Investigating the Criminal Thinking Styles of Mentally Disordered Offenders within the UK

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ABSTRACT

Purpose: The current study evaluated the utility and reliability of the Psychological Inventory of Criminal Thinking Styles (PICTS) for investigating the criminal cognitions of mentally disordered offenders (MDOs) from the UK.

Methodology: The reliability and validity of the PICTS scales were investigated within a MDO sample from the UK ($N = 45$) and compared to PICTS data from the US and general offenders in the UK.

Findings: The findings showed that the PICTS functioned in a similar way when utilised in MDO and non-MDO populations, indicating that from a psychometric perspective, the PICTS scales produce consistent results across both populations. Evidence is further provided to indicate MDOs from the UK endorse criminal cognitions at a similar level to those in the US and at a significantly higher level than general UK offenders.

Originality: This study represents the first to utilise the PICTS with MDOs in the UK, comparing the criminal thinking styles of MDOs and non-MDOs.

Implications: The implications and insight that these findings provide into the criminal cognitions of mentally disordered offenders are discussed, with specific focus on the significant difference between general offenders and offenders with serious mental illness.

Keywords: criminal thinking, criminal cognitions, PICTS, mentally disordered offenders

Investigating the Criminal Thinking Styles of Mentally Disordered Offenders within the UK

Within the United Kingdom, the 2007 Mental Health Act (MHA) broadly defines a mental disorder as *"any disorder or disability of the mind"* (MHA, 2007) and further provides the framework by which mentally disordered people should be treated. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), defines a mental disorder as having clinically significant impairments related to cognition, behaviour, or emotional regulation that are usually associated with distress or disability (APA, 2013) and is used to help guide health care professionals in diagnosing mental disorders. The DSM-5 describes the clinical impairments and traits that impact functioning in MDOs, while the MHA provides the rationale for why these clinical impairments need to be treated in MDOs, and thus why an offender that presents with any disorder needs to be treated differently from those without (Appleby *et al.*, 2010; Robinson, 2012). Therefore, an understanding of both definitions is important to recognise and understand the clear distinction between Mentally Disordered Offenders (MDOs) and non-MDOs.

More specifically, the MHA provides the framework to allow for the involuntary detainment of people in hospital for treatment and assessment of their disorder (Bradley, 2009). This means the MHA can be used to divert mentally disordered individuals who commit offences out of the Criminal Justice System (CJS) and into hospitals to receive treatment (Bradley, 2009; Ministry of Justice [MoJ], 2008). Reports suggest MDOs can be detained within psychiatric units for over ten years (Rutherford and Duggan, 2008) meaning that in many cases MDOs are detained similarly to offenders serving indeterminate sentences in prisons (Appleby *et al.*, 2010; Rutherford and Duggan, 2008). Accordingly, unlike prisons, which restrict liberty in order to punish and deter future offending (Bal and Koenraadt, 2000; Epperson *et al.*, 2011; Rutherford and Duggan, 2008), hospitals provide specialist mental health treatment, helping to reduce risk (Epperson *et al.*, 2011; MoJ, 2008). Many offenders

with mental health problems, however, are not always diverted to psychiatric settings. Rather, offenders will only be diverted to psychiatric hospitals if their mental health condition is considered severe enough that if they were in the community they would be compulsorily admitted into a psychiatric hospital (Bradley, 2009). This suggests that MDOs detained within secure psychiatric hospitals consist of individuals with more severe mental disorders than those within general offending populations.

Consistent with this, research on MDOs has shown offenders demonstrate several impairments linked with cognition, emotional regulation, and behaviour (APA, 2013) such as: impulsivity, lack of insight, lack of trust, poor coping skills, difficulties managing stress, higher levels of abusive behaviour, problems following through plans, and antisocial attitudes (Epperson *et al.*, 2014). In fact, research has consistently indicated that MDOs demonstrate greater levels of risk factors, higher reoffending rates, greater risk of violence, and greater social disadvantages when compared to non-MDOs (Cloyes *et al.*, 2010; Epperson *et al.*, 2011; Fazel *et al.*, 2009; Fazel and Yu, 2011; Skeem *et al.*, 2013), suggesting MDOs may present with a higher need for interventions targeting risk factors than non-mentally disordered offenders (Skeem *et al.*, 2013)., Despite the abundance of research investigating the risk factors linked to offending, there is still a lack of consideration for one of the core risk factors; cognitions supportive of criminal behaviour (Simourd and Olver, 2002; Walters, 2006a).

Criminal cognitions are referred to in various way, such as: criminal thinking styles, criminal attitudes, and antisocial cognitions (Andrews *et al.*, 2006; Walters, 1995; Ward, 2000), all of which reflect attitudes, beliefs and values that are supportive of criminality. Central to the presence of criminal cognitions is how they support and maintain criminality by enabling individuals to justify, normalise, or rationalise offending behaviour and alleviate any emotional distress they feel by violating the rights of others (Sykes and Matza, 1957;

Walters, 1995). Criminal cognitions are therefore considered a key criminogenic risk factor, with the vast majority of the research having focused specifically on general offending populations and offence types, such as sexual and violent offenders (Egan *et al.*, 2000). . Whilst there have been some studies specifically focused on MDOs, this remains an under-researched area (Simourd and Olver, 2002; Simourd and Van der Ven, 1999). However, of the research that has been conducted it has been found that MDO populations have higher endorsement of criminal cognitions when compared to the general offending population, and it is these thinking patterns which account for higher recidivism in MDOs (Bonta *et al.*, 2013). Such findings, in combination with a steady increase of prisoners being transferred to psychiatric units under the MHA (1983),(Keown, McKenna, Murphy & McKinnon, 2019; MOJ, 2019), an understanding the role of criminal cognitions for MDOs remains a key research need.

There is a plethora of different types of cognitive distortions referred to throughout the literature (McCoy,K. et al, 2006; Maruna & Mann, 2006, Sykes & Matza 1957, McCoy et. al 2006, Walters, 1995, 2002; Oostermeijer, et al., 2017), with the identification of specific types of cognitive distortions also occurring in forensic risk assessment and addressed within interventions (MoJ, 2020). Therefore, to enable a responsive approach in identifying offender risk and needs, in addition to being able to compare between offending populations, there is value in having some consistency in identifying and assessing specific types of cognitive distortions .One of the more well-established measures in identifying specific types of cognitive distortions, in addition to assessing for deception or malingering is the Psychological Inventory of Criminal Thinking Styles ([PICTS] Walters, 1995; 2001; Simourd and Olver, 2002). The original development of the PICTS was based on the work of Yochelson and Samenow (1976), with input from offenders within a US prison population (Walters, 2013) allowing for items to be amended and added that reflected offender's

perception of criminal cognitions (implying the PICTS represents a measure relevant and valid for offending populations). Whilst the original measure was created over 20 years ago, research continues to be conducted and its psychometric properties have been supported (Simourd and Olver, 2002; Walters, 2002).

The PICTS assesses criminal cognitions through identifying the thinking patterns associated with engagement in criminal conduct. Walters (1995) argued that there are eight criminal thinking styles that reinforce offending behaviour: Mollification (*Mo*; justify, rationalise and externalise blame for criminal behaviour); Cutoff (*Co*; eliminating psychological deterrents using short phrases suggesting outbursts of frustrations); Entitlement (*En*; attitude of privilege, belief in one's right to commit criminal behaviours and will often misidentify wants as needs); Power Orientation (*Po*; need to achieve a sense of control); Sentimentality (*Sn*; performing good deeds in order to atone for criminal behaviour); Superoptimism (*So*; underestimating negative consequences of criminal behaviour); Cognitive Indolence (*Ci*; reflects short-cuts in problem solving and a lack of critical thought of plans); and Discontinuity (*Ds*; lack of follow through in plans and goals due to inadequate self-discipline). Factor analysis research has further indicated that the PICTS can be placed into a hierarchical structure which places General Criminal Thinking (*GCT*) at the top of the hierarchy, reactive and proactive thinking below this, and the thinking styles at the bottom (Walters, 2006b). Proactive Criminal Thinking (*PCT*) is made up of *Mo, En, Po* and *So*, whereas Reactive Criminal Thinking (*RCT*) is made up of *Co, Ci,* and *Ds* thinking styles (Walters et al., 2011; Walters, 2013). There is a plethora of different types of cognitive distortions referred to throughout the literature (McCoy,K. et al, 2006; Maruna & Mann, 2006, Sykes & Matza 1957, McCoy et. al 2006, Walters, 1995, 2002; Oostermeijer, et al., 2017), with the identification of specific types of cognitive distortions also occurring in forensic risk assessment and addressed within interventions (MoJ, 2020).   Therefore, to

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While the PICTS was developed and normed for the general offending population, Yochelson and Samenow (1976) original 52 thinking errors were created based on an MDO population, and it is this research which informed the work by Walters in developing the PICTS scales. As such, while the vast majority of research utilising the PICTS has been carried out on general offending populations, the origins of the measure are derived from an MDO population. It could therefore be argued that the PICTS may also reflect the criminal cognitions of MDOs (Coid *et al.*, 2013), and the limited research that has been carried out with this population to date, supports these arguments. For instance, Morgan *et al.* (2010) investigated the prevalence of criminal thinking within a US prison population, comparing offenders with mental disorders and those without. Results indicated that offenders with a mental disorder produced PICTS scores equal to or higher than the general offender population. With the MDO population showing highest elevations on the *Co, Ds, Ci* and *Po* sub-scales. Likewise, Wilson *et al.* (2014) found similar trends when they investigated the criminal thinking of MDOs in a US county jail, with the highest elevations being found on the *Ds, Co*, and *Ci* thinking scales.

While this research suggests that MDOs endorse criminal thinking styles related to reactive thinking such as *Co, Ci* and *Ds* more highly, the majority of research in the area has been conducted on MDOs in prison populations, who are often deemed less severe than those placed in psychiatric hospitals. There is therefore a need for more research on the criminal thinking styles of MDO populations. Additionally, most of the research utilising the PICTS

has been carried out on a US offending sample with no currently published research exploring the PICTS within an MDO sample in the UK. In fact, the only published research investigating the PICTS in the UK is by Palmer and Hollin, (2003; 2004) who explored a general offending population in the UK. Palmer and Hollin's (2003) initial research focused on the applicability and utility of the PICTS with UK prisoners. Findings suggested that the PICTS demonstrated good psychometric properties when assessed on a UK offending sample and had good reliability and validity on all the sub-scales except sentimentality. Following on from this original work, Palmer and Hollin (2004) went on to explore the psychometric properties of the PICTS within a sample of young UK offenders. Their results indicated several differences from US offending samples. In particular, the researchers found that *So* was predictive of recidivism in English offenders, whereas US studies which have found *Co* and *Di* to predict recidivism (Walters, 2006b). These contrasts suggest some differences in the endorsement of criminal thinking as measured by the PICTS in UK and US samples. The lower reliability rate reported in the *Sn* scale could reflect items within this scale not representing a criminal cognition linked to offending in English offenders, however it could also reflect the research that indicates this scale is no longer considered a core criminal thinking style (Walters, 2013). As there has been no other studies on UK samples to compare this research with it is unknown if the results found in Palmer and Hollin (2003; 2004) can be generalised to other offending populations. With that, it is further unknown if these results from the general UK offending population generalise to MDO samples in the UK.

Overall, the research presented above has highlighted several gaps within the current literature. With a considerable lack of research assessing criminal cognitions within MDO populations, and currently no research utilising the PICTS with MDOs in the UK, there is a need for more research to be carried out in this area. The aim of the current study is therefore to firstly evaluate the reliability of the PICTS within a UK MDO population and secondly, to

assess the prevalence of criminal thinking in a sample of MDOs from the UK, comparing results to US MDO populations (i.e., Morgan *et al.*, 2010) and general offenders in the UK (i.e., Palmer and Hollin, 2003).

Method

Participants

Forty-five MDOs were recruited from two Medium Secure Units (MSUs) located in South East London. All participants were male and had a formal diagnosis of either a personality disorder (n =19, 42.2%) or mental illness (n = 26, 57.8%). The table below (see *Table 1*) provides a further breakdown of participant diagnoses. The participant's ages ranged from 20 to 66 (M = 38.36, SD = 11.26), with the majority of participants identifying as either Black British (n = 19, 42.2%) or White British (n = 16, 35.6%) followed by Black African (n = 5, 11.1%), Black Caribbean (n = 4, 8.9%) and Asian (n = 1, 2.2%). This over-representation of Black, Asian and minority ethnic groups is consistent with finding from a systematic literature review exploring UK and International trends, whereby BAME populations were found to be at a greater risk of psychiatric detention than are majority groups (Barnett et al, 2019). Participants were further categorised as violent (e.g., murder, manslaughter), sexual (e.g., rape, sexual assault), or general offenders (e.g., theft, drug offenses, burglaries, etc.) based on their current index offence. 60% (n = 27) of participants were considered violent offenders, 31.1% (n = 14) were sexual offenders, and 8.9% (n = 4) were classed as general offenders.

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Materials

The Psychological Inventory of Criminal Thinking Styles (Walters, 1995; 2013)

The PICTS consists of 80 items measured on a 4-point Likert scale (1 = disagree, 4 = strongly agree), designed to measure the thinking styles that are believed to be associated with a criminal lifestyle (Walters, 1995a). The PICTS contains two validity scales (Confusion-revised, Defensiveness-revised), two higher-order scales (Proactive Criminal Thinking Reactive Criminal Thinking), a General Criminal Thinking, four factor scales (Problem Avoidance, Infrequency, Self-Assertion/Deception, Denial of Harm), two general content scales (Current, Historical), a special scale (Fear of Change), and eight thinking style scales, which include: Mollification (*Mo*), Cutoff (*Co*), Entitlement (*En*), Power Orientation (*Po*), Sentimentality (*Sn*), Superoptimism (*So*), Cognitive Indolence (*Ci*), and Discontinuity (*Ds*). For the purpose of this study, the eight criminal thinking scales, higher order scales and validity scales are utilised.

Procedure

Ethical approval was applied for via the National Health Service (NHS) Research Ethics Committee, as participants were recruited from two MSUs in South East London, access to these facilities was granted upon ethical approval from Outer South East London Research Ethics Committee (REC reference number: 11/H0805/6). Upon ethical approval, potential participants were selected by the MSUs clinical team, which included nurses, psychiatrists, and occupational therapists. Selection was based on the inclusion criteria that was provided by the researchers, this included participants being 18 years or older, mentally stable and able to provide consent, fluent in the English language and willing to discuss their index offence. The clinical team subsequently identified 65 potential participants who met the criteria for the study. Following the identification of the potential participants, the researcher approached these individuals and provided them with a full verbal briefing regarding the purpose of the research and what would be required for participation. Of the 65 participants that were approached, 45 verbally agreed to take part and were subsequently

asked to read an information sheet and sign a consent form. In addition to the information sheet provided, the researchers also verbally explained to all participants that their responses were confidential, and the research would be carried out in a private room located on the unit. Participants were asked to recall their current index offence when completing the PICTS questionnaire. Upon completion of the questionnaire, each participant was debriefed verbally and in writing, and thanked for their time.

Results

Internal consistencies

As shown in *Table II*, the overall internal consistency of the PICTS was excellent (α = .92), with a Cronbach's alpha ranging from 0.59 to 0.91. While most subscales demonstrated good to excellent internal consistencies ($70 \geq \alpha \leq .91$), the Sentimentality (α = .59), Entitlement (α = .69) and Superoptimism (α = .64) subscales demonstrated the lowest internal consistencies. These lower scores, however, are similar to those reported in both Palmer and Hollin's (2003) study with UK prisoners and those found by Morgan *et al.* (2010) in their study on MDOs in a US prison. It can therefore be assumed that the internal consistency of the PICTS is a suitable and reliable measure of criminal thinking styles for this MDO population.

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Prevalence of Criminal Thinking

Participants' raw scores on the PICTS were converted into T-scores using the most recent PICTS Manual (Walters, 2013). Once converted, T-scores were assessed using the PICTS validity scales which assesses 'fake good' (*Df-r*) and 'fake bad' (Cf-r) responses.

Walters (2013) manual states a T-score of 81 (*Cf*-r) and 65 (*Df*-r) or higher indicates an invalid profile for research purposes. All participants in the current study were below these cut off points, indicating all responses were valid.

Mean T-scores of 60 or higher on the criminal thinking sub-scales and 50 or higher on the composite scales are considered to be elevated profiles (Walters, 2006). 78% ($n = 35$) of MDOs in the current sample showed elevations in at least one of the eight criminal thinking styles, with elevated profiles ranging between 27% and 64% of the MDO sample. These figures are consistent with those found in Morgan *et al.*'s, (2010) study on MDOs in the US, which indicated that 71% of MDOs in prison endorsed an elevated belief system that is supportive of a criminal lifestyle, with elevations between 26% and 66% of the sample.

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Likewise, similar to Morgan et al, (2010), elevated T-scores were indicated on all three of the composite scales: *GCT* ($M = 59.4$, $SD = 10.0$), *PCT* ($M = 55.9$, $SD = 11.8$), and *RCT* ($M = 59.3$, $SD = 10.0$). According to Walters' (2013) manual, the difference between mean *RCT* and *PCT* were not great enough to suggest the sample endorsed an overall reactive or proactive criminal thinking pattern (Walters, 2013). This was confirmed by a paired sample *t*-test that demonstrated means were not significantly different between reactive and proactive thinking across the sample $t(44) = -1.86$, $p = .07$.

While there were no elevations found in T-scores across the criminal thinking sub-scales, the results indicated that 40% ($n = 18$) of participants externalise blame for offending behaviour, 49% ($n = 22$) had elevations related to a "hot temper" and expressed frustration to remove deterrents of crime, 40% ($n = 18$) believed they had the right to engage in crime or take what they want and reflect an attitudes of privilege and ownership, 49% ($n = 22$) had a need to exert control or power over others and situations, 27% ($n = 12$) believed their good

behaviour outweighed their criminal behaviour and lack of insight, a further 32% ($n = 14$) believed they would not receive any negative consequences for criminal actions, 42% ($n = 19$) had poor critical reasoning, and 47% ($n = 21$) demonstrated poor follow through in plans and goals and therefore will show inconsistencies between thinking and behaviour. A higher rate of the sample ($n = 29$, 64%) demonstrated elevated reactive thinking suggesting thoughts reflect an impulsive and 'hot headed' approach to offending, with 49% ($n = 22$) showing elevated proactive thinking, with their thoughts reflecting a planned and calculated approach to offending. The most endorsed thinking styles were *Co, Po*, and *Ds,* with *RCT* showing greater endorsement than *PCT*. As shown in Figure 1, these results on elevated profiles are also consistent with previous research on MDOs in the US (e.g., Morgan *et al*., 2010).

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Criminal thinking styles: MDOs and non-MDOs

To assess whether the MDO sample demonstrated criminal thinking styles at a higher level than non-MDOs, mean PICTS scores across the eight subscales from the current MDO sample were compared with general offenders from the UK (e.g., Palmer and Hollin, 2003). As Palmer and Hollin (2003) did not convert their raw PICTS scores into T-scores when they compared PICTS scores from UK offenders with US offenders, the means from the raw PICTS scores within the current study were used as a comparison. As shown in Table IV, MDOs demonstrated higher mean scores across all eight thinking style scales when compared to a sample of non-MDOs.

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To determine whether these differences were statistically significant, scores from the current sample were compared with the prisoners' scores using a one-sample *t*-test. Palmer and Hollin's (2003) mean score served as the population mean to determine any significant

differences between the two samples. Palmer and Hollin (2003) used this method to compare their data with US PICTS scores, and the replication of this method in the current study allowed for a direct comparison of UK MDO and non-MDO PICTS scores. Palmer and Hollin (2003) utilised the PICTS Version 3.0, and as a result of the differences between Version 3.0 and 4.0 (Walters, 2013), only the eight thinking style scales could be compared. MDOs scored significantly higher than non-MDOs on six of the eight criminal thinking sub-scales, with only the *Sn* and *So* scales not showing any significant differences between the two samples.

As Palmer and Hollin's (2003) original study compared their data with general offenders from the US (i.e., Walters, 1995a), with results indicating significantly higher scores for UK prisoners compared to US prisoners on all the scales except So, it could be further inferred that MDOs appear to show significantly higher scores on most of the criminal thinking sub-scales, indicating higher-level thinking patterns associated with a criminal life style.

Discussion

The results of the study found that the utility of the PICTS among MDOs in the UK was reliable, with the subscales demonstrating good to excellent internal consistencies. Reliability analysis further indicated comparable results to previous research with MDO and non-MDO populations in America and the UK. The study also examined the prevalence of criminal thinking within the sample, with similar findings to previous research on MDO populations in America (e.g., Carr *et al.*, 2009; Morgan *et al.*, 2010; Wilson *et al.*, 2014).

The current sample endorsed criminal thinking across all PICTS subscales. The high elevation rate found in the *GCT* scale indicates that the majority of the sample have criminal belief systems supportive of a criminal lifestyle (Walters, 2013), suggesting that the criminal cognitions of the current sample is a key risk factor. These findings are consistent with the

MDO literature on criminal thinking patterns being a prominent treatment need for these offenders (Bonta *et al.*, 2013; Skeem *et al.*, 2013), one which requires assessment and intervention (Epperson *et al.*, 2011; 2014). Likewise, the highest levels of clinical significance were found in the Cutoff and Discontinuity scales, which assesses impulsivity and lack of focus, these rates were further supported by literature related to impairments present in MDOs (Epperson *et al.*, 2011; Wolff *et al.*, 2013). The elevated rates found in the Power Orientation scale, however, which indicates a sense of control over others and was been associated with discipline problems, was not suggested to be highly endorsed within some previous MDO research (e.g., Wilson *et al.*, 2014). Although other research on MDOs (e.g., Bulten *et al.*, 2009; Morgan *et al.*, 2010) has found high endorsement rates of the Power Orientation scale. Bulten *et al.* (2009) reported that offenders with certain mental disorders appear to be more likely to endorse significantly higher rates of Power Orientation.

As the MDO sample within the current study had various mental illness and personality disorder diagnoses, similar to previous MDO studies which found Power Orientation to be significantly endorsed, it could be argued that this sub-scale may be highly endorsed within MDO populations that exhibit certain types of disorders. In particular, while Wilson *et al.* (2014) found the Power Orientation scale was not significantly endorsed within their MDO sample, the majority of participants in the study had either a major mood disorder or schizophrenia. In contact, similar to Morgan *et al.* (2010), the participants in the current study were diagnosed with various mental disorders, this could therefore reflect the reasons for this higher endorsement of this sub-scale. As the main aim of this study was to evaluate the utility and reliability of the PICTS in an MDO population, while further exploration between the association of certain mental disorders and the endorsement of particular sub-scales is beyond the scope of the current paper, this is an area that should be explored further in future research.

Other findings of note were the low endorsement of Sentimentality and Superoptimism in the current sample. As suggested by Bulten *et al.* (2009), high endorsement of Sentimentality reflects an offender who fails to recognise the harm their offending causes others. The low endorsement of Sentimentality within this samples therefore suggests that most of the MDOs appear to demonstrate some insight into the harm their offending causes.

Likewise, the lower endorsement of Superoptimism suggests that most of the MDOs in the current sample were aware of the negative outcomes related to offending, however, this did not act as a deterrent to their offending behaviour. Accordingly, the low endorsement of Superoptimism and Sentimentality reflects the high endorsement of *RCT*, which denotes an offender who is more likely to act first and think later. Nonetheless, while there were greater elevations in the *RCT* compared to the *PCT*, these were not significant, therefore indicating that both these dimensions are relevant when considering the cognitions linked to offending in MDOs.

Overall, the results of the current study are consistent with the previous research on MDOs in prison settings, both in the UK and US (Morgan *et al.*, 2011; Wilson *et al.*, 2014), indicating that criminal cognitions found within MDO populations reflect the impairments – e.g., impulsivity, issues with problem solving, lack of emotional control, and problems following through plans - that are reported within the MDO literature (APA, 2013; Epperson *et al.*, 2011; Walters, 2013; Wolff *et al.*, 2013).

When investigating the endorsement of criminal thinking across MDOs and non-MDOs in the UK, MDOs in the current study scored significantly higher than non-MDOs on six of the eight criminal thinking sub-scales, with only the Superoptimism and Sentimentality scales not showing any significant differences between the two samples. The higher scores across the majority of scales suggests that MDOs appear to demonstrate more extreme levels of criminal thinking than general offending populations. This is in line with the MDO

literature which suggests that these offenders are at greater risk of offending when compared to the non-MDO population (Bonta *et al.*, 1998; Skeem *et al.*, 2013), with criminal cognitions being a risk factor that should be targeted alongside treatment in MDO populations (Epperson *et al.,* 2011; 2013). The findings also support the research by Morgan *et al.* (2010), who compared results from their MDO sample with Walters and Geyer's (2005) non-MDO sample, and demonstrated that MDOs scored significantly higher on all the PICTS scales except the Sentimentality scale.

It could be argued that the non-significant difference for the Sentimentality scale might be down to this scale no longer being seen as a key aspect of criminal thinking. Walters *et al.* (2011) carried out confirmatory factor analysis on the PICTS items, with their results suggesting that the Sentimentality scale was a poor indicator of general criminal thinking. Palmer and Hollin's (2003) research with UK prisoners also found Sentimentality to have a poor internal consistencies and had generally low endorsement within the sample. This could reflect that this scale, or the items within the scale, do not reflect a cognition that UK offenders endorse. This is further in line with Walters' (2013) newer manual and research (Walters, 2006b; Walters, 2011) which suggested Sentimentality did not appear to reflect a core thinking style.

The lack of significant difference on the Superoptimism scale within the current sample, however, is arguably more important to explore further, as this scale is considered a stronger measure of criminal thinking. Thus, it cannot be concluded that MDOs experience higher levels of Superoptimism and Sentimentality than non-MDOs, although additional research to confirm this would be beneficial. Except for these two scales, the current findings show the increased prevalence of criminal thinking that is experienced by UK offenders with a mental disorder compared to those without, highlighting the role that mental disorder plays in an offender's criminal thinking.

The findings from the current study therefore offer further insight into the criminal cognitions of MDOs in the UK, and in particular, how these cognitions compare with non-MDOs. Overall, MDOs appear to demonstrate greater levels of reactive criminal thinking which reflects the traits and impairments seen in this population. This study indicates MDOs are aware of the negative consequences of offending, however, due to the high endorsement of reactive thinking, and it suggests that this sample acts first and thinks later. As McCoy *et al.* (2006) highlighted, the PICTS is a useful measure for assessing risk factors in order to provide crime prevention strategies in high-risk offenders.

With regard to the current study, if existing and future interventions were able to apply these findings, they may be better able to target the different criminal thinking styles, process errors, and cognitive justifications experienced by MDOs. Furthermore, with MDOs showing significantly higher rates of criminal thinking, compared to non-MDOs, these findings further demonstrate that MDOs are both mentally ill and criminals and are therefore in need of both specialist support and rehabilitation approaches. Thereby, reinforcing the need that MDOs should have better access to forensic mental health services, such as MSUs, which provides the intensive support and patient-centred care needed to improve their chances of recovery and rehabilitation (Clarke *et al.*, 2016; Livingston *et al.*, 2012; Rutherford and Duggan, 2008). Additionally, the implementation of the Offender Personality Disorder pathways, a joint initiative between Her Majesty's Prison and Probation Service and NHS England (HMPPS & NHS, 2020), also affords the opportunity to more explicitly support and respond to the psychological needs of complex and challenging offender groups, such as MDOs. Therefore, in agreement with Morgan *et al.* (2010), the findings presented here further stress the importance of treating both mental disorder and criminality and the effects they may be having on one another (Morgan *et al.*, 2010). This approach is pertinent given both psychological treatment and offending behaviour interventions in combination

are considered most effective in reducing recidivism in MDOs (Gross and Morgan, 2012), and in turn would be responsive to the UK Governments strategy on 'Breaking the Cycle: Effective Punishment, Rehabilitation and Sentencing of Offenders' (MOJ, 2010; 2011)

Despite these insights, further research is required to determine the most effective treatments and interventions for MDOs. With that, as this study is the first in the UK, and one of the very few globally, to compare the criminal thinking styles of MDOs and non-MDOs, while results provided further understanding into the impartments that mental disorders can have on criminal thinking, more research on MDOs and the utility of the PICTS is needed to help provide more generalised results. In particular, while the sample size in the current study was larger than most UK based studies on MDOs and in terms of statistical relevance, was considered an adequate sample size (Field, 2018), compared to other studies which utilize the PICTS, it was relatively small. Additionally, the MDOs in the current study were diagnosed with a range of mental disorders and thus the impact that specific mental disorders may have on criminal thinking patterns could not be explored. As such, more research needs to be done with larger MDO samples, taking into account the impact that specific mental disorders may have on criminal cognitions.

Whilst more research is still needed in the area, the current study was the first in the UK to take these initial steps, evaluating the utility and reliability of the PICTS within an MDO sample, and comparing results to US MDOs and general offenders in the UK. The findings not only showed the PICTS to be a reliable measure for the sample, but also provided evidence to indicate that MDOs in the UK endorse criminal cognitions at a similar level to MDOs in the US, and at a significantly higher level than general UK offenders.

Implications for practice

- There is evidence from the current results to suggest that MDOs endorsed criminal thinking across all PICTS subscales.

- Results indicate cross cultural evidence that criminal cognitions found within MDO populations are higher and more extreme than general offending populations, evidencing that the criminal cognitions of MDOs are a key risk factor and is a prominent treatment need that requires assessment and intervention.

- Preliminary support for the PICTS as a valid and useful tool for assessment of criminal thinking styles in MDOs.

- More research on MDOs and the utility of the PICTS is needed to help provide more generalised results. In particular, exploring the impact that specific mental disorders may have on criminal thinking patterns.

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