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Riding the 'O' Train: Comparing the Effects of Ostracism and Verbal Dispute on Targets and Sources

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In the present study we examined the effects of social ostracism (being excluded and ignored in the presence of others) on those who ostracize (sources) and those who are ostracized (targets). Unlike previous research that compared ostracism to social inclusion, the present study also compared ostracism to verbal dispute (i.e. an argument). A role-play method was used such that participants acted out a five-minute train ride in which two sources ignored or argued with a target sitting between them. In three studies, ostracism was shown to be a unique form of social conflict, with targets of ostracism reporting lower need satisfaction levels than targets of argument, whereas sources of ostracism reported higher need satisfaction levels than did sources of argument.

KEYWORDS ostracism, role-play, verbal dispute

Silence is argument carried out by other means.
(Ernesto 'Che' Guevara)

IMAGINE for a moment that you are riding the train home from work. It is late in the afternoon and the train is packed with people who are all trying to find a seat. You manage to navigate through the mass of fellow commuters and find a seat, coincidentally in between two colleagues. You greet them, and begin talking to them about your day. Suddenly, they turn to one another and begin to discuss last night's

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wildlife documentary on the breeding habits of llamas. You begin to realize that they were not listening to you, nor have they even looked in your direction since you sat beside them. You interject a question, but receive no response. You lean toward them to catch their glance, but they avoid eye contact and continue their animated discussion. They are obviously angry with you, but ignore any attempts you make to find out why they are upset. What would you do? How would you feel?

Now imagine the same scenario but instead of being ignored, your colleagues 'greet' you with a furious tirade, rebuking you for not doing some task at work. You know why they are angry and thus have the opportunity to defend your actions and take a stand in the verbal dispute. Looking at the two scenarios, which would you prefer—to be ignored, or to be argued with? Or imagine the situation from the other perspective—if you were angry with a colleague or loved one, would you choose to ignore them or engage them in a verbal dispute? Would you choose to remain silent or to speak forcefully about what is bothering you? The present research focuses on these two specific types of interpersonal conflict, namely ostracism and verbal dispute (henceforth to be termed argument).

Ostracism refers to the act of individuals or groups ignoring and excluding other individuals or groups (Williams, 1997, 2001). Ostracism has been documented across history among many species and cultures, and is used at all levels of society, from the sociopolitical to the institutional, from peer relations to intimate dyadic relationships (Williams & Zadro, 2001). The prevalence of ostracism is such that all of us are likely to be both a victim (i.e. a target) and a perpetrator (i.e. a source) of some form of ostracism within almost all of our relationships, whether with loved ones, colleagues, or strangers (Faulkner, Williams, Sherman, & Williams, 1997).

Recently, Williams (1997, 2001) has developed a model of ostracism. Central to the model is the assertion that ostracism affects the satisfaction levels of four primary human needs—belongingness, control, self-esteem, and meaningful existence. The impact of ostracism on these needs is hypothesized to change according to a specific time sequence. Initially, target reactions to ostracism include general hurt feelings, bad mood, and physiological arousal. This is followed by the experience of need-threat repair that motivates individuals to regain their sense of belonging, control, self-esteem, and meaningful existence (behaviorally, emotionally, and cognitively). If ostracism is experienced repeatedly or continuously across time, however, the individual's defensive resources will be depleted, causing the loss of belonging, control, self-esteem, and meaningful existence to be internalized, thus leading to detrimental psychological and health-related consequences.

Williams and his colleagues have used a multi-method approach consisting of laboratory and field research, Internet studies, surveys, and structured interviews to investigate aspects of this model (for review see Williams, 2001; Williams & Zadro, 2001, in press). Because of ethical constraints, many of the laboratory studies have focused on the effects of short-term (i.e. 5-minute episodes) social ostracism (being excluded or ignored in the presence of others) on four primary needs as well as various cognitive and behavioral responses of targets. The results of these studies have supported the model, demonstrating that social ostracism affects targets' primary needs, motivating them to replenish these needs. For example, targets of short-term ostracism have been shown to work harder on subsequent group tasks (Ezrakhovich et al., 1998; Williams & Sommer, 1997), conform more to unanimous incorrect judgments (Williams, Cheung, & Choi, 2000), and exert greater control over another participant (Lawson Williams & Williams, 1998).

To date, there has been very little research investigating whether the consequences of social ostracism differ from those of other forms of interpersonal conflict. That is, previous studies have focused on comparing participants who were excluded from a conversation or task to those who were otherwise included. Although it is an important first step to show that ostracism has a more aversive effect on primary needs than social interaction,

it is perhaps more meaningful to compare the effects of ostracism to the effects of other forms of interpersonal conflict like argument, because it is possible that ostracism does not differ fundamentally from other forms of conflict.

Is it plausible to expect different responses to ostracism and argument? After all, both are interpersonal and aversive. Williams's (1997/2001) model hypothesizes that the target's powerlessness to play an active role in resolving the situation, coupled with the lack of attention they receive from the source(s), will lead targets of ostracism to experience a greater threat to their sense of belonging, control, self-esteem, and meaningful existence than targets of argument who can actively influence the outcome of the situation through their words and actions, and who do receive the attention of the source(s). To illustrate, in structured interviews, targets of long-term ostracism reported that they often goaded the source into an argument because they preferred negative acknowledgment to no acknowledgment at all (Zadro, Williams, & Richardson, 2003). However, these interviews were conducted with people who experienced episodes of ostracism that continued for weeks, months, or years, and thus their experiences may not be comparable to participants who experience a short bout of ostracism. Thus, the first objective of the present study was to examine whether two forms of conflict, ostracism and argument, differentially impact primary needs.

The present study also directly examined the effects of ostracism on sources. That is, the model proposed by Williams (1997, 2001) focuses primarily on targets rather than sources, and almost all of the previous research examined ostracism solely from the perspective of targets (for an exception see Ciarocco, Sommer, & Baumeister, 2001). In most previous studies, the sources were confederates or, in the case of Internet studies, were computer generated. From outward appearances, acts of ostracizing (e.g. not talking, refusing eye contact) seem relatively effortless when compared to other tactics that could be used during a conflict (e.g. verbal or physical abuse). However, we suspect that sources must engage in fairly high levels of cognitive and emotional effort while ostracizing because they must monitor their relatively automatic verbal and non-verbal behaviors in the presence of the target to ensure that there is no accidental acknowledgment of the target's existence. In fact, Williams and Sommer (1997), and Geller, Goodstein, Silver, and Sternberg (1974) observed that the confederates in their studies, who were trained to ostracize or include participants, experienced considerable discomfort when ostracizing targets, with Geller et al. noting that '. . . being an ignorer may be almost as uncomfortable as being ignored . . .' (p. 556).

The effort required to ostracize the target, however, is likely to be compensated by some fortification of primary needs. For instance, narrative and self-report accounts of participants' experiences with the silent treatment indicate that sources tend to feel need-fortification when giving a friend the silent treatment, reporting a greater sense of control (Sommer, Williams, Baumeister, & Ciarocco, 2001; Williams, Bernieri et al., 2000; Williams, Shore, & Grahe, 1998). In addition, anthropological and sociological data suggest that the act of ostracizing a deviate member raises cohesiveness among the rest of the group (Gruter & Masters, 1996). Indeed, increased cohesiveness within the ostracizing group may be one of the primary functions of ostracism. This increase in cohesiveness may be due to the elimination of a disharmonious member from the group. It may also arise from the very act of ostracizing, where the sources are joined in a conspiratorial act. Thus, the effort expended to ostracize a target may be offset by a perceived gain in control and belonging. However, because there has been very little experimental research on this issue, the second objective of the present study was to experimentally examine the effects of social ostracism on sources, to determine whether ostracism affords its users benefits that argument does not.

Thus, the present study examined the effects of social ostracism and argument on self-reports of four primary needs. Ancillary measures of somatic responses (i.e. stress, anxiety) were also

assessed. We examined the effects of ostracism and argument on both targets and sources using a novel role-play paradigm that manipulated both forms of conflict during a five-minute simulated train ride. Three studies were conducted to compare the responses of sources and targets who were engaged in social ostracism to those who were involved in an argument, or (in Study 3) a pleasant conversation.

Study 1: Ostracism versus argument

Our first study examined the effects of ostracism and argument on the four primary needs identified by Williams's (1997/2001) model (belonging, control, self-esteem, and meaningful existence), as well as somatic responses of both targets and sources. In terms of needs, we hypothesized that targets of ostracism would report that their needs were more adversely affected than would targets of argument. We predicted this because targets of an argument still receive attention (albeit negative attention) and therefore should still feel they belong to the group. Further, targets of argument can still gain control over the situation by responding to the sources' accusations and by justifying their behavior, whereas any such attempts by targets of ostracism go unnoticed and are inconsequential.

Finally, through effective arguing, people have the opportunity to retain their sense of self-worth and purpose. Ostracized targets, however, are not acknowledged by sources, nor are they given the opportunity to give their side of the argument, and thus would be unable to elevate their self-esteem and sense of purpose. In terms of somatic responses, we hypothesized that for targets, similarly negative somatic effects would accompany the aversive psychological effects engendered by ostracism.

Williams's model does not explicitly state the effects of *ostracizing* on the four needs of sources, nor is there any relevant experimental research. However, narrative, interview, and diary studies have found that sources of ostracism report higher levels of control (e.g. Sommer et al., 2001; Williams et al., 1998; Williams, Wheeler, & Harvey, 2001; Zadro et al., 2003), whereas anthropological research has suggested higher levels of belonging after ostracizing (e.g. Gruter & Masters, 1986). Thus, we predicted that sources of ostracism would report higher levels of (at least) belonging and control than would sources of argument.

Unlike the other procedures used in this domain, the train ride paradigm also allowed us to compare the effects of ostracism and argument on targets and sources within each type of social conflict. We predicted that targets of ostracism would report that their sense of belonging, control, self-esteem, and meaningful existence was more adversely affected during the train ride than would sources of ostracism. However, because targets and sources of argument are interacting with each other (albeit aversively), it was more difficult to predict what differences, if any, would be observed in this condition.

Method

Participants and design Thirty-five high school students, 26 females and 9 males (M = 15.6 years, SD = 0.65) were randomly assigned to a 2 (role: target vs. source) × 2 (conflict: ostracism vs. argument) between-subjects design (ns shown in Table 1).[1]

Procedure Upon entering the laboratory, participants viewed a makeshift train consisting of several rows of chairs with three seats per row (see Figure 1). In order to provide further cues for the train-riding context, signs found in trains (e.g. 'no smoking', 'do not place your feet on the seats') were placed on the walls and a tape recording of the sounds typically heard while riding in a train were played in the background.

Participants were randomly assigned train tickets that stipulated their role as targets (tickets marked T) or sources (tickets marked S) and the row to which they were assigned. In each row, the two outer seats were occupied by sources, and the middle seat occupied by targets. Participants in the ostracism and argument conditions were placed in alternative rows so that participants would be relatively unaware of the responses of others in the same experimental condition.

Table 1. Study 1: Means and standard deviations (in parentheses), of fundamental needs (0 = lowest; 100 = highest level of that need), and somatic responses, as a function of role (target or source) and conflict (ostracism, argument)

	Conflict			
	Ostracism		Argument	
	Target (n = 6)	Source (n = 12)	Target (n = 6)	Source (n = 11)
Fundamental needs				
Belonging	9.3	66.7	59.8	57.5
	(16.0)	(19.2)	(36.4)	(12.5)
'I felt badly about myself'*	54.8	59.3	44.8	67.7
	(36.4)	(30.7)	(35.7)	(25.7)
Superiority	5.8	55.9	23.3	58.6
	(7.0)	(29.3)	(17.6)	(23.6)
Control	13.7	69.0	40.8	42.9
	(12.8)	(26.2)	(25.1)	(20.7)
Meaningful existence	10.8	71.7	50.4	62.9
	(18.8)	(19.5)	(37.6)	(22.0)
Somatic responses				
Headache	62.8	28.7	51.7	15.4
	(34.8)	(33.0)	(34.7)	(17.6)
Nausea	33.2	19.3	33.3	9.7
	(29.0)	(31.4)	(39.2)	(9.9)
Stressed out	66.7	25.3	57.0	28.8
	(32.5)	(28.6)	(29.9)	(29.3)
Anxiousness	25.2	36.5	60.0	23.0
	(23.5)	(29.1)	(40.2)	(15.6)

* This item is reverse-scored such that a high score indicates a higher feeling of well-being.

All of the participants were then allocated train ride booklets. These booklets contained the scenario that detailed the participants' roles during the train ride and the post-study questionnaire that examined primary needs and somatic indicators. The role-play scenarios differed according to the role (target or source) and experimental condition (ostracism or argument). All scenarios began by instructing the participants to imagine that they were taking a crowded train home. Targets in both conditions were informed that they were seated in between two classmates (sources). They were also instructed that they were a bit worried about sitting in between the sources, as they, the target, had not invited the sources to their birthday party the previous weekend. Targets were told that they had wanted to invite the sources, but could not because of restrictions in the number of people that they could invite. Targets were then instructed to start a conversation with the sources.

Figure 1. Train ride seating configuration.

Sources in both conditions were told that a classmate (the target) was sitting in between themselves and a friend (the other source). The sources were informed that both they and their fellow source were angry at the target because the target did not invite them to their birthday party last weekend. The source scenarios differed in terms of how they were instructed to express this anger when the target attempted to start a conversation; sources of ostracism were instructed to talk over the top of the target and 'ignore (the target) completely no matter what they may say or do'. Sources in the argument condition were told to 'argue with and insult (the target)' for not inviting the sources to the party. After participants read through their scenarios, the experimenter informed participants that they would be role-playing their scenarios for five minutes, after which a whistle would be blown to signal the end of the ride. The experimenter then began the train ride.

After five minutes, the experimenter asked participants to fill out the post-study questionnaire. This questionnaire was based on post-study measures used in previous ostracism research (e.g. Williams, Cheung, & Choi, 2000) and contained two items measuring each of the four needs. Specifically, participants were asked to rate on 100-point scale (0 = *not at all*, 100 = *completely*) the extent to which they felt a threat to each of the following four needs; belonging ('I felt a strong connection with the other two people in my train row', 'I felt included in the conversation'), control ('I felt like I was in control over what was happening', 'I felt frustrated'), self-esteem ('I felt badly about myself', 'I felt superior'), and meaningful existence ('I felt invisible', 'I felt my point of view was at least acknowledged by others'). The questionnaire also included four measures of somatic responses ('I felt anxious', 'I felt like I was getting a headache', 'I felt like I was getting nauseous', and 'I felt I was getting stressed out'). Participants were then thanked and thoroughly debriefed.

Results

Observations Because this was our first attempt to use this role-play paradigm, we were particularly interested in whether it appeared to be engaging and meaningful to the participants. Observation of participants while the train was in motion suggested that the paradigm was engaging the participants in an active drama. While sources in both conditions seemed to take on their roles with enthusiasm and gusto, there was a marked contrast between targets in the argument and ostracism conditions. Targets in the argument condition generally tried to contest the sources' accusations and strenuously defend their actions. From casual observation, their behavior was virtually the same as the sources. In contrast, when targets in the ostracism condition began to perceive that their attempts to join the conversation were unsuccessful, they became quiet. Their comments became less frequent and their attempts to engage the sources nonverbally were curtailed to the point where (after about two minutes of ostracism) they sat with arms folded, staring down or off in the distance, and utterly silent as the noise and laughter continued around them. There was a minority of targets who, when faced with ostracism, began to try harder to engage the sources' attention (e.g. imposing themselves prominently in the sources' line of vision). However, by the third minute of ostracism, these targets too began to withdraw. At the end of the study, targets of ostracism were often the last to leave the train ride, demonstrating signs of lethargy and sluggishness that seemed to be a physical manifestation of their distress.

The effect of ostracism and argument on the four primary needs The items assessing the four needs were reverse-scored where necessary, and the internal consistency of the two-item scales assessing each need was examined. Cronbach's alpha coefficients for each need were: belonging = .71; control = .76; self-esteem = .07; meaningful existence = .69. The internal consistency of the scales was reasonable except for self-esteem. Thus, the average for the two items assessing each need was computed, except for self-esteem where the two items were analyzed as two separate dependent variables, one called superiority and the other called

feeling badly. The means and standard deviations for all variables can be seen in Table 1.

To explore the hypotheses, 2 (role: target vs. source) × 2 (conflict: ostracism vs. argument) analyses of variance (ANOVAs) were conducted on each variable, followed up by tests of simple effects to compare: targets and sources within each form of conflict; targets of ostracism to targets of argument; and sources of ostracism to sources of argument.

Targets vs. sources There were several main effects for role such that targets reported feeling less belongingness (Targets M = 34.6, Sources M = 62.3; $F(1, 31) = 13.7$, $p = .001$, $\eta_p^2 = .306$), control (Targets M = 27.2, Sources M = 56.5; $F(1, 31) = 12.8$, $p = .001$, $\eta_p^2 = .291$), superiority (Targets M = 14.6, Sources M = 57.2; $F(1, 31) = 26.5$, $p < .0001$, $\eta_p^2 = .461$), and meaningful existence (Targets M = 30.6, Sources M = 67.5; $F(1, 31) = 18.4$, $p < .0001$, $\eta_p^2 = .373$) than sources.

Further, there were significant interactions between role and type of conflict for belonging ($F(1, 31) = 16.1$, $p < .0001$, $\eta_p^2 = .342$), control ($F(1, 31) = 10.9$, $p = .002$, $\eta_p^2 = .261$), and meaningful existence ($F(1, 31) = 8.0$, $p = .008$, $\eta_p^2 = .205$). The nature of these interactions was that targets in the ostracism condition reported feeling less belongingness ($F(1, 16) = 39.5$, $p < .0001$), control ($F(1, 16) = 23.4$, $p < .0001$), superiority ($F(1, 16) = 16.6$, $p = .001$), and meaningful existence ($F(1, 16) = 39.9$, $p < .0001$) than sources in the ostracism condition, whereas targets only reported feeling significantly less superior than sources in the argument condition ($F(1, 15) = 10.2$, $p = .006$).

Targets As predicted, targets of ostracism reported feeling less belongingness ($F(1, 10) = 9.7$, $p = .011$), control ($F(1, 10) = 5.5$, $p = .041$), superiority ($F(1, 10) = 5.1$, $p = .047$), and meaningful existence ($F(1, 10) = 5.3$, $p = .044$), than targets of argument.

Sources Sources of ostracism reported feeling a greater sense of all four primary needs than sources of argument (except for the self-esteem items), however, the only significant difference was for control ($F(1, 21) = 6.97$, $p = .015$).

The effects of ostracism and argument on somatic responses

Targets vs. sources There were several main effects for role such that targets reported experiencing more stress (Targets M = 61.8, Sources M = 26.96; $F(1, 31) = 10.8$, $p = .003$, $\eta_p^2 = .259$) and felt they were developing a headache more (Targets M = 57.3, Sources M = 22.3; $F(1, 31) = 11.2$, $p = .002$, $\eta_p^2 = .265$) than sources during the train ride. Further, there was a significant interaction between role and type of conflict for anxiety ($F(1, 31) = 6.3$, $p = .017$, $\eta_p^2 = .169$), such that there was no significant difference in the anxiety levels of targets and sources in the ostracism condition ($F < 1$), but targets of argument reported higher levels of anxiety than sources of argument ($F(1, 15) = 7.6$, $p = .015$).

Although there was no interaction for stress, headache, or nausea, there were significant main effects of role for stress and headache. In view of the fact that we were interested in somatic differences between targets and sources in each conflict condition, we followed up the significant main effects of role for the stress and headache variables with simple effects analyses. In the ostracism condition, targets reported experiencing more stress than sources ($F(1, 16) = 7.7$, $p = .014$), and the difference between targets and sources for the onset of a headache approached significance ($F(1, 16) = 4.1$, $p = .059$). In the argument condition, there was no difference between targets and sources for stress, however targets reported feeling the onset of a headache more than sources ($F(1, 15) = 8.4$, $p = .011$).

Targets Contrary to predictions, there were no significant differences in responses to the somatic indicators between targets of ostracism and argument (largest F was for anxiousness, $F(1, 10) = 3.3$, $p = .097$).

Sources As with targets, there were no significant differences in responses to the somatic indicators between sources of ostracism and argument (largest F was for anxiousness, $F(1, 21) = 1.9$, $p = .186$).

Discussion

The train ride paradigm appeared to be an effective and engaging way to examine the short-term effects of social ostracism. Further, it allowed us to compare the effects of ostracism and argument on targets and sources. We predicted that ostracism would have a more aversive effect on the four primary needs for targets than arguing, whereas ostracism would have a more positive effect on the four primary needs of sources than argument. Overall, our predictions were supported such that targets of ostracism reported lower levels of belonging, control, superiority, and meaningful existence than targets of argument, and sources of ostracism reported significantly higher levels of control than sources of argument.

The present study also allowed us to compare targets and sources within each form of conflict. We found that targets of ostracism reported significantly lower levels of belonging, control, superiority, and meaningful existence, and higher levels of stress, during the train ride than sources of ostracism. Targets of argument, however, only reported significantly lower levels of self-esteem (i.e. superiority), higher levels of anxiety, and headache onset than sources of argument. These findings, coupled with the results of the comparisons between targets in each condition, and the comparisons between sources in each condition, suggest that while ostracism and argument are both aversive to targets, they have different outcomes in terms of their effects on the primary needs.

Study 2: The impact of ostracism and argument on four primary needs, stress, and arousal

In this study, we conceptually replicated the basic conditions of Study 1, with modifications to increase realism and improve measures. In structured interviews with targets and sources of naturally occurring ostracism, it was often stated that ostracism was typically preceded by an argument (Zadro et al., 2003). In Study 1, sources began their interaction with targets by immediately ostracizing or arguing with them, and maintained this form of conflict for the duration of the simulated train ride. In Study 2 the scenarios were changed to better reflect real-life episodes of ostracism, by asking sources of ostracism to begin the role-play by arguing with the target for one minute, then after a signal from the train conductor, to ostracize the target for the rest of the ride.

We also examined whether ostracism or argument differentially affected the experience of stress or arousal during the train ride. According to Mackay, Cox, Burrows, and Lazzerini (1978), arousal is an adaptive response which refers to the automatic and somatic changes (e.g. accelerated heart rate, increased blood flow) that occur when someone is presented with a demanding or novel situation, whereas stress is a detrimental response that occurs when someone perceives that the demands of the situation exceed their ability to cope.

We predicted that targets of ostracism would experience higher levels of stress (perhaps because of experiencing more aversive effects to their primary needs while being ignored), whereas targets of argument should experience higher levels of arousal (because of trying to actively defend their position during their argument with sources). The effect of ostracism and argument on the stress and arousal levels of sources was more difficult to predict. However, we felt that sources in both conditions would experience high arousal because of the exertion involved in maintaining the argument or the ostracism. Further, if being a source of ostracism results in a stronger sense of the primary needs (such as control, as was found in Study 1), perhaps sources of ostracism would report lower levels of stress than would sources of argument.

Method

Participants and design Fifty-seven female first-year psychology students from the University of New South Wales (M = 19.2 years, SD = 2.6 years) participated in a 2 (role: target vs. source) × 2 (conflict: ostracism vs. argument) between-subjects design (ns shown in Table 2).

Procedure The procedure was essentially the same as that used in Study 1, with a few

Table 2. Study 2: Means and standard deviations (in parentheses) of fundamental needs (0 = lowest; 100 = highest level of that need), and somatic responses (higher score indicates more stress/arousal), as a function of role (target or source) and conflict (ostracism, argument)

	Conflict			
	Ostracism		Argument	
	Target (n = 10)	Source (n = 20)	Target (n = 9)	Source (n = 18)
Fundamental needs				
Belonging	8.0	73.3	23.3	65.3
	(13.4)	(17.9)	(21.2)	(20.0)
'I felt badly about myself'*	46.0	49.0	41.1	55.6
	(38.4)	(28.6)	(27.6)	(23.6)
Superiority	11.0	54.0	41.1	48.9
	(18.5)	(33.2)	(37.2)	(29.1)
Control	17.0	65.5	23.3	56.1
	(22.0)	(17.8)	(15.6)	(14.8)
Meaningful existence	25.3	84.8	85.2	79.6
	(18.6)	(20.0)	(13.0)	(20.6)
Somatic responses				
Stress	6.1	2.7	5.7	3.7
	(4.1)	(3.2)	(3.4)	(3.1)
Arousal	3.2	7.1	6.9	6.7
	(2.4)	(2.4)	(3.2)	(3.3)

* This item is reverse-scored such that a high score indicates a higher feeling of well-being.

modifications. The scenarios presented to participants differed from those in Study 1 in two ways. First, because Study 2 participants were university rather than high school students, we changed the rationale for the conflict. Second, sources in the ostracism condition in Study 2 were asked to engage in a one-minute argument before ostracizing the target.

All participants were told that they were seated with two classmates on the train ride home. Sources in both conditions were informed that they had been speaking to the other source during the introductory psychology tutorial. After the tutorial, they saw the target inform the tutor that the sources had been talking during class. The sources were told that they were angry the target had told on them. All sources were instructed to argue with the target about the incident until they heard the train whistle (blown after the first minute). Sources in the argument condition were told to keep arguing after the whistle, whereas sources in the ostracism condition were told to ignore the target and speak only to the other source after the whistle. Targets in both conditions were told that the sources had been making so much noise that they (the target) could not concentrate during the psychology tutorial, and so the target had informed the tutor at the end of the class, hoping the tutor could speak to the sources if they did it again. After speaking to the tutor, however, the target realized that the sources had observed the conversation with the tutor.

After participants read through their scenarios, the experimenter signaled the beginning of the ride. At one minute, the experimenter blew the whistle, indicating to sources in the ostracism condition that they were to begin ignoring the target. After five minutes of role-play, the experimenter ended the ride. The participants then filled out the post-study questionnaire that examined each of the four needs. The questionnaire was generally the

same as that used in Study 1, however there were additional questions for some needs (i.e. meaningful existence), and other questions were modified. For instance, one of the questions assessing belonging in Study 1—'I felt a strong connection with the two other people in my train row'— was, in retrospect, an inappropriate question, because sources of ostracism would not feel a sense of connection with both the co-source and the target, hence the wording of this question was modified. There were two items assessing each need (except for meaningful existence). These items were as follows: belonging ('I felt a special bond with at least one other person in my train row', 'I felt included in the group'), control ('I felt an unusually strong sense of control over what was happening', 'I felt frustrated'), self-esteem ('I felt badly about myself', 'I felt superior to at least one other person in my train row'), and meaningful existence ('I felt invisible', 'It was as though my existence was meaningless', 'I felt that I was acknowledged by at least one other person in my train row').

Stress and arousal were measured with the Stress-Arousal Adjective Checklist (Mackay et al., 1978; modified by King, Burrows, & Stanley, 1983). This 20-item, equal interval scale (amenable to parametric statistics), comprises two 10-item subscales, one assessing stress (e.g. tense, worried) and the other assessing arousal (e.g. active, energetic). Participants rated 20 words according to four possible response patterns (++ = definitely yes, + = slightly yes, ? = not sure or don't understand, – = definitely not). The participants were then thanked and debriefed.

Results

Observations Initially, all participants, including those in the ostracism condition, engaged in an argument for the first minute of the ride. From observation, it was impossible to tell the groups apart—all sources enthusiastically began to argue with the targets, all targets energetically defended their position. After the whistle was blown, however, the scene changed dramatically. While sources and targets in the argument condition continued their argument without interruption, sources of ostracism began to ignore the protests of the target, and began to talk among themselves. Targets of ostracism initially kept trying to argue with the sources, turning from one source to another, attempting to maintain the argument and eye contact. However, it soon became apparent to targets of ostracism that they were being ignored and they began to show the same signs of lethargy that were apparent in Study 1.

The effect of ostracism and argument on the four primary needs The items assessing each of the four needs were reverse-scored where necessary, and the internal consistency of each need scale was examined. Cronbach's alpha coefficients were: belonging = .82; control = .62; self-esteem = .15; and meaningful existence = .91. On the basis of these coefficients, the average for the items assessing each need was used in the analysis except self-esteem where the two items, 'I felt badly about myself' and 'I felt superior', were analyzed separately. The means and standard deviations for all variables can be seen in Table 2.

To explore the hypotheses, 2 (role: target vs. source) × 2 (conflict: ostracism vs. argument) ANOVAs were conducted on each variable, followed up by tests of simple effects to compare: targets and sources within each form of conflict; targets of ostracism to targets of argument; and sources of ostracism to sources of argument.

Targets vs. sources There were main effects for role such that targets reported feeling lower levels of belongingness (Targets M = 15.3, Sources M = 69.5; $F(1, 53) = 106.6$, $p < .0001$, $\eta_p^2 = .668$), control (Targets M = 20.0, Sources M = 61.1; $F(1, 53) = 68.7$, $p < .0001$, $\eta_p^2 = .565$), superiority (Targets M = 25.3, Sources M = 51.6; $F(1, 53) = 8.7$, $p = .005$, $\eta_p^2 = .141$), and meaningful existence (Targets M = 53.7, Sources M = 82.4; $F(1, 53) = 25.3$, $p < .0001$, $\eta_p^2 = .323$) than sources.

Further, there were significant interactions between role and type of conflict for belonging ($F(1, 53) = 5.0$, $p = .029$; $\eta_p^2 = .087$), superiority ($F(1, 53) = 4.2$, $p = .045$; $\eta_p^2 = .073$), and

meaningful existence ($F(1, 53) = 36.7$, $p < .0001$; $\eta_p^2 = .409$). These interactions were due to targets of ostracism reporting that they felt lower levels of belongingness ($F(1, 28) = 103.6$, $p < .0001$), control ($F(1, 28) = 42.2$, $p < .0001$), superiority ($F(1, 28) = 14.4$, $p = .001$), and meaningful existence ($F(1, 28) = 61.9$, $p < .0001$) than sources of ostracism, whereas in the argument condition, targets, when compared to sources, only reported feeling lower levels of belongingness ($F(1, 25) = 25.4$, $p < .0001$) and control ($F(1, 25) = 28.3$, $p < .0001$).

Targets As predicted, targets of ostracism reported that all four needs were more adversely affected than did targets of argument (except for feeling badly about oneself), but these results only attained significance for superiority ($F(1, 17) = 5.2$, $p = .037$) and meaningful existence ($F(1, 17) = 64.5$, $p < .0001$).

Sources Although sources of ostracism generally reported stronger feelings of belonging, control, self-esteem (except for feeling badly about oneself), and meaningful existence than sources of argument, these differences were not significant (largest F was for control, $F(1, 36) = 3.1$, $p = .088$).

The effect of ostracism and argument on stress and arousal

Targets vs. sources Analysis revealed that targets reported higher levels of both stress (Targets $M = 5.9$, Sources $M = 3.2$; $F(1, 53) = 8.0$, $p = .007$, $\eta_p^2 = .131$) and arousal (Targets $M = 4.95$, Sources $M = 6.9$; $F(1, 53) = 5.2$, $p = .027$, $\eta_p^2 = .089$) than sources. There was a significant interaction between role and type of conflict for arousal ($F(1, 53) = 6.5$, $p = .014$, $\eta_p^2 = .109$), such that in the ostracism condition, targets reported lower levels of arousal than sources ($F(1, 28) = 17.2$, $p < .0001$), but no such effect was observed in the argument condition ($F < 1$). Although the interaction for role and type of conflict for stress was not significant, we explored the significant main effect for stress with simple effects analyses. This showed that in the ostracism condition, targets reported significantly higher levels of stress than sources ($F(1, 28) = 6.3$, $p = .018$), but not in the argument condition ($F(1, 25) = 2.2$, $p = .149$).

Targets As predicted, targets of argument reported higher levels of arousal than targets of ostracism ($F(1, 17) = 8.3$, $p = .01$). Although targets of ostracism tended to report higher levels of stress than targets of argument, this difference was not significant ($F < 1$).

Sources There were no significant differences in the arousal or stress levels of sources of ostracism and argument (largest F was for stress, $F = 1.0$, $p = .32$).

Discussion

In Study 2, we modified our train ride procedure by preceding the ostracism period with a minute-long argument in order to have the scenario better resemble real-life instances of ostracism. We also used a different sample than was used in Study 1 (university rather than high school students). However, the university participants appeared to show the same enthusiasm during the train ride (and the same lethargic demeanor during ostracism) as did the high school participants. In accordance with predictions and the findings of the previous study, targets of ostracism reported that their primary needs were more adversely affected during the train ride than targets of argument, however these findings were significant only for self-esteem (superiority) and meaningful existence. Moreover, as predicted, targets of argument reported higher levels of arousal than targets of ostracism, possibly due to the rigorous nature of conducting an argument. Sources of ostracism reported feeling a stronger sense of belonging, control, self-esteem, and meaningful existence than sources of argument, however, in this study, none of these differences were significant.

As in Study 1, several interesting findings arose from comparisons between targets and sources within each form of conflict. Specifically, targets of ostracism reported lower levels of belonging, control, self-esteem (superiority), and meaningful existence, higher levels of

stress, and lower levels of arousal than sources of ostracism, whereas targets of argument only reported lower levels of belonging and control than sources of argument. Again, these results suggest that ostracism may be a more aversive form of conflict for targets than argument.

Study 3: The effect of ostracism, argument, and social inclusion on needs and anxiety

Studies 1 and 2 both examined the effects of ostracism compared to argument. However, an inclusion condition (in which targets join in a non-conflictual conversation between sources) is necessary to demonstrate that the effects of ostracism and argument on primary needs significantly differ from non-conflictual social interaction. The addition of a social inclusion condition would also allow us to ensure that the lower levels of belonging, control, self-esteem, and meaningful existence experienced by targets of ostracism and argument are due to the nature of the conflict rather than some aspect of the paradigm itself (e.g. the seating position of targets in the train).

We predicted that targets of either form of conflict would report that their needs were more adversely affected than targets of inclusion. Moreover, we predicted that targets of ostracism would report lower levels of superiority and meaningful existence (as found in Studies 1 and 2), and possibly belonging and control (as found in Study 1) than targets of argument. Further, trends from the previous studies suggested that sources of ostracism would report higher levels of control and possibly belonging than sources of argument.

Study 3 also examined the effects of ostracism and argument on anxiety. State anxiety refers to a prolonged stress response that is characterized by tension, fear, and nervousness, whereas trait anxiety refers to individual differences in the propensity to perceive situations as threatening and, consequently, display anxiety (Spielberger, 1983). It was predicted that targets of either form of conflict would report more state anxiety than targets of social inclusion. We did not make specific predictions for sources, other than sources of inclusion should show low levels of anxiety.

Method

Participants and design Altogether, 138 second-year psychology students from the University of New South Wales were randomly assigned to a 2 (role: target vs. source) × 3 (social interaction: ostracism vs. argument vs. inclusion) between-subjects design (*n*s shown in Table 3).[2]

Procedure The scenarios were slightly modified from those in Study 2. Sources in the ostracism and argument conditions were told that they had missed a tutorial and needed to catch up, but the target had refused to lend them their notes despite the sources' assurances that they would return the notes safely as soon as possible. Sources in the argument condition were told to argue with the target during the ride; those in the ostracism condition were told to argue with the target initially for the first minute, and then ostracize them for the remaining four minutes of the train ride. Targets in the ostracism and argument conditions were informed that they had not allowed the sources to borrow their class notes because they feared that they would be returned damaged or not at all. Because we wanted to compare the effects of ostracism and argument to a relatively pleasant conversation, we did not inform targets and sources in the inclusion condition about the note-borrowing incident—they were only told that they had met a classmate on the train ride home, and were asked to have a pleasant conversation for the duration of the ride.

The post-study questions assessing primary needs were the same as those used in Study 2. Participants also completed the state anxiety component of the Spielberger (1983) State-Trait Anxiety Inventory (STAI) where they were asked to rate how much they agreed with 20 statements *at this moment* on a 4-point scale (1 *not at all*, 4 *very much so*). Participants were then fully debriefed. Two weeks after the train ride, participants completed the trait anxiety component of the inventory, in which they

Table 3. Study 3: Means and standard deviations (in parentheses) of fundamental needs (0 = lowest; 100 = highest level of that need), and somatic responses (+ scores = higher state vs. trait anxiety, – scores = lower state vs. trait anxiety), as a function of role (target or source) and social interaction (ostracism, argument, inclusion)

	Social interaction					
	Ostracism		Argument		Inclusion	
	Target (n = 16)	Source (n = 32)	Target (n = 15)	Source (n = 30)	Target (n = 15)	Source (n = 30)
Fundamental needs						
Belonging	6.2	80.2	25.2	61.0	54.0	64.4
	(8.1)	(11.5)	(26.2)	(16.9)	(16.7)	(16.7)
Superiority	13.6	66.1	33.8	41.2	19.1	32.5
	(19.5)	(27.4)	(33.2)	(26.8)	(24.7)	(29.6)
'I felt badly about myself'*	43.8	53.0	46.3	63.1	86.7	82.2
	(31.1)	(30.6)	(34.3)	(29.0)	(13.1)	(19.0)
Control	18.2	72.4	30.2	54.6	60.7	65.7
	(26.1)	(16.4)	(21.9)	(17.6)	(16.9)	(15.7)
Meaningful existence	22.9	88.2	73.6	81.3	80.9	85.8
	(14.2)	(9.8)	(20.8)	(14.0)	(23.8)	(15.7)
Somatic responses						
Anxiety (State Anxiety scores –	8.2	–4.2	6.2	–1.7	–6.9	–7.0
Trait Anxiety scores)	(11.8)	(10.6)	(10.7)	(10.5)	(8.9)	(11.4)

* This item is reverse-scored such that a high score indicates a higher feeling of well-being.

were required to rate on a 4-point scale (1 *almost never*, 4 *almost always*) the extent to which they agreed with 20 statements *in general*.

Results

Observations In the first minute of the train ride, participants in the ostracism and argument conditions were indistinguishable, as targets and sources in the conflict conditions vocally and forcefully tried to defend their stance. This was in marked contrast to the participants in the inclusion condition who seemed to be engaging in a pleasant conversation.

After the whistle was blown, the difference between the conflict conditions became apparent. Although participants in the argument condition continued their argument, sources in the ostracism condition began to ignore the targets' arguments and started to have a conversation with each other, their behavior similar to those in the inclusion condition who leaned close to one another, often smiling and laughing during their animated conversation. As targets of ostracism began to realize they would not be acknowledged by the sources, they started to show the same signs of helplessness and lethargy as targets in the previous studies.

The effect of ostracism, argument, and inclusion on the four primary needs The items assessing each of the four needs were reverse-scored where necessary, and the internal consistency of scales (two items assessing each need, with three assessing meaningful existence) was examined. Cronbach's alpha coefficients for each need were: belonging = .75; control = .56; self-esteem = –.22, and meaningful existence = .85. On the basis of these coefficients, the average of the items assessing each need was used in the analysis except self-esteem where the two variables, 'I felt badly about myself' and 'I felt superior' were analyzed separately. The means and standard deviations for all variables can be seen in Table 3. To explore the hypotheses, 2 (role: target vs.

source) × 3 (social interaction: ostracism vs. argument vs. inclusion) ANOVAs were conducted on each variable followed up by tests of simple effects and post hoc comparisons using Tukey's procedure.

Targets vs. sources Once again, targets reported feeling less belongingness (Targets $M = 28.0$, Sources $M = 68.8$; $F(1, 132) = 185.7$, $p < .0001$, $\eta_p^2 = .585$), control (Targets $M = 36.0$, Sources $M = 64.4$; $F(1, 132) = 69.2$, $p < .0001$, $\eta_p^2 = .344$), superiority (Targets $M = 22.0$, Sources $M = 47.0$; $F(1, 132) = 24.3$, $p < .0001$, $\eta_p^2 = .155$), and meaningful existence (Targets $M = 58.4$, Sources $M = 85.1$; $F(1, 132) = 82.7$, $p < .0001$, $\eta_p^2 = .385$) than sources.

Further, there were significant interactions between role and type of social interaction for belonging ($F(2, 132) = 40.2$, $p < .0001$, $\eta_p^2 = .379$), control ($F(2, 132) = 18.5$, $p < .0001$, $\eta_p^2 = .218$), superiority ($F(2, 132) = 8.3$, $p < .0001$, $\eta_p^2 = .112$), and meaningful existence ($F(2, 132) = 48.6$, $p < .0001$, $\eta_p^2 = .424$). Simple effects analyses revealed that in the ostracism condition, targets reported lower levels of belonging ($F(1, 46) = 526.9$, $p < .0001$), control ($F(1, 46) = 77.6$, $p < .0001$), superiority ($F(1, 46) = 46.6$, $p < .0001$), and meaningful existence ($F(1, 46) = 346.4$, $p < .0001$) than sources. In the argument condition, targets reported feeling lower levels of belonging ($F(1, 43) = 30.7$, $p < .0001$) and control ($F(1, 43) = 16.2$, $p < .0001$) than sources. In the inclusion condition, there were no significant differences in the self-reported needs of targets and sources (largest F was for belonging, $F(1, 43) = 3.9$, $p = .06$).

Targets There were significant differences between the targets in the three conditions for belonging ($F(2, 43) = 26.5$, $p < .0001$), control ($F(2, 43) = 15.1$, $p < .0001$), feeling badly about oneself ($F(2, 43) = 11.3$, $p < .0001$), and meaningful existence ($F(2, 43) = 39.4$, $p < .0001$). Pairwise comparisons found that, as predicted, targets of inclusion reported higher levels of belonging, control, and felt better about themselves than targets of ostracism (all ps $< .0001$) and argument ($p < .0001$, $p = .001$, and $p = .001$ respectively). Targets of inclusion also reported higher levels of meaningful existence than targets of ostracism ($p < .0001$) but not targets of argument ($p = .57$).

It was also predicted that targets in the ostracism condition would report that their needs were more adversely affected during the ride than targets of argument. There was support for this hypothesis for belonging ($p = .017$) and meaningful existence ($p < .0001$), but the trends for control and both self-esteem items, although in the predicted direction, did not reach significance (smallest $p = .093$).

Sources There were significant differences between sources in all three conditions for belonging ($F(2, 89) = 14.3$, $p < .0001$), control ($F(2, 89) = 9.1$, $p < .0001$), superiority ($F(2, 89) = 12.1$, $p < .0001$), and feeling badly about oneself ($F(2, 89) = 9.5$, $p < .0001$). Pairwise comparisons showed that sources of ostracism reported significantly higher levels of belonging ($p < .0001$) and superiority than sources of inclusion ($p < .0001$). Further, sources of ostracism reported feeling worse about themselves than sources of inclusion ($p < .0001$). Compared to sources of inclusion, sources of argument reported significantly lower levels of control ($p = .029$) and felt worse about themselves ($p = .019$). When sources of conflict were compared, sources of ostracism reported significantly higher levels of belonging ($p < .0001$), control ($p < .0001$), and superiority ($p = .002$) than sources of argument.

The effect of ostracism, argument, and inclusion on anxiety Anxiety was examined by determining whether the level of anxiety for targets and sources after the train ride (i.e. state anxiety) was higher or lower than the anxiety generally experienced by these individuals (i.e. trait anxiety). This 'change' in anxiety was calculated by subtracting the trait anxiety score from the state anxiety score for each participant. Thus, a positive anxiety score indicated that participants experienced more anxiety during the train ride than they generally experience. The mean scores for this measure are given in Table 3.

Targets vs. sources Overall, targets (M = 2.2) reported more anxiety on the train ride than sources (M = –4.3); $F(1, 117) = 11.1$, $p = .001$, $\eta_p^2 = .087$). There was also a significant interaction between role and type of conflict ($F(2, 117) = 3.2$, $p = .043$, $\eta_p^2 = .052$). Simple effects analyses found that in both conflict conditions, targets reported higher levels of anxiety than sources (for ostracism, $F(1, 42) = 12.2$, $p = .001$; for argument, $F(1, 37) = 4.8$, $p = .035$). However, in the inclusion condition, targets and sources did not differ ($F < 1$).

Targets There was a significant difference for anxiety reported by targets ($F(2, 39) = 8.9$, $p = .001$). This effect was due to targets of conflict reporting higher levels of anxiety during the ride than did targets of inclusion (ostracism vs. inclusion: $p = .001$; argument vs. inclusion: $p = .006$). The difference between targets in the two conflict conditions was not significant ($p = .87$).

Sources All sources reported slightly lower anxiety on the train ride than they generally experience but there was no group differences ($F(2, 78) = 1.5$, $p = .22$).

Discussion

Study 3 examined the effects of ostracism, argument, and social inclusion on four needs and anxiety of targets and sources. The primary purpose of the study was to ensure that the effects of being a target or source of ostracism or argument differed from being a target and source of social inclusion. In support of our predictions, targets of inclusion reported higher levels of belonging, control, and self-esteem (felt better about themselves) than targets of conflict, as well as higher levels of meaningful existence than targets of ostracism. Moreover, targets of inclusion also reported lower levels of anxiety than targets of social conflict.

As in Studies 1 and 2, targets of ostracism reported that each of their four needs were more adversely affected during the train ride than targets of argument, but these differences were only significant for belonging and meaningful existence. Rather than just finding trends for our predictions about sources (as in Studies 1 and 2), we found, in Study 3, that sources of ostracism reported significantly higher levels of belonging, control, and self-esteem (superiority) than sources of argument, and higher levels of belonging and self-esteem (superiority) than sources of inclusion (possibly due to reduced variability in the data).

We also compared the four need levels of targets and sources within the conflict and inclusion conditions. There were no differences in the needs of targets and sources of inclusion. In the conflict conditions, however, targets of ostracism reported lower levels of belonging, control, self-esteem (superiority), and meaningful existence, and higher levels of anxiety than sources of ostracism, whereas targets of argument reported lower levels of only belonging and control and higher levels of anxiety than sources of argument.

General discussion

Three studies allowed us to further explore several aspects of Williams's (1997/2001) social ostracism model. First, we developed a new role-play paradigm. Second, we compared being ostracized to being the target of a verbal dispute (argument with), to see whether ostracism is different from another common aversive social interaction. Finally, we examined the effect of ostracism on sources—previous research has only examined its effect on targets.

In using a role-play paradigm, we were aware of the objection that our results might be an artefact of demand characteristics. However, we feel that several factors protect against this. First, in pilot-testing the ball-tossing paradigm (which has been used in most earlier research on ostracism; see Williams & Sommer, 1997), and the Scarlet letter study (in which five work colleagues each took turns at being the target of ostracism for a day, with the others acting as sources; Williams, Bernieri et al., 2000), it was evident that the impact of ostracism could be felt even when anticipated and when punitive attributions were absent. That is, even when

one is playing a role or knows generally what to expect, ostracism is aversive, threatening, and frustrating. Second, the present studies employed a between-subjects design, where participants were unaware that other conditions were being run. They were naïve to this as well as the experimental hypotheses or purpose of the research, and therefore were unlikely to detect any 'demand' to comply with.

We observed that regardless of whether participants were high school or university students, they played their roles with enthusiasm. They were engaged in an active drama that resulted in findings comparable to other lab-based procedures designed to examine ostracism (e.g. Lawson Williams & Williams, 1998; Williams & Sommer, 1997). After only five minutes of ostracism during the train ride, targets generally reported that their four primary needs were adversely affected, and they showed non-verbal signs of dejection and distress.

In the earlier studies conducted by Williams and his colleagues (for reviews see Williams & Zadro, 2001, in press), the effects of being ostracized were compared to the effects of being socially included. That research did not aim to show that ostracism was different from any other negative experience. Yet, Williams's model postulates that ostracism has the unique potential to threaten or thwart four fundamental needs essential to motivation and well being, more so than other typical negative experiences. Therefore, in the present research, the effects of being a target of ostracism were compared to the effects of being a target of argument.

Our basic premise was that, unlike targets of argument, targets of ostracism have less opportunity to actively participate in the conflict, which in turn prevents them from engaging in behaviors that could help them satisfy threatened needs. Therefore, we predicted that targets of ostracism would report lower levels of belonging, control, self-esteem, and meaningful existence than targets of argument. Although an entirely consistent pattern did not emerge across the three studies, targets of ostracism reported significantly lower levels of belonging, control, self-esteem (superiority), and meaningful existence in Study 1; self-esteem (superiority) and meaningful existence in Study 2; and belonging and meaningful existence in Study 3, when compared to targets of argument. Overall, these findings demonstrate that for targets, ostracism is generally more aversive than argument.

The inconsistency in the pattern of needs affected by ostracism across the three studies may be due to a subtle change in the paradigm introduced in Study 2 (and replicated in Study 3). Specifically, in Study 1, participants in the ostracism condition were ignored for the duration of the train ride, whereas in Studies 2 and 3 they argued with the sources for the first minute of the train ride and were then ignored for the remaining four minutes. When one examines the pattern of primary needs affected by ostracism across all three studies, being completely ignored in Study 1 resulted in lower levels of belonging, control, self-esteem, and meaningful existence compared to targets of argument, whereas being included (albeit aversively) prior to ostracism in Studies 2 and 3 led to lower levels of only superiority and meaningful existence in Study 1, and belonging and meaningful existence in Study 2. It seems that being included in an argument for one minute satisfied the primary needs of targets of ostracism to some extent.

At this stage, it is unclear whether it was (a) the argument itself that heightened targets' sense of belonging, self-esteem, and (in particular) control prior to ostracism, or (b) the fact that participants in Studies 2 and 3 experienced a shorter period of ostracism (i.e. the longer the ostracism episode, the more aversive the effect). The one consistent effect was that targets of ostracism reported lower levels of meaningful existence than targets of argument—suggesting that ostracism is distinct from argument because it causes the target to feel invisible, purposeless, and unacknowledged.

We also examined the effects of social conflict on sources. Previous research has focused on targets of ostracism, with little experimental research examining the effects of

ostracism on sources (cf. Ciarocco et al., 2001). Our results revealed that being a source of ostracism was a less aversive experience than being a source of argument. Specifically, sources of ostracism reported stronger feelings of control in Study 1, and belonging, control, and self-esteem (superiority) in Study 3 than sources of argument. In Study 3, sources of ostracism even reported higher levels of belonging and self-esteem (superiority) than sources of inclusion, which suggests that the fortifying effects of ostracizing may surpass those of participating in a pleasant conversation. These findings are consistent with previous anthropological and sociological speculations (Gruter & Masters, 1986), and non-experimental self-report data (Sommer et al., 2001; Williams, Bernieri et al., 2000; Williams et al., 1998) that suggest that ostracism can serve to unify groups. Ostracism may empower sources and elevate their feelings of self-importance.

The present findings, however, contradict Ciarocco et al.'s (2001) finding that ostracism, compared to inclusion, produced only aversive cognitive and physical effects in sources. One possible reason for the empirical discrepancy could be that the number of sources ostracizing the target differed between the two studies. Ciarocco et al. had a single source ostracize the target, whereas our targets were ostracized by two sources. When ostracizing alone, the solitary source is solely responsible for the ostracism. They must constantly monitor their behavior and the behavior of the target. As such, they are no doubt keenly aware of the target's discomfort, and the fact that they are directly responsible for the target's misery. It is thus not surprising that sources in the Ciarocco et al. study manifested signs of cognitive and physical depletion.

In the present research, the source is one of two people implementing the tactic, and hence there is shared (possibly diffused) responsibility, which may forge a bond between the two sources. Both sources do not have to pay attention to the target as they are engaged in a pleasant conversation with their co-source. As a result, they are probably less aware of the target's anguish and may feel less personally responsible. These factors may cause sources to experience less deleterious effects while ostracizing, and more positive effects resulting (partially) from their bond with their co-source. Thus, as the two studies present two very different experimental situations for sources, it is not surprising that their results are discrepant.

The train ride procedure also created the unique opportunity for us to compare targets and sources within each form of conflict, thereby permitting us to examine how conflict affects both parties. In all three studies, targets of ostracism reported lower levels of belonging, control, self-esteem (superiority), and meaningful existence than sources of ostracism. In the argument condition, there were fewer differences between targets and sources (lower levels of superiority in Study 1, and of belonging and control in Studies 2 and 3). As expected, there were no significant differences between targets and sources of inclusion in Study 3. These results support the contention that ostracism is a unique form of conflict that simultaneously deprives targets of fundamental needs, while fortifying sources.

The present research also examined the effects of ostracism and argument on somatic effects such as stress, arousal, and anxiety. Differences between targets or between sources were not significant or were inconsistent. However, the results were more consistent when comparing targets with sources within each type of social interaction. As predicted, there were no differences between targets and sources of inclusion. Targets of argument reported feeling more anxious (in both Studies 1 and 3), and more likely to feel the onset of a headache (Study 1) than sources of argument. Targets of ostracism reported feeling more stressed (in both Studies 1 and 2), less aroused (Study 2), and more anxious (Study 3) during the ride than sources of ostracism. It seems that mere exposure to being ignored and excluded is sufficient to trigger negative health-related reactions. However, the nature of the self-reported somatic changes during short-term ostracism may be minor, or may be

imperceptible to the target or source. Thus, future research might examine the somatic effects of ostracism more systematically using physiological measurement (e.g. cardiovascular measures; Zadro, Richardson, & Williams, 2004).

An interesting facet of our research was that we could observe the non-verbal behavior of participants. Regardless of whether the participants were high school or university students, the non-verbal behavior, in the conflict conditions, of targets was starkly different to the non-verbal behavior of sources. It was possible to look at the train without knowing who was assigned to what condition and to clearly see targets of ostracism, silent and withdrawn, among the noise and activity of the sources who spoke over the top of them, and the targets and sources who argued around them. Moreover, targets of ostracism were often the last to leave the train—one might have predicted that after five minutes of silence they would be the first to leave. It seemed as though their lethargy was maintained even after the study had finished. Future studies might examine how long the effects of social ostracism endure (e.g. Zadro, Boland, & Richardson, 2004). In any case, it is evident that the train ride is an innovative and flexible paradigm that can be modified to examine various aspects of the effects of silence and exclusion.

Notes

1. When allocating participants to groups, there were insufficient participants to make up the final group. To make up the trio, one of the experimenters took the role of one of the sources. The experimenter did not complete the post-study questionnaire.
2. Because Study 3 was conducted as part of a classroom tutorial, confidentiality requirements prevented us from asking identifying characteristics of our participants.

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