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The role of empathy in anger arousal in violent offenders and university students

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## Abstract

A lack of empathic responsiveness toward others has been consistently identified as an important antecedent to aggressive behavior and violent crime, with many rehabilitation programs for violent offenders incorporating treatment modules that are specifically designed to increase offender empathy. This study examined the extent to which both cognitive (perspective taking) and affective (empathic concern, personal distress) empathy predicted anger in both a clinical (male prisoners convicted of a violent offense) and a non-clinical (student) sample. Perspective taking emerged as the strongest predictor of self-reported anger in response to an interpersonal provocation, as well as being most consistently related to scores on measures of general trait anger and methods of anger control. While the relationship between perspective taking and anger was apparent for offenders as well as students, the results did not support the idea that an inability to perspective take is a particular characteristic of violent offenders.

Keywords: empathy, anger, perspective taking, violent offenders.

## Introduction

The construct of empathy, defined as taking another's perspective and/or experiencing similar affective outcomes to another individual (Eisenberg et al., 1994) has been a focus of psychological inquiry for over sixty years (e.g., Dymond, 1949), and is thought to underlie motivation to behave in certain ways in social situations. An inability or unwillingness to empathize, including when an empathic response is in some way suppressed by the individual (McCrady, Kaufman, Vasey, Barriga, Devlin, & Gibbs, 2008), is commonly regarded as an important cause of a range of antisocial behaviors, including those which are either physically (e.g., Lovett & Sheffield, 2007), or sexually (e.g., Hanson & Morton-Bourgon, 2005) aggressive. Given that an inverse relationship has been demonstrated between empathy, in particular perspective taking, and violent offending (Jolliffe & Farrington, 2004), understanding more about the potential mechanisms by which empathy and aggression are linked is likely to be helpful in informing the development of appropriate rehabilitation strategies (Day, Casey, & Gerace, 2010).

One way in which empathy may be related to violent behaviour is through the tendency to experience intense feelings of anger through aggression. Anger is a particularly important emotion in this context, not only because it is a common antecedent to aggressive and violent behaviour (Novaco, 1997), but also because it is regarded as a possible affective outcome of the empathic process (Davis, 1994). There is also evidence that a reasonably strong association exists between empathy and anger arousal. In one study by Kuppens and Tuerlinkx (2007) empathic concern was positively associated with interpersonal anger (in situations where the self or another was

responsible for an event). This finding, although at odds with the presumed prosocial nature of empathic emotion (Coke, Batson, & McDavis, 1978), can be explained in terms of emotionally reactive responding (Davis, 1983). Empathy may also lead to an increased awareness of the hostile intent of others and thus increase anger (Hoffman, 2000).

However, it is also possible that the less empathic person is more likely to experience anger in response to perceived provocation and, as a consequence, react aggressively. In a study involving a non-clinical population, Mohr, Howells, Gerace, Day, and Wharton (2007) found cognitive empathy (perspective taking) to be a prominent predictor of anger arousal following interpersonal conflict. Mohr et al. concluded that: “The overall picture thus painted of individuals who are relatively indisposed to viewing matters from another person’s standpoint is of individuals who are more likely to feel affronted and to blame the transgressor, more prone to anger and, when it happens, more inclined to act it out or be troubled by it” (p. 515). Interestingly, there was no evidence in this study that empathic emotion (empathic concern) was associated with anger arousal, while personal distress (experiencing an emotional reaction to a situation that is more self- than other-oriented, Batson, Early, & Salvarani, 1997) exhibited the most consistent effects after those of perspective taking, although in the opposite direction.

The aim of the current study is to establish whether empathy, as currently conceptualized and measured, is related to anger arousal in a forensic sample. The practice of generalizing the results of anger research conducted with student samples has been strongly criticised by Novaco (2007), and replication of findings such as those of Mohr et al. (2007) with a forensic sample is warranted. In addition, there is a need to establish the extent to which the nature of the provocation is important to anger arousal,

given findings that individual differences in anger arousal appear to be most pronounced in situations where some ambiguity exists about the nature of the provocation (Crick & Dodge, 1994; Dodge, 1986; Hazebroek, Howells, & Day, 1999).

In this study we examine the role that empathy plays in anger arousal in a sample of male prisoners who are serving sentences for offenses involving interpersonal violence. Research with this population is important given that the base rate for violent re-offending in this group is thought to be as high as 50% (Dowden & Serin, 2001), and that methods to change the way in which violent men perceive the causes of provocations are now routinely offered as part of any rehabilitative treatment (Day, Howells, Mohr, Schall, & Gerace, 2008). It is hypothesised that empathy (particularly taking the perspective of another) will predict the intensity of anger experience following an interpersonal provocation, and that these associations will be stronger for those who have been identified as having a previous history of violent offending than for a non-clinical (student) sample.

## Method

### Participants

A total of 96 men participated in the study. Of these, 51 were recruited from a medium security South Australian prison housing approximately 300 inmates, who were classified as violent offenders on the basis of their index offense. Offender participants were personally approached by the researchers in the residential areas and provided with information about the study. They were not provided with any incentive to participate. . The mean age of the violent offenders was 33.06 years ( $SD = 11.96$ ;  $Range = 20-66$ ).

The community sample consisted of 45 undergraduate student volunteers of a South Australian university, who were approached during second year psychology classes and given a voucher (AUD\$10) for use at the university bookshop as a token for their time and participation. The mean age of these participants was 24.42 years ( $SD = 5.54$ ;  $Range = 18-43$ ).

### Design and Procedure

Groups of participants were assigned to one of two experimental conditions (low versus high ambiguity). Participants watched one of two videotaped vignettes of interpersonal events developed by Mohr et al. (2007) involving a possible anger provocation. Participants then completed a measure of self-predicted anger which asked them to rate their likely response to the scenario. They then completed anger- and empathy-related trait measures and provided demographic information. A measure of socially desirable responding was also administered, to allow response biases to be controlled for in the analysis (see Mills, Loza, & Kroner, 2003).

### Materials

#### *Video vignettes*

Interpersonal provocations were depicted in video vignettes presented at two levels of apparent intent (low and high ambiguity). The provocation involved being kept waiting in a bar (the experience of frustration is one of the most common triggers for anger arousal). In the low ambiguity condition, the bartender clearly notices that the customer is waiting to be served, but continues to carry out another job. In the high

ambiguity condition, it is not clear whether the bartender notices the customer and thus continues with his other work. Both vignettes were filmed from the point of view of an unseen protagonist, so that the camera served as the eyes of the participant (see Mohr et al., 2007). This approach was designed to minimise reliance on a participant's ability to take the perspective of a character in a film.

### *Measures*

#### Empathy

The Interpersonal Reactivity Index (IRI; Davis, 1980) is a 28-item self-report scale that measures four components of dispositional empathy. The Perspective-Taking (PT) scale assesses the individual's tendency to adopt the perspective of other people and to see things from their point of view. The Empathic Concern (EC) scale assesses the individual's tendency to experience feelings of sympathy and concern for others. The Fantasy (FS) scale assesses the tendency of individuals to involve themselves imaginatively in fictional situations and to identify with fictitious characters. The Personal Distress (PD) scale assesses the tendency to experience feelings of anxiety and panic in emergency or emotional interpersonal situations. All IRI items employed 5-point rating scales from 'does not describe me well' to 'describes me very well'. In Davis's (1980) original validation study, alpha reliability coefficients for all scales were reported to be at least .70.

#### Anger



Anger was measured in three different ways. Each participant was asked to report how he attributed and appraised the causes of the provocation, how he felt he would have responded to the provocation (self-predicted anger) and, finally, to report how he typically responds when angry (anger experience and expression).

*Attributional and Appraisal Questions:* Two attributions conceptualized to be relevant to the experience of anger (e.g., McAuley & Shaffer, 1993; Smith, Haynes, Lazarus, & Pope, 1993) were assessed with single items: locus of causality (how much the cause of the situation was due to the other actor) and controllability (the extent that the other actor could have controlled the situation). The attribution of intentionality was also assessed indirectly via the manipulation check (whether the other actor saw the customer). The core relational theme (other-blame) and appraisal components (importance, interference with personal goals, and accountability) considered important to anger (see Smith & Lazarus, 1993; Smith et al., 1993) were assessed using single-item questions adapted from those used previously by Ellis (1996). All items employed 7-point rating scales.

*Self-Predicted Anger:* Self-predicted anger in response to a vignette was measured by means of an 8-item scale. The items addressed similar responses to those of the State Anger scale of Spielberger's (1999) State-Trait Anger Expression Inventory-2 (STAXI-2), but differed from that scale in that they were expressed in terms of anticipated, rather than present, feelings. Examples of items are "I would feel furious" and "I would feel like hitting something". These items employed 4-point response scales from 'not at all' to 'very much so'.

*Anger Experience and Expression: The State-Trait Anger Expression Inventory-2* (STAXI-2; Spielberger, 1999) is a 57-item self-report measure which assesses state anger, trait anger, and styles of anger expression and control. All but the State Anger measure were administered. The Trait Anger scale (T-Ang) measures an individual's general propensity to experience anger and its concomitant components over time. The Anger Expression scales measure tendency to outwardly express anger (Anger Expression-Out; AX-O) and the tendency to suppress anger experience (Anger Expression-In; AX-I); both are considered maladaptive responses to anger if highly exhibited. The Anger Control scales measure tendency to control anger expression (Anger Control-Out; AC-O) and the use of calming techniques when angered (Anger Control-In; AC-I), both responses to anger experience which are considered more adaptive. Alpha coefficients reported by Spielberger (1999) for the trait anger, anger expression and control scales in normative data collection ranged from .73 to .93. All items employ 4-point rating scales from 'almost never' to 'always'.

### Social desirability

The Marlowe-Crowne Social Desirability Scale, Form C (M-C Form C; Reynolds, 1982) is a 13-item self-report measure of socially desirable responding. The M-C Form C was developed as a shorter alternative to the Marlowe Crowne Social Desirability Scale (Crowne & Marlowe, 1960). In original validation, Reynolds (1982) demonstrated the measure to have good reliability (.76) and to be correlated at .93 ( $p < .001$ ) with the original measure. Norms for this scale in both a forensic and non-forensic populations have been reported by Andrews and Meyer (2003).

## Results

Preliminary data-screening resulted in the identification of two multivariate outliers by Mahalanobis distance, with  $p < .001$ , and one univariate outlier ( $z > 3.29$ ). There were few missing values, and only one participant was excluded from the main analysis due to missing data for self-predicted anger. This led to a final sample of 44 participants (students=23, offenders=21) in the high ambiguity condition, and 50 participants (students=22, offenders=28) in the low ambiguity condition.

### *Statistical analyses*

The main hypothesis regarding the relationship between empathy and self-reported anger was investigated through hierarchical multiple regression. Hierarchical multiple regression analyses were also conducted to examine the relationship between empathy and trait measures of anger and anger response. Prior to this, differences between groups (student or offender) and conditions (high or low ambiguity) were investigated with analyses of covariance (ANCOVA) and partial correlation. Differences examined were between student and offender participants on empathy and other independent measures (social desirability and age), the relationship between participant group and condition on attribution and appraisal items, and the relationship between empathy and attribution and appraisal items.

### *Differences between offenders and students*

Violent offenders ( $M = 3.29$ ,  $SE = .06$ ) had significantly higher social desirability scores than students ( $M = 2.83$ ,  $SE = .08$ ),  $t(92) = -4.66$ ,  $p < .001$ . Violent offenders were also significantly older ( $M = 33.57$ ,  $SE = 1.70$ ) than student participants ( $M = 24.42$ ,  $SE = .83$ ),  $t(69.03) = -4.83$ ,  $p < .001$ . All subsequent analyses were therefore adjusted for social desirability and age. Analyses which examined responses to the vignettes were also adjusted for scores on the fantasy subscale of the IRI to control for individual differences in ability to imagine experiencing the events depicted in the scenario (Elms, 1966; Mohr et al., 2007).

There were no significant differences between violent offenders and students on any of the measures of empathy (see Table 1): perspective taking,  $F(1, 90) = 1.44$ ,  $p > .05$ ,  $\eta^2_{\text{partial}} = .02$ , empathic concern,  $F(1, 90) = .10$ ,  $p > .05$ ,  $\eta^2_{\text{partial}} = <.01$ , personal distress,  $F(1, 90) = 1.91$ ,  $p > .05$ ,  $\eta^2_{\text{partial}} = .02$ , or fantasy,  $F(1, 90) = 1.47$ ,  $p > .05$ ,  $\eta^2_{\text{partial}} = .02$ .

< Insert Table 1 about here >

### *Attributions, Appraisals, and Manipulation Check*

The effects of group membership and the manipulation of ambiguity on attributional and appraisal items were assessed by ANCOVAs, with fantasy and social desirability scores used as covariates. There was a significant main effect for the manipulation on attributions of intent (the manipulation check),  $F(1, 87) = 67.80$ ,  $p < .001$ ,  $\eta^2_{\text{partial}} = .44$ , with participants in the unambiguous condition more likely to believe

that the bartender had seen them ( $M = 6.14, SE = .17$  vs.  $M = 3.77, SE = .24$ ). There was also a main effect for the manipulation on the appraisal of importance,  $F(1, 87) = 4.46, p < .05, \eta^2_{\text{partial}} = .05$ , with participants in the unambiguous condition placing more importance on the event ( $M = 4.68, SE = .26$  vs.  $M = 5.07, SE = .23$ ). There were no effects for group membership, although a marginal group by condition interaction,  $F(1,86) = 3.40, p = .07, \eta^2_{\text{partial}} = .04$ , indicated a tendency for lesser ambiguity to be associated with increased accountability ratings ( $M = 5.18, SE = .28$  vs.  $M = 4.00, SE = .40$ ) among students, and reduced accountability ratings ( $M = 4.36, SE = .36$  vs.  $M = 4.70, SE = .48$ ) among offenders.

Partial correlations (controlling for condition, social desirability and age) were calculated separately for the two groups for each of the four empathy scales and each of the attribution and appraisal items. Alpha levels were set at .002 by Bonferroni adjustment for the number of analysis per group. There was only one significant correlation: for the student sample, higher perspective taking was associated with decreased appraisals of accountability ( $r = -.45, p = .002$ ).

#### *4.3 Self-reported anger (SRA)*

The roles of ambiguity, group membership, and empathy in the prediction of self-reported anger (SRA) were assessed by means of hierarchical multiple regression (see Table 2). Ambiguity, group membership, and the three control variables (age, social desirability, and fantasy<sup>1</sup>) were entered at the first step; this analysis explained 3.4% of the population variance, not significantly,  $F(5,86) = 1.64, p > .05$ , and social desirability was the only significant predictor. The addition at Step 2 of perspective taking, empathic

concern, personal distress, interactions between these variables and group membership, and an interaction for perspective taking by condition led to a significant  $F_{\text{change}}(7,79) = 3.01, p = .01$ , and the full model was significant  $F(12,79) = 2.55, p = .01$ . The model explained 17% of the population variance. Perspective taking was the only significant predictor of self-predicted anger, although the interaction for perspective taking and condition approached significance ( $p = .05$ ). Plotting of this interaction (see Aiken & West, 1991) revealed a tendency for high ambiguity to be associated with lesser self-predicted anger for those higher in perspective taking. For participants in the unambiguous condition, there was little difference in self-reported anger as a function of perspective taking. Figure 1 displays this finding. Simple slope analysis confirmed this: perspective taking was a significant predictor of self-predicted anger at high levels of ambiguity,  $\beta = -.45, t(79) = -2.92, p < .01$ , but not at low levels of ambiguity,  $\beta = -.06, t(79) = -.42, p > .05$ .

<Insert Table 2 about here>

<Insert Figure 1 about here>

In the prediction of trait anger, anger expression and anger control scores (see Table 3), the addition of perspective taking, empathic concern, and personal distress added significantly to variance explained in all cases except AX-O. Of the IRI scales, perspective taking had the most general effect, being associated negatively with trait anger and positively with anger control (both AC-O and AC-I). Empathic concern was significantly negatively associated with anger expression-in (AX-I), and personal distress

positively with this variable. Age significantly predicted scores on all scales, with the exception of AX-I. Whether an individual belonged to the group of students or violent offenders had no significant effect on any measure.

<Insert Table 3 about here>

## Discussion

Although it is commonly assumed that those who commit acts of violence and aggression are less able to empathize with others, this study found no evidence that violent offenders experience greater deficits in either the tendency to take another's perspective or their ability to experience an emotional empathic response than a non-offending (student) sample. However, there was evidence to support the notion that perspective-taking skills act as an inhibitor of anger for both students and violent offenders. The results thus support the proposed influence of empathy in limiting potentially-negative responses in interpersonal interactions. The marginal interaction between ambiguity and perspective taking in predicting self-reported anger provides further support for the idea that perspective taking skills are more important in situations that are more ambiguous and, potentially, cognitively-complex. For participants who were exposed to scenarios where the provocation was more clear-cut, perspective taking appeared to play little role in the anger response; at higher levels of ambiguity (i.e., when it was less clear whether the bartender had seen and subsequently chosen to ignore the participant), however, increased ability to take another's perspective had an inhibitory effect on anger arousal. Indeed, anger was highest for those who were lowest in

perspective taking where there was some ambiguity as to the motives of the other person, suggesting that lesser empathic responsiveness may lead to problems in accurately interpreting a situation (Davis, 1994).

Empathic concern and personal distress emerged as poor predictors of anger experienced in response to the provocation, the propensity to experience anger more generally (trait anger), and modes of anger expression and control. It may be that this is due to the relationship between empathic concern and other types of emotional responding such as self-consciousness, emotional vulnerability, and rumination (Davis, 1983; Joireman, Parrott, & Hammersla, 2002). Personal distress, which emerged as a strong predictor of anger responding (both state and trait) in the previous study by Mohr et al. (2007), here exhibited little association with anger. There has been some question of whether self-reports of personal distress tap distress which is also other-oriented, rather than more purely self-referential (Batson et al., 1997), and this may have masked any effects of personal distress.

Although these findings require replication and should be interpreted with caution given the relatively small sample size, the failure to find differences between groups in empathy does merit some attempt at explanation. It may, for example, be related to the considerable heterogeneity that exists within violent offender populations, both in the ways in which they regulate emotions (e.g., Davey, Day & Howells, 2005), and also in the ways in which they conduct themselves in interpersonal situations. Howells, Daffern, and Day (2008) have suggested that empathy deficits may involve a number of different psychological processes, “ranging from a perceptual failure to observe the distress of others, to a cognitive failure to take the perspective of others, to an affective failure to



experience distress to the suffering of others, or a behavioral failure to act on the empathic responses that have been elicited” (p. 356). As such, it may be that although perspective taking appears to be the empathic process most related to anger, the mechanism by which a lack of empathy leads to anger arousal (and aggression) varies between individuals, with only some types of deficit leading to angry responses.

One possibility is that such deficits may be more common in some subgroups of violent offenders, such as those who meet the criteria for a diagnosis of anti-social personality disorder (APD), particularly for those whose violence is more instrumental in nature than anger-mediated (Cornell, Warren, Hawk, Stafford, Oram, & Pine, 1996). Smith (2006), for example, has suggested that “people with APD may be cognitively aware of others’ emotions but they appear not to share vicariously those emotions. Thus there may be little motivational obstacle to harming people” (p.14). The design of this study did not allow such ideas to be tested, and future research should examine differences in offending behavior, as well as the influence of other factors such as socio-economic status (Jolliffe & Farrington, 2004).

Although the present study focused on trait responses and empathy was operationalized as a skill or deficit, it is important to consider the influence of other factors on the responses of those for whom a general ability to empathize is present. For example, general and offense-specific cognitive distortions have been found to predict lesser empathy for both one’s own victim and others. It could be that these distortions ‘neutralize’ empathy responses to victims (see McCrady et al., 2008). Although in the present study, attributions and appraisals for another’s behavior (which can be prone to distortion) were included (and exhibited little relationship with empathy), other beliefs

and values may still potentially impact empathy *processes* and *responses*. Measuring empathy as a general trait and examining how it relates to specific situations may serve to increase understanding of the complex relationship that exists between empathy and violent offending. This would have implications for treatment, where different relationships between empathy and offending – for example, a lack of awareness and perspective-taking ability versus ability which is compromised by the presence of distorted thinking patterns – would require assessment and different interventions (see also Ward, Keenan, & Hudson, 2000).

These notions relate to the nature of empathy measurement (self-report) used in the present study. Although in these analyses we did attempt to control for the effects of socially desirable responding, the possibility remains that it still had an influence on the results. The notion that psychopaths can take the perspective of others (and even ‘mimic’ empathic responses), but lack emotional awareness of others requires further investigation. If true, this suggests that there is a need to assess for psychopathy routinely (Hare, 2006), and that the goals of violent offender treatment should differ for those with and without APD and psychopathic traits. As Hare (1999) suggests: “Psychopaths are qualitatively different from others who routinely engage in criminal behavior, different even from those whose criminal conduct is extremely serious and persistent” (p. 186). Estimates of psychopathy in prisoners vary, but have been suggested to be as high as a quarter in some U.S. prison populations, with even higher rates for APD (Hare, 2006). In a recent cross-sectional study of English and Welsh prisons, 7.7% of 391 male prisoners met the definition for psychopathy using a cutoff score of 30 on the Psychopathy Checklist – Revised (Coid et al., 2009).

Researchers in the aggression field have continued to use self-report measures of trait cognitive and emotional empathy (e.g., Jolliffe & Farrington, 2006), suggesting that they remain confident in the ability of current measures to detect reliable individual differences. In our opinion there is a need to develop alternative ways of measuring empathic response, such as more implicit measures, measures of the processes of empathy or indices of empathic behavior. However, the vignette approach used here may provide a useful design although future research could consider using vignettes that depict situations in which violence is a more likely response, as well as where participants have less time to reflect on the provocation and their response. Such designs may reveal differences between violent offenders and non-offenders.

The main findings of the present study support those of Mohr et al. (2007), with perspective taking here emerging as an important predictor of anger in both students and a violent offender sample. The small sample size in the present study and consequent lower statistical power – often a concern in studies which attempt to recruit offender samples – should be considered in the interpretation of the present findings. However, the strength and significance of the relationship between self-reported anger and perspective taking ( $\beta = -.27$  in both studies) and fantasy ( $\beta = .10$  and  $.11$  in the present and previous studies, respectively) were similar across the studies. Empathic concern was again unrelated to anger.

This study is one of few to examine experimentally the relationship between anger and empathy in an offender sample, and represents the type of basic research that is required to inform the development of more effective interventions for violent offenders. While replication with a larger sample and examining some of the issues discussed above

is needed, we believe that this initial exploratory investigation represents a first step in addressing the complex relationships between empathy and antisocial behavior.

### Conclusion

This study supports the role of empathy (in particular, perspective taking) in explaining anger responses, although it failed to demonstrate differences between violent offenders and a student sample. Thus, although empathy deficits have been consistently identified by practitioners as an important target in the treatment of violent offenders, more research is required to establish the circumstances and mechanisms by which a failure to empathize leads to anger-related violent offending.

<sup>1</sup> The introduction of the empathic component of fantasy to the model at Step 1 (to address ability to engage with the vignettes) instead of at Step 2 (both in this analysis and the trait analyses which follow) with other variables does not appreciably alter the model.

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Table 1

*Means and standard deviations for empathy measures, by group*

	Students	Violent Offenders
	M (SE)	M (SE)
Perspective Taking	3.25 (.07)	3.33 (.08)
Empathic Concern	3.58 (.09)	3.73 (.13)
Personal Distress	2.67 (.10)	2.19 (.12)
Fantasy	3.20 (.11)	2.83 (.09)

Table 2

*Hierarchical multiple regression for the prediction of self-reported anger*

Predictors	B	S.E. (B)	$\beta$	<i>t</i>
<i>Step 1</i>				
Intercept	1.62	.05		31.57***
Ambiguity (lesser)	.07	.11	.07	.66
Group (offenders)	.07	.13	.07	.52
Age	<-.01	.01	-.02	-.21
Social Desirability	-.31	.11	-.33	-2.76*
Fantasy	-.06	.08	-.09	-.78
<i>Step 2</i>				
Intercept	1.61	.05		31.48***
Ambiguity (lesser)	.08	.10	.08	.76
Group (offenders)	.03	.12	.03	.26
Age	<.01	.01	-.01	-.09
Social Desirability	-.21	.12	-.22	-1.76
Fantasy	.07	.08	.10	.88
Perspective Taking	-.26	.12	-.27	-2.19*
Empathic Concern	-.10	.08	-.16	-1.25
Personal Distress	-.08	.07	-.13	-1.16
Group x PT	-.14	.23	-.07	-.60
Group x EC	-.10	.16	-.08	-.64
Group x PD	-.09	.15	-.07	-.61
Condition x PT	.38	.19	.20	2.01†
Model statistics				
Step 1 Adjusted R <sup>2</sup>	.03			
Step 2 Adjusted R <sup>2</sup>	.17			
<i>F</i> (5,86)	1.64			
<i>F</i> <sub>change</sub> (7,79)	3.01*			
Model <i>F</i> (12,79)	2.55*			

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  †  $p = .05$

Table 3

*Hierarchical multiple regressions for the prediction of anger scale scores*

	Trait anger	AX-O	AX-I	AC-O	AC-I
	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
<i>Step 1</i>					
Ambiguity (lesser)	.21*	.19‡	-.01	.10	.20*
Group (offenders)	.10	.01	-.09	-.07	-.03
Age	-.22*	-.23*	-.07	.32**	.37**
Social Desirability	-.57***	-.38**	-.43***	.35**	.28*
Fantasy	-.16	-.09	-.12	.11	.20*
<i>Step 2</i>					
Ambiguity (lesser)	.22*	.17	.04	.10	.18†
Group (offenders)	.09	-.01	-.04	-.04	-.03
Age	-.20*	-.23*	-.01	.30*	.33**
Social Desirability	-.44***	-.33*	-.31*	.18	.08
Fantasy	-.04	<.01	-.01	-.04	.05
Perspective Taking	-.22*	-.09	-.09	.33**	.29*
Empathic Concern	-.12	-.14	-.24*	.11	.16
Personal Distress	<.01	-.13	.26*	.07	-.11
Model statistics					
Step 1 Adjusted R <sup>2</sup>	.31	.18	.19	.18	.22
Step 2 Adjusted R <sup>2</sup>	.35	.20	.29	.26	.32
$F(5,88)$	9.26***	5.06***	5.29***	4.94***	6.15***
$F_{\text{change}}(3,85)$	2.79†	1.59	5.08**	4.35*	5.50**
Model $F(8,85)$	7.19***	3.82**	5.67***	5.07***	6.49***

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  †  $p = .05$  ‡  $p = .06$

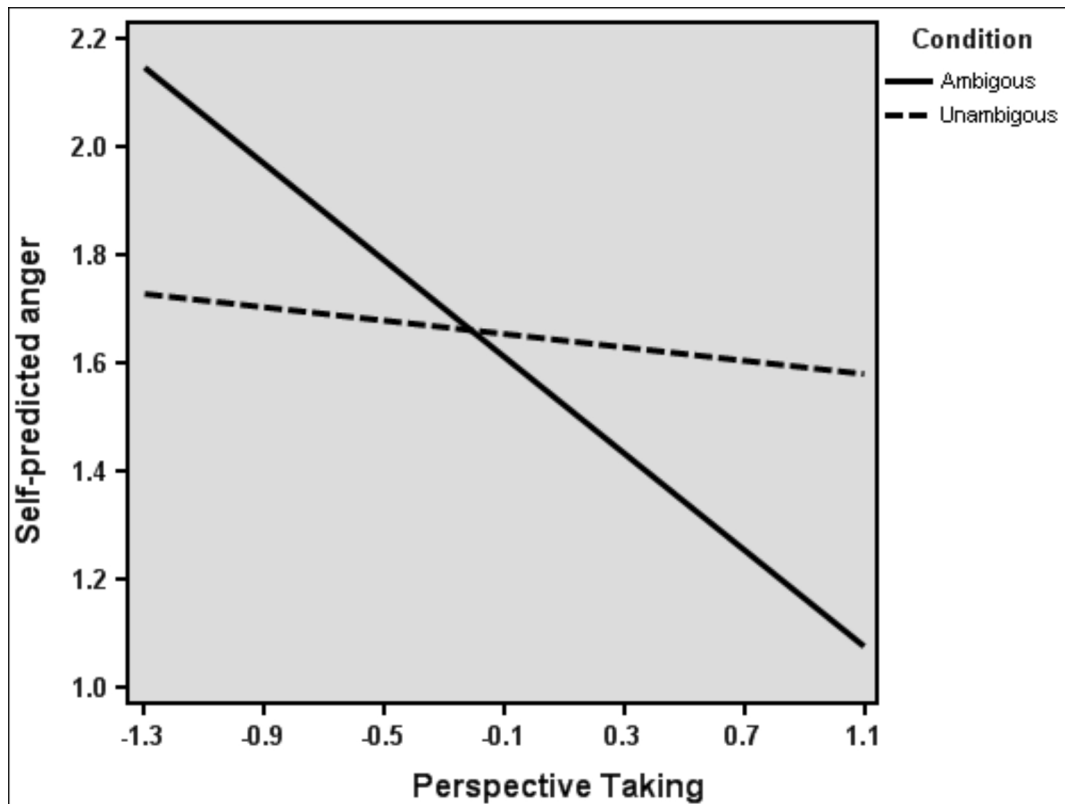


Figure 1. The interaction between perspective taking and self-predicted anger, at high (ambiguous) and low (unambiguous) levels of ambiguity.