Empathy and helping: effects of racial group membership and cognitive load

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Empathy and helping: effects of racial group membership and cognitive load

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Abstract

Previous research suggests that (a) racial group membership attenuates empathy, and subsequent prosocial helping behaviour, towards out-group members, and (b) helping behaviour is modified by the potential helper's pool of cognitive resources. It remains unclear, however, how cognitive load influences empathy and helping towards racial in- versus out-group members. We investigated this question using a sample of 30 White females. After completing either a high or a low cognitive-load task, participants viewed video clips depicting distressed White or Black females. We examined cardiovascular responses, self-reported empathic responses, and helping behaviour in response to the clips. We found no effect of racial group membership on empathic responding or on helping behaviour across cognitive-load conditions. However, results suggested that high cognitive load attenuates empathic responding, leading to decreased helping behaviour towards both racial in- and out-group members. Interestingly, a high internal motivation to respond without prejudice was associated with increased helping towards out-group members, but only under conditions of low cognitive load.

Introduction

Empathy is the ability to comprehend the emotional states of others by vicarious experience of the same emotions as them, while remaining aware of the source of those emotions (Eisenberg, 2000).

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Empathy helps us understand others' emotions, thereby facilitating social communication, altruism, and prosocial behaviour (Davidov, Zahn-Waxler, Roth-Hanania, & Knafo, 2013).

The empathic experience arises from an interplay of multiple physiological systems, including endocrine circuits, the autonomic nervous system, and various brain regions. Together, these systems allow for both bottom-up (fast, automatic recognition and arousal response) and top-down (slower, cognitively controlled regulation of response) processing of empathy-related stimuli (Decety, 2011). A frequently cited model of empathic processing distinguishes three integral components: affective arousal, empathic understanding, and empathic concern (Decety & Svetlova, 2012; Zaki & Ochsner, 2012). The *affective arousal* component represents the core affect (roughly, appetitive or aversive) of an observed emotion. Affective arousal operates automatically and involves somato-sensorimotor resonance between the self and other(s). *Empathic understanding* refers to the synthesis of environmental, social, motivational, and homeostatic information that allows computation of others' mental states. This stage of processing also allows the observer to identify his felt distress as a response to someone else's distress. *Empathic concern* refers to feelings of tenderness and compassion for another in distress and evokes a prosocial motivation to relieve that distress (Batson, Fultz, & Schoenrade, 1987).

A growing literature suggests empathic processing is malleable and may be modulated by volitional acts of self-regulation and by implicit appraisal processes (Decety, 2011). *Voluntary modulation* emerges with experience and practice and entails conscious control over emotional responses. *Implicit modulation* refers to rapid, automatic appraisal processes that are influenced by situational and interpersonal factors (e.g., the empathizer's emotion regulation capacity, and the similarity and familiarity of the other). Sensory information is thus subjected to dynamic appraisal processes, which in turn shape the ensuing emotional and behavioural response. Although these modulatory processes may have adaptive advantages (Cheng et al., 2007), they may also provoke the kinds of discriminatory behaviours often observed when people classify themselves into different groups (Cheon et al., 2011).

Numerous studies suggest that one such modulatory process, racial group identification, can affect empathy towards out-group members at all levels, from affective arousal (Forgiarini, Gallucci, & Maravita, 2011; Xu, Zuo, Wang, & Han, 2009), through empathic understanding (Cuddy, Rock, & Norton, 2007), to empathic concern (Kaseweter, Drwecki, & Prkachin, 2012). Given that empathic concern motivates prosocial action (Batson et al., 1987), one might expect helping behaviour towards others to be affected similarly by racial group identification. However, studies show mixed results: some (Dovidio & Gaertner, 1981) report increases in helping behaviour towards racial out-group members, whereas others (Gaertner & Dovidio, 1977) report decreases in such behaviour. Furthermore, a meta-analysis (Saucier, Miller, & Doucet, 2005) detected no clear racial biases in terms of empathic helping.

The review above suggests that factors other than empathic concern may influence helping behaviour towards out-group members. One such factor may be the availability of cognitive resources within the empathic responder. Pryor, Reeder, Yeadon, and Hesson-McInnis' (2004) *dual-process model* proposes that one can employ voluntary control to overcome automatic negative reactions towards out-group members, and that this control can result in prosocial helping rather than in avoidance behaviour. Their model thus implies that sufficient cognitive resources are necessary in order to exert effortful control over automatic reactions.

DeWall, Baumeister, Gailliot, and Maner (2008) provided empirical confirmation of dual-process model predictions. They found that reported willingness to help a stranger decreased after participants completed a cognitively demanding task; reported willingness to help a family member was not affected. They argued that this pattern of results eventuated because the cognitively demanding task restricted a pool of (limited) resources, and selfish impulses (i.e., those dictating

that behaviour should be self-interested) could therefore no longer be suppressed sufficiently. In contrast, helping towards genetic relatives remained unchanged because genetic selfishness extends to family: Hence, there was less initial motivational conflict when a family member needed help, and so fewer cognitive resources were needed to overcome selfish impulses in the family situation.

DeWall et al.'s results suggest that cognitive load can influence empathic responding because helping behaviour arises from an empathic response to another in distress. However, their study did not test, directly, the influence of cognitive load on the three components of empathy described above (affective arousal, empathic understanding, and empathic concern). Hence, it remains an open question whether (and how) cognitive load influences each of these components, individually and in concert.

Study overview

The reviewed literature suggests that empathic processing is influenced, at all levels, by an in-group bias: Members of the same racial (or social, or genetic) group tend to show more affective arousal, empathic understanding, and empathic concern towards a member of their in-group than towards others. Because helping behaviour is motivated, at least in part, by empathic concern, these in-group biases should also reduce helping towards racial out-group members. Helping behaviour is not explained fully by empathic concern, however. One important factor that may influence helping behaviour is the cognitive resources available to override automatic appraisal processes.

To our knowledge, research on empathy and helping behaviour has not investigated the influences of racial group membership and cognitive load within a single experimental setting. Hence, we investigated, using both self-report and physiological outcome measures, empathic reactions of White participants in response to video clips of White and Black individuals in distress, following a cognitive-load manipulation. South Africa's history of racial segregation makes it an apposite setting to study the effects of racial group membership on empathic responses. Moreover, because the video material we used features real experiences of victims of apartheid violence, it provides an ecologically valid examination of emotion elicitation in South African participants.

The following hypotheses were tested: (1) Empathic responding (as measured by self-reported empathic arousal, understanding, and concern, and by physiological arousal) will be reduced when witnessing a racial out-group member in distress compared to an in-group member in distress. (2) There will be less empathic responding under conditions of high cognitive load than under conditions of low cognitive load. (3) There will be an interaction between cognitive load and racial group membership: Empathic responding will be reduced even more for out-group members under conditions of high compared to low cognitive load. (4) Prosocial helping will be reduced under conditions of high compared to low cognitive load, especially towards out-group members. (5) Higher empathic concern towards a target individual will be associated with more helping behaviour towards that individual. This association will be stronger under conditions of low compared to high cognitive load.

Methods

Participants

A total of 30 White undergraduate females (age: $M = 20.81$ years, standard deviation [SD] = 2.96 years) participated. A research assistant assigned each participant, at random, to either a high or a
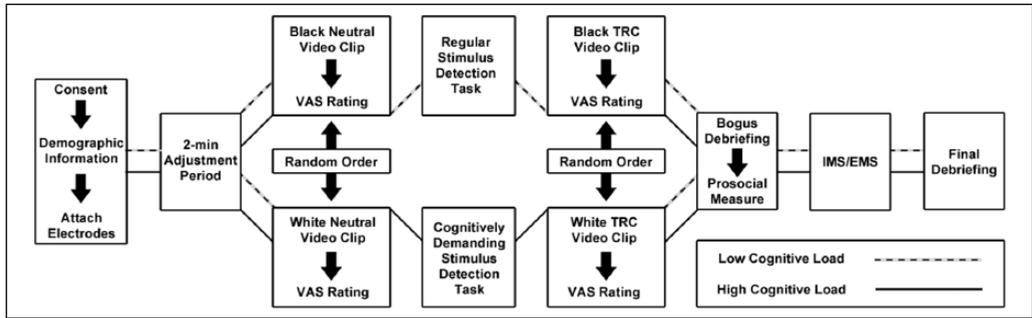
Figure 1. The experimental procedures.
Note. VAS: visual analogue scale; TRC: Truth and Reconciliation Commission; IMS: Internal Motivation to Respond Without Prejudice Scale; EMS: External Motivation to Respond Without Prejudice Scale.

low cognitive–load condition (*n* = 15 each). We recruited only females to avoid influences of sex differences on empathic processing and physiological responding (Manstead, 1992).

The Research Ethics Committee of the University of Cape Town's Department of Psychology approved the study protocol. Participants received course credit in exchange for involvement.

Design, materials, and procedure

A 2 (cognitive load: high, low) × 2 (race of target individual: Black, White) mixed-factorial design explored differences in empathic responding towards target individuals in distress (see Figure 1). Empathy-eliciting stimuli were two video clips taken from the South African Truth and Reconciliation Commission (TRC), one depicting a White and the other a Black individual in distress.

Two female researchers administered the study procedures to each participant individually. After obtaining informed consent, we told participants they would be involved in a 'study investigating the different physiological responses to cognitive processing and person processing'. Participants then completed a demographic questionnaire, after which they were seated in front of a 21-inch computer monitor and fitted with headphones and physiological recording electrodes. We used the Vrije Universiteit Ambulatory Monitoring System (VU-AMS, Vrije Universiteit, Amsterdam, The Netherlands) to record electrocardiogram (ECG) and impedance cardiogram (ICG) data via these electrodes.

The monitor displayed video clips using E-Prime version 2.0 (Psychology Software Tools, Inc., Pittsburgh, USA). We used the VU-AMS software to insert event markers designating the 2-min periods of video-clip viewing within continuous physiological signal recordings.

After a 2-min baseline rest period, we presented participants with two 2-min neutral video clips: one featured a Black female and the other a White female, both discussing student curricula. We used these clips to control for cognitive demands imposed by video-clip viewing in general (Rottenberg, Ray, & Gross, 2007). To prevent sequence effects, the Black and White neutral clips were presented in randomized order.

Directly after presentation of each video clip, participants reported their experienced empathy on visual analogue scales (VASs) by rating (a) how much subjective arousal the clip elicited (empathic arousal), (b) how much distress the target individual appeared to be experiencing (empathic understanding), and (c) how sad they felt for the target individual (empathic concern). Ratings ranged from 0 (e.g., *calm/relaxed*) to 10 (e.g., *aroused/stressed*) for each variable. Higher

ratings thus indicated more empathic arousal, understanding, or concern. A pilot study demonstrated that neither of the two neutral clips produced emotional responses in a racially mixed sample of 40 undergraduate females.

Participants then completed either a cognitively demanding stimulus detection task (*high cognitive load*) or a regular stimulus detection task (*low cognitive load*). In the latter condition, they crossed out each occurrence of the letter *e* on two pages of journal text. In the former condition, they did the same for the first page of text, but received different instructions for the second page. On that page, they crossed out all occurrences of the letter *e*, except those followed by a vowel, or those appearing in a word containing a vowel two letters before the *e*. Because the letter *e* occurs many times on the first page, participants should establish a well-practiced routine before reaching the second page. This routine then needs to be overridden while completing the second page. The task is thought to deplete cognitive resources because overriding a routine or automatic response requires cognitive self-control, a resource that is limited (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Hence, overuse of this limited resource results in cognitive depletion (DeWall et al., 2008).

Following the stimulus detection task, we gave participants brief background information about the two individuals depicted in the TRC video clips. They then viewed the two TRC clips, and again used VAS to rate each in terms of empathic arousal, understanding, and concern. The Black and White TRC clips appeared in random order.

We selected the two TRC clips based on the aforementioned pilot study's results, which showed that they were matched in terms of self-reported empathic concern. One clip depicted a White female and the other a Black female, both recounting their experiences of loss due to apartheid violence.

After viewing the TRC clips, participants received a bogus debriefing: They were told that the individuals depicted in the clips were part of the university's social responsibility initiative, and that they could assist these individuals by contributing to their causes. Participants then indicated the amount of money or the number of hours they wanted to contribute to each individual's cause.

Finally, to assess whether motivation to act in a non-prejudiced way affected participants' empathic responses, they completed the Internal and External Motivation to Respond without Prejudice Scales (IMS/EMS; Plant & Devine, 1998). Five IMS items assess internal/personal reasons for acting in a non-prejudiced manner towards Black individuals; five EMS items provide an index of sensitivity to external/social pressures to appear non-prejudiced towards Black individuals. Each item is rated on a 9-point Likert-type scale; the higher the score, the greater that type of motivation.

After completing the IMS/EMS, participants received a full debriefing. The researchers probed participants for suspicion relating to the authenticity of the prosocial measure.

Data management and statistical analyses

Deriving outcome variables. From the VAS, we derived measures of empathic arousal, empathic understanding, and empathic concern. From the VU-AMS recordings, we extracted indicators of heart rate (HR), respiratory sinus arrhythmia (RSA), and pre-ejection period (PEP). HR is the number of heartbeats per unit of time; it can decrease in response to parasympathetic nervous system activation, or increase in response to sympathetic nervous system activation. RSA serves as an index of parasympathetic control of the heart and is characterized by variations in HR in relation to inspiration and expiration (Berntson, Cacioppo, & Quigley, 1993). PEP is the time between the electrical signal that initiates ventricular contraction and the ejection of blood flow into the aorta (Stern, Ray, & Quigley, 2000). PEP provides an estimate of sympathetic effects on the heart; shorter periods represent greater cardiac sympathetic drive.

Table 1. Changes in self-reported empathy ratings from neutral to TRC video clips (N = 30).

Empathic component/target	Video clip		*t*	*p*	*r*
	Neutral	TRC			
Arousal					
Black	3.39 (1.84)	7.60 (1.24)	−11.78	<.001	.91
White	3.30 (1.65)	7.20 (1.08)	−12.58	<.001	.92
Understanding					
Black	2.75 (1.95)	9.01 (0.73)	−17.32	<.001	.95
White	3.62 (2.13)	8.40 (0.92)	−10.68	<.001	.89
Concern					
Black	2.43 (1.77)	8.76 (0.90)	−17.06	<.001	.95
White	2.77 (1.74)	8.40 (0.93)	−17.08	<.001	.95

Note. TRC: Truth and Reconciliation Commission; *SD*: standard deviation.
Data are represented as M (SD).

There were two other outcome variables: IMS and EMS scores, and self-reported willingness (or unwillingness) to help the target individual in distress.

Ambulatory signal scoring. We used the VU-AMS software suite to extract data from the ECG and ICG signals. We visually inspected the recorded signals for implausible readings. If more than 10% of the data over a critical period consisted of artefacts, we excluded the affected variable for that participant. Additionally, due to measurement errors arising from non-systematic hardware faults (e.g., electrodes not making full contact with a participant's skin), some scores reflected implausible physiological reactivity. We used a 3-*SD* cut-off to mark these implausible scores. Following this reasoning, we excluded RSA data from four participants in the low cognitive–load condition and from one participant in the high cognitive–load condition, and PEP data from one participant in the latter condition. We calculated physiological reactivity scores for each measure by subtracting mean scores for the neutral clips from mean scores for the TRC clips.

Inferential statistical analyses. We provide details about specific analyses before presenting their results. For each analysis, we set α at .05. In most cases, data distributions met the required assumptions for the relevant inferential statistical analyses; we made necessary adjustments where assumptions were violated (e.g., by using Greenhouse-Geisser degrees of freedom corrections).

Results

Behavioural measures

Self-reported empathic responding. Dependent-samples *t*-tests for VAS ratings of each self-reported empathic component process confirmed that for both Black and White target individuals, the TRC clips elicited significantly more empathy than the neutral clips (see Table 1).

We used three 2 (cognitive load) × 2 (target individual's race) mixed-design factorial analyses of variance (ANOVAs) to analyse data regarding self-reported empathic responding to the TRC clips (see Table 2). The analyses detected no significant main effect of cognitive load, and no significant two-way interaction, for empathic arousal, understanding, or concern, $ps > .10$, $\eta^2_p s < .57$. The analysis did detect a significant main effect for race (greater empathy towards a Black

Table 2. Self-reported empathic responding to the TRC video clips (N = 30).

Empathic component/target	Cognitive load	
	Low (*n* = 15)	High (*n* = 15)
Arousal		
Black	7.89 (1.19)	7.31 (1.26)
White	7.11 (1.18)	7.29 (1.00)
Understanding		
Black	9.07 (0.78)	8.96 (0.70)
White	8.64 (0.82)	8.16 (0.97)
Concern		
Black	8.93 (0.73)	8.58 (1.04)
White	8.40 (1.00)	8.40 (0.89)

Note. TRC: Truth and Reconciliation Commission; *SD*: standard deviation.
Data are represented as M (SD).

individual than a White individual) for both empathic understanding and empathic concern; $F(1, 28) = 16.55$, $p < .001$, $\eta^2_p = .37$; and $F(1, 28) = 4.65$, $p = .04$, $\eta^2_p = .14$, respectively. The main effect for race was not significant for empathic arousal; however, $p = .10$, $\eta^2_p = .09$.

Prosocial helping. Figure 2 suggests that participants in the low cognitive–load condition were more likely to volunteer help than participants in the high cognitive–load condition. This impression was not fully supported by inferential statistical analyses; however, Fisher's exact test (one-tailed), which tested whether exposure to a particular cognitive-load condition predicted overall willingness to help, was significant only at the 10% level, $p = .06$, Goodman-Kruskal $\varLambda = .09$.

Figure 2 also suggests that self-reported willingness to help was not influenced by the target individual's race. Two Fisher's exact tests (both one-tailed) confirmed there was no significant association between cognitive-load condition and willingness to help (a) the White individual, $p = .13$, Goodman-Kruskal $\varLambda = .08$; or (b) the Black individual, $p = .14$, Goodman-Kruskal $\varLambda = .21$.

Table 3 shows associations between prosocial helping and self-reported empathic concern and IMS/EMS scores. We detected a positive association between empathic concern and helping behaviour towards both the Black and White individuals in both cognitive load conditions, although only the correlations for the Black individual reached significance. In terms of motivations to respond without prejudice, in the low cognitive–load condition, higher IMS scores were associated with more helping behaviour towards the Black individual. In contrast, higher EMS scores were associated with reduced helping behaviour towards the Black individual, particularly in the high cognitive–load condition.

Physiological measures

HR decreased from the neutral to the TRC clips, as reflected by negative mean values for the HR reactivity scores (Figure 3(a)). There were larger decreases for participants in the high cognitive–load condition ($M = -5.26$, standard error [*SE*] = 0.89) than for those in the low cognitive–load condition ($M = -3.14$, *SE* = 0.89). However, a two-way mixed-factorial ANOVA detected no significant main effect for condition or for race, and no significant two-way interaction, $ps > .10$, $\eta^2_p s < .09$.
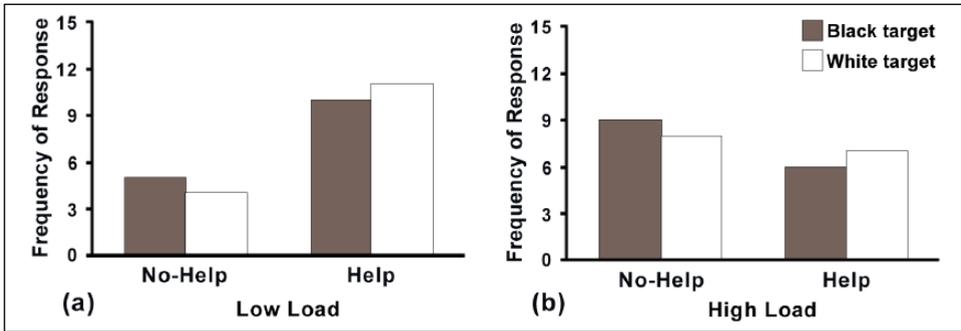
Figure 2. Self-reported willingness to help White and Black target individuals following the low and high cognitive–load manipulations. We dichotomized the prosocial helping responses into no-help (a response of 0: not willing to help) and help (a response > 0: some willingness to help).

Table 3. Biserial correlations: empathic concern, IMS/EMS scores, and prosocial helping (towards Black or White targets) in both cognitive-load conditions (*N* = 30).

	Prosocial helping			
	Low cognitive load		High cognitive load	
	Black	White	Black	White
Empathic concern				
Black	.435*		.376*	–
White	–	.335	–	.363
IMS	.568**	–	−.115	–
EMS	−.117	–	−.429*	–

Note. IMS: Internal Motivation to Respond Without Prejudice Scale (*M* = 7.67, *SD* = 1.28); EMS: External Motivation to Respond Without Prejudice Scale (*M* = 5.37, *SD* = 2.35); *SD*: standard deviation.
*p < .05; **p < .01.

RSA values increased from the neutral to the emotional video clips (Figure 3(b)). A two-way mixed-factorial ANOVA detected a significant main effect for condition, $F(1, 23) = 6.16$, $p = .02$, $\eta_p^2 = .21$: RSA increases were larger in the high ($M = 20.92$, $SE = 4.79$) than in the low cognitive–load condition ($M = 3.00$, $SE = 5.40$). The analysis did not detect a significant main effect for race or a significant two-way interaction, ps > .40, η_p^2s < .03.

PEP scores decreased from the neutral to the emotional video clips for the low cognitive–load condition ($M = -2.12$, $SE = 1.27$), but remained reasonably stable for the high cognitive–load condition ($M = -0.19$, $SE = 1.31$; Figure 3(c)). However, a two-way mixed-factorial ANOVA detected no significant main effect for condition or for race, and no significant two-way interaction, ps > .30, η_p^2s < .04.

Discussion

We investigated, using self-report and physiological measures, the effects of racial group membership and cognitive load on empathic processing and prosocial helping. Self-reports indicated that TRC video clips produced significantly more empathic arousal, understanding, and concern, than
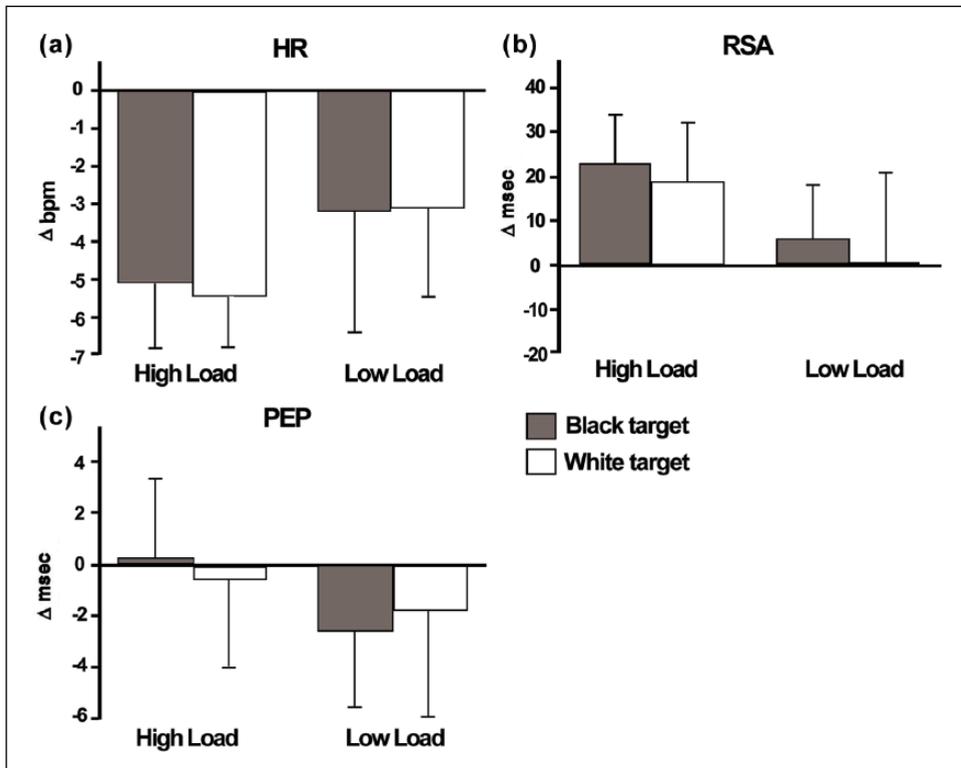
Figure 3. Physiological reactivity scores (from neutral to TRC clips) in response to White and Black target individuals, following the low and high cognitive–load manipulations. (a) heart rate (HR); (b) respiratory sinus arrhythmia (RSA); (c) pre-ejection period (PEP). Error bars represent 95% confidence intervals.

neutral video clips. We found no evidence of attenuated empathic responding as a result of the racial group membership of the target individual. Physiological responding and helping behaviour varied with cognitive load, however. Our results suggest that high cognitive load may affect internal appraisal processes, resulting in reduced helping behaviour towards racial in- and out-group members.

Racial group membership and empathic responding

The observed data disconfirmed the first and third hypotheses. We found no evidence of attenuated empathic responding as a result of racial group membership, nor was empathy towards racial out-group members decreased under conditions of high compared to low cognitive load. In fact, analyses of self-reports following the TRC clips detected *increased* empathic understanding and concern for the Black compared to the White individual, and analyses of the physiological data detected no significant main effect for race, and no significant Race × Cognitive Load interaction.

One way to account for these data is that the TRC clips were not matched precisely in terms of their capacity to provoke empathy. In the pilot study, participants rated the Black target individual as experiencing somewhat more distress than the White target individual, even though their ratings

of concern towards both individuals were similar. Although we did not examine reasons why those participants made that judgment, their data do suggest that the clips were not matched precisely.

Another way to account for these data may involve the fact that our sample had, on average, high internal motivation to respond without prejudice. The average IMS score fell significantly above the scale's mid-point, $t(29) = 13.53$, $p < .001$. High-IMS individuals tend to have egalitarian values integrated into their self-concepts (Plant & Devine, 1998); acting in a non-prejudiced manner is therefore of personal importance to them. Hence, participants might have felt more empathic concern towards the Black target individual (who, recall, might have been viewed as experiencing more distress than the White target individual to start with) because they were more internally motivated to respond without prejudice.

Cognitive load and empathic responding

Our data only partially confirmed the second hypothesis. Analyses of self-reports following the TRC clips detected no main effect of cognitive load on empathic arousal, understanding, or concern. Analyses of physiological data showed, however, that relative to participants in the low cognitive–load condition, those in the high cognitive–load condition showed a significantly greater increase in RSA from the neutral to the TRC clips, indicating increased parasympathetic influence on the heart. Although HR and PEP were not significantly affected by variation in cognitive load, we note the following trends: HR decreased from the neutral to the TRC clips, and this decrease was somewhat larger for participants in the high cognitive–load condition. Such HR reductions may be explained in terms of increased efferent vagal activity, especially when considered in combination with the observed RSA increases. Regarding PEP, in the low cognitive–load condition, we observed a slight decrease in scores from the neutral to the TRC clips. This pattern might be interpreted as indicating increased sympathetic output. PEP scores remained relatively unchanged in the high cognitive–load condition, however.

Taken together, differentiated physiological responses across the two conditions might have resulted from greater vagal control over the heart in the high cognitive–load condition. One (speculative) interpretation of this pattern of data involves the fact that increased vagal efference moderates sympathetic output and can lead to the kind of cardiac deceleration (and reduced affective arousal) associated with enhanced attentional allocation towards particular environmental stimuli (Bradley, Codispoti, Cuthbert, & Lang, 2001). Increased vagal efference in the high cognitive–load condition could thus have resulted from increased attentional allocation at the expense of empathic arousal.

Prosocial helping

Regarding the fourth hypothesis, we detected a non-significant trend of greater willingness to help under conditions of low compared to high cognitive load. Self-reported willingness to help was not influenced by the target individual's race.

Our finding of decreased willingness to help under conditions of high cognitive load, although not significant, supports research suggesting individuals act more selfish in cognitively demanding situations (DeWall et al., 2008). One interpretation of this behavioural pattern is that under conditions of high cognitive load, the reduction in cognitive resources negatively affects one's ability to inhibit selfish responses and act altruistically.

Our results are also consistent with Saucier et al.'s (2005) meta-analysis that found no association between racial group membership and helping behaviour. The absence of a racial effect may perhaps be accounted for by the lack of urgency, and the low cost of helping, in our

scenario. In low-emergency situations, people help racial in- and out-group members equally; in high-emergency situations, people are more likely to help racial in-group members than out-group members (Kunstman & Plant, 2008). Similarly, when helping is costly, the likelihood of helping a racial out-group member decreases (Saucier et al., 2005).

The fifth hypothesis was partially confirmed: Empathic concern towards target individuals and helping behaviour were positively associated. The association was only significant for the Black target individual, however. Furthermore, the relationship between empathic concern and helping behaviour did not appear to be affected by variation in cognitive load. Our findings thus support literature suggesting that generally, empathic concern motivates prosocial behaviour (Batson et al., 1987).

We also detected significant associations between motivations to respond without prejudice and helping behaviour. Of particular interest is that internal, and not external, motivation to respond without prejudice was positively associated with helping behaviour towards the Black target, albeit only in the low cognitive–load condition. High-IMS individuals may be likely to help a Black person because their non-prejudiced values are highly internalized and self-determined (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002), and because the act of helping may reward and confirm their beliefs about the importance of appearing non-prejudiced (Kunstman & Plant, 2008). The lack of positive association between IMS scores and helping behaviour towards the Black target in the high cognitive–load condition suggests, however, that cognitive engagement modulated internal empathic appraisal processes.

Limitations

First, our relatively small sample size may have made it difficult to detect effects associated with the experimental manipulation. Power analyses based on the average effect size in the current study (Cohen's $f = .31$) revealed that a total sample of 50 participants would be required to detect (and properly interpret) the effects of racial group membership and cognitive load on empathic responding.

Second, although the stimulus detection task has been used widely in the cognitive and social psychological literature (Hagger, Wood, Stiff, & Chatzisarantis, 2010), there is little empirical evidence that it actually results in cognitive depletion. Future research should establish the effectiveness and mechanics of such cognitive load manipulations.

Third, it is possible that our sample of female participants responded with more salient gender, rather than racial, identity under both cognitive load conditions, given that the TRC clips depicted women in distress. This consideration may explain why helping behaviour among these participants, although diminished under conditions of high cognitive load, was not influenced by the race of the target individual in the video clip. Future research might therefore also consider possible moderating effects of gender identity, alongside racial identity, on the relationship between cognitive load and helping behaviour.

Summary and conclusion

In our study, the racial group membership of the target individual did not affect empathic responding. The cognitive-load manipulation did appear to influence empathic responding, however: The high cognitive–load condition was associated with increased vagal efference and reduced sympathetic output, which we interpret as increased attentional allocation at the expense of empathic arousal. Prosocial helping behaviour (across race) was also non-significantly lower in the high than in the low cognitive–load condition. Finally, we found that high IMS scores were associated with

increased helping behaviour towards out-group members, but only under conditions of low cognitive load. Thus, when aiming to instil a sense of empathy in response to out-group members in distress, a practical approach may be to help individuals develop internal motivations to respond without prejudice.

Funding

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