

outcome knowledge (i.e., a breakup) were particularly clear in the community sample, where participants in the breakup condition differed not only from the participants in the still-together condition (as they had in the student sample), but also from the participants in the *control* condition. The effect sizes for the breakup-versus-control comparisons were somewhat smaller in magnitude than were the effect sizes for the breakup-versus-still-together comparisons, suggesting that our larger sample size in the community sample enhanced our statistical power to detect effects of weaker magnitude.

Relatedly, previous research suggests that effects of outcome knowledge on judgments tend to be weak to moderate in size (Christensen-Szalanski & Willham, 1991; Guilbault et al., 2004; Pezzo, 2011). The statistically significant comparisons we found were moderate in size; however, in those comparisons that were not statistically significant in the college student sample, the means still trended in the expected directions. The increased size of the community sample provided more power to detect both weak-to-moderate and moderate sized effects.

The average participant in the community sample was in middle adulthood and had grown children. Thus, these participants were likely to have had more exposure to relationships (and breakups) than our student participants. In fact, when we told prospective participants we would be asking them to “make judgments about a romantic relationship,” many of them joked that they were experts and well-qualified at that task. If anything, their naturally acquired, subjective expertise on relationships may have made them even more susceptible to hindsight bias (Knoll & Arkes, 2017).

We did not find consistent evidence that outcome knowledge affected judgments in both the negative and positive direction. Specifically, in both the college student sample and community adult sample, those who were told the couple stayed together did not differ in their relationship forecasts, obviousness ratings, or relationship quality ratings compared to those who were not told anything about the relationship’s outcome. In hindsight, we speculated that the reason behind the lack of difference between the control group and the still-together group was that an implicit assumption for those in the control group was that the couple stayed together (status quo). If that is the case, then being explicitly told the two stayed together did not actually serve as a positive outcome that differed from what the control group participants would have presumed. Therefore, we conducted a second study in which participants in the positive outcome knowledge condition were told that Daniel and Sofia had gotten *engaged*.

Study 2

Method

Participants

We collected both a college student sample and a community adult sample. The original college student sample included 284 undergraduate students from a regional university in the Midwestern United States. Students participated voluntarily through an online campus research platform; some received partial credit toward a course research requirement. After omitting participants who spent less than two minutes in the survey or who failed the attention check (i.e., in response to an end-of-survey question about how carefully they read the vignette about Daniel and Sofia, they did not respond or selected the response “I didn’t read it”), the final sample included 262 participants (82% female, 18% male). This sample size provided 95% power to detect a moderate-sized omnibus effect ($f = .25$) in a between-subjects analysis of variance (ANOVA) with three conditions, and 90% power to detect moderate differences ($d = .5$) between any two means (Faul et al., 2007). Most participants were heterosexual (80%) and white (88%). Participants were 18 to 27 years old ($Mdn = 19.00$, $M = 19.37$, $SD = 1.38$). Approximately half (48%) of participants were involved in a romantic relationship. A majority (74%) reported that their parents were together or married to each other.

The community adult sample was obtained through Amazon’s Mechanical Turk (MTurk) crowdsourcing platform. To maintain overall comparability of our samples, MTurk workers had to be U.S. citizens. We also required they be at least 24 years old and have a 100% positive worker rating on MTurk to participate. Each participant was paid \$1.00 for their participation. The original sample size of 355 was reduced to 333 (50% female, 49% male, 1% other) after omitting respondents who failed the attention check or spent less than two minutes in the survey. This sample size provided 98% power to detect a moderate-sized omnibus effect ($f = .25$) in a between-subjects analysis of variance (ANOVA) with three conditions, and 95% power to detect moderate differences ($d = .5$) between any two means (Faul et al., 2007). Most participants were heterosexual (80%) and white (86%), with an age range of 24 to 76 ($Mdn = 39$, $M = 41.58$, $SD = 11.16$). A majority (62%) of participants were currently involved in a romantic relationship. On average, participants had been involved in 3.70 romantic relationships ($Mdn = 3$) and 2.73 breakups ($Mdn = 2$).

Materials

The materials for Study 2 were nearly identical to those used in Study 1. Participants read the same relationship vignette (Table 1), with the exception that this time Sofia and Daniel were presented as being in their *senior* year of college, and participants made the same judgments after reading the vignette as participants in Study 1 did. Also as in Study 1, the outcome knowledge manipulation happened immediately after the vignette.

Control group participants did not receive any information about the couple's relationship six months later (no outcome knowledge), and the negative outcome knowledge experimental group were told that *Six months later, Sofia and Daniel have broken up* ("breakup knowledge"). The primary modification to the materials was that participants in the positive outcome knowledge condition were told that *Six months later, Sofia and Daniel have gotten engaged* ("engagement knowledge").

For data analysis, we coded responses to the evaluative statements regarding the strength of Sofia and Daniel's relationship so that stronger levels of agreement represented more favorable judgments about the couple and their relationship trajectory. As in Study 1, we focused on three components: (1) participants' expectation about the couple's six-month trajectory as broken up versus still together (relationship "forecast"; one item); (2) participants' judgments of the *obviousness* of a positive trajectory (two items; college student $\alpha = .66$; community adult $\alpha = .82$); and (3) participants' responses to the statements regarding *relationship quality* (four items; college student $\alpha = .88$; community adult $\alpha = .93$).¹

All participants reported their age, biological sex, race/ethnicity, sexual orientation, and current romantic involvement. Given their age and likelihood of having had more relationship experiences, community adults were also asked how many committed romantic relationships they had been in and how many breakups they had experienced.

Procedure

Researchers followed standard consent procedures. The survey was designed in Qualtrics and distributed through an anonymous link. Information about the research on "Judgments of Relationship Dynamics" was provided on the first screen of the survey, including that participants would be asked to respond to a series of questions after reading a short scenario about a couple. The cover letter information included a statement that continuing onto the questionnaire would imply respondents' informed consent. Participants were debriefed via a written end-of-survey message.

Results

College Student Sample

Participants were distributed about equally across the three conditions (Control $n = 91$, Engaged $n = 86$, Broken Up $n = 85$). Because the control participants received no outcome knowledge about the couple, they provided a measure of how individuals perceived the couple based only on the information given in the vignette. On the whole, their ratings were close to neutral.

We ran single factor between-subjects ANOVAs to test the hypothesis that outcome knowledge would bias participants' perceptions of Sofia and Daniel's relationship. Outcome knowledge affected each of the three components of participants' responses: relationship forecasts, $F(2, 259) = 9.99$, $p < .001$, $\omega^2 = .06$; obviousness judgments, $F(2, 259) =$

3.91, $p = .021$, $\omega^2 = .02$; and judgments of relationship quality, $F(2, 258) = 9.11$, $p < .001$, $\omega^2 = .06$.

The specific results of the post hoc comparisons are displayed in Table 3. Consistent with the hypothesis, knowledge of an eventual *breakup* had a negative effect on college students' judgments about the couple. Participants given breakup knowledge reported a stronger expectation that Sofia and Daniel would be broken up six months later (or a weaker expectation that they would have gotten engaged) than did participants in the other two conditions and rated the relationship less favorably than did participants in the other conditions. Participants given breakup knowledge also perceived a positive trajectory for the couple as less obvious than did participants who were given engagement outcome knowledge (they did not, however, differ reliably from the control group participants).

Similar to the findings from Study 1, those who were given positive outcome knowledge did not differ, on any of the dependent measures, from those who received no outcome knowledge at all (all $ps \geq .332$). Thus, contrary to expectation, knowledge of the couple getting engaged did not have a positive effect on college students' judgments about the couple and their future together.

Table 3
Study 2 Relationship Judgments, by Condition

Judgment	Outcome Knowledge Condition				Post Hoc Comparison					
	Broken Up		Engaged		Broken Up vs Control		Engaged vs Engaged			
	M [95% CI]	M [95% CI]	M [95% CI]	M [95% CI]	p	d	p	d		
College Student Sample										
Relationship forecast	4.79 [4.32, 5.26]	5.96 [5.50, 6.41]	6.19 [5.72, 6.65]		< .001*	-0.53	< .001*	-0.64	.487	-0.10
Obviousness of a positive trajectory	3.32 [3.09, 3.54]	3.64 [3.43, 3.86]	3.75 [3.53, 3.97]		.042	-0.31	.008*	-0.41	.499	-0.10
Relationship quality	3.86 [3.59, 4.12]	4.46 [4.19, 4.72]	4.64 [4.37, 4.91]		.002*	-0.48	< .001*	-0.62	.332	-0.15
Community Adult Sample										
Relationship forecast	4.21 [3.77, 4.64]	6.29 [5.85, 6.73]	7.17 [6.74, 7.60]		< .001*	-0.89	< .001*	-1.27	.006*	-0.37
Obviousness of a positive trajectory	2.93 [2.69, 3.17]	3.61 [3.37, 3.86]	4.37 [4.13, 4.61]		< .001*	-0.53	< .001*	-1.12	< .001*	-0.59
Relationship quality	3.28 [3.00, 3.56]	4.32 [4.04, 4.60]	4.76 [4.49, 5.04]		< .001*	-0.70	< .001*	-1.00	.027	-0.30

Note. The six-month forecast was on an 11-point scale ranging from “they will have broken up” (scored as 1) to “they will have gotten engaged” (scored as 11). The other items were rated on seven-point scales (*surprising to obvious; strongly disagree to strongly agree*).

*Correcting for three comparisons for each dependent variable, only *p* values below .0167 are considered statistically significant.

Community Adult Sample

Community adults were distributed across the three conditions (Control $n = 109$, Engaged $n = 113$, Broken Up $n = 111$). As displayed in Table 3, the mean ratings in the control condition were close to neutral.

Our primary hypothesis was that outcome knowledge would bias participants' perceptions of Sofia and Daniel's relationship. Outcome knowledge affected each of the three components of participants' responses: relationship forecasts, $F(2, 330) = 47.19$, $p < .001$, $\omega^2 = .22$; obviousness judgments, $F(2, 329) = 34.92$, $p < .001$, $\omega^2 = .17$; and judgments of relationship quality, $F(2, 330) = 29.45$, $p < .001$, $\omega^2 = .15$. Table 3, which shows the results from Bonferroni-corrected post hoc comparisons, suggests that outcome knowledge biased participants judgments in the direction of the outcome knowledge received. Relative to participants in the control group, participants who received *breakup* outcome knowledge reported a stronger expectation that Sofia and Daniel would be broken up six months later, rated a positive trajectory for the couple as less obvious, and gave lower relationship quality ratings; these effects were moderate to strong in magnitude. Relative to the control group, participants who received *engagement* outcome knowledge reported a *weaker* expectation that Sofia and Daniel would be broken up six months later and perceived a positive trajectory for the couple as *more* obvious. Participants in this condition also gave higher relationship quality ratings, but the difference was not statistically significant.

General Discussion

The findings from Study 2 replicated those of Study 1 in showing that hindsight bias occurs in the context of romantic relationship breakups. All participants received the same background information about a dating couple, but in both studies, those who were also told that the couple had broken up perceived a positive trajectory for the couple as less obvious than other participants did. Participants with breakup knowledge also showed more negative perceptions of the quality of the couple's relationship relative to those who were told that the couple had stayed together (Study 1) or gotten engaged (Study 2). Overall, our findings provide the first systematic evidence of a tendency for others to feel like they knew all along that a breakup was on the horizon after the breakup has occurred. Thus, we have added to the literature that implicates hindsight bias as pervasive; in addition to showing up in contexts as varied as judgments of political elections (Blank et al., 2003), sporting events (Leary, 1981), suicide (BeBeau & Bleske-Rechek, 2021), and medical diagnoses (Arkes, 2013), we have shown that the bias also occurs in the context of an event that nearly everyone has direct or indirect experience with at some point in their lives: romantic relationship breakups.

Negative Versus Positive Outcome Knowledge

In Study 1, participants who received breakup knowledge evaluated the couple more negatively than control participants did, but participants who received still-together knowledge did *not* evaluate the couple more positively relative to the control. This pattern of findings is consistent with research in other areas showing that people respond more strongly to negative information than to positive information (Baumeister et al., 2001), and that people are generally more concerned with avoiding losses than with achieving gains (Kahneman & Tversky, 1979). If “bad” carries more weight than “good,” then participants may have engaged in more cognitive adjustments in response to the breakup information than the still-together information. However, it is also possible that participants in the control condition were operating under a default assumption that the relationship was ongoing and that the couple stayed together. If that is the case, then receiving no outcome knowledge about the couple may have been interpreted in the same way as receiving news of the couple still being together. In Study 2, we investigated whether being told that the couple got *engaged* would have a positive effect on individuals’ judgments, and indeed it did, but only in the community adult sample. The explanation for the inconsistent effect of positive outcome knowledge on participants’ judgments is unclear. One possibility is that the college student sample may have perceived an engagement between Sofia and Daniel (who were described as seniors in college) as atypical and perhaps unrealistic. For the college student participants, getting engaged at such a young age might have seemed premature, given that the mean age of marriage for their generation was around 28 (for women) and 30 (for men) (Sprecher & Felmlee, 2021). In this regard, it is notable that for both samples in Study 2, control group participants rated an engagement as more surprising than obvious even though they had generally favorable judgments about the couple (Table 3).

Limitations and Future Directions

Theorists have suggested that hindsight bias is a byproduct of humans’ ability to constantly update their knowledge base and make sense of new information (Pezzo, 2003; Roese & Vohs, 2012). This sense-making can happen through a variety of mechanisms, such as memory reconstruction, selective retrieval of evidence, and reinterpretation of evidence. Future studies could attempt to demonstrate support for those mechanisms in the context of romantic relationship breakups. For example, following previous studies on the mechanisms underlying hindsight bias (e.g., Carli, 1999), we could give participants an initial scenario about a couple like Daniel and Sofia, manipulate participants’ outcome knowledge, and then ask them one week later to recall as much information about the couple as possible. If memory reconstruction is operating, we should see the introduction of novel elements (i.e., false memories) about the couple that fit with the outcome knowledge we provide. In the case of Daniel and Sofia, for example, participants

who are told the couple broke up might subsequently reconstruct what they originally read about the couple's discrepant beliefs and unsupportive friends, and thus incorrectly recall that they fought about religion and disliked each other's friends. If selective retrieval is operating (with the outcome provided serving as a retrieval cue), there should be an overrepresentation of details from the original vignette that coincide with the outcome knowledge participants are given. In the case of Daniel and Sofia, for example, participants who are told the couple broke up might later recall more of the negative, and fewer of the positive, aspects of their relationship. If reinterpretation of the evidence is operating, participants should interpret original information about the couple in a direction that coincides with the outcome knowledge they receive. In the case of Daniel and Sofia, for example, participants who are told the couple broke up might subsequently reinterpret Sofia's attendance at Daniel's sporting events and Daniel's gift buying as excessive attentiveness rather than acts of kindness.

Hindsight bias is more than a cognitive phenomenon; it also has motivational components (Roese & Vohs, 2012). To that end, hindsight bias effects can vary depending on the self-relevance of the information (Louie et al., 2000; Mark et al., 2003; Renner, 2003). Hence, an important limitation of our research is that participants served as outside evaluators of another couple, not of their own personal relationships. Past studies have shown that individuals who are dissatisfied in their romantic relationships are prone toward negative memory bias (Zygar-Hoffmann & Schönbrodt, 2020) and that, in retrospect, they remember events in their relationship more negatively than they reported them being in the moment (Halford et al., 2002); however, no studies have investigated whether people engage in hindsight bias in the context of their own personal relationship outcomes.

To investigate how hindsight bias operates in individuals' appraisals of their own personal relationship outcomes, we would employ a longitudinal design with individuals who are just starting out in a relationship. At study onset, researchers could ask participants to rate their likelihood of still being with their new partner six months in the future; at follow-up six months later, researchers could ask participants to recall their original likelihood estimate and rate the foreseeability of their current relationship status (as broken up or still together). Past research (Blank & Peters, 2010; Louie, 1999; Renner, 2003) suggests that participants might experience different directions and degrees of hindsight bias (or memory distortion, see Blank et al., 2008), depending on their current relationship status. For example, participants who are still with their partner at follow-up might be expected to recall their original likelihood estimate of staying together as *higher* than it actually was; relatedly, they might perceive their relationship outcome of staying together as highly foreseeable. For participants whose relationship has ended, however, the emotional significance of the breakup might evoke self-defensive processes, which could mean a reduction in or reversal of the hindsight bias (Blank & Peters, 2010). To avoid blaming oneself for being in a relationship that ended up not working out,

for example, individuals may claim (and believe) that they could not have foreseen the breakup coming. Or, under the logic of retroactive pessimism (Tykocinski et al., 2002), individuals who perceive the breakup as particularly disappointing might engage in self-protective defenses, such as interpreting the relationship breakup as inevitable or staying together as never really a possibility in the first place (thus showing a heightened hindsight bias in the opposite direction of those who did not experience a breakup). Future research on individuals' personal appraisals of their own relationship outcomes might delineate how emotions such as guilt and disappointment interact with perceived controllability of those relationship outcomes to predict perceptions of outcome foreseeability and inevitability.

Conclusion

In two studies, we have documented systematic evidence that knowing about a dating couple's breakup can influence people's perceptions of the inevitability of that breakup as well as their judgments about the quality of the couple's relationship. In other words, we have provided systematic evidence for a phenomenon that anecdotal reports suggest may be quite common: "My friends said they knew all along we wouldn't last." Although our findings need to be replicated with samples of more heterogeneous makeup and with target relationships of varying seriousness, our data suggest that a relationship dissolution may not be as obvious or foreseeable as others might make it out to be. These findings are important because they suggest that the post-breakup self-blame and negative reactions from others (Boelen & Reijntjes, 2009; Choo et al., 1996), which may actually increase risk for subsequent depression and anxiety (Boelen & Reijntjes, 2009), may be unwarranted. We hope that future research will explore the psychological consequences of hindsight bias in romantic relationships, as well as the specific mechanisms that may operate to produce the bias.

Funding: The authors have no funding to report.

Acknowledgments: The authors have no additional (i.e., non-financial) support to report.

Competing Interests: The authors have declared that no competing interests exist.

Data Availability: Data are available online (Bleske-Rechek, 2017).

Supplementary Materials

For this article, the following Supplementary Materials are available (for access see [Index of Supplementary Materials](#) below):

- Data sets for Study 1 (jamovi)

- Data sets for Study 2 (jamovi)
- The questionnaires used in Study 1
- The questionnaires used in Study 2
- Miscellaneous statistics establishing the equivalence of participants in different study conditions

Index of Supplementary Materials

Bleske-Rechek, A. (2017). *Supplementary materials to "I "knew" they wouldn't last: Hindsight bias in judgments of a dating couple"* [Research data, questionnaires, and additional statistics]. OSF. <https://osf.io/kncqc/>

References

- Arkes, H. R. (2013). The consequences of the hindsight bias in medical decision making. *Current Directions in Psychological Science*, 22(5), 356–360. <https://doi.org/10.1177/0963721413489988>
- Arkes, H. R., Wortmann, R. L., Saville, P. D., & Harkness, A. R. (1981). Hindsight bias among physicians weighting the likelihood of diagnoses. *Journal of Applied Psychology*, 66(2), 252–254. <https://doi.org/10.1037/0021-9010.66.2.252>
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5(4), 323–370. <https://doi.org/10.1037/1089-2680.5.4.323>
- BeBeau, H., & Bleske-Rechek, A. (2021). The influence of outcome knowledge: Hindsight bias in the context of suicide. *Academia Letters*, Article 2649. <https://doi.org/10.20935/AL2649>
- Bernstein, D. M., Erdfelder, E., Meltzoff, A. N., Peria, W., & Loftus, G. R. (2011). Hindsight bias from 3 to 95 years of age. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 37(2), 378–391. <https://doi.org/10.1037/a0021971>
- Blank, H., Fischer, V., & Erdfelder, E. (2003). Hindsight bias in political elections. *Memory*, 11(4–5), 491–504. <https://doi.org/10.1080/09658210244000513>
- Blank, H., Nestler, S., Collani, G., & Fischer, V. (2008). How many hindsight biases are there? *Cognition*, 106(3), 1408–1440. <https://doi.org/10.1016/j.cognition.2007.07.007>
- Blank, H., & Peters, J. H. (2010). Controllability and hindsight components: Understanding opposite hindsight biases for self-relevant negative event outcomes. *Memory & Cognition*, 38(3), 356–365. <https://doi.org/10.3758/MC.38.3.356>
- Boelen, P. A., & Reijntjes, A. (2009). Negative cognitions in emotional problems following romantic relationship break-ups. *Stress & Health: Journal of the International Society for the Investigation of Stress*, 25(1), 11–19. <https://doi.org/10.1002/smi.1219>
- Bradfield, A., & Wells, G. L. (2005). Not the same old hindsight bias: Outcome information distorts a broad range of retrospective judgments. *Memory & Cognition*, 33(1), 120–130. <https://doi.org/10.3758/BF03195302>
- Bryant, F. B., & Guilbault, R. L. (2002). "I knew it all along" eventually: The development of hindsight bias in reaction to the Clinton impeachment verdict. *Basic and Applied Social Psychology*, 24(1), 27–41. https://doi.org/10.1207/S15324834BASP2401_3

- Carli, L. L. (1999). Cognitive reconstruction, hindsight, and reactions to victims and perpetrators. *Personality and Social Psychology Bulletin*, 25(8), 966–979. <https://doi.org/10.1177/01461672992511005>
- Choo, P., Levine, T., & Hatfield, E. (1996). Gender, love schemas, and reactions to romantic break-ups. *Journal of Social Behavior and Personality*, 11(5), 143–160.
- Christensen-Szalanski, J., & Willham, C. F. (1991). The hindsight bias: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 48(1), 147–168. [https://doi.org/10.1016/0749-5978\(91\)90010-Q](https://doi.org/10.1016/0749-5978(91)90010-Q)
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175–191. <https://doi.org/10.3758/BF03193146>
- Fischhoff, B. (1975). Hindsight ≠ foresight: The effect of outcome knowledge on judgment under uncertainty. *Journal of Experimental Psychology: Human Perception and Performance*, 1(3), 288–299. <https://doi.org/10.1037/0096-1523.1.3.288>
- Goggin, W. C., & Range, L. M. (1985). The disadvantages of hindsight in the perception of suicide. *Journal of Social and Clinical Psychology*, 3(2), 232–237. <https://doi.org/10.1521/jscp.1985.3.2.232>
- Guilbault, R. L., Bryant, F. B., Brockway, J. H., & Posavac, E. J. (2004). A meta-analysis of research on hindsight bias. *Basic and Applied Social Psychology*, 26(2), 103–117. https://doi.org/10.1207/s15324834basp2602&3_1
- Halford, W. K., Keefer, E., & Osgarby, S. M. (2002). “How has the week been for you two?” Relationship satisfaction and hindsight memory biases in couples’ reports of relationship events. *Cognitive Therapy and Research*, 26(6), 759–773. <https://doi.org/10.1023/A:1021289400436>
- Hawkins, S. A., & Hastie, R. (1990). Hindsight: Biased judgments of past events after the outcomes are known. *Psychological Bulletin*, 107(3), 311–327. <https://doi.org/10.1037/0033-2909.107.3.311>
- Janoff-Bulman, R., Timko, C., & Carli, L. L. (1985). Cognitive biases in blaming the victim. *Journal of Experimental Social Psychology*, 21(2), 161–177. [https://doi.org/10.1016/0022-1031\(85\)90013-7](https://doi.org/10.1016/0022-1031(85)90013-7)
- Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
- Kahneman, D., Sibony, O., & Susteian, C. R. (2021). *Noise: A flaw in human judgment*. Little, Brown Spark.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–292. <https://doi.org/10.2307/1914185>
- Knoll, M. A. Z., & Arkes, H. R. (2017). The effects of expertise on the hindsight bias. *Journal of Behavioral Decision Making*, 30(2), 389–399. <https://doi.org/10.1002/bdm.1950>
- Leary, M. R. (1981). The distorted nature of hindsight. *The Journal of Social Psychology*, 115(1), 25–29. <https://doi.org/10.1080/00224545.1981.9711984>
- Louie, T. A. (1999). Decision-makers’ hindsight bias after receiving favorable and unfavorable feedback. *Journal of Applied Psychology*, 84(1), 29–41. <https://doi.org/10.1037/0021-9010.84.1.29>
- Louie, T. A., Curren, M. T., & Harich, K. R. (2000). “I knew we would win”: Hindsight bias for favorable and unfavorable team decision outcomes. *Journal of Applied Psychology*, 85(2), 264–272. <https://doi.org/10.1037/0021-9010.85.2.264>

- Mark, M. M., Boburka, R. R., Eysell, K. M., Cohen, L. L., & Mellor, S. (2003). "I couldn't have seen it coming": The impact of negative self-relevant outcomes on retrospections about foreseeability. *Memory*, *11*(4–5), 443–454. <https://doi.org/10.1080/09658210244000522>
- McCaul, K. D., Veltum, L. G., Boyechko, V., & Crawford, J. J. (1990). Understanding attributions of victim blame for rape: Sex, violence, and foreseeability. *Journal of Applied Social Psychology*, *20*(1), 1–26. <https://doi.org/10.1111/j.1559-1816.1990.tb00375.x>
- Mitchell, T. R., & Kalb, L. S. (1981). Effects of outcome knowledge and outcome valence on supervisors' evaluations. *Journal of Applied Psychology*, *66*(5), 604–612. <https://doi.org/10.1037/0021-9010.66.5.604>
- Morris, C. E., & Reiber, C. (2011). Frequency, intensity and expression of post-relationship grief. *The Journal of the Evolutionary Studies Consortium*, *3*(1), 1–11.
- Morris, C. E., Reiber, C., & Roman, E. (2015). Quantitative sex differences in response to the dissolution of a romantic relationship. *Evolutionary Behavioral Sciences*, *9*, 270–282. <https://doi.org/10.1037/ebs0000054>
- Neisser, U. (1981). John dean's memory: A case study. *Cognition*, *9*(4), 1–22. [https://doi.org/10.1016/0010-0277\(81\)90011-1](https://doi.org/10.1016/0010-0277(81)90011-1)
- Nestler, S., Blank, H., & von Collani, G. (2008). Hindsight bias doesn't always come easy: Causal models, cognitive effort, and creeping determinism. *Journal of Experimental Psychology*, *34*(5), 1043–1054. <https://doi.org/10.1037/0278-7393.34.5.1043>
- Perilloux, C., & Buss, D. M. (2008). Breaking up romantic relationships: Costs experienced and coping strategies deployed. *Evolutionary Psychology*, *6*(1), 164–181. <https://doi.org/10.1177/147470490800600119>
- Pezzo, M. V. (2003). Surprise, defence, or making sense: What removes hindsight bias? *Memory*, *11*(4–5), 421–441. <https://doi.org/10.1080/09658210244000603>
- Pezzo, M. V. (2011). Hindsight bias: A primer for motivational researchers. *Social and Personality Psychology Compass*, *5*(9), 665–678. <https://doi.org/10.1111/j.1751-9004.2011.00381.x>
- Renner, B. (2003). Hindsight bias after receiving self-relevant health risk information: A motivational perspective. *Memory*, *11*(4–5), 455–472. <https://doi.org/10.1080/09658210244000531>
- Rhoades, G. K., Kamp Dush, C. M., Atkins, D. C., Stanley, S. M., & Markman, H. J. (2011). Breaking up is hard to do: The impact of unmarried relationship dissolution on mental health and life satisfaction. *Journal of Family Psychology*, *25*(3), 366–374. <https://doi.org/10.1037/a0023627>
- Roese, N. J., & Olson, J. M. (1996). Counterfactuals, causal attributions, and the hindsight bias: A conceptual integration. *Journal of Experimental Social Psychology*, *32*(3), 197–227. <https://doi.org/10.1006/jesp.1996.0010>
- Roese, N. J., & Vohs, K. D. (2012). Hindsight bias. *Perspectives on Psychological Science*, *7*(5), 411–426. <https://doi.org/10.1177/1745691612454303>
- Sprecher, S., & Felmlee, D. (2021). Social network pressure on women and men to enter a romantic relationship and fear of being single. *Interpersona*, *15*(2), 246–261. <https://doi.org/10.5964/ijpr.6139>

- Tykocinski, O. E., Pick, D., & Kedmi, D. (2002). Retroactive pessimism: A different kind of hindsight bias. *European Journal of Social Psychology*, 32(4), 577–588. <https://doi.org/10.1002/ejsp.120>
- Zygar-Hoffmann, C., & Schönbrodt, F. D. (2020). Recalling experiences: Looking at momentary, retrospective and global assessments of relationship satisfaction. *Collabra Psychology*, 6(1), Article 7. <https://doi.org/10.1525/collabra.278>

PSPS
Polish
Social
Psychological
Society

Social Psychological Bulletin (SPB)
is an official journal of the Polish
Social Psychological Society
(PSPS).



leibniz-psychology.org

PsychOpen GOLD is a publishing
service by Leibniz Institute for
Psychology (ZPID), Germany.