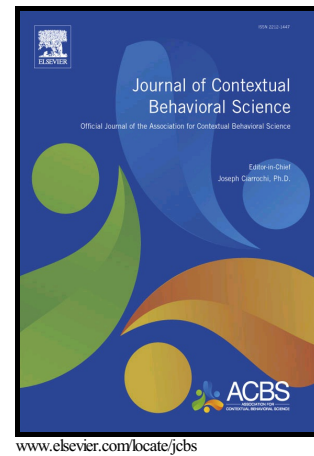


Author's Accepted Manuscript

How do we cope with ostracism? Psychological flexibility moderates the relationship between everyday ostracism experiences and psychological distress

Daniel Waldeck, Ian Tyndall, Paolo Riva, Nik Chmiel



PII: S2212-1447(17)30081-9
DOI: <http://dx.doi.org/10.1016/j.jcbs.2017.09.001>
Reference: JCBS201

To appear in: *Journal of Contextual Behavioral Science*

Received date: 12 June 2017
Revised date: 4 September 2017
Accepted date: 8 September 2017

Cite this article as: Daniel Waldeck, Ian Tyndall, Paolo Riva and Nik Chmiel, How do we cope with ostracism? Psychological flexibility moderates the relationship between everyday ostracism experiences and psychological distress, *Journal of Contextual Behavioral Science*, <http://dx.doi.org/10.1016/j.jcbs.2017.09.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**How do we cope with ostracism? Psychological flexibility moderates the relationship
between everyday ostracism experiences and psychological distress**

Daniel Waldeck¹, Ian Tyndall^{1*}, Paolo Riva², Nik Chmiel¹

¹Department of Psychology, University of Chichester, UK

²Department of Psychology, University of Milano-Bicocca, Italy

*Corresponding author. Dr. Ian Tyndall, Department of Psychology, University of Chichester, College Lane, Chichester, West Sussex, PO19 6PE, UK. Ph: 0044-1243816421. I.Tyndall@chi.ac.uk.

Abstract

The present paper examined the relationship between everyday experiences of ostracism and psychological distress by focusing on the potential moderating role of psychological flexibility. As expected, data from a two-wave survey of 299 internet users (Study 1) indicated that perceived ostracism was positively related to psychological distress. However, the findings revealed that when psychological flexibility was low, the relationship between perceived ostracism and psychological distress was significant. By contrast, we found that for those with high levels of psychological flexibility the relationship between perceived ostracism and psychological distress was no longer significant. This pattern of findings was replicated in a separate two-wave survey of 231 internet users (Study 2). Implications of the present research suggest that strategies to increase psychological flexibility may help individuals cope with everyday experiences of ostracism.

Keywords: Ostracism, Psychological flexibility, Acceptance and Commitment Therapy, Distress.

Ostracism, one form of social exclusion, may include being ignored by an individual or group in a wide range of contexts such as family, friendship networks, in the workplace, or on the Internet. Ostracism is known to be a distressing experience that often leads to emotional pain and hurt feelings with increased sadness, anger, and loneliness (e.g., Williams, 2009; Riva, Wirth, & Williams, 2011). Indeed, the emotional pain caused by ostracism is so pervasive and immediate that just 60 seconds of ostracism during Cyberball (a computer programmed ball-toss game that is designed to induce an online experience of ostracism as it involves participants initially receiving an equal number of ‘passes’ from fellow ‘players’ but they subsequently receive no passes of the ball for the remainder of the game) can threaten the self by increasing negative emotions and depleting psychological needs (i.e., belonging, self-esteem, control and meaningful existence; Williams, Cheung, & Choi, 2000). According to the Temporal Need-Threat Model of ostracism (TNTM; Williams, 2009) there are three stages of reactions to ostracism: reflexive (immediate), reflective (delayed), and resignation (long-term). In general, according to the TNTM, how an ostracized person appraises or copes with their ostracism experience in the reflective stage is an indicator of how soon they will recover from this upsetting event. The purpose of the present study is to examine whether a core construct of contextual behavioral science, *psychological flexibility* (see below for description), might inform and complement this key social psychology model (i.e., TNTM) of ostracism. As such, differences in levels of psychological flexibility across ostracized persons might feasibly be a mechanism that could help account

for whether a person recovers quickly from their ostracism experience or suffers prolonged psychological distress.

The majority of ostracism research is focused on the initial two stages (i.e., short-term ostracism) whereby participant's levels of psychological distress are recorded immediately after an experimentally induced ostracism event (e.g., Cyberball), and then again after a few minutes delay. Research has generally shown that the immediate distress (e.g., lower need satisfaction) from ostracism tends to be immune to individual differences (Williams, 2009). However, after a delay, individual differences can moderate the recovery time from the initial distress. For example, lower levels of social anxiety (Zadro, Boland, & Richardson, 2006), a tendency to fail to reappraise the ostracism event (Sethi, Moulds, & Richardson, 2013), an interdependent self-construal (Ren, Wesselmann, & Williams, 2013), and lower levels of depressive symptoms and ruminative tendencies (Poznanski, Wirth, & Williams, 2010) have all been associated with facilitating recovery from ostracism.

It seems, therefore, that individual differences can moderate the speed of recovery from *a single experience* of ostracism (i.e., short-term ostracism). However, in real life, people often face with more than one ostracism experience. What is the role of individual differences in moderating the impact of everyday experiences of ostracism and psychological distress? Past theorization would suggest that how one reflects on their ostracism experience might result in the associated distress either to be maintained or to dissipate relatively quickly (e.g., Riva, Wesselmann, Wirth, Carter-Sowell, & Williams, 2014). Recent research provided empirical support to the notion that chronic experiences of social exclusion are associated with the resignation stage outcomes (e.g., alienation; Riva, Montali, Wirth, Curioni, & Williams, 2016). However, virtually no empirical study has considered the possibility that some people might be more likely than others to maintain psychological distress when exposed to longer term (e.g., over a period of months) *everyday experiences* of ostracism.

In previous research, the long-term effects of social exclusion have been typically examined using the *life-alone* paradigm (Williams, 2007). The life-alone paradigm (e.g., Baumeister, Twenge, & Nuss, 2002) randomly assigns participants to one of three conditions following a personality test. In the acceptance/high belonging condition participants are told that they will have rewarding lifelong friendships and a long and stable marriage. In the rejected/low-belonging condition they are told they have the personality type that often ends up alone in later life as current friendships will disappear and they will have a failed or multiple failed marriages. The control condition provides general negative feedback (not socially related) in that they will likely experience a lifetime of accidents and injuries (see Williams, 2007). Research has shown that when participants anticipate long-term periods of social exclusion, their immediate reaction is that of being detached and numb (i.e., no emotional distress or pain), particularly if perceived as involving severe disconnection from significant others (Bernstein & Claypool, 2012a; Bernstein & Claypool, 2012b). Further, such individuals have also been found to display temporary impairment in self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Williams, 2007).

However, life-alone studies typically only examine the immediate impact of perceived long-term ostracism within the duration of such experiments, not the delayed impact over time. Furthermore, some authors have suggested that the emotional numbness resulting from anticipating social exclusion in the future life alone paradigm might be due to self-presentational concerns (Bernstein et al., 2013). Indeed, participants might feel embarrassed in showing hurt feelings in response to a prognosis based on a personality test when the validity of such prognosis is not verifiable. Alternative paradigms (e.g., Cyberball) are used by researchers to assess the delayed impact of ostracism, however, the impact is restricted to minutes after an ostracism event (i.e., within the reflective stage). In contrast, questionnaire studies allow for the self-reported assessment of extended periods of ostracism over weeks

and months as well as measuring the associated distress (i.e., delayed impact) from ostracism in the long term (e.g., Ferris, Brown, Berry, & Lian, 2008; Wu, Yim, Kwan, & Zhang, 2012). For example, Ferris et al. (2008) found that when people perceive they are being persistently ostracised, the perception might lead to higher levels of self-reported psychological distress over time.

However, the possible risk factors that could cause some people, when exposed to more regular ostracism experiences, to suffer long-term psychological distress are still unknown. Accordingly, more research needs to examine why or how some people appear to be able to cope quite well with everyday experiences of ostracism whereas others seem not able to cope and become distressed following such experiences. Crucially, it may be the case that those people who have difficulty coping with such everyday experiences of ostracism in the reflective stage of the TNTM might subsequently be more likely to experience prolonged or chronic distress following repeated experiences of ostracism. The current research presents initial attempts to address this important question.

Psychological flexibility

One potential moderator may be that of psychological flexibility. Psychological flexibility is defined as contacting the present moment as a conscious human being, fully and without defense, taking the situational context into account, and persisting in behavior in the services of chosen values (Hayes, Levin, Plumb-Villardaga, Villatte, & Pistorello, 2013), and can be conceptualised as a continuum from psychological flexibility to inflexibility. One key component process of psychological inflexibility, experiential avoidance, is the tendency to engage in behaviors that seek to alter the form, frequency or content of unwanted private events (i.e., thoughts, feelings and sensations; Hayes, Strosahl, & Wilson, 1999, 2012). Psychological inflexibility is characterised by a difficulty in distancing oneself from one's

psychological content (i.e., negative thoughts, unwanted emotions), and thus a tendency to engage in experiential avoidance of such thoughts and feelings which leads them in a direction away from living life by their own chosen values and a stance of acceptance of the self (e.g., Hayes et al., 2013; Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

As Scott and McCracken (2015) put it, "...psychological inflexibility is the overall process of excessive, typically restrictive, influence of cognitive, emotional, or sensory experiences on behavior, which contributes to 'unworkable' patterns of behavior" (p. 92; see also McCracken & Morley, 2014). People low in psychological flexibility tend to report high levels of psychological distress (Bond et al., 2011), tolerate and endure less pain (Zettle et al., 2005), and use maladaptive coping strategies to deal with stress (e.g., denial; Karekla & Panayiotou, 2011) compared to those high in psychological flexibility. Further, psychological flexibility has been consistently demonstrated to be a moderator of psychological distress (e.g., Bardeen, Fergus, & Orcutt, 2013; Kashdan & Kane, 2011).

Overall, psychological flexibility might complement and inform the reflection stage (i.e., Stage 2) of Williams' (2009) TNTM as it could be considered an important mechanism for moderating the effects of psychological distress from everyday experiences of ostracism. Conceptually, psychological flexibility might be inversely related to a wide range of maladaptive cognitions that could link the perception of ostracism to prolonged distress. For example, individual differences such as a tendency to ruminate (Wessermann, Ren, Swim, & Williams, 2013) during the reflective stage negatively affect recovery time from ostracism. Psychological flexibility could help elucidate the effects of prolonged rumination in ostracism. Ostracism results in social pain and psychological distress (Eisenberger, Lieberman, & Williams, 2003; Riva et al., 2011). Thus, those low in psychological flexibility may engage in more efforts to control and struggle with the psychological distress and thus may take longer to cope with their ostracism. As noted above, Sethi et al. (2013) found that

those who focus attention upon themselves (e.g., reflecting intensively on their social performance) and do not attempt to reappraise their ostracism can lead to prolonging the negative effects of such experiences. In comparison, those high in psychological flexibility (i.e., are flexible) may allow their pain to pass by without struggle (e.g., thought stopping; excessive rumination) and thus may not be as distressed from such events.

Indeed, a qualitative study suggested that people might be able to cope with ostracism much better if they are psychologically flexible as opposed to being inflexible in their response to such events (Waldeck, Tyndall, & Chmiel, 2015). For example, a common theme within the reports of ostracism experiences was of the tendency to attempt to avoid thinking about (or experiencing) the negative effects following ostracism. As noted above, such experiential avoidance of negative thoughts and feelings is a core aspect of psychological inflexibility and is considered by many to be a key functional impairment (see Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) in emotional self-regulation which characterises prolonged psychological distress following stressful life events (Bond et al., 2011; Hayes et al., 2013; Zettle et al., 2005). Thus, the current study may add to our understanding of how emotional self-regulation and individual differences (e.g., Baumeister et al., 2005; DeWall et al., 2011) influence the development of resilience to the negative effects of ostracism or serve to prolong and exacerbate the negative impact. Indeed, Riva et al. (2014) suggest that certain individuals may be prone to catastrophize their pain from long term ostracism (and thus prolong the negative consequences associated with it).

The present study

Many people experience ostracism episodes on a weekly basis, with varying degrees of severity ranging from minimal to extreme (see Nezlek, Wesselmann, Wheeler, & Williams, 2012). However, whereas some people are able to cope with such everyday

experience and recover their threatened psychological needs, others might not, and suffer prolonged psychological distress. To account for such different trajectories, in the present study we focused on the moderating role of psychological flexibility on the relationship between self-reported ostracism experiences and psychological distress. Moreover, in this study, unlike previous paradigms (e.g., Cyberball; Life-alone), reported experiences of ostracism up to six months (i.e., long term) were examined, and a measure of distress administered one week later. We expect perceived ostracism to be positively related to levels of psychological distress. However, we predict that people high in psychological flexibility would be able to cope with everyday experiences of ostracism and so no association between such experiences and distress will appear. By contrast, we predict that the relationship between perceived ostracism and psychological distress would be stronger at low levels of psychological flexibility.

Study 1

Method

Participants

Three hundred and seventy-three internet users were recruited using an online survey distributed through emails to Universities within the UK, websites, social media platforms, and Internet data collection sites designed for academic researchers (e.g., <http://www.findparticipants.com>). The majority of the participants were obtained from academic universities (69%), most of whom were students (47%). Participants were required to complete two parts of the survey with the second part (outcome measure) emailed 1-week later. Such temporal separation is recommended to reduce potential common method bias effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). For example, separating the predictor and outcome variables helps reduce potential for participants to develop implicit

theories about the association between these measures and then responding in a socially desirable manner. Such a short temporal separation is not uncommon in this field of research to allow for some variance in the chosen construct (see Avey, Luthans, Smith, & Palmer, 2010). This strategy helps reduce the potential sample attrition rate and has been employed, albeit with a larger temporal separation, in studies of workplace ostracism (e.g., Wu et al., 2012). Of the 373 participants who completed Survey 1, 299 also completed Survey 2 (226 female). Thus, the final sample consisted of 299 participants. The participants ranged between 18 and 88 years of age ($M = 30.3$; $Mdn = 26$; $SD = 13$). The sample consisted mostly of White British (60.2%) and White American (13.7%) participants¹. Participants were employed in a broad array of industries. Before data collection began, the study gained approval by the Institutional Research Ethics committee.

Materials

Time 1 measures

Perceived Ostracism.

Participants completed a modified version of the 10-item Workplace Ostracism Scale (WOS; Ferris et al., 2008). The WOS was developed to assess the frequency of perceived ostracism in the workplace (e.g., “others ignored you at work”). Given we were interested in ‘global’ (i.e., any context) perceived ostracism, the items were adjusted to remove the context-dependent focus (e.g., “others ignored you”, “others avoided you”, and “others treated you as if you weren’t there”). This provided a general individual difference measure that assessed general experiences with ostracism that occurred in participants lives over the past six months, $\alpha = .90$. Participants answered using a 7-point Likert scale from 1 = “never”

¹ Due to space constraints, a breakdown of race and ethnic demographic data for Study 1 and 2 is included within the appendix.

to 7 = “always”. Lower scores indicate low levels of perceived ostracism. An exploratory factor analysis revealed a unidimensional factor structure with the range of factor loadings (.65 to .84) similar in magnitude to the factor loadings reported by Ferris et al. (2008).

Psychological Flexibility.

The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) is a 7-item measure of psychological flexibility. Participants responded to items using a 7-point Likert scale from 1 (not at all true) to 7 (completely true), ($\alpha = .91$). Sample AAQ-II items include: “Emotions cause problems in my life” and “I’m afraid of my feelings”. Test scores on the AAQ-II have shown good internal consistency, validity, and test-retest reliability in community samples (Bond et al., 2011). Lower scores indicate greater psychological flexibility (i.e., high levels of flexibility).

Time 2 measure

Psychological Distress.

To assess psychological distress, participants completed 21 items from the Depression Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 has demonstrated sufficient construct validity in non-clinical samples (Henry & Crawford, 2005). The DASS-21 total score was chosen as research has suggested that the total measure accounts for greater variability in distress (e.g., including mixed anxiety and depression) compared to using the separate scales of depression, anxiety and stress (Henry & Crawford, 2005; Osman et al., 2012). Participants rated the frequency and severity of experiencing psychological distress in the last week. The items were rated on a 4-point Likert scale ($\alpha = .94$), where 0 represented “did not apply to me at all” and 3 represented “applied to me very

much or most of the time". Sample DASS-21 items include: "I found it hard to relax" and "I felt that life was meaningless". Lower scores indicate low levels of psychological distress.

Results

Data were cleaned prior to analyses as only participants who completed all Time 1 measures and the Time 2 measure were taken forward. Indeed, all questions were subject to force-choice responding and so participants were required to complete the measures in full. Therefore, there were no missing data within any measures. Further, data was checked for quality by testing regression assumptions (e.g., assessing normality of data, linearity, homoscedasticity, autocorrelation). The WOS demonstrated significant kurtosis (3.07). To help reduce the influence of the non-normal distribution of the WOS, the bias-corrected and accelerated bootstrap procedure (BCa) was performed on the regression analysis (Efron, 1987). The recommended resamples of 5000 was selected for this study (Preacher & Hayes, 2008). All other regression assumptions were met.

Table 1 presents the means, standard deviations and zero-order correlations of all key variables. As indicated, psychological flexibility was significantly associated with perceived ostracism and psychological distress. Further, perceived ostracism was significantly associated with psychological distress. Mann-Whitney U tests revealed no significant differences between males and females on levels of perceived ostracism ($U = 9115.50, p = .17$), flexibility ($U = 9268.50, p = .11$) or psychological distress ($U = 8432, p = .77$).

As the measures administered were all highly correlated, confirmatory factor analyses were conducted to examine the construct validity of the measures. Results demonstrated that all items loaded significantly onto the respective constructs demonstrating convergent validity. Further, a three-factor model including perceived ostracism, flexibility, and psychological distress provided a greater fit to the data ($CFI = .99; RMSEA = .018$) than

any alternative models combining the constructs (e.g., flexibility and distress combined resulted in poorer fit; $CFI = .86$, $RMSEA = .18$), thus demonstrating sufficient discriminant validity for this study.

Regression Analysis

A multiple regression analysis was conducted to examine psychological flexibility as a moderator of the relationship between perceived ostracism and psychological distress. The predictor variables were mean centred and an interaction term was computed by multiplying the centred predictors (Aiken & West, 1991). In addition, participant age and sex were entered as covariates for this model. Table 2 reports the model summary for psychological distress. There was a significant main effect of perceived ostracism ($B = .80$, $p < .001$) and flexibility ($B = 1.15$, $p < .001$) on psychological distress, controlling for participant age and sex. Further, psychological flexibility interacted with perceived ostracism to predict psychological distress ($B = .03$, $p = .02$). The effect size of this interaction was small in magnitude (Cohen's $f^2 = .02$). A simple slopes analysis was then conducted at both high (+1 SD) and low (-1 SD) mean levels of flexibility (see Figure 1). Analyses revealed a significant association between perceived ostracism in the last six months and psychological distress for participants who reported low levels of psychological flexibility ($B = .96$, $p < .001$, 95% CI [- .13, .80]), but there was no significant association between perceived ostracism in the last six months and psychological distress for those who reported high levels of psychological flexibility ($B = .32$, $p = .18$, 95% CI [.62, 1.32]).

Sensitivity Analyses

As quadratic effects can sometimes masquerade as linear interactions (MacCallum & Mar, 1995), and because the contribution of this research rests solely on a single interaction, we added a final model (i.e., Model 3) including the quadratic terms (i.e., the squared

predictor variables) into the analysis. Importantly, it was found that the interaction between perceived ostracism and psychological flexibility still significantly predicted psychological distress after entering the quadratic terms ($B = .04, p < .01, 95\% \text{ CI } [-.00, .06]$). Finally, the results of Study 1 confirmed our predictions.

Study 2

There is a growing concern regarding the replicability of findings in psychological research (Maxwell, Lau, & Howard, 2015). To address this concern, Study 2 was designed to replicate the preliminary findings of Study 1. This is particularly important practice in studies where a finding is novel but effect sizes might be considered somewhat low. In other words, the aim of Study 2 was to ensure that the observed moderation effect (i.e., that low levels of psychological flexibility was associated with psychological distress following repeated experiences of ostracism whereas those with high levels of flexibility do not appear to report high levels of psychological distress following repeated experiences of ostracism) was a stable and consistent finding.

Method

Participants

Two hundred and eighty-seven participants were recruited using the same design as Study 1. Unlike Study 1, the majority of the sample was recruited from online research platforms (58%) such as www.findparticipants.com and www.reddit.com/r/SampleSize/. Of the 278 participants who completed Survey 1, 231 also completed Survey 2 (174 female). Thus, the final sample consisted of 231 participants. The participants ranged between 18 and 73 years of age ($M = 32.2; Mdn = 27; SD = 13$). The majority of participants were either of American (44.4%) or British (32.3%) nationality. Furthermore, 84 per cent of the sample

identified themselves as being of a white ethnic background. Participants were employed in a broad array of industries. Before data collection began, the study gained approval by the Institutional Research Ethics committee.

Materials & Procedure

As in Study 1, we used the same measures (i.e., the modified WOS [$\alpha = .91$], AAQ-II [$\alpha = .91$]) at Time 1 and Time 2 (i.e., the DASS-21 [$\alpha = .93$]) respectively. An exploratory factor analysis revealed a unidimensional factor structure for the modified WOS with the range of factor loadings (.64 to .94) similar in magnitude to the factor loadings reported by Ferris et al. (2008).

Results

As in Study 1, the data were screened for quality and distribution. Similarly, the BCa procedure was performed on the regression analyses at 5000 samples due to high kurtosis on the WOS measure (3.47). All other regression assumptions were met.

Table 3 presents the means, standard deviations and zero-order correlations of all key variables. As indicated, psychological flexibility was significantly associated with perceived ostracism and psychological distress. Further, perceived ostracism was significantly associated with psychological distress. Mann-Whitney U tests revealed no significant differences between males and females on levels of perceived ostracism ($U = 4541.50, p = .81$) and psychological flexibility ($U = 5250.50, p = .14$). However, women ($M = 30.54; SD = 21.32$) tended to score higher than men ($M = 26.18; SD = 25.63$) on psychological distress, $U = 5496.50, p = .02$, and the effect size was small ($r = .15$).

Similar to Study 1, confirmatory factor analyses were conducted to examine the construct validity of the measures. A three-factor model including perceived ostracism,

flexibility, and psychological distress provided a greater fit to the data ($CFI = .90$; $RMSEA = .057$) than any alternative models combining the constructs (e.g., psychological flexibility and distress combined resulted in poorer fit; $CFI = .87$, $RMSEA = .06$), thus demonstrating sufficient discriminant validity for this study. Moreover, a Harman one-factor test revealed that a one-factor solution accounted for 34.3% of the variance. .

The same hierarchical multiple regression analysis procedure was conducted for Study 2 (Table 4) as in Study 1. In Model 1, it was found that there was a significant main effect of perceived ostracism ($B = .54$, $p < .01$, 95% CI [.26, .87]) and psychological flexibility ($B = 1.23$, $p < .01$, 95% CI [1.01, 1.44]) on psychological distress. The next step (i.e., Model 2) added the interaction between perceived ostracism and psychological flexibility which was found to significantly predict psychological distress ($B = .03$, $p < .01$, 95% CI [.01, .05]). The effect size of this interaction was small in magnitude (Cohen's $f^2 = .03$). A simple slopes analysis was then conducted at both high (+1 SD) and low (-1 SD) mean levels of flexibility (see Figure 2). Analyses revealed a significant association between perceived ostracism and psychological distress for participants who reported low levels of psychological flexibility ($B = .73$, $p < .001$, 95% CI [.41, 1.05]), but there was no significant association between perceived ostracism and psychological distress for those who reported high levels of psychological flexibility ($B = .19$, $p = .16$, 95% CI [-.07, .45]). Finally, adding quadratic terms in model 3 led to the interaction effect still significantly predicting psychological distress ($B = .03$, $p < .01$, 95% CI [.00, .05]²). Therefore, Study 2 fully replicated the effects of Study 1³.

² As women scored higher than men on the DASS-21, gender was examined as a potential moderator. Both Study 1 and Study 2 found no evidence that gender moderates the psychological distress associated with ostracism. Further, there were no differences detected based on race or ethnicity within either study.

³ Due to space constraints we were unable to elaborate upon other control measures included in this study. The Need to Belong Scale (Leary, Kelly, Cottrell, & Schreindorfer, 2013) and The International Positive and Negative Affect Schedule Short Form (I-PANAS-SF; Thompson, 2007) measured the need to belong and affectivity respectively. Both these constructs are theorised to lead to heightened sensitivity to ostracism (Riva

General Discussion

The present research investigated a factor that could link everyday experiences of social exclusion to prolonged psychological distress. Consistent with previous research (e.g., Ferris et al., 2008; Wu et al., 2012), perceived ostracism was positively related with psychological distress. What is new from the present set of studies is that psychological flexibility was found to moderate the relationship between perceived ostracism (measured over a large time span) and psychological distress. Therefore, perceived ostracism was only associated with psychological distress when individuals were low in psychological flexibility. Indeed, those who were high in psychological flexibility did not have a significant increase in psychological distress, regardless of the frequency with which they perceived ostracism. Further, the results of the present study support recent evidence that psychological flexibility is a moderator of psychological distress (e.g., Bardeen et al., 2013). Therefore, those who are more prone to adopt methods that hamper psychological flexibility (e.g., experiential avoidance) when coping with a variety of stressors may be more likely to experience prolonged psychological distress. In contrast, those who are high in psychological flexibility appear to cope significantly better and recover more quickly from such stressors.

According to Williams (2009), long-term ostracism results in individuals losing motivation to try and recover their lost needs (e.g., belonging). Following the design of the present study, it is difficult to elucidate the mechanism in which psychological flexibility moderates the distress from long-term ostracism as there were no assessments of psychological needs. Thus, future research is needed to examine the mechanism of psychological flexibility in coping within the resignation stage of the TNTM. However, Riva et al. (2014) argued that impaired self-regulation is the main mechanism by which long-term

et al., 2014). We found that the main interaction effect held when these measures were included as control variables. Further, there were no moderation effects detected with these measures included in the study.

ostracism leads to resignation (distress). It is here that we see further promise in cross-pollination of contextual behavioral science and social psychology frameworks where both traditions may inform each other. It may be the case, therefore, that high levels of psychological flexibility is related to a greater capacity for self-control (Kashdan & Rottenberg, 2010), such that individuals who are high in psychological flexibility may have more psychological resources available to them to recover from their ostracism.

The results of the present studies may have potential implications for understanding individual differences in the impact of long-term ostracism, and potentially informing future interventions to support people in coping with such events. Indeed, Acceptance and Commitment Therapy (ACT; Hayes et al., 2012) clinicians use a range of techniques, such as cognitive defusion strategies, with the explicit aim of encouraging clients to observe and accept their private experiences (thoughts, emotions, sensations). Such ACT-based techniques are designed to reduce engagement in experiential avoidance, with the overall goal of increasing psychological flexibility (Hayes et al., 2013; McCracken & Guitierrez-Martinez, 2011; Villatte et al., 2016; Vowles & McCracken, 2010). Moreover, the efficacy of ACT in reducing psychological distress is well established in the empirical literature (e.g., Levin, Hildebrandt, Lillis, & Hayes, 2012; Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009). However, the use of ACT to support those with chronic experiences of ostracism has not been investigated thus far. Molet, Macquet, Lefebvre, and Williams (2013), however, have demonstrated that prior to being ostracised, if one is provided with relaxation training to focus their attention on their breath (mindfulness) then this can significantly reduce recovery time compared to an unfocused condition. As mindfulness techniques are often employed by ACT clinicians to increase awareness and acceptance of private experiences (Hayes et al., 2013), this provides further support for the proposal that increasing

psychological flexibility may be of benefit to those suffering the negative effects of long-term ostracism.

Limitations and Directions for Future Research

The present paper has several limitations. First, the effect sizes for the moderation effect detected across both studies were rather small. However, the effect sizes observed in these studies was consistent with the magnitude of interactive effects observed in prior research examining psychological flexibility as a moderator of psychological distress (e.g., Bardeen et al., 2013; Kashdan & Kane, 2011). Second, as the data on perceived ostracism, psychological flexibility and psychological distress came from the same source, this increases the risk of common method bias. However, as discussed previously, procedures were applied to reduce the influence of common method variance as suggested by Podsakoff et al. (2003), thus it is unlikely that common method bias provides a substantial threat to the findings. Third, as non-clinical samples were recruited, it may be somewhat difficult to generalise the results to samples who may be significantly distressed by ostracism. Future research could, therefore, exclusively recruit a chronically ostracised (clinical) sample (e.g., Riva et al., 2016) and examine the potential influence of psychological flexibility in moderating psychological distress. Fourthly, the WOS was modified for the present paper. However, exploratory and confirmatory factor analyses indicate that scores on the modified WOS appeared to have sufficient internal reliability and construct validity within the context of the present studies.

Future researchers may consider replicating the present design whilst separating the measure of distress further (e.g., 1 – 6 months rather than the 1-week separation) than in the present studies, so as to bolster our understanding of the strength of the moderating effect of psychological flexibility on distress from ostracism over extended periods of time. It is common for temporal separation in studies of this area (e.g., Wu et al., 2012) but they do tend

to be longer than the 1-week reported here. More pertinently, the present study does not allow for cross-lagged analyses as distress measures were not taken at both Time 1 and Time 2. Thus, future research will need to address this shortcoming. An important next step for research in this area is to conduct an empirical study to examine the moderation effect of psychological flexibility reported here with these correlational designs and establish an empirical grounding for the proposed predicted impact of high or low levels of psychological flexibility on responses to experimentally induced experiences of ostracism (e.g., Cyberball). As the majority of the sample in both studies was female (although it should be acknowledged that it is particularly common to have such high responses for females when using online survey methods in psychological research; see Gerhart, Baker, Hoerger, & Ronan, 2014), it might be prudent to sample male populations more widely. However, it should be noted that gender was found to have no significant interaction with perceived ostracism in either study. This finding might not be surprising as ostracism is proposed to impact on all humans (Williams, 2009), thus sample demographic characteristics might not be overly influential as there may be no substantive gender or indeed cross-cultural differences.

Moreover, it would be prudent in future research to counter a possible critique that, rather than levels of flexibility per se, it is levels of general negative affect or distress that influences the likelihood of recovery from experiences of ostracism. However, importantly, as noted above (see Footnote 2), the current study found that measures of negative affect (I-PANAS) and need to belong had no impact on the moderation effect of psychological flexibility reported here. On a somewhat related note, future researchers may wish to consider using different measures of psychological flexibility as there are some concerns in the literature over the efficacy and construct validity of the AAQ-II (e.g., Frances, Dawson, & Golijani-Moghaddam, 2016; Vaughan-Johnston, Quickert, & MacDonald, 2017; Wolgast,

2014). However, despite the suggestion that AAQ-II might actually be a measure of psychological distress (Wolgast, 2014), it should be acknowledged that Wolgast did not use a standardised measure of psychological distress to test those specific claims. All the same, future researchers might consider employing more recently developed instruments to measure psychology flexibility such as the CompACT (Frances et al., 2016).

Future research could consider including behavioral outcome measures (Baumeister, Vohs, & Funder, 2007), such as the life-alone paradigm, rather than rely exclusively on self-report measures so as to extend the present findings to how people actually react and behave in response to ostracism. Such behavioral outcome research could be coupled with a more detailed examination of factors that are thought to characterise the third and final stage of the TNTM, the resignation stage of ostracism (e.g., alienation, unworthiness, helplessness, and depression; Williams, 2009) by employing established measures of sense of belonging, self-esteem, hopelessness and depression (see Riva et al., 2016). This work is needed, for, as to our knowledge, no research has examined potential moderators within the resignation stage of ostracism in relation to general perceived ostracism. Indeed, questionnaire-based ostracism studies have typically focused on potential moderators of workplace ostracism, but have tended to neglect a discussion of the resignation stage (e.g., Hitlan, Clifton, & DeSoto, 2006; Scott, Zagenczyk, Schippers, Purvis, & Cruz, 2014; Wu et al., 2012). Furthermore, there is scope to for future researchers to develop a more comprehensive model of how to overcome the psychological distress associated with the resignation stage (Williams, 2009) of ostracism by integrating research from seemingly disparate philosophical traditions. For example, as the name clearly implies, psychological acceptance is a cornerstone goal of reducing psychological inflexibility within ACT and its roots in the functional contextual behavioral tradition (e.g., Hayes et al., 2013). The importance of acceptance has also been identified within the social cognition tradition as a promising factor to examine in social impact theory

and the social rejection-aggression link (e.g., DeWall, Twenge, Bushman, Im, & Williams, 2010). We feel there is much to be gained by building bridges and reaching out across such different research traditions.

Conclusion

The present paper provides an attempt to further our understanding of how the negative impact of long-term everyday experiences of ostracism may be influenced. Importantly, the current research advances on previous literature by not being constrained to a specific context such as the workplace (e.g., Wu et al. 2012). Overall, this theory driven investigation on the role of psychological flexibility in moderating the psychological distress associated with perceived ostracism suggests that perceived ostracism may only be associated with psychological distress at low levels of psychological flexibility. Overall, these findings may have potential implications for chronically ostracised individuals as interventions (e.g., ACT) aimed at increasing psychological flexibility may help enhance coping with such events.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage Publications.
- Avey, J. B., Luthans, F., Smith, R. M., & Palmer, N. F. (2010). Impact of positive psychological capital on employee well-being over time. *Journal of Occupational Health Psychology, 15*, 17-28.
- Bardeen, J. R., Fergus, T. A., & Orcutt, H. K. (2013). Experiential avoidance as a moderator of the relationship between anxiety sensitivity and perceived stress. *Behavior Therapy, 44*, 459-469.

- Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, *88*, 589-604.
- Baumeister, R. F., Twenge, J. M., & Nuss, C. K. (2002). Effects of social exclusion on cognitive processes: Anticipated aloneness reduces intelligent thought. *Journal of Personality and Social Psychology*, *83*, 817-827.
- Baumeister, R. F., Vohs, K. D., & Funder, D. C. (2007). Psychology as the science of self-reports and finger movements: Whatever happened to actual behavior?. *Perspectives on Psychological Science*, *2*, 396-403.
- Bernstein, M. J., & Claypool, H. M. (2012a). Social exclusion and pain sensitivity why exclusion sometimes hurts and sometimes numbs. *Personality and Social Psychology Bulletin*, *38*, 185-196.
- Bernstein, M. J., & Claypool, H. M. (2012b). Not all social exclusions are created equal: Emotional distress following social exclusion is moderated by exclusion paradigm. *Social Influence*, *7*, 113-130.
- Bernstein, M. J., Claypool, H. M., Young, S. G., Tuscherer, T., Sacco, D. F., & Brown, C. M. (2013). Never let them see you cry: Self-presentation as a moderator of the relationship between exclusion and self-esteem. *Personality and Social Psychology Bulletin*, *39*, 1293-1305.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., ... & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, *42*, 676-688.
- DeWall, C. N., Twenge, J. M., Bushman, B., Im, C., & Williams, K. (2010). A little acceptance goes a long way: Applying social impact theory to the rejection-aggression link. *Social Psychological and Personality Science*, *1*, 168-174.

- DeWall, C. N., Twenge, J. M., Koole, S. L., Baumeister, R. F., Marques, A., & Reid, M. W. (2011). Automatic emotion regulation after social exclusion: Turning to positivity. *Emotion, 11*, 623-636.
- Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*, 290-292.
- Efron, B. (1987). Better bootstrap confidence intervals. *Journal of the American Statistical Association, 82*, 171-185.
- Ferris, D. L., Brown, D. J., Berry, J. W., & Lian, H. (2008). The development and validation of the Workplace Ostracism Scale. *Journal of Applied Psychology, 93*, 1348-1366.
- Frances, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development of the Comprehensive assessment of Acceptance and Commitment Therapy (CompACT). *Journal of Contextual Behavioral Science, 5*, 134-145.
- Gerhart, J. I., Baker, C. N., Hoerger, M., & Ronan, G. F. (2014). Experiential avoidance and interpersonal problems: A moderated mediation model. *Journal of Contextual Behavioral Science, 3*, 291-298.
- Hayes, S. C., Levin, M. E., Plumb-Villardaga, J., Villatte, J. L., & Pistorello, J. (2013). Acceptance and commitment therapy and contextual behavioural science: Examining the progress of a distinctive model of behavioral and cognitive therapy. *Behavior Therapy, 44*, 180-198.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behavior Research and Therapy, 44*, 1-25.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.

- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change*. New York, NY: Guilford Press.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, W. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152-1168.
- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*, 227-239.
- Hitlan, R. T., Clifton, R. J., & DeSoto, M. C. (2006). Perceived exclusion in the workplace: The moderating effects of gender on work-related attitudes and psychological health. *North American Journal of Psychology, 8*, 217-236.
- Karekla, M., & Panayiotou, G. (2011). Coping and experiential avoidance: Unique or overlapping constructs? *Journal of Behavior Therapy and Experimental Psychiatry, 42*, 163-170.
- Kashdan, T. B., & Kane, J. Q. (2011). Post-traumatic distress and the presence of post-traumatic growth and meaning in life: experiential avoidance as a moderator. *Personality and Individual Differences, 50*, 84-89.
- Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review, 30*, 865-878.
- Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (2013). Construct validity of the need to belong scale: Mapping the nomological network. *Journal of Personality Assessment, 95*, 610-624.

- Levin, M. E., Hildebrandt, M. J., Lillis, J., & Hayes, S. C. (2012). The impact of treatment components suggested by the psychological flexibility model: A meta-analysis of laboratory-based component studies. *Behavior Therapy, 43*, 741-756.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy, 33*, 335-343.
- MacCallum, R. C., & Mar, C. M. (1995). Distinguishing between moderator and quadratic effects in multiple regression. *Psychological Bulletin, 118*, 405-421.
- Maxwell, S. E., Lau, M. Y., & Howard, G. S. (2015). Is psychology suffering from a replication crisis? What does “failure to replicate” really mean? *American Psychologist, 70*, 487-498.
- McCracken, L. M., & Guitierrez-Martinez, O. (2011). Process of change in psychological flexibility in an interdisciplinary group-based treatment for chronic pain based on acceptance and commitment therapy. *Behavior Research and Therapy, 49*, 267-274.
- McCracken, L. M., & Morley, S. (2014). The psychological flexibility model: A basis for integration and progress in psychological approaches to chronic pain management. *Journal of Pain, 15*, 221-234.
- Molet, M., Macquet, B., Lefebvre, O., & Williams, K. D. (2013). A focused attention intervention for coping with ostracism. *Consciousness and Cognition, 22*, 1262-1270.
- Nezlek, J. B., Wesselmann, E. D., Wheeler, L., & Williams, K. D. (2012). Ostracism in everyday life. *Group Dynamics: Theory, Research, & Practice, 16*, 91-104.
- Osman, A., Wong, J. L., Bagge, C. L., Freedenthal, S., Gutierrez, P. M., & Lozano, G. (2012). The depression anxiety stress Scales—21 (DASS- 21): further examination of dimensions, scale reliability, and correlates. *Journal of Clinical Psychology, 68*, 1322-1338.

- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903.
- Powers, M. B., Zum Vörde Sive Vörding, M. B., & Emmelkamp, P. M. (2009). Acceptance and commitment therapy: A meta-analytic review. *Psychotherapy and Psychosomatics, 78*, 73-80.
- Poznanski K.J., Wirth J. H., & Williams K.D. (2010). *I can't stop thinking about it: Increased rumination and depression reduces recovery from a brief episode of ostracism*. Unpublished manuscript, Purdue University, West Lafayette, IN.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891.
- Ren, D., Wesselmann, E. D., & Williams, K. D. (2013). Interdependent self-construal moderates coping with (but not the initial pain of) ostracism. *Asian Journal of Social Psychology, 16*, 320-326.
- Riva, P., Montali, L., & Wirth, J. H., Curioni, S., & Williams, K. D. (2016). Chronic social exclusion and evidence for the resignation stage: An empirical investigation. *Journal of Social and Personal Relationships, 34*, 1-24.
- Riva, P., Wesselmann, E. D., Wirth, J. H., Carter-Sowell, A. R., & Williams, K. D. (2014). When pain does not heal: The common antecedents and consequences of chronic social and physical pain. *Basic and Applied Social Psychology, 36*, 329-246.
- Riva, P., Wirth, J. H., & Williams, K. D. (2011). The consequences of pain: The social and physical pain overlap on psychological responses. *European Journal of Social Psychology, 41*, 681-687.

- Scott, K. L., Zagenczyk, T. J., Schippers, M., Purvis, R. L., & Cruz, K. S. (2014). Co-worker exclusion and employee outcomes: An investigation of the moderating roles of perceived organizational and social support. *Journal of Management Studies*, *51*, 1235-1256.
- Scott, W., & McCracken, L. M. (2015). Psychological flexibility, acceptance and commitment therapy, and chronic pain. *Current Opinion in Psychology*, *2*, 91-96.
- Sethi, N., Moulds, M. L., & Richardson, R. (2013). *Group Dynamics: Theory, Research and Practice*, *17*, 110-123.
- Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*, *38*, 227-242.
- Vaughan-Johnston, T. I., Quickert, R. E., & MacDonald, T. K. (2017). Psychological flexibility under fire: Testing the incremental validity of experiential avoidance. *Personality and Individual Differences*, *105*, 335-349.
- Villatte, J. L., Vilardaga, R., Villatte, R., Plumb-Vilardaga, J. C., Atkins, D. C., & Hayes, S. C. (2016). Acceptance and commitment therapy modules: Differential impact on treatment processes and outcomes. *Behavior Research and Therapy*, *77*, 52-61.
- Vowles, K. E., & McCracken, L. M. (2010). Comparing the role of psychological flexibility and traditional pain management coping strategies in chronic pain treatment outcomes. *Behavior Research and Therapy*, *48*, 141-146.
- Waldeck, D., Tyndall, I., & Chmiel, N. (2015). Resilience to Ostracism: A Qualitative Inquiry. *The Qualitative Report*, *20*, 1646-1669.
- Wesselmann, E. D., Ren, D., Swim, E., & Williams, K. D. (2013). Rumination hinders recovery from ostracism. *International Journal of Developmental Science*, *7*, 33-39.
- Williams, K. D. (2007). Ostracism. *Annual Review of Psychology*, *58*, 425-452.

- Williams, K. D. (2009). Ostracism: A Temporal Need-Threat Model. *Advances in Experimental Social Psychology*, *41*, 275-314.
- Williams, K. D., Cheung, C. K., & Choi, W. (2000). Cyberostracism: effects of being ignored over the Internet. *Journal of Personality and Social Psychology*, *79*, 748-762.
- Wolgast, M. (2014). What does the Acceptance and Action Questionnaire (AAQ-II) really measure? *Behavior Therapy*, *45*, 831-839.
- Wu, L. Z., Yim, F. H. K., Kwan, H. K., & Zhang, X. (2012). Coping with workplace ostracism: The roles of ingratiation and political skill in employee psychological distress. *Journal of Management Studies*, *49*, 178-199.
- Zadro, L., Boland, C., & Richardson, R. (2006). How long does it last? The persistence of the effects of ostracism in the socially anxious. *Journal of Experimental Social Psychology*, *42*, 692-697.
- Zettle, R. D., Hocker, T. R., Mick, K. A., Scofield, B. E., Petersen, C. L., Song, H., & Sudarjanto, R. P. (2005). Differential strategies in coping with pain as a function of level of experiential avoidance. *The Psychological Record*, *55*, 511-524.

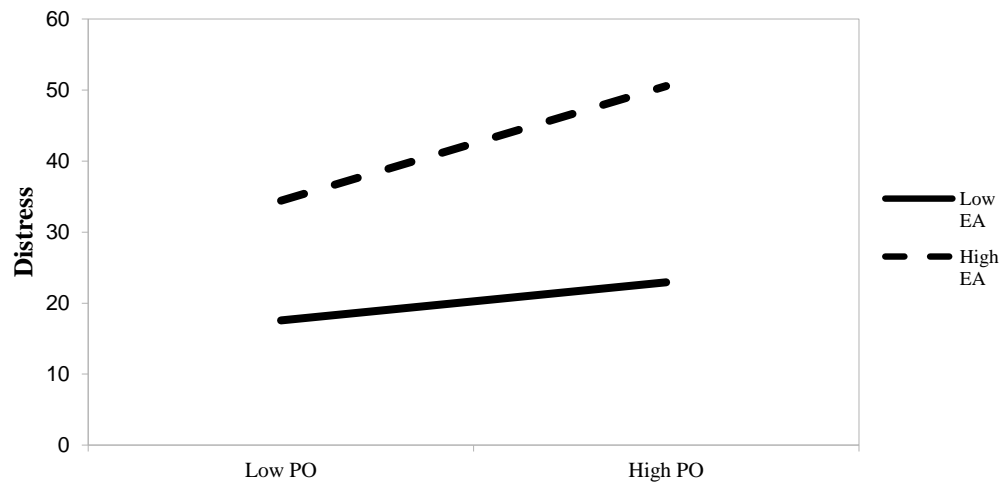


Figure 1. The moderating effects of perceived ostracism (PO) and psychological flexibility (EA) on distress (Study 1).

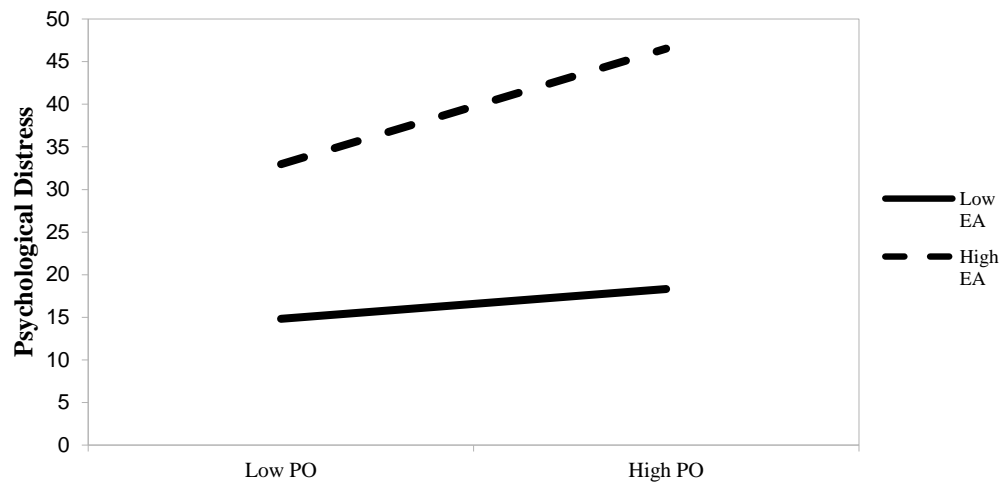


Figure 2. The moderating effects of perceived ostracism (PO) and psychological flexibility (EA) on distress (Study 2).

Table 1. Means, standard deviations, and correlations between study variables for Study 1 ($N=299$).

Variables	1	2	3
1. Perceived ostracism			
2. Flexibility	.42**		
3. Distress (Time 2)	.46**	.61**	
Mean	19.55	25.83	32.48
SD	8.35	9.77	24.44

Table 2. Hierarchical Regression Analysis Study 1 (Dependent Variable: Psychological Distress)

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Independent variables			

ACCEPTED MANUSCRIPT

Perceived ostracism	.80**	.65**	.80**
Flexibility (Flex)	1.15**	1.16**	1.15**
Moderator			
Perceived ostracism x Flex		.03**	.04**
Quadratic Terms			-.01
Perceived ostracism ²			-.00
Flex ²			
R ²	.39	.40	.41
ΔR^2		.01	.00

Note: $n = 299$; ** $p < .01$

Table 3. Means, standard deviations, and correlations between study variables for Study 2 ($N=231$).

Variables	1	2	3
1. Perceived ostracism			
2. Flexibility	.36**		
3. Distress (Time 2)	.42**	.66**	
Mean	21.20	24.59	30.05
SD	9.50	9.93	22.97

Note: ** $p < .01$.

Table 4. Hierarchical Regression Analysis Study 2 (Dependent Variable: Psychological Distress)

	Model 1	Model 2	Model 3
Independent variables			
Perceived ostracism	.54**	.47**	.60**
Flexibility (Flex)	1.23**	1.20**	1.17**
Moderator			
Perceived ostracism x Flex		.03**	.03**
Quadratic Terms			-.00

ACCEPTED MANUSCRIPT

Perceived ostracism ²				.00
Flex ²				
R^2	.46	.48	.48	
ΔR^2		.02	.00	

Note: $n = 231$; ** $p < .01$

Highlights

- Psychological flexibility moderates the distress following experiences of ostracism
- At low levels of psychological flexibility, distress following ostracism is high
- At high levels of psychological flexibility, distress following ostracism is low

Accepted manuscript