# RESPONSES TO REJECTION

## Testing the Multimotive Model Among High School Students Experiencing Peer Victimization

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MISSISSIPPI STATE UNIVERSITY
Social Relations Collaborative
H. Colleen Sinclair, Bennett Porter, Megan Stubbs-Richardson, David May, Tawny McCleon, Chelsea Ellithorpe & Jessica Weiss Utley

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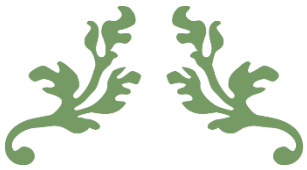

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## Overview

At some point in life, everyone experiences rejection. Yet, responses to rejection vary widely. Some respond prosocially – seeking help and mending bonds. Others act antisocially – lashing out at the rejecters. Still others may do nothing, seeking to withdraw from social engagements, or even harming themselves (Ren et al., 2020; Schoch et al., 2015; Sommer & Bernieri, 2015). What determines whether individuals choose one response over another is a pressing issue (Blackhart et al., 2006; DeWall & Richman, 2011; Sinclair et al., 2011), particularly in light of high-profile school shootings wherein a history of social rejection has been noted as a common theme among the perpetrators (e.g. Leary et al., 2003).

The primary aim of the current set of projects was to test a newer, and largely untested, theory regarding when experiencing social rejection led to antisocial behavior as opposed to prosocial or asocial responses. We will first review the theory, namely Richman and Leary's (2009) Multimotive Model (see Figure 1), and modifications made to the theoretical model. Then we will provide an overview of the multiple methods we employed to apply the theory in our examination high school student experiences with social rejection, such as physical, social, verbal, or cyber peer victimization, including bullying. Next, we will summarize key findings regarding theoretical fit. Last, we will discuss how the results suggest that the Multimotive Model is useful for predicting prosocial responses to peer victimization, but less applicable to asocial or antisocial responses. Thus, the present findings could be used to help youth choose prosocial over maladaptive behaviors. Meanwhile, our work also suggests that future work examining antisocial responses to rejecting experiences might benefit from studying group dynamics.

## The Multimotive Model

As part of their synthesis of decades of research on social rejection, Richman and Leary identified that there were three basic sets of behavioral responses to rejection: *prosocial* (e.g., seeking support, forgiveness, mending bonds), *asocial* (e.g., social withdrawal, avoidance), or *antisocial* (e.g., aggression, retaliation). The model then laid out theoretical pathways to each of these types of behavioral outcomes. Strong evidence supports that rejection experiences trigger negative emotions and drops in self-esteem. From there, however, the model posits that which behavioral path is chosen depends on how the individual "makes sense" of the rejection.

*Construals* are cognitive interpretations that individuals make of the relational events. Specifically, the six construals Richman and Leary identified as important mediators were as follows:

- *Cost of Rejection* – The extent to which the rejected person perceives the experience as carrying greater social (e.g., friends, reputation), material (e.g., possessions), physical (e.g., injury), psychological (e.g., self-image, depression), or opportunity (e.g., promotion, award) costs, the more motivated the individual was expected to be to seek prosocial solutions.
- *Alternative Relationships* – If people perceived that they had options for other relationships that freed them from a need to maintain a relationship with the person who hurt them, it was argued that then they would have little to lose in rejecting prosocial responses and choosing withdrawal. If however they didn't have relational choices and were dependent on the rejecter for certain outcomes (e.g., had no other relationship options, had to work with the rejecter, rejecter had more power) then prosocial behaviors would be needed.



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- *Relationship Repairable* – In order to pursue prosocial responses like trying to forgive or mend the relationship with the rejecter, it is important for the rejected person to have optimism that such a repair is even possible. If not, asocial or antisocial responses become more likely.
- *Relationship Value* – To pursue prosocial responses toward a rejecter, it is also important that the relationship with the rejecter is one that the rejected party views as carrying some worth. When the relationship is devalued, in contrast, asocial or antisocial responses may emerge.
- *Chronicity of Rejection* – One broken confidence, one instance of bullying, one act of aggression; individually these forms of social rejection may be forgivable, but when the rejecting acts are persistent or perceived as likely to happen again then the safest option may be to retreat to avoid more harm.
- *Perceived Unfairness* – If the rejecter is perceived as acting unprovoked, disproportionately, or unjustly when harming the rejected person, the more likely angry antisocial responses were expected to result.

So, in sum, perceiving the rejection as carrying a high cost, believing the relationship with the rejecter could be repaired, feeling that one had few alternatives aside from maintaining a relationship with the rejecter, and placing a high value on having relationships would predict a prosocial response. Conversely, devaluing relationships and seeing no hope for relationship repair were expected to predicate asocial or antisocial responses. Differentiating asocial from antisocial paths, asocial responders were also expected to report anticipating further rejection – in part due to a history of chronic rejection – and to perceive that maybe there were better alternatives elsewhere. In contrast, those choosing antisocial responses were alleged to perceive the rejection as wholly unfair. See Figure 1 for the theorized pathways.

## Friendly Modifications to the Multimotive Model

We expanded upon the original model in the following ways. First, at the outset, we integrated new research on two factors 1) social alienation and 2) perceived groupness. According to research by Reijntes and colleagues (2010), individuals who felt like one of society's outcasts were the most likely to respond to further rejection with aggression – something they referred to as the *outcast-lash-out effect*. Consequently, we initially measured individual differences in feelings of social alienation but then operationalized alienation as a construal (i.e., to what extent did the rejection make the rejected youth feel like an outsider).

Also, work by Gaertner and colleagues (2008) introduced the construct of *perceived groupness* as an additional factor that was important to predicting aggressive responses to rejecting experiences. Perceived groupness accounts for the extent to which individuals view the actions taken against them as 1) "typical" actions coming from a group and 2) directed at them, and those like them, because of their group identity. This variable it goes beyond just the group identity of the victim *or* the aggressor alone, and accounts for the interaction of those identities. For example, take the prototypical example of an LGBT youth being bullied by a popular athlete. Perceived groupness is higher when 1) the youth perceives they are being targeted because of their LGBT identity, 2) the jock(s) engaging in the bullying is representative of other popular athletes, 3) other members of the popular jock group would do the same or support the bullying, and 4) other LGBT youth are likely to be victimized by members of this same clique. The higher the perceived groupness the higher the likelihood of retaliation for a rejection. Thus perceived groupness was added to the model as a construal to capture the extent to which individuals saw their victimization as a function of group identities.



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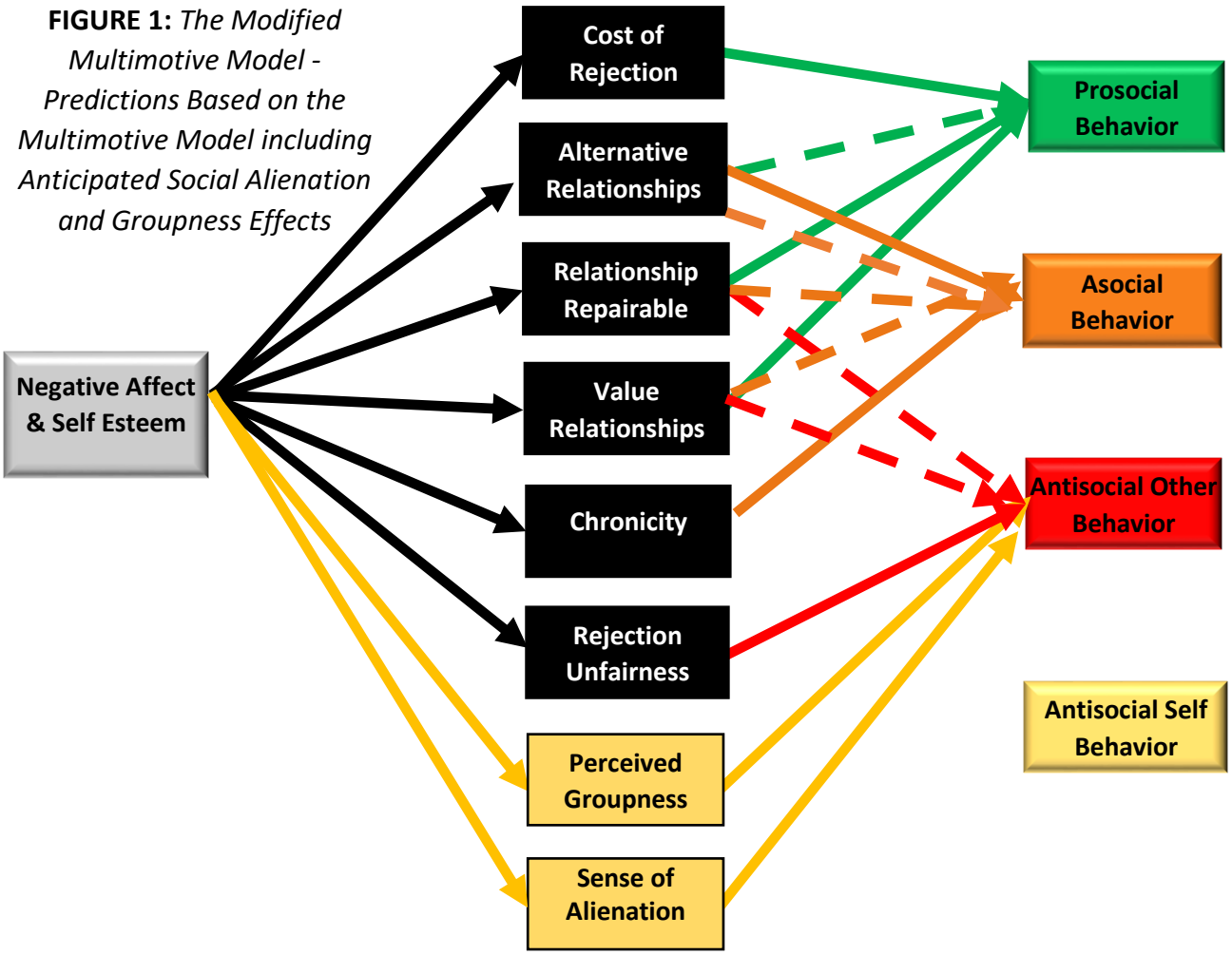
Second, during the course of the project new mortality statistics revealed that suicide had surpassed homicide as the second leading cause of youth death and that peer victimization had been found to be a significant predictor of those suicides (Holt et al. 2015; Sigurdson et al., 2018). Self-harm and suicide could be seen as asocial – with suicide being the ultimate withdrawal – or antisocial, but internalized (directed toward the self) instead of externalized (directed toward others). As it didn't fit neatly in asocial or antisocial, we added self-harm as a response option during Wave 2 and thereafter in this multi-year project. Please see yellow boxes and arrows in Figure 1 for the expanded model. Note, however, self-harm was still a rare occurrence in our sample, and thus conclusions here are drawn with caution.

**FIGURE 1:** *The Modified Multimotive Model - Predictions Based on the Multimotive Model including Anticipated Social Alienation and Groupness Effects*




Note: Solid lines represent anticipated positive relationships. Dashed lines represent anticipated negative relationships. Yellow lines and boxes were additions to the Multimotive Model based on work on the Outcast-Lash-Out and Perceived Groupness effects.

We tested the tenets of this model over four years, employing multiple methods including self-report surveys with high school students, daily diaries with a smaller sample of high schoolers, experimental vignette surveys with high school and college students, and an experimental, newly redesigned, Cyberball paradigm with high school and college students. Instrumentation for these studies are



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available on the Open Science Framework (OSF: https://osf.io/7wyf3/) and the National Institute of Justice data repository on the ICPSR website (see NACJD_NIJ-117043: https://deposit.icpsr.umich.edu/deposit/workspace?goToPath=/ddf/117043&goToLevel=project).

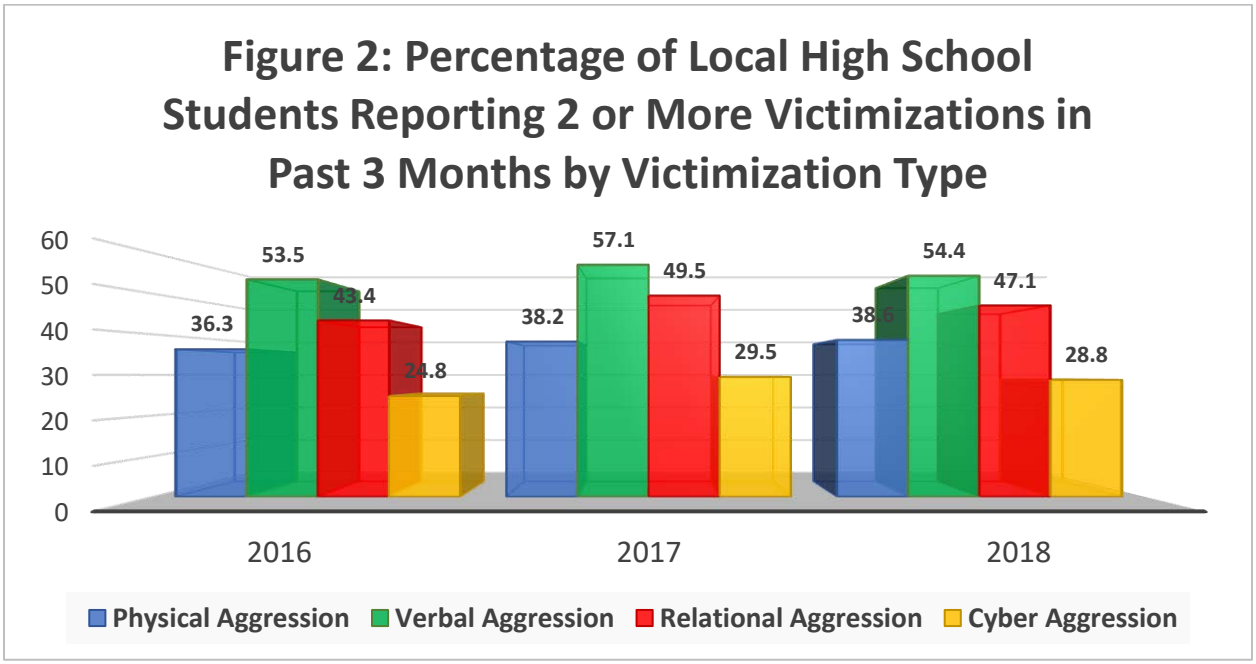
## The Multi-Method Approach

As the present research was the first to provide a comprehensive test of the Multimotive Model we planned a multi-method program of study. We began with non-experimental methods – including surveys and daily diary studies – and used the results of those methods to inform subsequent experimental methods – including vignette studies and in-person social rejection experiments manipulating key aspects of the model. Exhaustive review of the precise methods of each approach is beyond the scope of the current summary. Further, certain methodologies proved better tests of the model than others with our school samples. For example, daily diary approaches that necessitate stripped down measurements to facilitate quick daily completion didn't suffice to capture the complexity of the model. Plus, the frequency of "non-events" was high in the diaries. Thus, detailed reporting of findings from the daily diaries, while interesting, do not really pertain to the model which is the focus of this write-up. However, all materials – codebooks, stimulus materials, raw deidentified data files, a more detailed summary, etc. – are posted on the open science sites cited above.

The results reviewed herein are a synthesis of findings from the following studies:

### Annual Local Surveys

Sample: An annual survey of 400-600 high school students from a local high school (N = 1400) who – with parental consent - actively chose to partake (sample demographics are available in the Appendix). Only those victimized were used in theory-testing analyses. Approximately half of the sample each year reported experiencing either physical, verbal, relational, or cyber victimization within the prior three months and thus were asked further questions about their experiences (see FIGURE 2).



Measures: The survey contained measures consistent with the Multimotive Model as specified above. Minor changes were made to the local survey from Year 1 to Year 2 in order to improve scale reliability and add in self-harm items. Year 2 and 3 surveys were the same. Reliabilities for each scale and victimized sample sizes are provided in Table 1.

**Table 1. Cronbach's Alpha across Survey Assessments**

| | Year 1 (N=265) | Year 2 (N=374) | Year 3 (N=231) | Year 4 (N=510) |
|---|---|---|---|---|
| Negative Affect & Self-esteem | .91 | .94 | .93 | .93 |
| *Cognitive Construals* | | | | |
| Cost | .80 | .93 | .89 | .89 |
| Alternative Relationships | .92 | .96 | .95 | .95 |
| Relational Repair | .90 | .93 | .92 | .92 |
| Relationship Value | .88[2] | .89 | .86 | .86 |
| Chronicity | .42[1] | .84 | .83 | .93 |
| Fairness | .79 | .90 | .87 | .91 |
| Social Alienation | .85 | .96 | .96 | .96 |
| Perceived Groupness | .80 | .87 | .80 | .92 |
| *Behavioral Responses* | | | | |
| Pro-Social | .69 | .89 | .88 | .85 |
| Anti-Social Other | .81 | .87 | .87 | .88 |
| Anti-Social Self | -- | .95 | .95 | .95 |
| Withdrawal | .85 | .89 | .89 | .90 |

NOTE: Items assessing negative affect (e.g., sadness, anger) correlated with negative assessments of the self (e.g., "I felt I had few good qualities") at above .90 and thus were collapsed into a single index. Dashes indicate a given construct was not assessed. [1] In Year 1, reliability for Chronicity items proved too low to include in analyses, and thus was excluded. [2] In Year 1, reliability for Relationship Value items fell below .60 and so responses to the individual difference Relational-Interdependent Self-Construal scale was used to approximate relational value.

Analysis Plan: Structural equation models (SEMs) testing the modified Multimotive Model were run each year. Initially, models for each type of victimization (physical, verbal, relational, and cyber) were run separately and are available, but for the sake of brevity and sample size only combined models are used here.

## Qualtrics Panel Survey

Sample: In Year 4, we used a Qualtrics panel sample to supplement our local data to see whether the patterns found were unique to our sample or generalized to a broader sample. As our local samples were predominantly African American, we purposefully oversampled African American youth. We also screened for victimization experiences and only included those who had experienced a recent incident of physical, verbal, cyber, or relational aggression and/or bullying. Thus, victimization questions were asked slightly differently in the Qualtrics survey.

Measures: As indicated in Table 1, the survey contained the same measures consistent with the Multimotive Model as used in the local surveys. Victimization questions were asked slightly differently as they served as screening questions. Participants identifying as having experienced multiple types of victimization were asked just to tell us about the most impactful.

Analysis Plan: As in the local surveys, SEMs were used to test the fit of the Multimotive Model. Path coefficients for all survey SEMs are available in the Appendix (see Table B).

## Experimental Vignette Survey

Sample: In Year 3, we returned to testing more of the aspects of the Multimotive Model with vignette surveys using a sample of 351 high school students. Sample descriptives are available in the Appendix (see Table C).

Stimulus Materials: The study employed a mixed-factorial design. Each student received 4 scenarios describing a physical, verbal, relational, or cyber victimization of a student. Thus, type of victimization was a within-subjects variable. Between-subjects the scenarios varied regarding:

1) *Cost* - the incident was portrayed as high cost (publicly humiliating) or low cost (occurring in private),
2) *Group Affiliation* - the group identity of the perpetrator was either an ingroup member (same social group as the victim), outgroup member (different social group from the victim), or no group identity was specified,
3) *Alienation* - whether the incident was described as making the student feel like an outcast (alienated vs. not), and
4) *Availability of Alternatives* - whether the victim was portrayed as having alternative relationships available to them (none vs. a supportive friend).

Measures: After reading the scenarios, participants were asked what they thought would happen and how they would respond.

1) *Affect* - including being asked whether they thought the incident would elicit negative affect (9 items, $\alpha = .89$) or lowered self-esteem (3 items, $\alpha = .90$).
2) *Construals* - These were followed by asking them how they construed the situation. Measures of cost (7 items, $\alpha = .91$), the perceived likelihood of relational repair (2 items, $r = .74$), availability of alternative relationships (3 items, $\alpha = .94$), relationship value (1 item), unfairness (4 items, $\alpha = .93$), and alienation (6 items, $\alpha = .66$), were all included. Unfortunately, data on the perceived groupness of the incident was mistakenly not collected, leaving groupness to only be operationalized in terms of the manipulation in the scenario.
3) *Behavioral Responses* - Lastly, they were asked to report anticipated behavioral responses, including prosocial responses (7 items, $\alpha = .89$), asocial responses (5 items, $\alpha = .92$), antisocial-other responses (6 items, $\alpha = .90$), and antisocial-self responses (6 items, $\alpha = .96$).

Analysis Plan: Collapsing across aggression type, we employed multiple hierarchical regressions, entering the IVs in Step One, the negative affect and self-esteem variables in Step Two, and the construals in Step Three. This was repeated for each type of behavioral response. Gender was not significant in any model so it was excluded. Coefficients are in the Appendix (see Table D).

## Cyberball Experiment

Cyberball was originally developed by Dr. Kipling Williams (see Hartgerink et al., 2015 for review) to experimentally simulate exclusion by using a videogame wherein participants partake in an online ball-tossing videogame with alleged other players (who are in fact fake participants). Participants are randomly assigned to either receive the ball consistently throughout the game (inclusion) or to not receive the ball (exclusion) after a few initial tosses.



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Sample: We were aiming for a sample of 600 to meet necessary power based on the number of independent variables. Unfortunately, this was not attainable in a year from the high school where our samples for on-site surveys hovered between 400-500. We supplemented with college students and reached a sample size of 328 by project close. Descriptives are in the Appendix (see Table C).

Stimulus Materials: We manipulated the following independent variables:

1) *Inclusion vs. Exclusion* - Consistent with the original Cyberball design, this was manipulated by how many times the participants received the virtual ball. However, this was reinforced by a social media interaction pre-game that was programmed to give the participant profile a high number (inclusion) or low number (exclusion) of "likes" from the alleged other players. Exclusion manipulation checks verified that participants assigned to the exclusion conditions felt more excluded (M = 2.11) than included participants (M = 0.26), $F$ (1,303) = 184.66, $p < .001$, $\eta^2 = .38$.
2) *Group Identity of Excluders* – Participants were also randomly assigned to be in a condition where either all of the other three players were from the same school as the participant (ingroup), a rival school (outgroup), or three different schools (no group) as manipulated by listing school affiliations in social media profiles and reinforced by using school colors on other player avatars. Manipulation checks verified whether participants accurately recalled the school affiliations of the other players.
3) *Solo vs. Pair Participants* – Participants were also randomly assigned to either play the game alone or were assigned a partner. This partner sat next to the participant and experienced all the same inclusion/exclusion and group conditions as the participant.

Measures: After the Cyberball game, participants completed reaction inventories that gauged self-reports of:

1) *Affect* – Negative affect (8 items, α = .90) and lowered self-esteem (2 items, $r$ = .88) felt as a result of rejection were measured.
2) *Construals* – We assessed perceptions of Cost (8 items, α = .89), Availability of Alternatives (4 items, α = .88), Relationship Repairability (3 items, α = .83), Relationship Value (4 items, α = .84), Chronicity (4 items, α = .60), Unfairness (4 items, α = .95), Alienation (6 items, α = .93), Groupness (7 items, α = .76), regarding the rejection experience.
3) *Behavioral Responses* – Lastly, participants self-reported their desire to retaliate (Antisocial-Other Responding, 4 items, α = .84), befriend (Prosocial Responding, 4 items, α = .89), or withdraw from (Asocial Responding, 4 items, α = .86) the other Cyberball players.

Analysis Plan: Main effects and interactions of the independent variables on the outcomes were tested with analyses of variance (ANOVAs), but as we were primarily interested in the role of construals, we employed hierarchical regressions to examine links between construals and outcomes. In Step 1, the independent variables were entered (group condition was dummy coded, solo vs. pair condition was effect coded). As no interactions reached significance in the ANOVAs, we only examined direct effects. In Step 2, negative affect and negative self-esteem were entered. In Step 3, the construals were entered. We repeated these regressions for the self-reported desire to be antisocial, prosocial, or asocial. Note, due to smaller than ideal sample size, results are considered preliminary. Step 3 Coefficients are available in the Appendix (Table E).

## Key Findings

Overall, only 2 of the 11 pathways predicted by the Multimotive Model connecting construals to behaviors were consistently supported. These two paths were for predicting prosocial responding, which also happened to be the dominant choice of youth in our studies. Thus, the Multimotive Model



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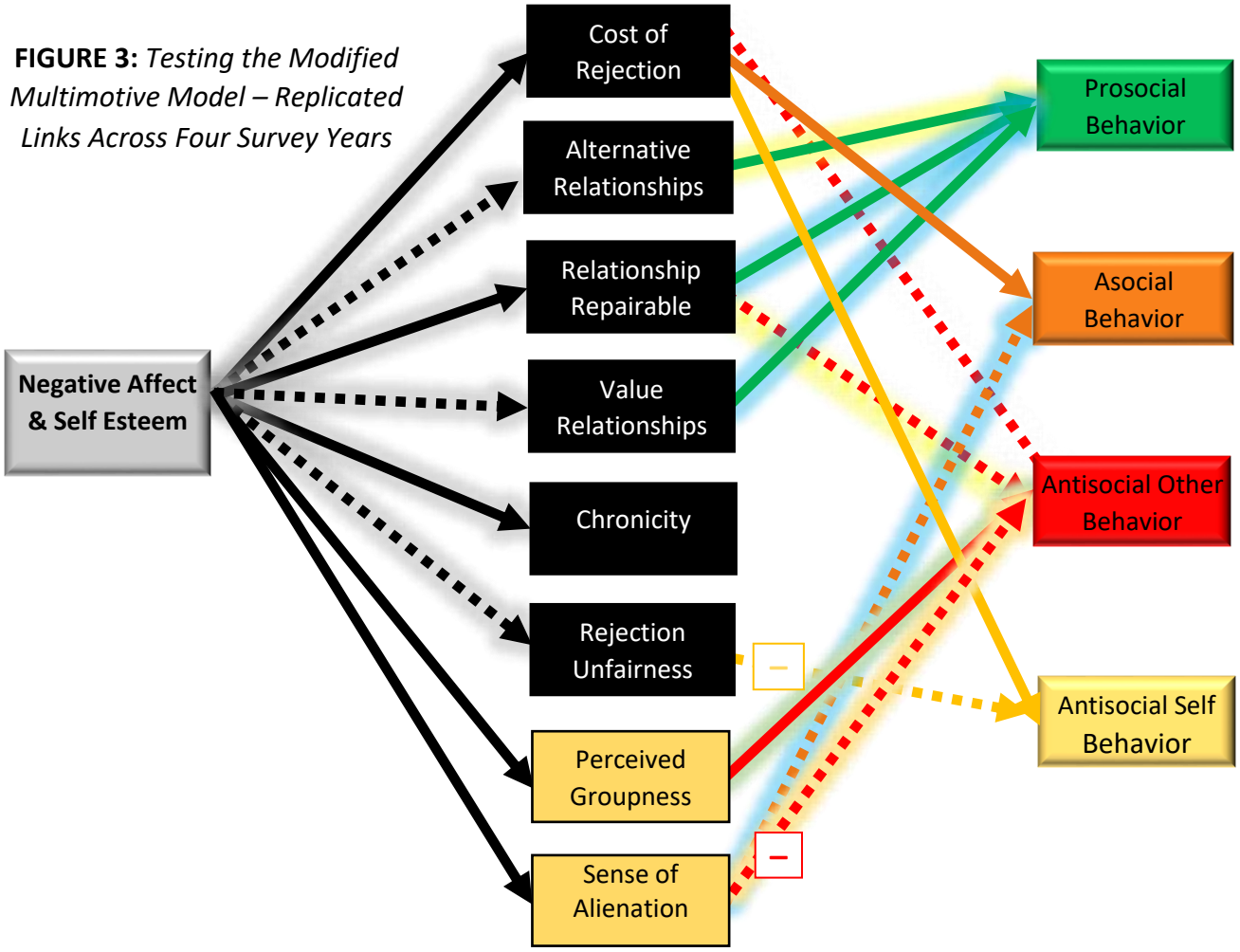
appears to be a better fit for understanding cognitive factors that increase the likelihood for prosocial responses to rejection experiences. When it came to predicting asocial or antisocial responses, however, findings were less consistent, indicating that the Multimotive Model may not be a good fit for explaining when youth choose to diverge from the prosocial path. Figure 3 presents summary of findings from the survey structural equation models. Where paths identified in the surveys are consistent with those found in the experiments will be noted in the text.

**FIGURE 3:** *Testing the Modified Multimotive Model – Replicated Links Across Four Survey Years*




NOTE: Solid lines represent connections replicated across each administration and dotted lines indicate links found in the majority of years (i.e., 3 out of 4 surveys or 2 out of 3 for self-harm). Yellow boxes indicate aspects we added to the original Multimotive model based on findings regarding groupness and social alienation. We had no predictions regarding self-harm, results here were thus purely exploratory. Blue highlighted pathways indicate model-consistent or research-consistent predictions (i.e., perceived groupness effects were not a part of the original Multimotive Model), yellow highlighting identifies pathways that were the reverse of what was expected (e.g., the Multimotive Model had predicted a negative relationship between perceived alternatives available and prosocial responding).

## Prosocial Responding

Consistent with theory predictions, perceiving the relationship with one's rejecter – or, in most of these cases, aggressor – as repairable and of value increased the likelihood of prosocial responding. As seen in Figure 3, these links were remarkably consistent across four years of survey data, vignette data, and



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experimental data. Contrary to the direction of effects predicted by the original Multimotive Model, the availability of alternative relationships was also strongly linked to prosocial behavior in the survey data and vignette data but did not replicate in the preliminary results from the Cyberball experiment.

## Asocial Responding

The Multimotive Model predicted that social withdrawal would be more likely when individuals perceived that they had alternative relationships, the rejection was chronic, and the relationship was not repairable or valued. None of these relationships emerged in the surveys or vignette studies we conducted. These relationships did, however, show in the Cyberball data where placing a low value on having a relationship with the group, perceiving oneself as having alternative relationships available, and perceptions of the chronicity of rejection were linked to self-reported desire to withdraw. As these findings are preliminary and do not converge with the other methods, the evidence that these variables are useful for predicting asocial responding is not strong.

What did consistently emerge across all methods as important to predicting withdrawal was the perceived cost of the rejection experience. The higher the perceived cost the more likely it was for survey respondents to report asocial behavior, for vignette study participants to predict asocial responses, and for Cyberball experiment participants to express a desire to withdraw. Also, in survey and vignette studies, the more alienating the experience the more likely youth reported asocial responding. Thus, contrary to the outcast-lash-out hypothesis, alienating experiences seem more likely to lead to social avoidance than aggression. This was also apparent in the results for predicting antisocial responses.

## Antisocial Responding

The Multimotive Model predicted that the antisocial path would be chosen by those who devalued relationships, doubted the repairability of social bonds, and perceived their rejection as unfair. We added to this, based on research by Gaertner and colleagues (2008) and Reijntes and colleagues (2010) that the greater the perceived groupness of the rejection and the more alienating the experience was, the more likely the rejected youth was to choose retaliation over reconciliation. Of these predictions, only perceived groupness effects were replicated across survey administrations. Plus, significant difference test trends in the Cyberball experimental paradigm suggested that retaliation was more likely when participants were in the pair condition and were excluded by a rival group. Again, these experimental data are preliminary, but across studies including operationalization of groupness (this was mistakenly note measured in the vignette experiment) group factors mattered.

As with asocial responding, antisocial responses were significantly more likely the greater the perceived cost of the rejection experience. This was so in the surveys, the vignette experiment, and in the regressions examining the links from construals to desired behavioral response where cost was the only significant predictor of antisocial inclinations.

In contrast to asocial responding, in the majority of the surveys and the vignette experiment perceiving the rejection as socially alienating actually decreased aggressive responding. Thus when made to feel like a outcast, lashing out became less likely.

## Anti-self Responding

The Multimotive Model did not include antisocial behaviors directed at harming the self, thus there were no direct predictions to be tested. Out of all of the behaviors, hurting oneself was fortunately an



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uncommon choice. However, this means that any conclusions drawn here should be taken with a grain of salt. Drawing from survey and vignette experiment data, the story that is forming as to when youth choose this self-destructive route it is because they perceive the rejection as deserved. Specifically, the perceived unfairness of the rejection was a negative predictor of self-harm, indicating that the victimization they endured was perceived as just. Further, lowered self-esteem remained a significant direct predictor. Also consistent across studies where self-harm was measured, the more youth perceived the incident as carrying a high cost - too high a cost, potentially, for them to recover from – the more likely they were to report self-harm. There is some evidence that they may also perceive that there are few relationships alternatives for them to turn to.

## Take home points

First, it should be heartening that prosocial responses are typically the most common response to rejecting experiences. Youth continue to try to form peer bonds even when hurt. Accordingly, we should look for ways to encourage this dominant response.

Second, when it comes to factors the predict an increased likelihood to be prosocial it seems to be consistent that valuing relationships, believing relationships can be repaired, and having supportive alternatives all facilitate prosocial choices. Thus, interventions wanting to increase prosocial responding may want to strengthen those values, conflict management skills, and alternative support networks.

Third, the Multimotive Model was correct in that construals *do* matter for predicting behavioral responses to rejection, but the Multimotive Model predicted pathways only worked for prosocial responding. It underestimated the impact of perceived cost for maladaptive responding. Lessening the costs – whether social, physical, psychological, academic, or material – incurred by youth victimization is potentially critical in reducing asocial, antisocial, and even antiself behavior. Additional construals, beyond what was included in the original Multimotive Model might be worth pursuing, particularly those cognitions differentiating types of maladaptive response. For example, drawing on Spoor and Williams' (2011) Ostracism Detection Theory, and measuring the extent to which youth construe the incident a threatening their basic needs (e.g., for positive self-regard, for connection) may mediate behavioral responses.

Fourth, we may need to revisit our perception that outcasts lash out. Although school shooters certainly seem to fit the description of alienated youth lashing out, these are extreme examples and extremely rare. Across multiple studies those saying that their victimization experience made them feel like an outcast were more likely to withdraw, whereas those who rejected the idea that the experience made them feel alienated were the ones likely to be antisocial. Arguably, these youth could be denying their feelings, but alternatively it could be those who feel included who perceive that they have the social resources to retaliate.

Finally, clearly youth victimization does not occur in a vacuum. These interactions are embedded in a social context featuring group identities, norms, rivalries. and mini subcultures. Future examinations need to delve more deeply into the group dynamics affecting responses to peer aggression. For though outside observers may see the interaction as one-on-one, it appears to be the us vs. them nature of these incidents that perpetuates the conflicts.



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# APPENDIX

## Demographics for Survey Samples

**Table A: Victimized Sample Descriptives for Survey Data**

| | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|
| Gender | | | | |
| Male | 201 (40.6) | 146 (39.0) | 90 (39.0) | 191 (37.4) |
| Female | 252 (50.9) | 184 (49.2) | 136 (58.9) | 307 (60.2) |
| Other | 2 (0.4) | 2 (0.5) | 1 (0.4) | 12 (2.4) |
| Missing | 40 (8.1) | 42 (11.2) | 4 (1.7) | -- |
| Race | | | | |
| White | 127 (25.7) | 117 (31.3) | 69 (30.0) | 264 (51.7) |
| Black | 271 (54.7) | 202 (54.0) | 149 (64.5) | 103 (20.2) |
| Other | 60 (12.1) | 53 (14.2) | 13 (5.6) | 143 (28.1) |
| Missing | 37 (7.5) | 2 (0.5) | 0 (0.0) | -- |
| Grade | | | | |
| Freshman | 147 (29.7) | 65 (17.4) | 49 (21.2) | 142 (27.8) |
| Sophomore | 127 (25.7) | 89 (23.8) | 23 (10.0) | 126 (24.7) |
| Junior | 87 (17.6) | 95 (25.4) | 66 (28.6) | 117 (23.0) |
| Senior | 99 (20.0) | 90 (24.1) | 91 (39.4) | 125 (24.5) |
| Missing | 35 (7.1) | 35 (9.4) | 2 (0.9) | -- |
| Sophomore | 29 (8.3) | 38 (11.6) | | |
| Junior | 115 (32.8) | 48 (14.6) | | |
| Senior | 138 (39.3) | 35 (10.7) | | |
| Missing | -- | 2 (.6) | | |

## Path Coefficients for Structural Equation Models of Survey Data

**Table B: Structural Relationships Across Surveys**

| | **Year 1 (N=265)** | **Year 2 (N=374)** | **Year 3 (N=231)** | **Year 4 (N=510)** |
|---|---|---|---|---|
| **Negative Affect & Self-Esteem predicting….** | | | | |
| Cost | .74* | .81* | .81* | .72* |
| Alternative Relationships | -.06 | .25* | .28* | .11* |
| Relational Repair | .37* | .43* | .44* | .27* |
| RISC (Yr1)/Relationship Value (others) | .07 | .44* | .46* | .62* |
| Chronicity | -- | .61* | .61* | .47* |
| Unfairness | -.13* | .40* | .43* | .35* |
| Groupness | .47* | .65* | .67* | .43* |
| Social Alienation | .46* | .95* | .93* | .91* |
| **Predictors of Prosocial responses** | | | | |
| Cost | .09 | .16 | .15 | .43* |



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| | | | | |
|---|---|---|---|---|
| Alternative Relationships | .35* | .17* | .16* | .13* |
| Relational Repair | .35* | .19* | .19* | .16* |
| RISC (Yr1)/Relationship Value (others) | .20* | .24* | .24* | .17* |
| Chronicity | -- | .19 | .18 | -.06 |
| Unfairness | .05 | -.15* | -.16* | -.05 |
| Groupness | .00 | .05 | .06 | .14* |
| Social Alienation | -.03 | -.07 | -.06 | .04 |
| **Predictors of Asocial responses** | | | | |
| Cost | .20* | .46* | .10* | .42* |
| Alternative Relationships | .00 | .02 | .01 | -.13* |
| Relational Repair | -.14* | -.08 | .06 | .03 |
| RISC (Yr1)/Relationship Value (others) | .12* | .02 | .07 | -.05 |
| Chronicity | -- | .22* | .08* | .06 |
| Unfairness | -.02 | .02 | .06 | .06 |
| Groupness | .02 | -.06 | .09 | .10* |
| Social Alienation | .46* | .19* | .23* | .37* |
| **Predictors of Antisocial Other responses** | | | | |
| Cost | .15 | .24* | .23* | .66* |
| Alternative Relationships | -.05 | -.11 | -.11 | .08 |
| Groupness | .15* | .40* | .41* | .17* |
| Unfairness | .25* | .07 | .07 | .00 |
| Relational Repair | -.07 | .25* | .24* | .23* |
| Chronicity | -- | -.03 | -.04 | .13* |
| RISC (Yr1)/Relationship Value (others) | .03 | .04 | .04 | -.04 |
| Groupness | .15* | .40* | .41* | .17* |
| Social Alienation | .17* | -.33* | -.33* | -.46* |
| **Predictors of Antisocial Self responses** | | | | |
| Cost | -- | .69* | .71* | .69* |
| Alternative Relationships | -- | -.11 | -.12* | -.06 |
| Relational Repair | -- | .05 | .04 | .17* |
| RISC (Yr1)/Relationship Value (others) | -- | -.02 | .00 | -.05 |
| Chronicity | -- | .05 | .04 | .09 |
| Unfairness | -- | -.15* | -.15* | -.05 |
| Groupness | -- | .10 | .11 | .12* |
| Social Alienation | -- | -.02 | -.03 | -.13* |

NOTE: * $p<.05$; dashes indicate that a given construct was not assessed at a particular assessment. Shaded rows show relationships that were directionally replicated either across all four years or in the majority of years assessed.

## Demographics for Vignette and Cyberball Studies

**Table C: Sample Descriptives for Experimental Data**

| | Vignette | Cyberball |
|---|---|---|
| Gender | | |
| Male | 136 (38.7) | 160 (48.8) |
| Female | 206 (58.7) | 166 (50.6) |
| Other | 9 (2.6) | 1 (0.3) |
| Missing | -- | 1 (0.3) |
| Race | | |



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| | | |
|---|---|---|
| White | 109 (31.1) | 213 (64.9) |
| Black | 214 (60.9) | 75 (22.9) |
| Other | 28 (8.0) | 39 (11.9) |
| Missing | -- | 1 (0.3) |
| Grade | | |
| Freshman | 69 (19.7) | 206 (63.0) |

## Coefficients for Hierarchical Regressions of Vignette Data

**Table D: Step 3 of Hierarchical Regressions in Vignette Study**

| | ***B*** | ***SE*** | **B** |
|---|---|---|---|
| **Predictors of Prosocial responses** (7 items, *M* = 2.74, *SD* = 1.07, α = .89) | *F*(13, 1337) = 53.68 , **$R^2$ = .34** | | |
| *IV1:* Social Cost - Public (1) vs. Private (0) Victimization | -.047 | .024 | -.044* |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | -.054 | .058 | -.024 |
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | .003 | .058 | .001 |
| *IV3:* Alienating | .037 | .048 | .018 |
| *IV4:* Alternative Support Available | -.010 | .047 | -.005 |
| Negative Affect | .021 | .038 | .025 |
| Lowered Self-esteem | -.001 | .037 | .025 |
| *Construal:* Perceived Cost | .041 | .034 | .043 |
| *Construal:* Perceived Relationship Alternatives | .104 | .022 | .129*** |
| *Construal:* Perceived Possibility of Relational Repair | .258 | .037 | .294*** |
| *Construal:* Perceived Relationship Value/Need | .091 | .033 | .111** |
| *Construal:* Perceived Unfairness | .066 | .019 | .092*** |
| *Construal:* Perceived Alienation | .109 | .039 | .138** |
| **Predictors of Asocial responses** (5 items, *M* = 2.71, *SD* = 1.31, α = .92) | *F*(13, 1337) = 82.56 , **$R^2$ = .44** | | |
| *IV1:* Social Cost - Public (1) vs. Private (0) Victimization | .018 | .027 | .014 |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | -.101 | .066 | -.036 |
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | .073 | .065 | .027 |
| *IV3:* Alienating | -.126 | .054 | -.048* |
| *IV4:* Alternative Support Available | -.058 | .053 | -.022 |
| Negative Affect | .088 | .042 | .084* |
| Lowered Self-esteem | .203 | .042 | .213*** |
| *Construal:* Perceived Cost | .395 | .039 | .339*** |
| *Construal:* Perceived Relationship Alternatives | -.074 | .024 | -.075** |
| *Construal:* Perceived Possibility of Relational Repair | .015 | .042 | .014 |
| *Construal:* Perceived Relationship Value/Need | -.032 | .037 | -.032 |
| *Construal:* Perceived Unfairness | .009 | .021 | .010 |
| *Construal:* Perceived Alienation | .146 | .044 | .151*** |
| **Predictors of Antisocial responses** (6 items, *M* = 2.34, *SD* = 1.1, α = .90) | *F*(13, 1337) = 26.02 , **$R^2$ = .19** | | |
| *IV1:* Social Cost - Public (1) vs. Private (0) Victimization | -.014 | .027 | -.013 |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | -.108 | .067 | -.046 |
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | -.013 | .066 | -.006 |
| *IV3:* Alienating | .041 | .054 | .018 |
| *IV4:* Alternative Support Available | -.054 | .054 | -.025 |
| Negative Affect[+] | .075 | .043 | .085† |
| Lowered Self-esteem | -.024 | .042 | -.030 |
| *Construal:* Perceived Cost | .379 | .039 | .386*** |
| *Construal:* Perceived Relationship Alternatives | .082 | .025 | .098** |



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| | | | |
|---|---|---|---|
| *Construal:* Perceived Possibility of Relational Repair | -.013 | .042 | -.014 |
| *Construal:* Perceived Relationship Value/Need | .115 | .037 | .136** |
| *Construal:* Perceived Unfairness | -.010 | .021 | -.014 |
| *Construal:* Perceived Alienation | -.160 | .044 | -.195*** |
| **Predictors of Antiself responses** (6 items, *M* = 1.80, *SD* = 1.13, α = .96) | *F*(13, 1337) = 54.02 , **$R^2$ = .34** | | |
| *IV1:* Social Cost - Public (1) vs. Private (0) Victimization | -.034 | .025 | -.030 |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | -.079 | .062 | -.033 |
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | -.052 | .075 | -.022 |
| *IV3:* Alienating | -.061 | .051 | -.027 |
| *IV4:* Alternative Support Available | -.081 | .050 | -.036 |
| Negative Affect | -.046 | .040 | -.050 |
| Lowered Self-esteem | .148 | .040 | .179*** |
| *Construal:* Perceived Cost | .436 | .036 | .433*** |
| *Construal:* Perceived Relationship Alternatives | -.098 | .023 | -.114*** |
| *Construal:* Perceived Possibility of Relational Repair | .017 | .039 | .019 |
| *Construal:* Perceived Relationship Value/Need | .119 | .035 | .137*** |
| *Construal:* Perceived Unfairness | -.112 | .020 | .148*** |
| *Construal:* Perceived Alienation | .009 | .041 | .010 |

Note: †$p$<.10; *$p$<.05; **$p$<.01, ***p<.001 Group Identity Condition (IV2) included three levels wherein the perpetrator was portrayed as a member of the same friend group as the victim (Ingroup), had no group affiliation, or was a member of a group not considered friends (Outgroup). These variables were dummy coded for analyses. [+]Also, negative affect was marginally significantly associated with antisocial responding, so we investigated which emotions might be important. Sadness was a negative predictor whereas anger was positive. Significant findings that were consistent with both the Multimotive Model and the survey findings are highlighted in green. Yellow highlights are for findings consistent with only our survey results. Blue for those only consistent with the model but not replicated in other studies. Full output is available upon request, including Steps 1 and 2.

## Coefficients for Hierarchical Regressions of Cyberball Data

**Table E: Step 3 of Hierarchical Regressions in Cyberball Study**

| | ***B*** | ***SE*** | **β** |
|---|---|---|---|
| **Predictors of Prosocial responses** | *F*(14, 282) = 20.35 , **$R^2$ = .49** | | |
| *IV1:* Inclusion (.46) vs. Exclusion (.15) | -.979 | .447 | -.126* |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | .178 | .133 | .069 |
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | .300 | .130 | .121* |
| *IV3:* Number of Participants: Solo (1) vs. Pair (2) | .060 | .116 | .024 |
| Negative Affect | -.101 | .139 | -.057 |
| Lowered Self-esteem | -.211 | .166 | -.113 |
| *Construal:* Perceived Cost | .121 | .127 | .058 |
| *Construal:* Perceived Relationship Alternatives | .069 | .058 | .065 |
| *Construal:* Perceived Possibility of Relational Repair | .287 | .062 | .280*** |
| *Construal:* Perceived Relationship Value/Need | .523 | .082 | .401*** |
| *Construal:* Perceived Chronicity | .216 | .055 | .198*** |
| *Construal:* Perceived Unfairness | -.078 | .046 | -.123 |
| *Construal:* Perceived Groupness | -.014 | .080 | -.009 |
| *Construal:* Perceived Alienation | .063 | .111 | .051 |
| **Predictors of Asocial responses** | *F*(14, 282) = 6.93 , **$R^2$ = .25** | | |
| *IV1:* Inclusion (.46) vs. Exclusion (.15) | -.147 | .495 | -.021 |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | .070 | .147 | .030 |



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| | | | |
|---|---|---|---|
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | -.012 | .144 | -.005 |
| *IV3:* Number of Participants: Solo (1) vs. Pair (2) | -.255 | .129 | -.111* |
| Negative Affect | .101 | .154 | .062 |
| Lowered Self-esteem | .098 | .184 | .058 |
| *Construal:* Perceived Cost | .468 | .141 | .248*** |
| *Construal:* Perceived Relationship Alternatives | .143 | .064 | .145* |
| *Construal:* Perceived Possibility of Relational Repair | -.132 | .069 | -.141† |
| *Construal:* Perceived Relationship Value/Need | -.284 | .091 | -.238** |
| *Construal:* Perceived Chronicity | .143 | .061 | .143* |
| *Construal:* Perceived Unfairness | .042 | .051 | .072 |
| *Construal:* Perceived Groupness | .127 | .088 | .090 |
| *Construal:* Perceived Alienation | -.029 | .123 | -.026 |
| **Predictors of Antisocial responses** | $F(14, 282) = 5.92$ , $\mathbf{R^2 = .42}$ | | |
| *IV1:* Inclusion (.46) vs. Exclusion (.15) | -.195 | .322 | -.037 |
| *IV2a:* Ingroup Perpetrator *(Dummy Coded)* | .126 | .095 | .073 |
| *IV2b:* Outgroup Perpetrator *(Dummy Coded)* | .155 | .093 | .093† |
| *IV3:* Number of Participants: Solo (1) vs. Pair (2) | .247 | .084 | .145** |
| Negative Affect | .165 | .100 | .137 |
| Lowered Self-esteem | .220 | .120 | .176† |
| *Construal:* Perceived Cost | .435 | .091 | .312*** |
| *Construal:* Perceived Relationship Alternatives | .074 | .042 | .102† |
| *Construal:* Perceived Possibility of Relational Repair | .007 | .045 | .010 |
| *Construal:* Perceived Relationship Value/Need | -.024 | .059 | -.027 |
| *Construal:* Perceived Chronicity | -.058 | .039 | -.078 |
| *Construal:* Perceived Unfairness | .020 | .033 | .047 |
| *Construal:* Perceived Groupness | .098 | .057 | .094† |
| *Construal:* Perceived Alienation | -.014 | .080 | -.017 |

Note: †$p$<.10; *$p$<.05; **$p$<.01, ***p<.001 Inclusion (IV1) condition was coded based on the percentage of time the participants received the ball (46% vs. 15%). Team group identity (IV2) included three levels wherein the other Cyberball players were all from the same school as the participant (Ingroup), all from different schools (Control = 0), or were all from a rival school (Outgroup). Groupness (and, to some extent, alienation) was further manipulated in IV3 by whether the participant was in a group (i.e., had a partner during play) or was alone during the experiment. These variables were dummy coded for analyses. Shading is used to indicate significant findings. Significant findings that were consistent with both the Multimotive Model and the earlier study findings are highlighted in green. Yellow highlights are for findings consistent with only our studies results but not the MMM. Blue highlights are for findings consistent with the MMM but not found in other studies within the current project. Full output is available upon request, including Steps 1 and 2.



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