SOCIAL HYPERSENSITIVITY INJURES SELF-ESTEEM AND PERCEIVED REJECTION FOLLOWING AMBIGUOUS SOCIAL FEEDBACK

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Abstract
Ambiguous feedback may be a pervasive and unavoidable part of everyday social interactions. One form of ambiguous feedback, an awkward pause in a conversation, can be uncomfortable (Koudenburg, Postmes & Gordijn, 2011), but the reactions of socially hypersensitive people (i.e., self-esteem contingent on maintaining positive relationships) to ambiguous feedback may go beyond discomfort to injury to their self-esteem and sense of belonging. In Experiment 1, more socially hypersensitive individuals reported lower self-esteem and higher perceived rejection after reading a conversation script in which they imagined an awkward pause after they made a controversial statement. Social hypersensitivity did not moderate self-esteem and perceived rejection when the conversation flowed without an awkward pause after the same controversial statement. In Experiment 2, social hypersensitivity was negatively correlated with self-esteem when participants imagined a conversation with a controversial statement followed by different forms of awkward pauses, explicit ambiguous feedback, or explicit negative feedback. Social hypersensitivity was linked to increased perceived rejection only in the pause conditions. Experiment 3 replicated the findings for the awkward pause, explicit ambiguous feedback, and explicit negative feedback conditions in reaction to controversial statements. However, Experiment 3 also highlighted that the interpretation and subsequent response to a pause depends on the context in which the feedback is given. Collectively, this research suggests that more socially hypersensitive individuals, compared to less socially hypersensitive individuals, require explicit positive feedback to maintain self-esteem and react negatively to ambiguous social feedback. These experiments have implications for how social hypersensitivity leads to vulnerability for depression (Girgus & Nolen-Hoeksema, 2006).

Keywords: self-esteem, rejection, personality, social interaction
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Social hypersensitivity injures self-esteem and perceived rejection following ambiguous social feedback

Think about the last time that an awkward silence happened during a conversation. Judging from lay descriptions of the experience, people generally seem to be aware of the uncomfortable, “sinking feeling” that arises from an awkward silence. Internet memes poke fun at the arsenal of nonverbal behaviors people use to offset awkward moments (for example, appearing to text busily on one’s phone when a conversation with an acquaintance falls flat). Numerous dating and how-to websites have lists of ways to avoid or fill an awkward silence. One may find, for example, advice to “think less, talk more” (peopleskillsdecoded.com), “say something obvious to neutralize the awkward” (socialnatural.com), or even “find topics to bring up before you start talking” (wikihow.com).

While most people would expect to feel mildly uncomfortable after an awkward pause, research on personality differences shows that not everyone reacts to social interactions – real, imagined, or remembered – in the same way. Moscovitch, Rodebaugh, and Hesch (2012) found that individuals who were highly socially anxious, compared to less socially anxious individuals, were more likely to feel that the consequences of social blunders (e.g. spilling water all over oneself during a public speech) were more negative. Compared to individuals with low social anxiety, individuals with high social anxiety felt more embarrassed, more ashamed, and that there was a higher social cost to making social blunders. This pattern of findings held true for participants who recalled an actual autobiographical memory of a social blunder and for participants who imagined committing a social blunder described by researchers.

People who are socially hypersensitive, and whose self-esteem fluctuates according to the type of feedback they receive, should experience awkward pauses in conversations differently.
from those who are not as sensitive. The present research examines whether and under what circumstances people who are more socially hypersensitive view themselves and their social interactions more negatively following different kinds of social feedback —including awkward pauses—in a conversation.

**Social hypersensitivity and reactions to positive and negative events**

Social hypersensitivity (called sociotropy in the clinical literature) is characterized by excessive concern for maintaining positive social interactions and self-esteem that is contingent on social feedback (Beck, 1983). Three dimensions define this personality construct: being overly concerned with how others think of you, having a strong desire to please other people, and depending on others for support (Robins, Ladd, Welkowitz, Blaney, Diaz, & Kutcher, 1994). For example, more socially hypersensitive individuals, compared to less socially hypersensitive individuals, tend to indicate that they have difficulty ending unhappy relationships, they have trouble saying “no” to others’ requests, and they are worried about receiving criticism from others (Beck, 1983).

Social hypersensitivity is considered a stable personality characteristic. Social hypersensitivity scales have shown good test-retest reliabilities in longitudinal studies (Cikara & Gurgus, 2010; Hammen, Ellicott, & Gitlin, 1989; Robins et al., 1994). Studies have consistently shown that social hypersensitivity has a reliable positive, moderate correlation of $r = .30-.40$ with both depressive symptoms and clinically diagnosed major depressive disorder (Coyne & Whiffen, 1995; for a review, see Gurgus & Nolen-Hoeksema, 2006). What makes this association particularly interesting is the fact that social hypersensitivity is neither in the DSM clinical criteria for unipolar depression nor is it explicitly included in depressive symptom inventories such as the Beck Depression Inventory and the CES-D scale (e.g. American Psychiatric
Therefore, social hypersensitivity, though reliably correlated with depression, is not a symptom of depression. What might account for the fact that people who endorse more socially hypersensitive characteristics are more likely to experience depressive symptoms?

One possible explanation comes from the original conception of social hypersensitivity. Aaron Beck proposed that social hypersensitivity is a personality characteristic that confers vulnerability for developing depression (Beck, 1983). Empirical studies have shown that social hypersensitivity ratings are stable across time, even though depressive symptoms and diagnosis of depression may vary for individuals across time (Clark, Beck, & Brown, 1992; Hammen, Ellicott, & Gitlin, 1989). These findings support the notion that social hypersensitivity is a stable personality characteristic that remains present in individuals even as depressed status fluctuates. What would lead to socially hypersensitive individuals experiencing depressive symptoms at some times but not at others? This process has been hypothesized to operate through a diathesis-stress model. The model states that individuals with a personality diathesis (social hypersensitivity) are at a greater risk of developing depressive symptoms when experiencing stressful life events. In particular, Beck and colleagues proposed a congruency hypothesis wherein social hypersensitivity would interact specifically with negative interpersonal stressors to predict depression over time (Beck, 1983; Clark, Beck, & Brown, 1992). The reason for this is that if individuals base their sense of self-worth on positive social interactions, then negative social interactions would induce a great deal of stress that is congruent with the self-evaluative concerns of socially hypersensitive individuals. Socially hypersensitive individuals would be more likely to feel decreased self-worth when there are negative events in the social domain that is so important to their sense of well-being.
A body of longitudinal and cross-sectional research has supported some aspects of this model but not others. Some studies have provided evidence for the specific stressor model which proposes that social hypersensitivity interacts with negative social events, but not with negative nonsocial events, to predict depressive symptoms (Clark, Beck, & Brown, 1992; Robins, 1990). Hammen, Ellicott, and Gitlin (1989) found a similar effect for depressed individuals who also scored high on social hypersensitivity: these individuals experienced higher levels of depressive symptoms during a period when they were also experiencing a high level of interpersonal stress. However in the same experiment, social hypersensitivity did not interact with interpersonal stressors to predict relapse for participants who had previously experienced a remission in depressive symptoms.

Other studies have not found such consistent support for the congruency hypothesis. Such studies find that people who are more socially hypersensitive and who experience negative events—both social and nonsocial—report more depressive symptoms compared to people who are less socially hypersensitive. One of the first studies testing the congruency hypothesis found that social hypersensitivity interacted with both negative social events and negative autonomy/achievement-related events to predict depressive symptoms (Robins & Block, 1988). Dasch, Cohen, Sahl, and Gunthert (2008) found this same interaction between social hypersensitivity and negative interpersonal and achievement-related daily hassles for self-esteem as the dependent variable. Most studies testing the interaction between social hypersensitivity and stress have focused on life events and daily hassle inventories. In one of the few experiments using laboratory-induced scenarios of hypothetical social rejection and achievement stressors, more socially hypersensitive subjects experienced greater sadness than less socially hypersensitive subjects when exposed to negative social and nonsocial imagery tasks (Allen, de
L. Horne, & Trinder, 1996). A possible explanation for these findings is that it may be difficult to categorize some events as purely nonsocial. Even a “nonsocial” event such as being fired from a job may have social implications. However, if this is the case, it is not clear why some studies would find an interaction between social hypersensitivity and negative nonsocial events to predict depressive symptoms, but that other studies would not find this effect. Despite this, we note that longitudinal studies do find evidence to support the general predictions of the diathesis stress model of social hypersensitivity as a cognitive vulnerability to depression.

More recently, a daily diary study by Cikara and Girgus (2010) introduced a new twist to understanding the interaction between life experiences and social hypersensitivity. Over the course of a month, participants indicated daily positive and negative events and state self-esteem. Regardless of their level of social hypersensitivity, all participants felt decreased self-esteem on days when they experienced more social and nonsocial negative events. On days when people reported more positive events, those who were more socially hypersensitive had self-esteem that was just as high as that of people who were less socially hypersensitive. However, on days when people experienced a relative absence of positive feedback—both social and nonsocial—those who were more socially hypersensitive felt decreased self-esteem compared to those who were less socially hypersensitive. These findings introduce several new hypotheses when considering how social hypersensitivity moderates experiences in daily life. First, it introduces reactions to the absence of positive feedback as a mechanism that could explain the connection between social hypersensitivity and depression. If social hypersensitivity is characterized by overemphasis on a positive tone in relationships, then it stands to reason that, when positive events are rare, people who are more socially hypersensitive subsequently feel worse about themselves. Second, these findings bring to mind situations that may constitute the absence of
positive feedback. In the daily diary study, the absence of positive feedback was operationalized as fewer indications of positive events on a daily positive and negative life events scale (Cikara & Girgus, 2010). This brings to mind instances in daily life that might constitute the absence of positive feedback. For example, participants might have simply experienced a dearth of praise or other kinds of positive interactions with other people. Another way of conceptualizing the absence of positive feedback is as the presence of ambiguous feedback. When participants experience a lack of positive events, they might also experience more uncertainty or ambiguity in their daily interactions or achievements. Some examples of everyday events that are ambiguous might include receiving mixed positive and negative feedback on work, waiting for a reply to an email or a phone call, attending a social gathering that is awkward, and waiting for the outcome of an interview or job application. To our knowledge, there are no studies which have examined whether and how social hypersensitivity interacts with ambiguous feedback to predict negative reactions such as lower self-esteem and depressive symptoms.

**Social hypersensitivity, self-esteem, perceived rejection, and depression**

Self-esteem refers to individuals’ evaluations of their self-worth, in other words, their sense of self-regard on the continuum from positive to negative feelings about their self-worth (Leary & Baumeister, 2000). More socially hypersensitive individuals tend to have lower and more labile self-esteem compared to people who are less socially hypersensitive (Cikara & Girgus, 2010). Low self-esteem has been consistently and strongly associated with depression (Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009; Watson, Suhls, & Haig, 2002). Low self-esteem is conceptually linked to worthlessness (or negative self-evaluation), which is a symptom of depression and a key component of the cognitive model of depression (Beck, 1991; Beck, Steer, Epstein, & Brown, 1990). Some have proposed that self-esteem is itself both a symptom
and a vulnerability factor for depression (Hammen, 2005; Joiner, 2000). A meta-analysis that synthesized 77 longitudinal studies on self-esteem and depression found support for the self-esteem vulnerability model of depression. Initial levels of self-esteem predicted future depression better than initial levels of depression predicted future self-esteem (Sowislo & Orth, 2013).

Recent research has focused on the lability of self-esteem, in other words, the degree to which self-esteem fluctuates within an individual over time. Highly labile self-esteem is associated with decreased trait self-esteem and increased depressive symptoms over time (Butler, Hokanson, & Flynn, 1994; Kernis, Grannemann, & Mathis, 1991). Kernis, Grannemann, and Mathis (1991) found that the temporal instability of self-esteem moderated the relationship between low self-esteem and depression. In this longitudinal study, participants with self-esteem that fluctuated more over the course of four days, compared to individuals with more stable self-esteem, were also more likely to report lower self-esteem overall. The interaction between the level and lability of self-esteem predicted depressive symptoms at the end of the study. What might account for the link between highly labile self-esteem and depression? The prevailing theory is that stressors, hassles, and negative life events cause fluctuations in self-esteem when individuals have self-worth that is contingent upon successes and positive feedback (Butler, Hokanson, & Flynn, 1994; Greenier, Kernis, McNamara, Waschull, Berry, Herlocker, & Abend, 1999; Roberts & Monroe, 1992). Kernis and colleagues (1998) showed that over a four-week diary study, individuals with more unstable self-esteem who also experienced more daily hassles had the highest depressive symptoms at the end of the study. Individuals with stable self-esteem reported the lowest number of depressive symptoms and their level of depressive symptoms did not fluctuate depending on the number of hassles they experienced. Interestingly, individuals with highly labile self-esteem who did not experience as many hassles had low depressive
symptom levels that resembled the depressive symptom levels of individuals with stable self-esteem. This study demonstrated support for the idea that unstable self-esteem interacts with negative stressors to predict more negative mental health outcomes (Kernis, Whisenhunt, Waschull, Greenier, Berry, Herlocker, & Anderson, 1998). We note that the pattern of effects found for the interaction between self-esteem lability and hassles in predicting depressive symptoms is the same as the pattern of effects that Cikara and Girgus (2010) found for the interaction between social hypersensitivity and the absence of positive feedback in predicting self-esteem.

The associations between social hypersensitivity, self-esteem level and lability, and positive and negative events could at least in part account for the relationship between social hypersensitivity and depression. In particular, examining how self-esteem fluctuates in reaction to different types of social feedback could explain the processes whereby social hypersensitivity confers vulnerability for depression. According to sociometer theory, fluctuations in self-esteem may function as a gauge of one’s social standing and lead to behaviors to enhance belongingness and restore social inclusion (Leary, Tambor, Terdal, & Downs, 1995). For example, state self-esteem decreases when individuals feel excluded and increases when they feel included (Leary, Tambor, Terdal, & Downs, 1995). Lower self-esteem is hypothesized to aid in directing behavior to be more affiliative. Because socially hypersensitive individuals care excessively about the state of their interpersonal relationships, they may have a “miscalibrated” sociometer that is overreactive to subtle social feedback cues. Interestingly, research on sociometer theory has shown that self-esteem is generally more attuned to feedback that is neither exceedingly accepting nor rejecting (Leary, Haupt, Strausser, & Chokel, 1998). One possibility is that this “neutral” feedback is an example of ambiguous social feedback.
The sociometer theory proposes a strong association between self-esteem and feelings of rejection. Although self-esteem is closely tied to feelings of rejection, recent examinations of the relationship between self-esteem and perceived rejection have revealed a more complex state of affairs. Blackhart and colleagues’ (2009) meta-analysis of 192 studies revealed that experimentally manipulating rejection caused significant increases in negative mood, especially in imagined scenarios of rejection. However, being rejected did not lead to significant decreases in self-esteem unless studies had subjects recall past experiences of negative feedback (Blackhart, Nelson, Knowles, & Baumeister, 2009). The authors suggest that an explanation for this difference is that reliving past experiences could call up rejection events that were more meaningful because such experiences have been incorporated into subjects’ self-concepts (Blackhart, Nelson, Knowles, & Baumeister, 2009). Imagined rejection scenarios may not be strong enough to cause such an immediate change in self-worth.

Perceiving rejection may be most relevant for activating individuals’ need to belong, whereas declines in self-esteem may activate needs for self-enhancement that may result in different behavioral tactics to address such needs (Knowles, Lucas, Molden, Gardner, & Dean, 2010). Knowles and colleagues demonstrated that people were more likely to take measures to address belonging needs (such as writing about why friendships are important), when they recalled past experiences of social exclusion, compared to when they recalled past intellectual failures. Other studies show that feelings of rejection do not always lead to positive behaviors such as writing to reaffirm relationships. Studies have shown that being rejected by peers and relational partners can result in reactions of hostility and aggression toward perpetrators of rejection (Ayduk, Downey, Testa, Yen, & Shoda, 1999; Bourgeois & Leary, 2001; Leary et al., 1998). On the other hand, feeling rejected has also been shown to cause some people to engage
in behaviors aimed at restoring social ties by excessively seeking reassurance from others (Starr & Davila, 2008; Haeffel, Voelz, & Joiner, 2007). Ironically, excessive reassurance-seeking behaviors tend to generate more interpersonal stress and instability in relationships which then put those who engage in such behaviors at higher risk for experiencing depressive symptoms (Eberhart & Hammen, 2010; Lemay & Clark, 2008).

Overall, the research on downstream effects of rejection does not point to one typical, immediate response to an experience of perceived rejection. Instead, perceived rejection seems to provoke a continuum of responses that range from avoidance and hostility to relationship-affirming behaviors and excessive reassurance-seeking. Prolonged experiences of rejection and ostracism do in fact lead to negative outcomes such as resignation, hopelessness, and depression (Williams, 2009). The present experiments examine both self-esteem and perceived rejection following ambiguous feedback and how these feelings might be amplified in people who are more socially hypersensitive as compared to people who are less socially hypersensitive. Although the links between self-esteem, social hypersensitivity, and depression have been researched, whether socially hypersensitive individuals perceive rejection in response to ambiguous and unambiguous social feedback has not yet been studied.

**Ambiguous feedback and awkward pauses in conversations**

Social feedback in everyday life often eludes clean categorization as explicitly positive or negative. If ambiguous feedback is defined as feedback that is neither clearly positive nor clearly negative, then we may think of numerous instances in day to day life that exemplify this kind of feedback (Pearson, West, Dovidio, Powers, Buck, & Henning, 2008; Leary, Haupt, Strausser, & Chokel, 1998). Ambiguous feedback might take the form of mixed feedback—for example, receiving feedback that contains both praise and criticism. Ambiguous feedback might also be
characterized by the absence of explicit feedback. For example, making a joke among friends that is met with an awkward pause, passing an acquaintance on the street who does not return a greeting, waiting for a response from someone, or receiving a lukewarm evaluation. In these cases, ambiguous feedback may be defined by uncertainty as to how others truly feel about them. Leary and colleagues (1998) conducted a series of experiments in which participants imagined receiving appraisals of themselves from other individuals (for example, a date or a stranger at a party). These appraisals were a list of descriptions of the participant (e.g., pleased, upset, self-confident, anxious) that the hypothetical partner rated on a five-point scale (1=not at all, 5=extremely). Participants reacted with decreased self-esteem not only to explicitly negative feedback, but also to “neutral” feedback, operationalized in the experiments as hypothetical partners’ ratings on the midpoint of the scale. Leary and colleagues suggested that self-esteem is particularly sensitive to feedback that is neither extremely positive nor negative and that this form of “neutral” feedback is actually very common in everyday life.

Awkward silences are examples of instances where social feedback is conveyed in a more ambiguous way. Some have proposed that awkward pauses in conversations should be considered ambiguous signals because they do not explicitly convey positive or negative feedback (Gudykunst & Shapiro, 1996; Pearson et al., 2008). Some evidence suggests that conversations with pauses are less pleasant as compared to flowing conversations. When fluency, coordination, and synchronicity are observed or induced between individuals during social interactions, participants are seen as more of a coherent “social unit” (Bernieri, Davis, Rosenthal, & Knee, 1994; Lakens, 2010). Fluency can also lead to more social behavior: people tend to self-disclose more under circumstances with greater fluency. For example people shared more revealing personal information on a self-disclosure website when it was formatted with a more
fluent background and text, than when it was formatted with a harder to read background and text (Alter & Oppenheimer, 2009).

While fluency can aid social experiences, disfluency can actually detract from such exchanges. In a study on dyadic communication, participants rated their partners as less competent communicators when the transcripts of their conversations contained more pauses (McLaughlin & Cody, 1982). An interesting set of experiments examined the effect of ambiguous signals in interracial dyadic conversations. Awkward silences and hesitation are common in interracial interactions and have been hypothesized to reflect anxious and evaluative concerns and lead to such interactions being more uncomfortable and negatively perceived by interaction partners (Vorauer, 2006). Pearson and colleagues (2008) tested this hypothesis by experimentally manipulating real-time conversations to include delays in verbal feedback and measuring subsequent effects on feelings of anxiety and desire to engage in future interactions. They manipulated this by having participants converse over a closed-circuit video system and interjecting brief (1-second) audiovisual pauses in the delay condition and leaving the conversation uninterrupted in the flow/control condition. Compared to uninterrupted conversations, audiovisual pauses in interracial interactions resulted in more negative interpretations of the conversation, greater anxiety about the interaction, and decreased interest in future contact with the interaction partner (Pearson, West, Dovidio, Powers, Buck, & Henning, 2008). Contrary to findings for interracial dyads, intraracial pairs in the delay condition did not experience greater anxiety in the flow/control condition. This experiment demonstrated the negative impact of ambiguous feedback in the form of brief conversational disturbances in interactions that are more likely to be stressful and involve evaluative concerns.
Two experiments in the Netherlands also examined the effects of brief pauses in conversations on how people feel about themselves and their social interactions. In their first experiment, Koudenburg, Postmes, and Gordijn (2011) instructed participants to read a conversation script in which the character with whom they identified made a controversial statement in the course of the group conversation. Participants were assigned to read either a scenario with a brief pause in the conversation after the controversial statement or the exact same scenario with a conversation that flowed without a break after the controversial statement. Participants in the brief pause condition felt less perceived consensus in the group, decreased belongingness, less social validation, more negative emotions, lower self-esteem, and more rejection, as compared to those participants who read the same conversation that flowed without disruption (Koudenburg, Postmes, & Gordijn, 2011). In the second experiment, they replicated the effect of the brief pause using a videotaped recording of a group conversation with similar pause and flow conditions. These experiments demonstrated that imagining or experiencing a brief pause in a conversation after a controversial statement is experienced as more negative than imagining or experiencing the same conversation that flows without disruption.

An ambiguous moment, such as a brief pause after a controversial statement, should have greater consequences for people who are more preoccupied with figuring out what others are thinking of them than for people who are less preoccupied with this concern. Sensitivity to social glitches and a drive to correct them are important general human characteristics that facilitate group cohesion and relationship-building (Baumeister & Leary, 1995). However, socially hypersensitive people, who are overly concerned with being liked and thought of positively by others, would likely react to these situations with even stronger effects on self-esteem and perceptions of being rejected, as compared to the reactions of those who are less hypersensitive.
Over time, the decreases in self-esteem and feelings of exclusion after such experiences could put more socially hypersensitive individuals at a greater risk for developing depression.

**The Present Research**

Building on previous research by Cikara and Girgus, 2010, and Koudenburg, Postmes, & Gordijn, 2011, the present experiments examine how socially hypersensitive people react to ambiguous feedback in an experimental laboratory design. Social hypersensitivity has been shown to interact with the absence of everyday positive feedback to predict decreased self-esteem (Cikara & Girgus, 2010). Ambiguous feedback may be a form of the absence of positive feedback and lead to lower self-esteem and increased feelings of rejection for people who are more socially hypersensitive, compared to people who are less socially hypersensitive. Research has identified disfluency in social interactions as a form of ambiguous social feedback (e.g. Pearson et al., 2008; Vorauer, 2006), which suggests that a brief pause in a conversation after a controversial statement may be interpreted by the person making the controversial statement as ambiguous feedback. The present research asks two main questions. First, do people with higher social hypersensitivity have more negative responses (defined as decreased self-esteem and increased perceived rejection) to an awkward pause in social interactions, compared to people with lower social hypersensitivity? Second, is there an interaction between social hypersensitivity and feedback condition in predicting self-esteem and perceived rejection? For the interaction effect, we hypothesize that people higher on social hypersensitivity—as compared to those lower on social hypersensitivity—will feel worse about themselves and more rejected after receiving social feedback in the form of an awkward pause. In contrast, when the conversation flows without pause, we predict that that this indicates a positive state of affairs and
that self-esteem and feelings of rejection will not be moderated by social hypersensitivity. The three experiments included in this dissertation will test these hypotheses.

Experiment 1 will test whether being socially hypersensitive is associated with decreased self-worth and increased feelings of rejection when there is an awkward pause as compared to when there is flow following a controversial statement in a conversation. In this experiment, we conceptualize an awkward pause as an implicit ambiguous feedback condition and conversational flow as an implicit positive feedback condition.

Experiment 2 will test this assumption, specifically, by comparing pause and flow conditions to explicit feedback conditions where participants imagine receiving direct negative, positive, or ambiguous feedback in response to a controversial statement. In line with findings from Cikara and Girgus (2010), we hypothesize that a pause will be interpreted in the same way as explicit ambiguous feedback. In line with findings from Koudenburg, Postmes, and Gordijn, 2011, we predict that conversational flow will be interpreted in the same way as explicit positive feedback.

Lastly, Experiment 3 seeks to distinguish between the effects of a pause that follows a controversial statement compared to a pause that follows a noncontroversial statement in a conversation. A pause that follows a controversial statement would likely be more diagnostic of group members’ attitudes than a pause that follows a noncontroversial statement. In this experiment, we ask the following question: does the content of the statement preceding social feedback affect the relationship between social hypersensitivity and feelings of self-esteem and rejection in different feedback conditions?
Experiment 1

This initial experiment investigated how the consequences of awkward pauses in conversations differ for people who are higher and lower on social hypersensitivity. The original Koudenburg, Postmes, and Gordijn (2011) experiment on brief pauses in conversations used descriptive scenarios and videotaped conversations rendered in the Dutch language. Therefore, we needed to adapt the manipulation and test whether an English-language conversation script format could replicate the results of Koudenburg, Postmes & Gordijn (2011) in a United States undergraduate sample.

Experiment 1 tested two main hypotheses:

1. Consistent with Koudenburg et al. (2011), it was hypothesized that, regardless of their level of social hypersensitivity, people will react with lower self-esteem and more feelings of rejection when they imagine being in a conversation with a brief pause after a controversial statement, as compared to their reaction to the same conversation that flows without a break after the controversial statement.

2. We predicted an interaction between social hypersensitivity and the pause–flow conditions. People who are high and low on social hypersensitivity will not differ in their self-esteem and perceived rejection when the conversation flows without disruption. However, people higher on social hypersensitivity will respond with lower self-esteem and higher perceived rejection than people lower on social hypersensitivity when there is a pause in the conversation.

Method

Participants
Ninety-six Princeton undergraduate students and community members (female = 69) participated in the experiment for partial fulfillment of a course requirement or paid compensation. Participants ranged from 18 to 56 years of age. The mean age of participants was 20.82 (SD = 5.77). 92.7% of participants were under the age of 23. The racial makeup of the same was 52.1% White, 24% Asian, 8.3% Black, 6.3% Hispanic, and 9.3% Mixed-race/other.

**Design and Procedure**

Participants arrived at the laboratory individually. They were greeted by the experimenter who informed them that the experiment was on understanding group conversations and that they would be reading a script of a conversation among three individuals. The experimenter instructed participants to read the script as if they were a character in the conversation by giving the following instructions, “Please identify with the person in the conversation script that is labeled ‘YOU.’ In other words, as you are reading, imagine that you are in the conversation and take the perspective of that individual. Later we will ask you questions about the conversation.” The experimenter then left the room while the participant completed the experiment on the computer.

Each participant was randomly assigned to a condition: pause or flow feedback within the conversation script. Therefore, the participant read one single script describing a conversation with either the pause condition or the flow condition. Immediately after reading the conversation script, participants filled out measures of self-esteem and perceived rejection. Next, social hypersensitivity scores were obtained at the end of the experiment along with demographic information. We assessed social hypersensitivity scores at the end of the experiment due to concerns that assessing social hypersensitivity at the start of the experiment would prime concerns about social feedback or create demand effects for participants. We felt comfortable with this approach due to evidence for social hypersensitivity as a stable trait measure (Robins et
Furthermore, when testing whether or not social hypersensitivity differed as a result of condition, we found a null effect. Feedback condition did not affect the social hypersensitivity level of participants, $M_{\text{Flow}} = 3.93$, $SD_{\text{Flow}} = .70$, $M_{\text{Pause}} = 4.02$, $SD_{\text{Pause}} = .64$, $t(94) = -.65$, $p = .52$.

Lastly, participants were fully debriefed at the end of the experiment by the experimenter.

Materials

Conversation scripts. Participants were randomly assigned to condition (pause or flow). The condition was either pause or flow feedback following a controversial statement that the participant’s character said in the course of the conversation. The script described an imaginary interaction among three individuals: “YOU” and fictional characters “Anne” and “Megan.” The conversation was about one of four possible topics: laptops, grades, clubs, and trains. Participants were randomly assigned to read about one topic. Therefore, participants were randomly assigned to a topic (laptops, grades, clubs, trains) and a condition (pause or flow). Three of the script topics – laptops, grades, and clubs – consisted of conversations about current controversial issues on the Princeton campus, as determined by a pretest survey. The train script was adapted from the Koudenburg et al. (2011) stimuli describing a controversial issue concerning people who take public transportation. We included topics that were not used in Koudenburg and colleagues’ experiment in order to demonstrate the robustness of effects. All script topics were matched for length and order of character presentation.

Two-thirds of the way through each conversation script, the character with whom participants identified made a controversial statement. For example, in the train script, this statement was, “I think very obese people should have to book two seats on the train or the plane.” In the flow condition, this statement was followed by a continuation of the conversation prior to the statement, without the other two characters addressing the controversial statement. In
the pause condition, the controversial statement was followed by a two-line pause that was written into the script (see the Appendix A and B for sample scripts):

   [There is a sudden silence]
   [Megan stirs her coffee and Anne looks out the window]

After the pause, the other two characters in the group resumed the conversation without addressing the controversial statement, just as in the flow condition. In other words, the pause and flow conditions were identical in content and structure with the only difference being that the pause condition contained a brief two-line description of a silence.

   **Self-esteem.** State self-esteem following the group conversation script was measured using the 5-item self-esteem subscale of the Need Threat Scale (NTS; van Beest & Williams, 2006). The NTS self-esteem subscale is tailored for use as a state measure in social feedback paradigms such as Cyberball (Williams, 2009). The self-esteem items used in the present experiment are based on the modified Need Threat Scale used by Koudenburg and colleagues (2011). The items reference the particular situation that the participant experienced. Participants rated, on a seven-point scale with anchors at 1 (do not agree) and 7 (agree), their agreement with statements such as “I had the feeling that I failed during the conversation” and “I had the idea that I had the same value as the other students.” The scale had high internal reliability, Cronbach’s $\alpha = .80$. See Appendix B for a complete list of self-esteem items.

   **Perceived rejection.** Feelings of rejection were measured by using a 6-item perceived rejection scale (Gaertner & Iuzzini, 2005). Participants rated the extent, from 1 (never) to 7 (frequently), to which they felt the group rejected them during the conversation (Appendix C). The scale consisted of items such as the group “made you feel unwanted” and “made you feel like you don’t belong.” The scale had high internal reliability, Cronbach’s $\alpha = .94$. 
Social hypersensitivity. Participants’ social hypersensitivity was assessed using the 24-item sociotropy scale of the Personal Style Inventory-II (Robins et al., 1994). Participants rated their level of agreement, from 1(Strongly disagree) to 6(Strongly agree), with statements expressing concern for what others think ("I am very sensitive to criticism by others"), dependency on others ("I find it difficult if I have to be alone all day"), and need to please others ("I often put other people’s needs before my own"). The PSI-II is a widely used, well-validated, and reliable standard measure for assessing social hypersensitivity (Robins et al., 1994). The PSI-II has good test-retest reliability and social hypersensitivity scores are stable across different time points (Cikara & Girgus, 2010; Robins et al., 1994). In the present experiment the scale had high internal reliability, Cronbach’s $\alpha = .88$. See Appendix C for the complete Personal Style Inventory-II.

Results

The means and standard deviations for each measure, and the correlations between the measures and between each measure and gender are shown in Table 1. Gender was correlated with social hypersensitivity with females scoring significantly higher than males, $t(94)= 3.28$, $p= .001$, 95% CI [.19, .76], $d=.77$.

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*Note. N=96, PSI =Personal Style Inventory II, † $p < .07$, *$p < .05$, **$p < .01$.

Table 1. Means, standard deviations, and correlations for measures in Experiment 1

Replicating Koudenburg, Postmes, & Gordijn (2011)
Averaged across all social hypersensitivity levels, the present experiment replicated the effect of the pause condition on self-esteem and rejection found by Koudenburg, et al. (2011). Subjects in the pause condition reported significantly lower self-esteem ($M = 3.87, SD = 1.32$) than subjects in the flow condition ($M = 5.20, SD = 1.09$), $t(94) = 5.35, p < .001, 95\% CI [.83, 1.82], d = -1.10$. Subjects in the pause condition reported significantly greater feelings of rejection ($M = 3.50, SD = 1.49$) than subjects in the flow condition ($M = 2.12, SD = 1.23$), $t(94) = -4.95, p < .001, 95\% CI [-1.93, -.83] d = 1.01$. Figures 1 and 2 depict the main effects of condition on self-esteem and perceived rejection in Experiment 1.

**Figures 1 & 2.** Self-esteem and perceived rejection in the pause and flow conditions in Experiment 1.

**Social hypersensitivity x condition interaction**

In order to test the hypothesis that more socially hypersensitive participants will react more negatively than less socially hypersensitive people when there is an awkward pause in a conversation, hierarchical regression analyses were performed to examine the social hypersensitivity x condition interaction. Social hypersensitivity scores were grand-mean centered. The interaction term was constructed as the product of the centered social
hypersensitivity variable and the dichotomous script condition variable (1 = flow, 2 = pause).

Gender was positively correlated with social hypersensitivity, Therefore, all subsequent regression analyses controlled for gender. Gender, centered social hypersensitivity scores, and script condition were entered into Step 1 of the hierarchical regression. Step 2 of the hierarchical regression contained the variables entered in Step 1 and the social hypersensitivity x script condition interaction term. Hierarchical regression analyses were performed separately for each dependent variable.

When self-esteem was entered as the outcome variable, the model with the interaction term (Step 2) accounted for a marginally significant $R^2$ change, Step 2 $R^2 = .30$, $\Delta R^2 = .02$, $\Delta F(1,91) = 3.00$, $p = .087$. When perceived rejection was entered as the outcome variable, the model with the interaction term (Step 2) accounted for a significant $R^2$ change, Step 2 $R^2 = .30$, $\Delta R^2 = .03$, $\Delta F(1,91) = 3.96$, $p = .05$.

To test hypotheses 2, that participants would not differ by social hypersensitivity on their reactions to the flow condition, but would differ by social hypersensitivity in the pause condition, simple slopes analyses were conducted to test whether the linear relationship between social hypersensitivity and outcome variables were significantly different from zero. Regression analyses testing the effect of social hypersensitivity on self-esteem and rejection while controlling for gender were applied to each feedback condition, separately.

As shown in Figure 3, there was a significant negative linear relationship between social hypersensitivity and self-esteem in the pause condition, $R = .42$, $p = .01$. In the flow condition, the relationship between social hypersensitivity and self-esteem was not significant, $R = .15$, $p = .61$. As shown in Figure 4, there was a significant positive linear relationship between social hypersensitivity and perceived rejection, $R = .48$, $p = .003$ in the pause condition. In the flow
condition, the relationship between social hypersensitivity and perceived rejection was not significant, $R = .08$, $p = .88$. Figures 3 and 4 show that participants who were low on social hypersensitivity reacted similarly to the flow and pause conditions while participants who were high on social hypersensitivity reacted more negatively to the pause condition than to the flow condition.

**Figures 3 & 4.** The interaction between script condition and social hypersensitivity in predicting self-esteem and perceived rejection in Experiment 1. The smooth line denotes the pause condition. The dotted line denotes the flow condition.

**Discussion**

The results of this first experiment supported our three hypotheses. The data replicated Koudenburg et al. (2011), showing that, averaged across levels of social hypersensitivity, participants reported lower self-esteem and more perceived rejection in the pause condition compared to the flow condition. The data also showed that participants did not differ in their reactions to a conversation that flowed, regardless of their level of social hypersensitivity. The self-esteem of participants who read the conversations that flowed without disruption stayed at a constant high level that did not differ based on social hypersensitivity score. In addition,
participants in the flow condition perceived very little rejection and these feelings of rejection did not differ between those higher and lower on social hypersensitivity. However, participants higher on social hypersensitivity – compared to those who were lower on social hypersensitivity – felt worse about themselves after imagining they were in a conversation that contained an awkward pause. After an awkward pause in the conversation, more socially hypersensitive participants reported marginally lower self-esteem and significantly more perceived rejection when compared to less socially hypersensitive participants. Less socially hypersensitive individuals had levels of self-esteem and perceived rejection in the pause condition that were similar to their levels of self-esteem and perceived rejection in the flow condition. That is, the awkward pause did not seem to affect them at all. The awkward pause in the conversation negatively affected the individuals who were more socially hypersensitive.

In follow-up analyses, we examined the results for each of the four conversation topics, separately. They included three Princeton scripts about issues on campus (“Laptops” $N = 24$, “Clubs” $N = 22$, “Grades” $N = 24$) and one non-Princeton script about trains ($N = 26$). For each Princeton topic, the interaction of social hypersensitivity by condition did not predict self-esteem (all $p’s > .77$) or perceived rejection (all $p’s > .30$). However, participants who read the train script with a brief pause showed significant social hypersensitivity by condition interactions for self-esteem ($p = .04$) and rejection ($p = .03$). Those higher on social hypersensitivity reported significantly lower self-esteem and significantly more perceived rejection, compared to those lower on social hypersensitivity. Although the Princeton topics were selected as controversial issues relevant to undergraduates, it is possible that these scripts did not affect participants’ self-esteem and feelings of rejection because differing opinions were well known and open to public discussion. In fact, we formulated the campus topics based on issues that were openly discussed
in the editorial section of the undergraduate newspaper. The train script, on the other hand, dealt with a subject that was more unpopular (discrimination against obese people) and less likely to be a topic of open discussion. It is possible that subjects imagined that this scenario dealt with a more delicate or discriminatory issue, which increased the level of discomfort in the pause condition for people who care more about how others think about them.

Experiment 2

The results of Experiment 1 supported the prediction that people higher on social hypersensitivity will react with decreased self-esteem and increased feelings of rejection after imagining an awkward pause in a conversation following something controversial that they said. However, it is not clear from this experiment whether participants reacted to this awkward pause condition in which the feedback was implicit in the same way that they would to a condition with explicit ambiguous feedback or explicit negative feedback. Likewise, although the flow condition could be interpreted as an example of implicit positive social feedback (e.g. Koudenburg, Postmes, & Gordijn, 2011), it could also be interpreted as signifying ambiguous social feedback because the group members do not address the controversial statement before moving on in the conversation.

In order to clarify the nature of the implied social feedback of the pause and flow conditions, Experiment 2 introduced key comparison conditions. To test whether the flow condition was interpreted as positive feedback, we added an Explicit Agreement condition in which group members indicated agreement with the controversial statement without any pause in the conversation. To test whether the pause condition was interpreted as ambiguous feedback or negative feedback, we added the Explicit Ambiguity and Explicit Disagreement conditions. In the Explicit Ambiguity condition, group members voiced uncertainty about whether they agreed
or disagreed with the controversial statement without any pause in the conversation. In the Explicit Disagreement condition, group members stated that they disagreed with the controversial statement without any pause in the conversation.

We also compared responses in the original Experiment 1 pause condition to responses in two test conditions in which group members paused before indicating explicit agreement or explicit disagreement with the controversial statement. Comparing the original pause condition to a “Pause-Disagreement” condition would indicate whether participants higher on social hypersensitivity were interpreting a pause without resolution in the same way as they were interpreting a pause followed by definitive negative feedback from the group. Comparison to a “Pause-Agreement” condition would establish whether a pause that could be construed as a thoughtful break in the conversation would have similarly negative associations for people who are higher on social hypersensitivity compared to people who are lower on social hypersensitivity.

Finally, we tested minor variations in the presentation of the awkward pause in order to determine whether the effect was limited to the original wording of the pause condition. The wording of the original awkward pause condition consisted of two lines: a sudden pause followed by specific behaviors in which group members seemingly avoided eye contact (looking out the window, stirring coffee). To test whether a brief silence in the conversation would have the same effect as the original awkward pause wording, we added a Pause Silence condition in which the controversial statement was followed by a brief silence before continuation of the conversation (no behaviors). We also added a Pause Behavior condition in which only behaviors (looking out the window, stirring coffee) followed the controversial statement without specific mention of there being a sudden silence in the conversation. These can be seen as a set of
comparison conditions to examine how the presentation of the pause affects the responses of socially hypersensitive individuals to brief pauses.

To summarize, we tested the following predictions in Experiment 2:

1. First, we predicted that Experiment 2 would replicate the findings from Experiment 1 for social hypersensitivity and the Flow and Pause conditions in an online, adult population. We used the train script in our manipulation of different feedback conditions because of the robust social hypersensitivity x condition interaction in the previous experiment using the train script. Of the scripts developed for Experiment 1, the train script is the most relatable for a general adult population.

2. The main prediction in Experiment 2 was that social hypersensitivity would interact with feedback condition to predict self-esteem and perceived rejection. Our specific hypotheses about the interactions are as follows:

3. The Pause condition will have the same effect as the Explicit-Ambiguity condition. We theorized that an awkward pause in a conversation is a form of ambiguous feedback, in which the positive or negative valence of the feedback is unclear (Gudykunst & Shapiro, 1996; Pearson et al., 2008). Our hypothesis is based on testing Cikara and Girgus’ (2010) findings showing that people who are more socially hypersensitive felt worse about themselves on days when they experienced an absence of positive feedback. Therefore, when there is a pause in the conversation or when there is explicit ambiguous feedback, people higher on social hypersensitivity will feel worse about themselves and more rejected compared to people lower on social hypersensitivity.
4. The predictions for the association between social hypersensitivity, self-esteem, and perceived rejection are more complicated for the Explicit Disagreement condition. There are two possible outcomes that can be tested for negative feedback. One possibility is that social hypersensitivity will not be associated with self-esteem and perceived rejection in the Explicit Disagreement condition. Support for this outcome comes from research showing that all people respond negatively to negative feedback, and that this is not moderated by social hypersensitivity (e.g. Cikara & Girgus, 2010). An alternative prediction is that the Explicit Disagreement condition will indeed interact with social hypersensitivity to predict decreased self-esteem and increased perceived rejection. This prediction is supported by prior research showing that social hypersensitivity interacts with negative life events and social stressors to predict lower self-esteem and depression (e.g. Clark, Beck, & Brown, 1992; Hammen, Ellicott, & Gitlin, 1989).

5. Based on research indicating that fluent conversations signal positive feedback (e.g. Koudenburg et al., 2011; Pearson et al., 2008; Bernieri et al., 1994), we predicted that the Flow condition would have the same effect as the Explicit Agreement condition. We expected that the original Flow and Explicit Agreement conditions would both result in high self-esteem, low perceived rejection, and that social hypersensitivity would not moderate these effects.

6. The Pause Agreement and Pause Disagreement conditions tested whether variants of social feedback following an awkward pause in a conversation would cause different reactions for individuals who were more and less socially hypersensitive. If Pause Agreement resembled the original pause condition, then it would show that people
who are more socially hypersensitive react negatively to a pause in the conversation even when positive feedback follows the pause. If Pause Disagreement resembled the original pause condition, then it would show that more socially hypersensitive people would react in the same way to an awkward pause alone and an awkward pause that has the added component of explicit negative feedback.

7. Finally, the Pause Silence and Pause Behavior conditions tested whether more minimal forms of the pause condition would have the same interaction with social hypersensitivity. If the minimal pause conditions did in fact resemble the full pause condition, it would show the robustness of the interaction between social hypersensitivity and brief pauses in conversations.

Method

Participants

732 participants (female=386) from Amazon.com’s Mechanical Turk website completed the experiment online and received paid compensation. The participants in this experiment were adults ranging from 18 to 80 years of age. The mean age of participants was 33.26 (SD = 12.62). 95.6% of participants were under the age of 60. The racial makeup of the sample was 80.6% White, 7.7% Asian, 6.3% Black, 2% Hispanic, and 3.4% Mixed-race/Other. The Mturk sample was filtered to allow only workers from the United States who had a 95% HIT approval rating to participate in the experiment.

Design and Procedure

The overall procedure followed the same format as the previous experiment. An advertisement for the experiment was posted on the Mturk website. Participants were invited to “Complete a 10 minute university study about understanding group conversations.” Participants
were compensated with $0.40 for the completion of the experiment. To enter the experiment, participants followed a link to the survey, which was created on Qualtrics.com. Upon entering the experiment, participants first indicated that they were at 18 years old and consented to participate in the research experiment. Participants had the option to decline consent, at which point the survey would automatically advance to a page that thanked participants for their interest. Therefore, individuals who declined consent did not see any of the actual experimental materials or manipulations.

Participants who consented to participate continued on to an initial page in which they were instructed to imagine that they were participating in the conversation described by the script and to take the perspective of the character labeled as “YOU.” Participants were then randomly assigned to read a conversation script with one of the feedback conditions. After reading the conversation script, participants completed the same dependent measures of self-esteem and rejection that were used in the previous experiment. Social hypersensitivity scores were obtained at the end of the experiment along with standard demographic questions. Social hypersensitivity scores did not differ based on condition, $F(8,731) = 1.67, p = .10$. A post-hoc Tukey’s test showed that social hypersensitivity did not differ significantly between one condition and another, all $p$’s = .16 - .99. Participants then read a debriefing form that stated the goals and hypotheses of the experiment.

**Materials**

**Conversation scripts.** The conversation scripts in Experiment 2 had the same structure and content of the train script used in Experiment 1. Each script was identical aside from the few key lines defining each condition. The Pause and Flow conditions were identical to the ones used in Experiment 1. The key lines defining the Explicit Agreement condition were two lines of
explicit agreement with the controversial statement by the other conversation characters, after which the conversation flowed on. The Explicit Disagreement condition contained two lines of disagreement with the controversial statement by the other group members, after which the conversation flowed on. In the Explicit Ambiguity condition, after the controversial statement, the group members stated that they did not know what to say and would need to think more about it. The Pause Agreement condition contained the two-line awkward pause following the controversial statement, but after the pause, the group members expressed explicit agreement with the controversial statement. The Pause Disagreement condition contained the two-line awkward pause following the controversial statement, which was then followed by group members’ explicit disagreement with the controversial statement. The Pause Silence condition contained one line from the original pause condition describing the sudden silence in the conversation after the controversial statement. The Pause Behavior condition contained one line from the original pause condition describing the nonverbal behaviors of the other two group members after the controversial statement. Appendix C shows the key lines of the seven new conditions of Experiment 2.

**Self-esteem.** State self-esteem following the group conversation script was measured using the 5-item self-esteem subscale of the Need Threat Scale that was used in the previous experiment (van Beest & Williams, 2006). In Experiment 2, the scale had high internal reliability, Cronbach’s $\alpha = .83$.

**Perceived rejection.** As in the previous experiment, feelings of rejection were measured by the using a 6-item rejection scale (Gaertner & Iuzzini, 2005). In Experiment 2, the scale had high internal reliability, Cronbach’s $\alpha = .96$. 
**Social hypersensitivity.** Participants’ social hypersensitivity was assessed using the 24-item sociotropy scale of the Personal Style Inventory-II (Robins et al., 1994). In Experiment 2, the PSI-II had high internal reliability, Cronbach’s $\alpha = .92$.

**Results**

The means and standard deviations for each measure, and the correlations between the measures and between each measure with gender and age are shown in Table 2. Gender was correlated with social hypersensitivity with females scoring significantly higher than males, $t(729) = -4.97, p < .001$, 95% CI [-.39, -.17], $d = .37$. Age was negatively correlated with social hypersensitivity, self-esteem, and rejection. Thus, all subsequent regression analyses controlled for gender and age.

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*Note. N=732, PSI = Personal Style Inventory II, †$p < .09$, *$p < .05$, **$p < .01$, ***$p < .001$.*

**Table 2.** Means, standard deviations, and correlations for measures in Experiment 2.

**Main effects of feedback conditions on self-esteem and rejection**

Averaged across all social hypersensitivity levels, the present experiment replicated the effect of the pause condition compared to the flow condition on self-esteem and rejection found in the previous experiment. Across all Experiment 2 conditions, one-way ANOVA showed a significant effect of condition on self-esteem, $F(8,731) = 15.67, p < .001$. A post-hoc Tukey’s test showed that participants in the Pause condition reported significantly lower self-esteem compared to participants in the Flow, Explicit Agreement, Explicit Disagreement, Explicit
Ambiguity, and Pause Agreement conditions, all \( p \)'s < .004. Self-esteem in the Pause condition did not differ significantly from self-esteem in the Pause Disagreement, Pause Silence, or Pause Behavior conditions, all \( p \)'s > .17. Post-hoc Tukey’s analysis also showed that participants in the Flow condition reported higher self-esteem compared to the Pause, Pause Disagreement, Pause Silence, and Pause Behavior conditions, all \( p \)'s < .005. Self-esteem in the Flow condition did not differ significantly from self-esteem in the Explicit Agreement, Explicit Disagreement, Explicit Ambiguity, and Pause Agreement conditions, all \( p \)'s > .14.

For the dependent variable of perceived rejection, one-way ANOVA showed a significant effect for condition, \( F(8,731) = 14.98, p < .001 \). A post-hoc Tukey’s test revealed that participants reported significantly higher perceived rejection in the Pause condition compared to the Flow, Explicit Agreement, Explicit Disagreement, Explicit Ambiguity, and Pause Agreement conditions, all \( p \)'s < .02. Perceived rejection in the Pause condition was not significantly different from perceived rejection in the Pause Disagreement, Pause Silence, and Pause Behavior conditions, all \( p \)'s > .12. For the Flow condition, post-hoc Tukey’s comparisons showed that perceived rejection was significantly lower in the Flow condition compared to the Pause, Explicit Disagreement, Pause Disagreement, Pause Silence, and Pause Behavior conditions, all \( p \)'s < .002. Perceived rejection in the Flow condition was not significantly different from perceived rejection in the Explicit Agreement, Explicit Ambiguity, and Pause Agreement conditions, all \( p \)'s > .19. Figures 5 and 6 show the main effects of condition in Experiment 2 on self-esteem and perceived rejection.
**Figure 5.** Main effects of Experiment 2 conditions on self-esteem.

**Figure 6.** Main effect of Experiment 2 conditions on perceived rejection.
Simple slopes analyses

We predicted that the main effects of condition would be qualified by social hypersensitivity as a moderator of the relationship between dependent variables and feedback conditions. In other words, self-esteem and perceived rejection would be correlated with social hypersensitivity in some conditions but not in others. To that end, we conducted simple slopes analyses testing the relationship between social hypersensitivity and dependent variables in each condition. In order to test Hypotheses 1-7, simple slopes analyses were conducted to determine if the individual slopes of the relationship between social hypersensitivity and the dependent variables of self-esteem and rejection for each script condition differed from zero. The relationship between social hypersensitivity and self-esteem and social hypersensitivity and perceived rejection was analyzed for each condition. Figures 7 and 8 show the relationships between social hypersensitivity and the two dependent variables for each feedback condition in Experiment 2.

Self-esteem. The relationship between social hypersensitivity and self-esteem was not significant in the Flow and Explicit Agreement conditions. As predicted, there were significant negative linear relationships between social hypersensitivity and self-esteem for the Pause, Explicit Ambiguity, Explicit Disagreement, Pause Agreement, Pause Disagreement, and Pause Silence. There was a marginally significant negative linear relationship between social hypersensitivity and self-esteem in the Pause Behavior condition. The standardized and unstandardized regression coefficients for the relationship between social hypersensitivity and self-esteem in each condition are shown in Table 3.
Figure 7. The relationship between social hypersensitivity and self-esteem in Experiment 2 conditions.

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†p < .08, *p < .05, ** p < .01, ***p < .001

Table 3. Simple slopes for social hypersensitivity predicting self-esteem for each condition in Experiment 2, controlling for gender and age.

**Perceived rejection.** The relationship between social hypersensitivity and perceived rejection was not significant in the Flow, Explicit Agreement, Explicit Ambiguity, and Explicit
Disagreement conditions. There were significant negative linear relationships between social hypersensitivity and perceived rejection for the Pause, Pause Agreement, Pause Disagreement, Pause Silence, and Pause Behavior. The standardized and unstandardized regression coefficients for the relationship between social hypersensitivity and perceived rejection in each condition are shown in Table 4.

![Figure 8](image-url)

**Figure 8.** The relationship between social hypersensitivity and perceived rejection in Experiment 2 conditions.
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*p < .05, ** p < .01, ***p < .001

Table 4. Simple slopes for social hypersensitivity predicting perceived rejection for each condition in Experiment 2, controlling for gender and age.

**Dummy-coded hierarchical regression analyses testing social hypersensitivity x condition interactions.**

**Self-esteem.** To test Hypothesis 2, we conducted dummy-coded hierarchical regressions using the Pause condition as the reference group. In Step 1 of the model, we entered gender, age, mean-centered social hypersensitivity, and dummy coded Flow, Explicit Agreement, Explicit Ambiguity, Explicit Disagreement, Pause Agreement, Pause Disagreement, Pause Silence, and Pause Behavior. In Step 2, we entered gender, age, mean-centered social hypersensitivity, and dummy coded Flow, Explicit Agreement, Explicit Ambiguity, Explicit Disagreement, Pause Agreement, Pause Disagreement, Pause Silence, and Pause Behavior, and the interaction terms for Flow x PSI, Explicit Agreement x PSI, Explicit Ambiguity x PSI, Explicit Disagreement x PSI, Pause Agreement x PSI, Pause Disagreement x PSI, Pause Silence x PSI, and Pause Behavior x PSI.

We found a significant change in $R^2$ from Model 1 with the main effects variables to Model 2 with the main effects and interaction terms, $\Delta R^2 = .02$, $\Delta F(8,710) = 2.02$, $p = .04$. The interactions of Flow x PSI, Explicit Agreement x PSI, and Explicit Disagreement x PSI.
compared to the Pause condition were significant, all p’s < .04. The interactions between Explicit Ambiguity x PSI, Pause Agreement x PSI, Pause Disagreement x PSI, Pause Silence x PSI, and Pause Behavior x PSI were not significantly different from the Pause condition in predicting variance in self-esteem, all p’s > .12. See Table 5 for the regression coefficients for each main effect and interaction term.

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*p < .05, ** p < .01, ***p < .001
**Table 5.** Dummy-coded hierarchical linear regression for the outcome variable of self-esteem (Pause condition as the reference group).

**Perceived rejection.** To test Hypothesis 2, we conducted dummy-coded hierarchical regression using the Pause condition as the reference group. The regression analysis for perceived rejection as the outcome variable was identical to the regression analysis for self-esteem as the outcome variable. We found a significant change in $R^2$ from Model 1 with the main effects variables to Model 2 with the main effects and interaction terms, $\Delta R^2 = .02$, $\Delta F(8,710) = 2.24, p = .02$. The interactions of Flow x PSI, Explicit Agreement x PSI, and Explicit Disagreement x PSI compared to the Pause condition were significant for predicting variance in perceived rejection, all $p$’s < .03. The interactions between Explicit Ambiguity x PSI, Pause Agreement x PSI, Pause Disagreement x PSI, Pause Silence x PSI, and Pause Behavior x PSI were not significantly different from the Pause condition in predicting variance in perceived rejection, all $p$’s > .18. See Table 6 for the regression coefficients for each main effect and interaction term.
Table 6. Dummy-coded hierarchical linear regression for the outcome variable of perceived rejection (Pause condition as the reference group).

In summary, people who were higher on social hypersensitivity felt decreased self-esteem compared to people who were lower on social hypersensitivity in the following conditions:

Pause, Explicit Ambiguity, Explicit Disagreement, Pause Agreement, Pause Disagreement, and...
Pause Silence. There was a marginally significant negative linear relationship between social hypersensitivity and self-esteem in the Pause Behavior condition. For the outcome variable of perceived rejection, people who were higher on social hypersensitivity felt more rejected compared to people who were lower on social hypersensitivity in the Pause, Pause Agreement, Pause Disagreement, Pause Silence, and Pause Behavior conditions. These results provide some support for Hypotheses 2-7. First, the relationship between social hypersensitivity and outcome variables was not significant in the Flow and Explicit Agreement conditions. Social hypersensitivity did not moderate the effect of these conditions on self-esteem and perceived rejection. Given that we considered Flow and Explicit Agreement to be positive feedback conditions, this is in line with research showing that people generally feel good about themselves after receiving such feedback. Second, we expected that people who were higher on social hypersensitivity would feel worse about themselves compared to people who were lower on social hypersensitivity in negative feedback and ambiguous feedback conditions. The data showed that this was the case when self-esteem was the outcome variable. However, for perceived rejection as the outcome variable, social hypersensitivity only moderated perceived rejection in the conditions with a pause: the original Pause condition, Pause Agreement, Pause Disagreement, Pause Silence, and Pause Behavior. Social hypersensitivity did not significantly predict perceived rejection in the Explicit Disagreement or Explicit Ambiguity conditions.

We used dummy-coded hierarchical linear regression to test whether the relationship between social hypersensitivity and outcome variables was significantly different in the pause condition compared to positive feedback conditions (Flow and Explicit Agreement) but not significantly different from the relationship between social hypersensitivity and outcome variables in the negative and ambiguous feedback conditions (Explicit Ambiguity, Explicit
Disagreement, Pause Agreement, Pause Disagreement, Pause Silence, Pause Behavior). We found that for the Flow, Explicit Agreement, and Explicit Disagreement conditions, the relationship between social hypersensitivity and outcome variables (self-esteem and perceived rejection) was significantly different from the relationship between social hypersensitivity and outcome variables in the Pause condition. In other words, the slopes of the relationship between social hypersensitivity and outcome variables in the Flow, Explicit Agreement, and Explicit Disagreement conditions were significantly different from the slope of the relationship between social hypersensitivity and outcome variables in the Pause condition. However, for the Explicit Ambiguity, Pause Agreement, Pause Disagreement, Pause Silence, and Pause Behavior conditions, the relationship between social hypersensitivity and outcome variables did not differ significantly from the relationship between social hypersensitivity and outcome variables in the Pause condition.

Discussion

We found support for our first hypothesis: Experiment 2 replicated the findings from Experiment 1. Social hypersensitivity was negatively correlated with self-esteem and positively correlated with perceived rejection in the Pause condition, but not in the Flow condition. The slopes of the relationships between social hypersensitivity and self-esteem and social hypersensitivity and perceived rejection were significantly different from zero when participants read a conversation script with an awkward pause. The slopes of the relationship between social hypersensitivity and self-esteem and social hypersensitivity and perceived rejection were not significantly different from zero for participants who read the Flow script. Just as in Experiment 1, there were significant PSI x Condition interactions for Pause and Flow.
Experiment 2 also revealed several patterns that clarified the nature of the Pause and Flow conditions compared to conditions with explicit feedback. Relative to other conditions, participants experienced the highest self-esteem and lowest perceived rejection in the Flow and Explicit Agreement conditions. In the Flow and Explicit Agreement conditions, social hypersensitivity did not moderate participants’ self-esteem and perceived rejection. In other words, people scoring higher on social hypersensitivity felt just as good about themselves and just as included in the conversation as people scoring lower on social hypersensitivity when there was explicit positive feedback in the conversation and when the conversation flowed without disruption. This supports our hypothesis that interactions which flow without disruption are interpreted in the same way as interactions that flow and have positive feedback.

The simple slopes analyses also clarified how self-esteem and perceived rejection following social interactions differed depending on social feedback and the extent to which participants were higher or lower on social hypersensitivity. The results of Experiment 2 supported the prediction that the original Pause condition was interpreted more negatively by people higher on social hypersensitivity compared to people lower on social hypersensitivity. In addition, social hypersensitivity was negatively correlated with self-esteem when conversations contained explicit negative feedback, explicit ambiguous feedback, an awkward pause followed by explicit positive feedback, an awkward pause followed by explicit negative feedback, and a pause defined as a brief silence. The negative relationship between social hypersensitivity and self-esteem was marginally significant when the conversation contained an awkward pause defined by nonverbal behaviors. Social hypersensitivity was positively correlated with perceived rejection only when there was an awkward pause in the conversation (pause, pause with positive feedback, pause with negative feedback, pause defined by a brief silence, and pause defined as
nonverbal behaviors). Unlike the results for self-esteem, social hypersensitivity was not significantly correlated with perceived rejection in the explicit ambiguous feedback condition and the explicit negative feedback condition. What might account for this difference? Research supports the finding that self-esteem is sensitive to negative and ambiguous feedback (e.g. Leary et al., 1995). In addition, studies find that negative events interact with social hypersensitivity to predict decreased self-esteem (e.g. Dasch, Cohen, Sahl, & Gunthert, 2008) and that the absence of positive events interacts with social hypersensitivity to predict decreased self-esteem (Cikara & Girgus, 2010). To our knowledge, there are no studies which have investigated the relationship between social hypersensitivity and perceived rejection after different types of social feedback. In the present experiment, social hypersensitivity was only related to perceived rejection in the conditions which contained an awkward pause in the conversation. One possibility is that the presence of an awkward pause may be an implicit ostracism cue (Williams, 2009). Socially hypersensitive individuals who are very concerned about how others perceive them may be particularly vigilant against any cue that may indicate rejection or ostracism.

Experiment 2 also tested whether the relationships between social hypersensitivity and outcome variables in the Pause condition were significantly different from the relationships between social hypersensitivity and outcome variables in the conditions that flowed and contained explicit feedback. We found that the social hypersensitivity x Flow, social hypersensitivity x Explicit Agreement, and social hypersensitivity x Explicit Disagreement interactions predicting self-esteem and perceived rejection were significantly different from responses in the Pause condition. Specifically, in the Pause condition, people who were higher on social hypersensitivity felt worse about themselves compared to people lower on social hypersensitivity, and this relationship was stronger in the Pause condition compared to the Flow,
Explicit Agreement, and Explicit Disagreement conditions. These findings suggest that the feedback from the awkward pause in the conversation was perceived more negatively by people higher compared to people lower on social hypersensitivity. This corroborates Cikara and Girgus’ (2010) study showing that social hypersensitivity was negatively related to self-esteem when there was an absence of positive feedback.

Lastly, Experiment 2 provided evidence that an awkward pause in a conversation is interpreted in the same way as explicit ambiguous feedback. Hierarchical regression analyses showed that while PSI x Flow, PSI x Explicit Agreement, and PSI x Explicit Disagreement were significantly different from the Pause condition, PSI x Explicit Ambiguity was not significantly different from the Pause condition when predicting self-esteem and perceived rejection. We also found that the PSI x Pause Agreement and PSI x Pause Disagreement conditions were not significantly different from the Pause condition when predicting self-esteem and perceived rejection. This suggests that an awkward silence in a conversation is sufficient to cause more socially hypersensitive individuals to feel bad about themselves and the conversation, even when the pause is followed by explicit positive as well as explicit negative feedback. Finally, to control for variations in the wording of the Pause condition, we looked at responses in the Pause Silence and Pause Behavior. We found that the relationship between social hypersensitivity and outcome variables were not significantly different in the Pause Silence and Pause Behavior conditions when compared to the relationship between social hypersensitivity and outcome variables in the Pause condition.

Experiment 3

The previous two experiments investigated how people differ in their responses to social feedback following controversial statements. In Experiment 3 we asked the question: are more
socially hypersensitive (compared to less socially hypersensitive) individuals’ reactions to ambiguous and negative feedback dependent on the controversial nature of the statements that precede the feedback? In other words, how important is the presence of a controversial statement prior to social feedback? Controversial and noncontroversial statements will be tested in order to determine the conditions under which ambiguous and negative feedback are detrimental to people higher on social hypersensitivity. We hypothesized that social hypersensitivity would be significantly correlated with self-esteem and rejection when the pause feedback specifically followed a controversial statement. Support for this prediction comes from initial evidence in Experiment 1. Follow-up analyses of the four conversation topics from Experiment 1 revealed that the interaction between social hypersensitivity and condition was significant only for the script containing the controversial statement regarding obese train passengers. Although the other three scripts contained statements regarded as controversial around the Princeton campus at the time (e.g. laptops should be banned from precepts and seminars), these statements do not have the unpopular quality of the key statement in the train script (e.g. “obese passengers should have to pay for two seats on the train or plane”). It may be the case that socially hypersensitive individuals are particularly vigilant about feedback that follows unpopular opinions that they express. The disagreement and ambivalence of others regarding such controversial statements may be seen as more detrimental to relationships or more embarrassing to people who are higher on social hypersensitivity compared to people lower on social hypersensitivity. Although we know of no previous research which has explored this issue, some support for our hypothesis comes from studies showing that socially anxious individuals feel worse and more ashamed after imagining that they have committed social blunders (Moscovitch, Rodebaugh, & Hesch, 2012).
For Experiment 3, we included the five main feedback conditions: Pause, Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement. Our hypotheses and questions for Experiment 3 are as follows:

1. Consistent with Experiment 2, people higher on social hypersensitivity, compared to people lower on social hypersensitivity, should feel decreased self-esteem when they receive negative feedback and ambiguous feedback after a controversial statement. People higher (compared to lower) on social hypersensitivity should feel more rejected following only ambiguous feedback. In other words, Experiment 3 results for controversial statements should replicate the simple slopes and interaction findings from Experiment 2 for the Pause, Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement conditions.

2. Although we expect that people who are more socially hypersensitive will react with decreased self-esteem following ambiguous and negative feedback and increased perceived rejection following ambiguous feedback in response to a controversial statement, we predict that social hypersensitivity will not interact with the same feedback following a noncontroversial statement. To summarize, in Experiment 3 we asked the question: does social hypersensitivity moderate self-esteem and perceived rejection following positive, negative, or ambiguous feedback to noncontroversial statements?

Methods

Participants

830 participants (female= 358) from Amazon.com’s Mechanical Turk website completed the experiment online and received paid compensation. The mean age of participants was 31.73 (SD = 10.87). The participants ranged from 18 to 75 years of age. 96.9% of participants were
under the age of 60. The racial makeup of the sample was 72.2% White, 7.2% Black, 9.9% Asian, 5.4% Hispanic, and 5.3% Mixed-race/Other. The Mturk sample was filtered to allow only workers from the United States who had a 95% HIT approval rating to participate in the experiment.

**Design and Procedure**

The overall procedure followed the same format as in Experiment 1 and Experiment 2. An advertisement for the experiment was posted on the Mturk website. Participants were invited to “Complete a 10 minute university study about understanding group conversations.” Participants were compensated with $0.40 for the completion of the experiment. To enter the experiment, participants followed a link to the survey, which was created on Qualtrics.com. Upon entering the experiment, participants first indicated that they were at 18 years old and consented to participate in the research experiment. Participants who declined to consent were automatically advanced to a page that thanked participants for their interest. Individuals who declined consent did not see any experimental materials.

As in Experiments 1 and 2, participants who consented to participate continued to an initial page in which they were instructed to imagine that they were participating in the conversation described by the script and to take the perspective of the character labeled as “YOU.” Each participant was randomly assigned to read one of ten possible script variations. The present experiment constructed scripts that contained one of two statement conditions (noncontroversial vs controversial) and one of five feedback conditions (Pause, Flow, Explicit Agreement, Explicit Disagreement, and Explicit Ambiguity). After reading the conversation script, participants completed the same dependent measures of self-esteem and perceived rejection that were used in Experiments 1 and 2. Social hypersensitivity scores were obtained at
the end of the experiment along with standard demographic questions. Social hypersensitivity scores did not differ as a function of feedback condition, \( F(4,829) = 1.02, p = .40 \). Post-hoc Tukey’s analysis did not reveal significant differences in social hypersensitivity between feedback conditions, all \( p \)’s > .40. Lastly, participants read a debriefing form that stated the goals and hypotheses of the experiment.

**Materials**

**Conversation scripts.** The scripts used in Experiment 3 followed the same format as the scripts used in the prior two experiments. However, there were key differences in the content of statements used in the present experiment. First, controversial and noncontroversial statements were rated by Mturk participants in a separate pilot test \( (N = 20) \). This pilot test resulted in the inclusion of three scripts that were considered controversial and three scripts that were considered noncontroversial by pilot test raters. The controversial scripts contained one of the following statements: “I think obese people should have to pay for two seats on the train or plane,” “I think it’s perfectly fine for teachers to date and have sex with their students,” or “I’ve eaten dog meat before. It was delicious and I’d have it again.” The noncontroversial scripts contained one of the following statements: “I think people should try to store their luggage in the overhead rack on the train or plane,” “I think it’s perfectly fine for people to go ahead and ask each other out on dates,” or “Many dishes are delicious and I’d eat them again.” The remaining text of each script was tailored to each statement’s general theme and were matched across controversial and noncontroversial scripts. For example, the scripts containing both noncontroversial and controversial train-related statements contained identical text about transportation.
The Pause, Flow, Explicit Agreement, Explicit Disagreement, and Explicit Ambiguity conditions were identical to the ones used in corresponding conditions in Experiment 1. The key lines defining each condition followed the controversial or noncontroversial statement.

**Self-esteem.** State self-esteem was measured using the 5-item self-esteem subscale of the Need Threat Scale that was used in the previous two experiments (van Beest & Williams, 2006). In Experiment 3, the scale had high internal reliability, Cronbach’s $\alpha = 87$.

**Perceived rejection.** Perceived rejection was measured by the using a 6-item rejection scale (Gaertner & Iuzzini, 2005). In Experiment 3, the scale had high internal reliability, Cronbach’s $\alpha = 97$.

**Social hypersensitivity.** Participants’ social hypersensitivity was assessed using the 24-item sociotropy scale of the Personal Style Inventory-II (Robins et al., 1994). In Experiment 3, the PSI-II had high internal reliability, Cronbach’s $\alpha = .92$.

**Results**

The means and standard deviations for each measure, and the correlations between the measures and between each measure and gender are shown in Table 7. Gender was correlated with social hypersensitivity with females scoring significantly higher than males, $t(827) = -3.86, p < .001, 95\% \text{ CI} [-.31, -.10], d = .26$. Age was negatively correlated with social hypersensitivity, self-esteem, and rejection. Thus, all subsequent regression analyses controlled for gender and age.

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Note. N=830, PSI =Personal Style Inventory II, *p < .05, **p < .01, ***p < .001.

Table 7. Means, standard deviations, and correlations for measures in Experiment 3.

Main effects of feedback following controversial statements on self-esteem and rejection

Averaged across all social hypersensitivity levels, the present experiment replicated the effects from the previous two experiments: feedback condition following controversial statements significantly affected self-esteem, $F(4,416) = 24.48, p < .001$. Tukey’s post-hoc analysis showed that self-esteem was lower in the Pause condition compared to all other conditions, all $p$’s < .05. Self-esteem was significantly higher in the Flow condition compared to the Pause and Explicit Disagreement conditions, $p$’s < .002. Self-esteem was marginally significantly lower in the Flow condition compared to the Explicit Agreement condition, $p = .08$. Self-esteem in the Flow condition was not significantly different from self-esteem in the Explicit Ambiguity condition, $p = .56$.

Feedback condition following controversial statements significantly affected perceived rejection in Experiment 2, $F(4,416) = 24.28, p < .001$. Tukey’s post-hoc analysis revealed that participants reported higher perceived rejection in the Pause condition compared to the Flow, Explicit Agreement, and Explicit Ambiguity conditions, $p$’s < .001. Perceived rejection in the Pause condition did not differ significantly from perceived rejection in the Explicit Disagreement condition, $p = .14$. Perceived rejection was significantly lower in the Flow condition compared to the Pause and Explicit Disagreement conditions, $p$’s < .001. Perceived rejection in the Flow condition did not different significantly compared to the Explicit Agreement and Explicit Ambiguity conditions, $p$’s > .25. Figures 9 and 10 show the main effects of feedback condition for controversial statements in Experiment 3 for self-esteem and perceived rejection.
Main effects of feedback following noncontroversial statements on self-esteem and rejection

For noncontroversial statements, feedback condition significantly affected self-esteem, $F(4,412) = 20.02, p < .001$. A post-hoc Tukey’s test showed that self-esteem was significantly lower in the Pause condition compared to the Flow and Explicit Agreement conditions, $p$’s <
Self-esteem did not differ significantly between the Pause condition and the Explicit Disagreement and Explicit Ambiguity conditions, $p’s > .12$. Self-esteem was significantly higher in the Flow condition compared to the Pause and Explicit Disagreement conditions, $p’s < .001$. Self-esteem was marginally significantly higher in the Flow condition compared to the Explicit Ambiguity condition, $p = .09$. Self-esteem did not differ between Flow and Explicit Agreement, $p = 1.00$.

Feedback condition following noncontroversial statements significantly affected perceived rejection, $F(4,412) = 21.37, p < .001$. Perceived rejection was significantly higher in the Pause condition compared to the Flow, Explicit Agreement, and Explicit Ambiguity conditions, all $p’s < .04$. Perceived rejection did not differ between the Pause and Explicit Disagreement conditions, $p = .19$. Participants in the Flow condition reported lower perceived rejection compared to participants in the Pause and Explicit Disagreement conditions, $p’s < .001$. Perceived rejection did not differ between the Flow condition and the Explicit Agreement and Explicit Ambiguity conditions, $p’s > .28$. Figures 11 and 12 show the main effects of feedback condition for noncontroversial statements in Experiment 3 for self-esteem and perceived rejection.
Figure 11. Self-esteem in Experiment 3 noncontroversial statement feedback conditions.

Figure 12. Perceived rejection in Experiment 3 noncontroversial statement feedback conditions.

**Simple slopes analyses of responses to feedback following controversial statements**

As in the previous experiment, simple slopes analyses were conducted to determine if the individual slopes of the relationship between social hypersensitivity and the dependent variables
of self-esteem and rejection in each feedback condition differed from zero. The relationship between social hypersensitivity and self-esteem and perceived rejection was analyzed for each condition. Figures 13 and 14 show the relationship between social hypersensitivity and dependent variables for each feedback condition following controversial statements in the present experiment.

**Self-esteem.** The relationship between social hypersensitivity and self-esteem was not significant in the Flow and Explicit Agreement conditions following controversial statements. Replicating Experiment 2, we found significant negative linear relationships between social hypersensitivity and self-esteem for Pause, Explicit Ambiguity, and Explicit Disagreement. The standardized and unstandardized regression coefficients for the relationship between social hypersensitivity and self-esteem in each condition are shown in Table 8.

![Figure 13](image-url)

**Figure 13.** The relationship between social hypersensitivity and self-esteem in Experiment 3 feedback conditions with controversial statements.
Table 8. Simple slopes for social hypersensitivity predicting self-esteem for each feedback condition following controversial statements in Experiment 3. Analyses control for gender and age.

Perceived rejection. For controversial statements, the relationship between social hypersensitivity and perceived rejection was not significant in the Flow, Explicit Agreement, and Explicit Disagreement conditions. There were significant negative linear relationships between social hypersensitivity and perceived rejection for the Pause and Explicit Ambiguity conditions. The standardized and unstandardized regression coefficients for the relationship between social hypersensitivity and perceived rejection in each condition are shown in Table 9.

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*p < .05, ** p < .01, ***p < .001
Figure 14. The relationship between social hypersensitivity and perceived rejection in Experiment 3 feedback conditions with controversial statements.

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

Table 9. Simple slopes for social hypersensitivity predicting perceived rejection for each feedback condition following controversial statements in Experiment 3. Analyses control for gender and age.

Simple slopes analyses of responses to feedback following noncontroversial statements

For the noncontroversial statements, simple slopes analyses were conducted to determine if the individual slopes of the relationship between social hypersensitivity and the dependent
variables of self-esteem and rejection in each feedback condition differed from zero. The relationship between social hypersensitivity and self-esteem and perceived rejection was analyzed for each condition. Figures 15 and 16 depict the relationship between social hypersensitivity and dependent variables for each feedback condition following noncontroversial statements.

**Self-esteem.** The relationship between social hypersensitivity and self-esteem was not significant in the Pause condition following noncontroversial statements. Contrary to what we predicted, we found significant negative linear relationships between social hypersensitivity and self-esteem for Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement. The standardized and unstandardized regression coefficients for the relationship between social hypersensitivity and self-esteem in each condition are shown in Table 10.

**Figure 15.** The relationship between social hypersensitivity and perceived rejection in Experiment 3 feedback conditions with noncontroversial statements.
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*p < .05, ** p < .01, ***p < .001

Table 10. Simple slopes for social hypersensitivity predicting self-esteem for each feedback condition following noncontroversial statements in Experiment 3. Analyses control for gender and age.

**Perceived rejection.** For noncontroversial statements, the relationship between social hypersensitivity and perceived rejection was not significant in the Pause and Explicit Agreement conditions. There were significant negative linear relationships between social hypersensitivity and perceived rejection for the Flow, Explicit Ambiguity, and Explicit Disagreement conditions. The standardized and unstandardized regression coefficients for the relationship between social hypersensitivity and perceived rejection in each condition are shown in Table 11.
**Figure 16.** The relationship between social hypersensitivity and perceived rejection in Experiment 3 feedback conditions with *noncontroversial* statements.

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

**Table 11.** Simple slopes for social hypersensitivity predicting perceived rejection for each feedback condition following *noncontroversial* statements in Experiment 3. Analyses control for gender and age.
Dummy-coded hierarchical regression analyses testing social hypersensitivity x condition interactions for controversial statements.

**Self-esteem.** In order to replicate the findings from Experiment 2, we conducted dummy-coded hierarchical regressions for the controversial statements, using the Pause condition as the reference group. In Step 1 of the model, we entered gender, age, mean-centered social hypersensitivity, and dummy coded Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement. In Step 2, we entered gender, age, mean-centered social hypersensitivity, and dummy coded Flow, Explicit Agreement, Explicit Ambiguity, Explicit Disagreement, and the interaction terms for Flow x PSI, Explicit Agreement x PSI, Explicit Ambiguity x PSI, and Explicit Disagreement x PSI. We found a significant change in $R^2$ from Model 1 with the main effects variables to Model 2 with the main effects and interaction terms, $\Delta R^2 = .02$, $\Delta F(4,404) = 2.97$, $p = .02$. The interactions of Flow x PSI and Explicit Agreement x PSI compared to the Pause condition were significant for predicting variance in self-esteem, all $p$’s < .02. The interactions between Explicit Ambiguity x PSI and Explicit Disagreement x PSI were not significantly different from the Pause condition in predicting variance in self-esteem, all $p$’s > .58. See Table 12 for the regression coefficients for each main effect and interaction term for the controversial statements.
Table 12. Dummy-coded hierarchical linear regression for the outcome variable of self-esteem (Pause condition as the reference group) for scripts with a controversial statement.

Perceived rejection. For the dependent variable of perceived rejection, we conducted dummy-coded hierarchical regressions using the Pause condition as the reference group. In Step 1, we entered gender, age, mean-centered PSI, and dummy-coded Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement. In Step 2, we entered the same predictor variables as in Step 1 and added the following interaction terms to the second model: Flow x PSI, Explicit Agreement x PSI, Explicit Ambiguity x PSI, and Explicit Disagreement x PSI. Perceived rejection was entered as the outcome variable. Replicating Experiment 2, we found a significant change in $R^2$ from Model 1 with the main effects variables to Model 2 with the main effects and interaction terms, $\Delta R^2 = .02, \Delta F(4,404) = 3.05, p = .02$. The interactions of Flow x
PSI and Explicit Agreement x PSI compared to the Pause condition were significant for predicting variance in perceived rejection, all $p$’s < .01. The interactions between Explicit Ambiguity x PSI and Explicit Disagreement x PSI were not significantly different from the Pause condition in predicting variance in perceived rejection, all $p$’s > .22. See Table 13 for the regression coefficients for each main effect and interaction term.

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

Table 13. Dummy-coded hierarchical linear regression for the outcome variable of perceived rejection (Pause condition as the reference group) for scripts with a controversial statement.

Dummy-coded hierarchical regression analyses testing social hypersensitivity x condition interactions for noncontroversial statements.

Self-esteem. For noncontroversial statements, we conducted dummy-coded hierarchical regressions using the Pause condition as the reference group. In Step 1 of the model, we entered
gender, age, mean-centered social hypersensitivity, and dummy coded Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement. In Step 2, we entered gender, age, mean-centered social hypersensitivity, the same dummy-coded condition variables as in Step 1, and the interaction terms for Flow x PSI, Explicit Agreement x PSI, Explicit Ambiguity x PSI, and Explicit Disagreement x PSI. We found a significant change in $R^2$ from Model 1 with the main effects variables to Model 2 with the main effects and interaction terms, $\Delta R^2 = .03$, $\Delta F(4,400) = 3.67, p = .006$. The interactions of Explicit Disagreement x PSI and Explicit Ambiguity x PSI compared to the Pause condition were significant for predicting variance in self-esteem, all $p$’s < .04. The interaction between Explicit Agreement x PSI was not significantly different from the Pause condition in predicting variance in self-esteem, $p = .60$. The Flow x PSI interaction was marginally significantly different from the Pause condition, $p = .09$. See Table 14 for the regression coefficients for each main effect and interaction term for the controversial statements.
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* p < .05, ** p < .01, *** p < .001

Table 14. Dummy-coded hierarchical linear regression for the outcome variable of self-esteem (Pause condition as the reference group) for scripts with a noncontroversial statement.

**Perceived rejection.** For noncontroversial statements, we conducted dummy-coded hierarchical regressions using the Pause condition as the reference group and perceived rejection as the outcome variable. In Step 1, we entered gender, age, mean-centered PSI, and dummy-coded Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement. In Step 2, we entered the same predictor variables as in Step 1 and added the following interaction terms to the second model: Flow x PSI, Explicit Agreement x PSI, Explicit Ambiguity x PSI, and Explicit Disagreement x PSI. We found a significant change in $R^2$ from Model 1 with the main effects variables to Model 2 with the main effects and interaction terms, $\Delta R^2 = .04$, $\Delta F(4,400) = 5.20$, $p < .001$. The Explicit Disagreement x PSI interaction compared to the Pause condition was
significant for predicting variance in perceived rejection, all \( p = .001 \). The interactions between Flow x PSI, Explicit Agreement x PSI, and Explicit Disagreement x PSI were not significantly different from the Pause condition in predicting variance in perceived rejection, all \( p \)'s > .30.

Table 15 shows the regression coefficients for each main effect and interaction term for noncontroversial statements.

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<td>.20</td>
<td>-.34</td>
<td>-6.39***</td>
</tr>
<tr>
<td>D_Explicit Ambiguity</td>
<td>-.66</td>
<td>.20</td>
<td>-.18</td>
<td>-3.30**</td>
</tr>
<tr>
<td>D_Explicit Disagreement</td>
<td>.48</td>
<td>.21</td>
<td>.13</td>
<td>2.35*</td>
</tr>
<tr>
<td>Flow x PSI</td>
<td>.41</td>
<td>.27</td>
<td>.08</td>
<td>1.50</td>
</tr>
<tr>
<td>Explicit Agreement x PSI</td>
<td>-.25</td>
<td>.24</td>
<td>-.06</td>
<td>-1.04</td>
</tr>
<tr>
<td>Explicit Ambiguity x PSI</td>
<td>.27</td>
<td>.26</td>
<td>.06</td>
<td>1.03</td>
</tr>
<tr>
<td>Explicit Disagreement x PSI</td>
<td>.89</td>
<td>.27</td>
<td>.18</td>
<td>3.28**</td>
</tr>
</tbody>
</table>

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

Table 15. Dummy-coded hierarchical linear regression for the outcome variable of perceived rejection (Pause condition as the reference group) for scripts with a noncontroversial statement.

**Discussion**

We investigated several main hypotheses and questions in Experiment 3. First, we predicted that for controversial statements, Experiment 3 would replicate the results found in Experiment 2. In other words, we predicted that more socially hypersensitive people, compared
to less socially hypersensitive people, would report decreased self-esteem after being exposed to the following types of feedback: awkward pause, explicit ambiguous feedback, and explicit negative feedback. The findings from Experiment 3 supported this prediction. We also predicted that more socially hypersensitive people, compared to less socially hypersensitive people, would feel more rejected in the Pause condition. Experiment 3 findings partially supported this hypothesis. As expected, people who were higher on social hypersensitivity felt more rejected in the Pause condition, relative to people who were lower on social hypersensitivity. However, Experiment 3 also showed a significant positive linear association between social hypersensitivity and perceived rejection in the Explicit Ambiguity condition. In Experiment 2, this relationship was in the same direction and trending towards statistical significance (see Table 4). Two possible explanations could account for this difference in results for perceived rejection. The first explanation is that Experiment 3 differs from Experiment 2 in that it added two additional script topics. In Experiment 2, all participants read the train script with the same controversial statement preceding the feedback manipulation. In order to test the generalizability of our findings, Experiment 3 participants were randomly assigned to one of three controversial statement scripts: the train script, dating script, and food script. It is possible that aggregating across controversial script conditions introduced variance in the relationship between social hypersensitivity and perceived rejection for the Explicit Ambiguity condition. The second explanation is that the correlation between social hypersensitivity and perceived rejection is simply a weaker, or a smaller effect for the Explicit Ambiguity condition. In Experiment 2, the standardized correlation coefficient for the relationship between social hypersensitivity and perceived rejection was $\beta = .17$. In Experiment 3, the standardized correlation coefficient for the relationship was $\beta = .26$. We note that the number of participants in each Explicit Ambiguity
condition in Experiment 2 (N = 86) and Experiment 3 (N = 79) were similar and that both experiments were sufficiently powered.

The second, main, goal of Experiment 3 was to investigate whether social hypersensitivity moderated self-esteem and feelings of rejection when the participant imagined receiving social feedback following a noncontroversial statement that they said in a conversation. We had the following questions for the noncontroversial statement group in Experiment 3: (1) Do more socially hypersensitive individuals feel worse about themselves and more rejected compared to less socially hypersensitive individuals in the Pause, Explicit Ambiguity, and Explicit Disagreement conditions? (2) Are the Flow and Explicit Agreement conditions, as in Experiment 2, seen as positive feedback conditions for which social hypersensitivity does not moderate self-esteem and perceived rejection? The findings from Experiment 3 presented an interesting picture of the effects of social hypersensitivity in response to social feedback following a noncontroversial statement. First, the simple slopes analyses revealed that for noncontroversial statements, social hypersensitivity was significantly negatively correlated with self-esteem in all feedback conditions except the Pause condition. Participants felt worse about themselves the higher they scored on social hypersensitivity in the Flow, Explicit Agreement, Explicit Ambiguity, and Explicit Disagreement conditions. Hierarchical regression analyses showed that, for self-esteem as the outcome variable, there were significant Explicit Ambiguity x PSI and Explicit Disagreement x PSI interactions compared to the Pause condition, and there was a marginally significant Flow x PSI interaction compared to Pause. In summary, the negative relationship between social hypersensitivity and self-esteem was stronger when there was explicitly ambiguous and negative feedback than when there was an awkward pause in the conversation following a noncontroversial statement.
Second, simple slopes analyses revealed that social hypersensitivity was significantly and positively correlated with perceived rejection in the Flow, Explicit Ambiguity, and Explicit Disagreement conditions following the noncontroversial statements. Social hypersensitivity was not significantly correlated with perceived rejection in the Pause and in the Explicit Agreement conditions. Hierarchical linear regression showed that compared to the Pause condition, the only condition x social hypersensitivity interaction that explained more variance in perceived rejection was the Explicit Disagreement x PSI interaction.

What does this intriguing pattern of findings from Experiment 3 reveal? First, for ambiguous feedback following controversial statements, the results from Experiment 3 generally replicated the results from the previous experiment. We also found replication of the finding from Experiment 2 that people who scored higher on social hypersensitivity indicated decreased self-esteem compared to people lower on social hypersensitivity when they received explicit negative feedback following a controversial statement. Interestingly, compared to those lower in sensitivity, people who were higher on social hypersensitivity did not feel more rejected after explicit negative feedback following a controversial statement. One possible explanation for this finding is that everyone—regardless of level of social hypersensitivity—feels more rejected immediately following negative feedback. Research on ostracism has shown that individual differences—such as social anxiety—do not immediately moderate the negative effects of social exclusion. Instead, the negative effects of social exclusion persist longer for participants higher on social anxiety compared to participants lower on social anxiety (Zadro, Boland, & Richardson, 2006). It is possible that in the present experiments, self-esteem did not vary as a function of social hypersensitivity immediately following the explicit negative feedback manipulation. We are unable to conclude from these data whether people who are higher on
social hypersensitivity would continue to feel lowered self-esteem for an extended period of time after experiencing explicit negative feedback, compared to people lower on social hypersensitivity.

For feedback following noncontroversial statements, a different pattern emerged. Social hypersensitivity did not moderate self-esteem and feelings of rejection in the Pause condition. More surprisingly, social hypersensitivity was negatively related to self-esteem and positively related to perceived rejection in the Flow condition. What might explain the reason that more socially hypersensitive individuals felt worse about themselves and more rejected, compared to less hypersensitive individuals, after imagining a conversation that flowed without disruption following a statement that did not incite controversy? One explanation is that when people make a statement that could be perceived by others as a social blunder or as potentially discriminatory (e.g. putting one’s foot in one’s mouth), seeing the interaction continue without disruption could signal several “benign” possibilities. First, the interaction partners may not have noticed the statement. Second, the interaction partners may have noticed the statement but chose not to give it additional thought or attention. Third, the interaction partners may have noticed the statement and signaled implicit agreement by simply continuing the conversation as normal. Any of these interpretations may explain why social hypersensitivity did not moderate responses to Flow following a controversial statement.

On the other hand, the interpretation of Flow may not convey such a positive state of affairs after a noncontroversial statement. Socially hypersensitive people care greatly about what others think of them. If a person who is very socially sensitive expresses a noncontroversial statement and no one in the conversation notices or responds to it, then this could be taken as the absence of positive feedback in a situation where one would expect at least some form of
positive acknowledgement. From the data in the present experiment, we cannot confirm which interpretation of fluency following the controversial statement was in fact endorsed by participants. Likewise, the data from the present experiment cannot elucidate how participants interpreted the social feedback of a pause that followed a noncontroversial statement. We suspect that the pause took on a different meaning after a noncontroversial statement, due to the fact that social hypersensitivity was not correlated with self-esteem and perceived rejection following a pause in the noncontroversial scripts, but across three experiments, social hypersensitivity has been consistently correlated with self-esteem and perceived rejection following a pause in controversial scripts. One possibility is that the pause following the noncontroversial statement was interpreted to be a harmless blip in the conversation. Compare this to the likely explanation that a pause which follows an unpopular statement might convey ambiguously negative or judgmental attitudes. We find it interesting that the same exact wording of a pause in a conversation can result in different interpretations and subsequent reflections on oneself and one’s belonging to a group depending on individual differences in social hypersensitivity and the substance of the statement preceding the pause.

General Discussion

The present research set out to examine how social hypersensitivity moderates responses to social feedback. We were specifically interested in how responses to ambiguous feedback would differ for people who are more socially hypersensitive as compared to those who are less socially hypersensitive. This research is particularly important given the conceptualization of social hypersensitivity as a personality risk for depression and the fact that the mechanisms whereby social hypersensitivity confers this risk are still unknown.
In these experiments, we draw connections between the absence of positive feedback, ambiguous feedback, and awkward silences in conversations. The absence of positive feedback can, in the course of everyday life, be defined as a straightforward lack of positive affirmation from others (Cikara & Gigrus, 2010). The absence of positive feedback can also imply the presence of feedback that is ambiguous. Based on conceptualizations of ambiguous feedback in previous research (e.g. Leary et al., 1998; Pearson et al., 2008) we have defined ambiguous feedback as social feedback that conveys explicit uncertainty or conveys a reaction that is neither explicitly positive nor negative. The present experiments operationalized ambiguous feedback in reaction to a statement in a conversation as a brief pause or as an explicit expression of uncertainty communicated by the interaction partners in the conversation scenario.

Several consistent patterns emerged from the present experiments. People higher on social hypersensitivity (compared to people lower on social hypersensitivity) felt worse about themselves and more rejected by the fictional group members when they read that an awkward pause occurred in the conversation following a statement that they made. We note that this effect depended on the type of statement made prior to receiving feedback: social hypersensitivity was not correlated with self-esteem and perceived rejection when the pause followed a noncontroversial statement. We observed the opposite effect for conversations that flowed without interruption in response to a statement made by the participant. When participants imagined that they made a controversial statement, social hypersensitivity did not moderate effects on self-esteem and perceived rejection when the conversation flowed after the statement. However, when participants imagined that they made a noncontroversial statement, social hypersensitivity was negatively correlated with self-esteem and positively correlated with perceived rejection when the conversation flowed. These findings suggest that for people higher
on social hypersensitivity compared to people lower on social hypersensitivity, the interpretation of pause and flow feedback depends on the context of the social interaction.

A second pattern indicated by this set of experiments is the idea that people who are highly socially hypersensitive are more reactive to different types of feedback, while people who are not as sensitive do not experience as much reactivity to social feedback. All three experiments demonstrated a greater spread in self-esteem and perceived rejection following different forms of social feedback (positive, negative, ambiguous) for people higher on social hypersensitivity compared to people lower on social hypersensitivity. In fact, people who were lowest on social hypersensitivity did not appear to have self-esteem or a sense of belonging that depended on the feedback they imagined receiving from hypothetical group members. This is important given the body of research showing that highly labile self-esteem is itself a vulnerability factor for depression (Butler, Hokanson, & Flynn; 1994; Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009). However, we cannot definitely conclude that our present experiments confirmed the hypothesis that social hypersensitivity is characterized by labile self-esteem. We used a between-subjects design with random assignment to feedback condition and we measured self-esteem following the manipulation. Using a “pre-post” experiment would be the most direct way to test whether more socially hypersensitive individuals compared to less hypersensitive individuals demonstrated more self-esteem reactivity to feedback. Future research on the lability of self-esteem and social hypersensitivity should use a design in which self-esteem is measured twice: once before the experimental manipulation of social feedback and once after the manipulation.

Overall, these results highlight the need for positive feedback to maintain self-esteem and feelings of belonging for socially hypersensitive individuals. More socially hypersensitive
individuals, compared to their less sensitive peers, experienced decreased levels of self-esteem when there was negative feedback, ambiguous feedback, or an awkward pause following a controversial statement. The relationship between self-esteem and social hypersensitivity in the Explicit Disagreement condition fits the diathesis-stress model: social hypersensitivity interacts with negative events to predict more negative outcomes such as lowered self-esteem (e.g., Clark, Beck, & Brown, 1992). The present experiments added an additional wrinkle to the diathesis-stress model: ambiguous feedback can count as a stressor for people higher compared to lower on social hypersensitivity and the interpretation of subtle forms of ambiguous feedback depends on the context in which the feedback was given. In three experiments, we showed that explicitly ambiguous feedback and awkward pauses resulted in the same pattern of lower self-esteem as outright negative feedback for people higher on social hypersensitivity, compared to people lower on social hypersensitivity. This supports the finding from Cikara and Girgus (2010), which showed that people who were higher on social hypersensitivity—relative to those lower on the scale—had decreased self-esteem in the absence of positive feedback. Additionally, we found in Experiment 2 that social hypersensitivity was still negatively related to self-esteem and perceived rejection when an awkward pause was followed by explicit agreement. This suggests that the detrimental effects of ambiguity go beyond being uncertain of how others feel about oneself. It may be that people higher (versus lower) on social hypersensitivity are affected by feeling evaluated by others, even if the temporary ambiguity results in explicit positive feedback.

There are several possible explanations for the difference in results between self-esteem and perceived rejection. One explanation is that there is a small effect size for social hypersensitivity predicting perceived rejection in the Explicit Ambiguity condition following a controversial statement. Previous research on social feedback has shown that self-esteem is
highly sensitive to negative social feedback and to ambiguous feedback that is neither clearly
positive nor clearly negative (Leary, Haupt, Strausser, & Chokel, 1998). To the knowledge of the
author, perceived rejection in reaction to ambiguous social feedback has not been well-studied.
On the other hand, perceived rejection in reaction to negative feedback, in particular, to
ostracism and social exclusion, has been extensively studied (for a review, see Williams, 2001).
Koudenburg and colleagues (2011) have suggested that brief pauses may signal a very subtle,
low-level ostracism cue. Research has shown that simply averting one’s eyes from a passerby on
the street can indicate a subtle cue for ostracism in the eye of the passerby who has been looked
past (Wesselmann, Cardoso, Slater, & Williams, 2012). The pause conditions may signal a
minimal ostracism cue that is more readily detected by people who are more socially
hypersensitive.

The data from the present experiments illuminate one reason why social hypersensitivity
is such a harmful interpersonal orientation: ambiguous social situations can lead to the same
pattern of injured self-worth as negative social stressors. Daily life experiences are often tinged
with uncertainty. This research examines two types of ambiguous feedback: awkward pauses and
explicitly stated uncertainty about an evaluation. One might imagine that many different
manifestations of ambiguity occur in daily life. Consider, for example, receiving mixed positive
and negative feedback on a project or a paper, receiving lukewarm feedback, waiting for a reply
to an email or a call, and waiting to hear about the outcome of a job interview. Excessive
sensitivity to these seemingly neutral situations may lead to negative reactions where none is
actually warranted. Compared to the highly sensitivity, we found that people who were lower on
social hypersensitivity had higher self-esteem and lower levels of perceived rejection across each
experiment. What is it about ambiguous feedback that makes it so detrimental for the highly
sensitive? One possibility is that people who are more socially hypersensitive feel anxious or uncertain when it is unclear whether or not others feel positively or negatively towards them. The fear of negative evaluation upon receiving ambiguous feedback may explain why socially hypersensitive people feel more negatively about themselves and their interactions. It is possible that socially hypersensitive people in these situations then spiral into ruminative worry and concern that then exacerbates their preoccupation with what others think.

There has been a well-researched link between rumination and decreased feelings of social support, decreased ability to cope with stressors, and risk for depressive symptoms (for a review, see Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Future research should be conducted to clarify whether more socially hypersensitive individuals are more likely to ruminate after ambiguous feedback or if their negative reactions to ambiguous feedback are due to more upstream processes such as encoding and appraising the feedback as negative. Research in clinical fields has shown that people with generalized anxiety disorder (GAD) display attentional bias towards stimuli with threatening content while people with depression attend more to self-relevant negative information (Mogg & Bradley, 2005). How might this process happen? Hertel and Messidi (2006) found that dysphoric participants who engaged in ruminative, self-focused thoughts, compared to dysphoric participants who engaged in other-focused thoughts, were likely to assign more negative meanings to subsequent ambiguous stimuli. This suggests that engaging in a ruminative cognitive style actually affects how people perceive or interpret ambiguous information. Similar findings from research on social anxiety and social phobia corroborate this tendency for highly anxious individuals to engage in rumination-like post-event processing about ambiguous social feedback, which in turn leads to increased feelings of shame and more negative interpretations of ambiguous events (Field & Morgan, 2004; Stopa & Clark,
Given the overlap between social hypersensitivity, depression, anxiety, and ruminatory response style, one potential explanation is that socially hypersensitive individuals are more likely to engage in self-focused ruminations and this cognitive style is associated with assigning more negative meanings to ambiguous feedback. Furthermore, this highlights associations between social hypersensitivity, anxiety, and depression. Anxiety and depression are increasingly viewed as overlapping disorders that involve internalizing cognitions (e.g. Cummings, Caporino, & Kendall, 2013). Future research may be directed towards understanding shared cognitive processes in social hypersensitivity, self-esteem lability, rumination, and depression and anxiety.

It is worth noting that the present experiments, combined with the two experiments in Koudenburg et al (2011), have engaged a range of subjects of different ages and backgrounds. Combined, these experiments have demonstrated consistent effects of awkward pauses in conversations across two countries and across university and mixed adult samples. We regard it as a strength of the experiment that we obtained such consistency in our findings for the controversial statement scripts, despite being unable to control for various factors affecting online participation (e.g. time of day, participant mental and physical state, physical surroundings). The consistency of the results suggests that these are robust phenomena with widespread applicability.

There are several limitations that affect the interpretation of the current research. The first limitation is that the experimental stimuli were written conversation scripts that participants were instructed to imagine. While past work has shown that imagined scenarios have very similar effects as viewing an actual interaction or calling up an actual memory (e.g. Koudenburg, Postmes, & Gordijn, 2011; Moscovitch, Rodebaugh, & Hesch, 2012), future research should
replicate the findings of the present experiments in real or realistically simulated social interactions. Second, the present experiments were conducted with predominantly White participants from an affluent, Western culture. We are unable to say whether or not these effects generalize in a different society with different cultural norms around the acceptability of ambiguous social feedback. In the present research, we considered pauses following controversial statements to be ambiguous based on our definition of ambiguous feedback as feedback that is not explicitly positive or negative. It is unclear whether pauses after controversial utterances are considered a form of ambiguous social feedback in non-Western societies. Future research can probe the extent to which awkward pauses are considered a type of feedback in non-Western societies. Future research should also ask whether the concept of ambiguity in social interactions exists in other cultures, and if it does exist, what situations exemplify ambiguous feedback. Lastly, in the present experiments, we assessed as our dependent measures the self-esteem and perceived rejection of participants. We did not ask participants to report on whether or not they considered the pause in conversation to be a form of ambiguous feedback. While we found that the effects of an awkward pause on psychological consequences of self-worth and perceived rejection resembled the effects of explicit ambiguous feedback, we cannot definitely say that participants would have labeled the awkward pause as a specific form of ambiguous feedback. These limitations highlight the need for future research that can clarify what constitutes ambiguous feedback and how people perceive, interpret, and react to such feedback.

The present experiments shed light on the impact of social feedback on people higher on social hypersensitivity compared to people lower on social hypersensitivity. From these findings, we gain clearer understanding of a process whereby social hypersensitivity confers vulnerability
for depression. Social hypersensitivity was linked to decreased self-esteem and increased perceived rejection following ambiguous social feedback. Given that many of the interactions we are likely to experience with other people are not necessarily characterized by clear, direct, explicit positive or negative feedback, this research highlights the ways in which social hypersensitivity is a pernicious interpersonal orientation to possess when navigating the social world.
References


sociotropy and autonomy on affective and self-esteem reactivity to daily stressors. 

*Cognitive Therapy and Research, 32, 177-195.*


Conversation Script

Anne: I just got back from taking the train to New York and it was so crowded on board! I could barely find a seat.

YOU: Yeah, the train's always so packed, particularly at rush hour.

[Megan enters and sits down with you and Anne]

Megan: Hey, are you all talking about going to New York?

Anne: Mmmmm, we're saying how it's been so crowded on the trains.

Megan: Yeah, I think more people are riding them because the price of gas is so high and it takes so long to drive anywhere with all the road construction going on this summer.

YOU: And sometimes people use up extra seats on the trains—like if they have a ton of luggage that doesn't fit on the overhead shelves.

Anne: We all pay the same fare, right? Shouldn't someone who consumes more of a certain thing have to pay more for it?

YOU: I agree with that. For example, I think very obese people should have to book two seats on the train or the plane.

Anne: I'm taking the train again this weekend. Has anyone heard about when all the construction is going to end so that I can think about driving?

Megan: I don't think it will be good again until right before school starts in the fall.

YOU: Oh well, that's not too far away from now and hopefully the roads will be in better shape, too.

Megan: We've managed to get around alright during the construction. It's just a temporary hassle.

[End]
CONVERSATION SCRIPT

Anne: I just got back from taking the train to New York and it was so crowded on board! I could barely find a seat.

YOU: Yeah, the train’s always so packed in summer with people traveling for vacation. [Megan enters and sits down with you and Anne]

Megan: Hey, are you all talking about summer traveling?

Anne: Mmmhmm, we’re saying how it’s been so crowded on the trains.

Megan: Yeah, I think more people are riding them because it takes so long to drive anywhere with the road construction going on this summer.

YOU: And sometimes people use up extra seats on the trains –like if they have a ton of luggage that doesn’t fit on the overhead shelves.

Anne: We all pay the same fare, right? Shouldn’t someone who consumes more of a certain thing have to pay more for it?

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

[There is a sudden silence]
[Megan stirs her coffee and Anne looks out the window]

Anne: I’m catching the train this weekend again, but has anyone heard about when all the construction is going to end? I’d really like to be able to drive.

Megan: Some people say that they’ll open up the roads again right when fall starts.

YOU: Oh well, that’s not too far away from now and hopefully the roads will be in better shape, too.

Megan: We’ve managed to get around alright during the construction. It’s just a temporary hassle.

[End]
APPENDIX C

Need Threat Scale (van Beest & Williams, 2007)

7-point scale ranging from 1 (do not agree) to 7 (agree).

Self-Esteem

1. Being in the conversation made me feel insecure.
2. I had the feeling that I failed during the conversation.
3. I had the idea that I had the same value as the other students.
4. I was concerned about what the other students thought about me during the conversation.
5. I had the feeling that the other students did not like me.

Rejection Scale (Gaertner & Iuzzini)

7-point scale ranging from 1 (never) to 7 (frequently) the extent to which the group did the following things to you:

- Made you feel rejected
- Made you feel like an outsider
- Made you feel like you don’t belong
- Hurt your feelings
- Excluded you from their activities
- Made you feel unwanted
**Personal Style Inventory (Robins et al., 1994)**

**I am very sensitive to criticism by others.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I am very concerned with how people react to me.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I am easily persuaded by others.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**It is very important to me to be liked or admired by others.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I get very uncomfortable when I'm not sure whether or not someone likes me.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I am most comfortable when I know my behavior is what others expect of me.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I judge myself based on how I think others feel about me.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I find it difficult to be separated from people I love.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**It is hard for me to break off a relationship even if it is making me unhappy.**

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Slightly Agree</th>
<th>5 Agree</th>
<th>6 Strongly Agree</th>
</tr>
</thead>
</table>

**I find it difficult if I have to be alone all day.**
<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Slightly Disagree</td>
<td>Slightly Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td></td>
</tr>
</tbody>
</table>

It is very hard for me to get over the feeling of loss when a relationship has ended.

I like to be certain that there is somebody close I can contact in case something unpleasant happens to me.

I become upset when something happens to me and there's nobody around to talk to.

I become very upset when a friend breaks a date or forgets to call me as planned.

I often put other people's needs before my own.

I am very sensitive to the effects I have on the feelings of other people.

I worry a lot about hurting or offending other people.

I try to please other people too much.

I often feel responsible for solving other people's problems.
I feel I have to be nice to other people.

| 1 Strongly Disagree | 2 Disagree | 3 Slightly Disagree | 4 Slightly Agree | 5 Agree | 6 Strongly Agree |

I am too apologetic to other people.

| 1 Strongly Disagree | 2 Disagree | 3 Slightly Disagree | 4 Slightly Agree | 5 Agree | 6 Strongly Agree |

It is hard for me to say "no" to other people's requests.

| 1 Strongly Disagree | 2 Disagree | 3 Slightly Disagree | 4 Slightly Agree | 5 Agree | 6 Strongly Agree |

I often let people take advantage of me.

| 1 Strongly Disagree | 2 Disagree | 3 Slightly Disagree | 4 Slightly Agree | 5 Agree | 6 Strongly Agree |

It is hard for me to let people know when I am angry with them.

| 1 Strongly Disagree | 2 Disagree | 3 Slightly Disagree | 4 Slightly Agree | 5 Agree | 6 Strongly Agree |
Appendix D

Excerpts from Experiment 2 conversation scripts (not including the original Pause and Flow conditions)

**Explicit Agreement**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

Anne: Yeah – I agree with you.


**Explicit Disagreement**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

Anne: No- I don’t agree with you.

Megan: You know what? I don’t agree either.

**Explicit Ambiguity**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

Anne: Hmm…I’m not sure how I feel about that.

Megan: You know what? I have to think about that some more.

**Pause Agreement**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.
[There is a sudden silence]

[Megan stirs her coffee and Anne looks out the window]
Anne: Yeah – I agree with you.

**Pause Disagreement**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

[There is a sudden silence]

[Megan stirs her coffee and Anne looks out the window]
Anne: No- I don’t agree with you.
Megan: You know what? I don’t agree either.

**Pause Silence**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

[There is a sudden silence]

**Pause Behavioral**

YOU: Well, yes, therefore –for example –I think very obese people should have to book two seats on the train or the plane.

[Megan stirs her coffee and Anne looks out the window]