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## Psychopathy, anxiety, and resiliency – Psychological hardiness as a mediator of the psychopathy–anxiety relationship in a prison setting

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### ABSTRACT

The literature on the association between psychopathy and anxiety is somewhat mixed, but it has been proposed that one possible advantage of psychopathy might be resiliency against anxiety. Another construct related to resiliency is psychological hardiness, and several studies have identified associations between psychological hardiness, anxiety responses, and physical and mental health effects of stress. The aim of the current study is to examine whether characteristics of psychological hardiness mediate the relationship between traits of psychopathy and experienced anxiety in a prison setting. The results showed a divergence in the psychopathy construct, since two underlying factors (the two-factor model of the PCL-R) had divergent relationships with anxiety. Through mediation analyses (PROCESS), we found this relationship to be partly mediated by the commitment dimension of psychological hardiness. To the best of our knowledge, this is the first study to explore the possible mediating effect of psychological hardiness on the relationship between psychopathy and anxiety. The relative immunity to anxiety previously linked to psychopathy could thus be partly explained by higher levels of hardiness commitment.

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### 1. Introduction

Psychopathy, regarded as a personality disorder characterized by interpersonal, affective, and behavioral symptoms, has been the focus of much research and attention in recent decades. Abnormal affective regulation and responses have repeatedly been associated with the disorder, and the study of the relationship between psychopathy and anxiety has a long history (Lykken, 1957; Patrick, 1994; Widiger, 2006). In his classic monograph *The Mask of Sanity* (Cleckley, 1976), Harvey Cleckley highlighted the indicators of positive psychological functioning in psychopaths. With regard to anxiety he wrote: “those called psychopaths are very sharply characterized by the lack of anxiety (remorse, uneasy anticipation, apprehensive scrupulousness, the sense of being under stress or strain)” (Cleckley, 1976, p. 257). The empirical findings concerning psychopathy and anxiety are somewhat mixed, however (Hare, 2003; Harpur, Hare, & Hakstian, 1989; Schmitt & Newman, 1999; Skeem, Johansson, Andershed, Kerr, & Loudon, 2007). The callous and interpersonal, emotional detachment traits of psychopathy that are also sometimes linked to the label

“primary psychopathy” have rather consistently been shown to be associated with lower levels of anxiety, compared to the impulsive and antisocial traits of psychopathy, which are more positively associated with anxiety (Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Lykken, 1957; Skeem et al., 2007; Skeem, Polaschek, Patrick, & Lilienfeld, 2011; Widiger, 2006).

The Psychopathy Checklist – Revised (PCL-R; Hare, 2003), which is the dominant instrument by far in the assessment of psychopathy, does not include anxiety or lack of anxiety as a separate item, and several studies have failed to find any association between PCL-R scores and anxiety (Hale, Goldstein, Abramowitz, Calamari, & Kosson, 2004; Schmitt & Newman, 1999). The PCL-R was partly based on Cleckley’s description, but it has been criticized for deviating from Cleckley’s original foundations with regard to its emphasis on antisocial behavior and disregard for anxiety (Skeem & Cooke, 2010; Skeem et al., 2011). The structural properties of the PCL-R have been, and still are, the subject of much debate and research. Several statistically derived clusters or factors have been proposed (for more information about this debate, see: Bolt, Hare, Vitale, & Newman, 2004; Cooke & Michie, 1997; Hare, 2003; Skeem & Cooke, 2010). Early factor analyses suggested the existence of a two-factor structure of the PCL-R (Hare, 1991; Harpur et al., 1989), and this two-factor model has gathered extensive empirical support and has dominated the literature (Hare,

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2003; Swogger & Kosson, 2007). Factor 1 (F1) comprises items related to interpersonal and emotional traits, while Factor 2 (F2) consists of items related to an unstable and antisocial lifestyle. Although psychopathy has traditionally been linked to low levels of anxiety, there is some controversy surrounding this relationship (Hare, 2003; Schmitt & Newman, 1999). Previous research has indicated a distinction between how the two PCL-R factors relate to anxiety. A negative association has been found between F1 traits and anxiety, and/or a positive relation has been found between F2 traits and anxiety (Hansen, Stokkeland, Pallesen, Johnsen, & Waage, 2013; Harpur et al., 1989). Given the ongoing debate about the relationship between psychopathy and anxiety, however, more research is warranted about the nature of this association.

A recent book by Kevin Dutton, *The Wisdom of Psychopaths* (2012), explores the positive side of being a psychopath. The positives mentioned include high self-esteem, the ability to remain cool under pressure, and relative immunity from anxiety. These features might even be valuable in certain professions, such as business, law enforcement, the military, and politics. This notion also coincides with Lykken's (1957) "low fear hypothesis", which emphasizes an attenuated fear and anxiety response as a key characteristic of psychopathy, which also led Lykken to suggest "that the hero and the psychopath may be twigs on the same genetic branch" (Lykken, 1996, p. 30). Indeed, some empirical support has been found for an association between heroism and psychopathy (Smith, Lilienfeld, Coffey, & Dabbs, 2013). Might these positive features of psychopathy also be regarded as a resiliency factor mediating against the adverse effects of stress on mental health?

Resiliency can be conceptualized as the "tendency to remain strong during hardship" (Kauten, Barry, & Leachman, 2013, p. 383). Cleckley's descriptions of positive psychological functioning in psychopaths do not just include the absence of symptoms of anxiety, but also "the presence of psychological hardiness and adjustment" (Patrick & Bernat, 2009, p. 1111). A number of constructs have been associated with resiliency, and *psychological hardiness* is one such construct. Hardiness refers to a set of personality characteristics that appear to protect individuals from the negative physical and mental health effects of stress (Bartone, Ursano, Wright, & Ingraham, 1989; Kobasa, 1979; Maddi, 2002). The term hardiness was first used by Kobasa (1979) to describe executives who were found to remain healthy despite a high degree of work stress, in contrast to those who developed various stress-related illnesses. Hardiness consists of the three interrelated dimensions of commitment, control, and challenge (Ramanaiyah, Sharpe, & Byravan, 1999). Commitment entails a generalized sense of purpose and engagement in life (Kobasa, 1979). A person who scores high on commitment is predisposed to interpret interactions with people and events as interesting and worthwhile (Khoshaba & Maddi, 1999). Control is a belief in personal control and influence over life events and experiences. Challenge is characterized by anticipation and the capacity to see change as a potential for growth and development. These three interrelated hardiness components are believed to influence the individual's perception, evaluation, and coping in stressful situations (Cole, Feild, & Harris, 2004). One study found that hardy individuals rated the same objective stressors as less threatening than non-hardy individuals (Wiebe, 1991). Along with studies associating high hardiness with lower levels of somatic and cognitive anxiety in sport settings (Hanton, Evans, & Neil, 2003; Singley, Hale, & Russell, 2012), there is a strong theoretical rationale for linking the positive appraisal and coping mechanisms associated with hardiness to the experience of general anxiety in stressful situations.

The aim of the present study was to investigate the relationships between psychopathy, psychological hardiness, and anxiety. The coping strategies associated with psychological hardiness and the proposed protective features of hardy traits in relation to

negative health outcomes of stress provide the theoretical basis for examining the effects of hardiness under the stressful situation of incarceration. The known relationship between psychological hardiness and anxiety responses (Hanton et al., 2003; Hanton, Neil, & Evans, 2013) and adverse health effects of stress (Kobasa, 1979; Maddi, 2002; Sandvik et al., 2013) also means that characteristics of psychological hardiness are plausible mediators of the relationship between psychopathy and anxiety. Due to previously found divergences in the relationship between the two PCL-R factors and anxiety, we hypothesized that F1 would be negatively related to anxiety, and that this negative relationship would be partly mediated by resiliency factors linked to psychological hardiness. With regard to the three dimensions of hardiness, we did not have any specific hypotheses, although some previous studies have found commitment and control, but not challenge, to predict positive health effects, which could suggest that the challenge dimension taps a somewhat different psychological construct (Florian, Mikulincer, & Taubman, 1995; Hanton et al., 2003).

## 2. Methods

### 2.1. Participants

The participants in the study were 74 male inmates at Bergen Prison, Norway. The age of the participants ranged from 19 to 71, with a mean of 33.41 years. The participants were serving sentences ranging from 6 weeks to 20 years (mean 4.4 years, SD 5.24), including protective custody (21 years is the longest possible sentence in Norway). The participants had been convicted of a variety of crimes, including drug dealing, theft, armed robbery, rape, murder, and child molesting. All participants spoke Norwegian and the majority were Norwegian citizens (89.2%).

### 2.2. Measures

#### 2.2.1. Psychopathy

In order to assess psychopathic personality, multiple trained observers administered the Psychopathy Checklist – Revised (PCL-R; Hare, 2003) to each participant, drawing on semi-structured interviews and extensive file reviews (sentences, prison journals, psychiatric evaluations, etc.). The PCL-R is a 20-item checklist scored on a 3-point scale (0 = not present, 1 = somewhat present, and 2 = definitely present). The PCL-R items were divided into two factors according to the two-factor model (Hare, 2003; Harpur, Hakstian, & Hare, 1988). The Cronbach's alpha for the present sample was .814 for the total score, .848 for F1, and .805 for F2. The inter-rater reliability for the PCL-R ( $N = 12$ ) as measured by intra-class correlations ranged from *good* to *excellent* (McDowell, 2006), with an  $ICC_1 = .921$  for the total score, an  $ICC_1 = .720$  for F1, and an  $ICC_1 = .880$  for F2.

#### 2.2.2. Anxiety

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) is a brief self-report instrument designed to measure generalized symptoms of anxiety and depression in non-psychiatric hospital clinics. It consists of two subscales, anxiety and depression, each containing seven items scored on a four-point Likert scale (0–3). As anxiety was the main interest in the present study, only the anxiety subscale (HADS-A) was included in the analyses. HADS-A includes specific items that assess generalized anxiety experienced over the last seven days, including tension, worry, fear, panic, difficulties in relaxing, and restlessness (e.g., "I get sudden feelings of panic"). A Norwegian adaptation of HADS, which has shown good psychometric properties (Mykletun, Stordal, &

Dahl, 2001), was used in this study. The Cronbach's alpha for HADS-A in the present sample was .792.

### 2.2.3. Psychological hardiness

Psychological hardiness was assessed using the Norwegian adaptation of the Dispositional Resilience scale (DRS-15-R; Hystad, Eid, Johnsen, Laberg, & Bartone, 2010). The DRS-15-R consists of 15 positive and negative statements. Participants are asked to indicate on a four-point Likert scale how true or untrue each statement is relation to themselves. The statements included cover the three conceptual hardiness facets of commitment, control, and challenge. The Cronbach's alpha for the DRS-15-R in the present sample was .753 for the total score, and .743, .796, and .411, respectively, for the dimensions Commitment, Control, and Challenge.

### 2.3. Procedure

The data were collected as a part of a larger study on dynamic risk factors for criminal behavior conducted in Bergen Prison. The study was approved by the Norwegian Regional Ethics Committee for Medical Research. The ethics committee stipulated a requirement that the initial information about the project and the first request for participation had to be made by a prison official. No information is therefore available about the non-participants. All participation was voluntary and the participants were informed of their right to withdraw from the study at any time. The PCL-R assessment was performed by either a clinical psychologist or advanced psychology students who had all undergone intensive training in use of the instrument. The majority of the interviews were tape-recorded to enable inter-rater reliability to be assessed. The DRS-15-R and HADS forms were administered along with other self-report measures (i.e., demography, attitudes, general health).

### 2.4. Statistical analyses

Analyses were performed using SPSS version 21.0 for Macintosh. Pearson's product-moment correlation was used in the preliminary analyses to examine the relationships between the variables. The PROCESS procedure for SPSS (Release 2.041; Hayes, 2012) was used to test the mediation models. This procedure has several advantages compared to traditional approaches to testing mediation, and it enables simultaneous testing of multiple mediators and provides bootstrap confidence intervals (CIs) for the indirect effects (Hayes, 2012; Preacher & Hayes, 2008). In each mediation model, 1000 bootstrap resamples were used to estimate the confidence intervals.

**Table 1**  
Descriptive statistics and correlations between the included measures.

	N	Mean	SD	1	2	3	4	5	6	7	8
1. HAD anxiety	71	8.65	4.26								
2. PCL-R (total)	74	17.27	6.97	.003							
3. PCL-R F1	74	6.35	3.94	-.233 <sup>a</sup>	.698 <sup>**</sup>						
4. PCL-R F2	74	8.62	4.23	.212	.764 <sup>**</sup>	.113					
5. DRS-15-R (total)	70	27.16	6.47	-.568 <sup>**</sup>	-.162	.099	-.327 <sup>**</sup>				
6. DRS-15-R commitment	70	8.16	3.41	-.471 <sup>**</sup>	-.082	.238 <sup>*</sup>	-.323 <sup>**</sup>	.845 <sup>**</sup>			
7. DRS-15-R control	71	11.17	3.13	-.363 <sup>**</sup>	-.100	-.018	-.148	.766 <sup>**</sup>	.522 <sup>**</sup>		
8. DRS-15-R challenge	67	7.97	2.44	-.280 <sup>*</sup>	-.168	-.072	-.161	.451 <sup>**</sup>	.143	-.021	

<sup>a</sup>  $p = .051$  (2-tailed).

<sup>\*\*</sup>  $p < .01$ .

<sup>\*</sup>  $p < .05$ .

## 3. Results

Descriptive statistics and correlations between the measures are reported in Table 1. No significant correlation was found between PCL-R (total) and anxiety. Divided into the two underlying PCL-R factors, there was a marginally significant correlation between anxiety and F1 ( $r = -.233, p = .051$ ), but no significant correlation with F2 ( $r = .212, p = .076$ ). Using an adaptation of Steiger's Z test (Hoerger, 2013; Steiger, 1980), we found the two correlations between F1 and anxiety and F2 and anxiety to be significantly different from each other ( $Z_H = -2.86, p = .004$ ). Total hardiness and all its domains correlated significantly with anxiety (Total:  $r = -.568, p < .001$ ; Commitment:  $r = -.471, p < .001$ ; Control  $r = -.363, p = .002$ , Challenge:  $r = -.280, p = .019$ ). Multiple mediation analyses, with commitment, control and challenge as mediators, were performed to investigate the indirect effect of psychopathy on anxiety through hardiness (see Fig. 1).

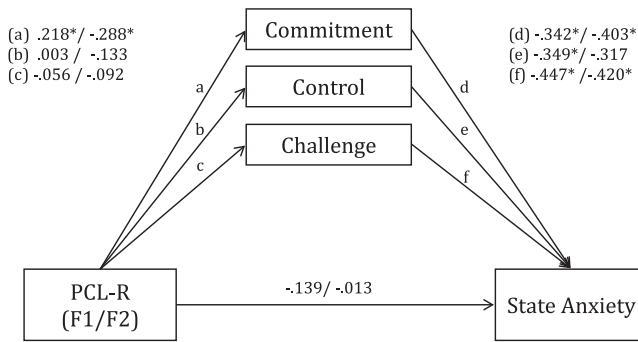
No significant direct relationship was found, neither between PCL-R F1 and anxiety nor between PCL-R F2 and anxiety. Significant indirect effects of both PCL-R factors were found, partly mediated through the commitment facet of DRS-15-R. All indirect effects are reported in Table 2.

Since only the commitment dimension of psychological hardiness contributed significantly to the mediation of the relationship between psychopathy and anxiety, a simple mediation model was then calculated to assess the effect size of commitment as a mediator. The indirect effect of commitment in this simple model was  $-.079$  for F1 and  $.159$  for F2 (BootLLCI [95% CI] =  $-.260$ , BootULCI [95% CI] =  $-.024, k^2 = .112$  for F1; BootLLCI [95% CI] =  $.048$ , BootULCI [95% CI] =  $.324, k^2 = .155$  for F2). Kelley's Kappa-Squared ( $k^2$ ; Hayes, 2013) was used as a measure of effect size. It is interpreted as the indirect effect relative to its maximum possible value in the data, and the measure is bound between 0 and 1, with values closer to 1 signifying bigger effects (Hayes, 2013; Preacher & Kelley, 2011).

## 4. Discussion

As a deprivation of liberty, imprisonment is believed to be perceived as unpleasant, and incarceration as a major life event has also been linked to illnesses associated with stress (Massoglia, 2008). Since both psychopathy and psychological hardiness have been associated with the ability to remain relatively unaffected by daily stressors, this study examined how the characteristics of psychological hardiness were related to, and possibly mediated, the relationship between psychopathy and anxiety.

Our initial correlational analysis did not reveal any significant relationship between the total score for psychopathy and anxiety. When psychopathy was divided into the separate dimensions of the two-factor model, however, a negative relationship emerged



**Fig. 1.** Multiple mediation model of the relationship between psychopathy (PCL-R F1/F2), psychological hardiness (DRS-15-R; commitment, control, and challenge), and state anxiety (HADS-A). Unstandardized coefficients are given along the paths. \* $p < .05$ .

**Table 2**  
Mediation (indirect effects) of the relationship between PCL-R (F1 and F2) and state anxiety.

	Effect	Bootstrapping (BC 95% CI)		
		Boot SE	Lower	Upper
<b>PCL-R F1</b>				
Commitment	$-.075^*$	.056	$-.228$	$-.003$
Control	$-.001$	.036	$-.066$	.092
Challenge	.025	.038	$-.036$	.120
Total <sup>a</sup>	$-.096$	.090	$-.220$	.135
<b>PCL-R F2</b>				
Commitment	$.116^*$	.068	.017	.286
Control	.042	.042	$-.007$	.167
Challenge	.039	.037	$-.009$	.140
Total <sup>a</sup>	$.196^*$	.082	.069	.385

CI = confidence interval, BC = bias corrected.

<sup>a</sup> Total indirect effects.

\*  $p < .05$ .

between F1 and anxiety. A positive, but not significant relationship was also found between F2 and anxiety. While these correlations are not significant at the conventional  $p < .05$  level, they are significantly different from each other and also consistent with other studies (Hansen et al., 2013; Harpur et al., 1989). Moreover, a one-tailed analysis yields a significant correlation ( $p = .025 / p = .038$ ). However, because of some inconsistencies in the literature regarding the F1/F2–anxiety relationship, it is questionable whether one-tailed tests are applicable. With regard to the other correlational analyses, we found significant (two-tailed) relationships between experienced anxiety and psychological hardiness (total, commitment, and control).

One aim of this study was to determine whether characteristics of psychological hardiness mediated the relationship between traits of psychopathy and experienced anxiety in a prison setting. Like the correlation analyses, our mediation analysis (see Table 2 and Fig. 1), did not reveal any significant direct relationship between either F1 or F2 and anxiety. We did, however, find significant indirect effects mediated through the commitment dimension for both F1 and F2, but in reverse directions. This finding points to characteristics of commitment as a partial mediator of the relationship between psychopathy and anxiety. The opposite direction effects for F1 and F2 emphasize the heterogeneity of the psychopathy construct. Partly through high levels of commitment, F1 traits (interpersonal and emotional detachment) seem to protect against anxiety, while F2 traits (unstable and antisocial), partly through lower levels of commitment, seem to be a risk factor for experiencing anxiety. While interesting, it is important to note

that the mediation effect of commitment is only partial, with a modest effect size ( $F1 k^2 = .112$ ;  $F2 k^2 = .155$ ). However, by explaining a little over one-tenth of the relationship, it still represents a significant contribution that has not previously been shown.

Our findings concerning how personality variables (i.e., psychopathy and psychological hardiness) are associated with experienced anxiety in a prison setting might suggest that the stressor of incarceration does not affect the psychological well-being of all individuals equally (Bukstel & Kilmann, 1980). Traits of both psychopathy and psychological hardiness seem to act as resiliency factors in relation to anxiety that might also act as a buffer against other adverse health effects of stress. This protective feature only seems to be related to some characteristics of psychopathy, however, namely interpersonal and emotional detachment (PCL-R F1). This resiliency against anxiety related to F1 seems to correspond to Cleckley's original connotation of psychopathy, and to what is also called primary psychopathy (Cleckley, 1976; Karpman, 1948; Skeem et al., 2011). That PCL-2 F2, with its focus on antisocial behavior, is found to be more positively related to anxiety coincides with other findings of strong comorbidity between Antisocial Personality Disorder (ASPD) and anxiety disorders (Goodwin & Hamilton, 2003). Antisocial behavior can also be a symptom/indication of other mental disorders, including anxiety (Goodwin & Hamilton, 2003; Karpman, 1948). Moreover, while antisocial behavior can certainly coincide with psychopathy, it may not be sufficiently discriminative to be used to differentiate between diagnoses.

#### 4.1. Limitations and conclusion

The results of this study should be considered in light of some limitations. First, the limited all-male forensic sample might reduce the generalizability of the findings. Second, the relatively small sample size ( $n = 74$ ) could have limited the statistical power of the study, which might explain the only nearly significant relationship found between psychopathy (F1/F2) and anxiety in two-tailed correlational analyses. The low Cronbach's alpha found for the challenge dimension of hardiness (.411) could limit the credibility of the results as regards this dimension, although it is not uncommon to find that the challenge scale has a notably lower reliability estimate than the other two dimensions (e.g., Heckman & Clay, 2005; Hystad et al., 2010).

As far as we know, this is the first study to explore the possible mediating role of psychological hardiness on the relationship between psychopathy and anxiety. The explorative nature of the study means that more research will be necessary before any conclusions can be drawn about the relationship, but the resiliency previously linked to psychopathic personality (Book & Quinsey, 2004; Dutton, 2012; Janason, Norman, & Teicher, 2010) does seem to overlap somewhat with the resiliency linked to psychological hardiness (Maddi, 2002). The diverging relationship between psychopathy and anxiety and resiliency adds empirical evidence to the notion that psychopathy is not unitary. Quite different underlying mental mechanisms seem to be involved, and F1 contains variance in relation to resiliency and coping. Research on protective factors associated with psychopathy might help to explain how some psychopathic traits also seem to be linked to successful outcomes. Our finding of commitment as a mediator suggests that a sense of purpose and engagement in life might be important. Furthermore, a more differentiated view of psychopathy might also help to develop more specifically targeted treatment programs that take into account the heterogeneity of the psychopathy construct. In line with the positive psychology movement, which not only aims to correct weaknesses, but also to build competency (Seligman, 2002), it could be beneficial to utilize the resiliency factors that the individual possesses.

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