

A Person-Centered Approach to Research on the Nature and Meaning of Psychopathy–Brain Relations

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The article by Korponay *et al.* (1) in this issue of *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* is an important contribution to our understanding of the neurobiological bases of psychopathy. It describes interesting associations among striatal neurobiology and the Psychopathy Checklist–Revised (PCL-R) (2). In particular, it provides evidence that factor 2, but not factor 1, is associated with “enlarged striatal subnuclei and aberrant functional connectivity between the striatum and other brain regions.” This finding is consistent with empirical evidence that the impulsive/antisocial dimensions of psychopathy are related to the anticipation and attainment of reward (2).

Several of the authors are leaders in their field, and I leave it others to evaluate the technical aspects of the imaging procedures described by Korponay *et al.* (1). I offer a potential connection between their findings and recent person-centered research using latent profile analysis (LPA) to delineate theoretically meaningful latent classes (LCs) of offenders, based on the four-factor model of the PCL-R. I also provide some brief comments on the issue of whether neuroimaging research indicates that psychopathy is characterized by dysfunctional or abnormal brain structure and function.

The two-factor model of psychopathy (factor 1: interpersonal/affective; factor 2: lifestyle/antisocial) is in wide use, with many replicable findings in cognitive and affective neuroscience. In some situations, the four-factor model (interpersonal, affective, lifestyle, and antisocial) provides a more nuanced picture of the associations between psychopathy and a variety of behavioral, criminal justice, and neurobiological variables (2–4). The reason is that the dimensions that make up factors 1 and 2 often relate to other variables in different ways. The four-factor model also lends itself readily to conducting LPA.

My colleagues and I (5–7) have performed person-oriented LPAs of the PCL-R four-facet profiles, with results that are relevant to the findings of Korponay *et al.* (1). For example, Mokros *et al.* (5) conducted an LPA of the facet profiles of 1451 male offenders with a PCL-R score ≥ 27 . Three LCs emerged (Figure 1). We viewed LCs 1 and 2 as reflections of two variations on the theme of psychopathy, one manipulative (LC1) and the other aggressive (LC2). LC3 differed dramatically from the other LCs, with a low score on the interpersonal facet, a very low score on the affective facet, and very high scores on the lifestyle and antisocial facets. Put another way, LC3 was low on factor 1 and high on factor 2. We labeled this LC as sociopathic, but it might also be referred to as an externalizing or antisocial personality disorder class.

Mokros *et al.* (5) conducted a supplementary LPA on 856 offenders with a PCL-R score of ≥ 30 . Two LCs emerged, labeled LC1 and LC2, virtually identical to the like-named profiles in Figure 1.

These LPA data relate to the Korponay *et al.* (1) study because of their finding that factor 2, but not factor 1, was associated with striatal structure and function. They stated that “Consideration of factor 1 findings is important because factor 1 traits are unique to psychopathy, whereas factor 2 traits may be shared with other externalizing disorders such as antisocial personality disorder.” Actually, many factor 1 traits are shared by members of the dark triad: psychopathy, Machiavellianism, and narcissism (8). With respect to factor 2, our LPA research suggests that Korponay *et al.* (1) may have underestimated the striatal group differences because of the likely presence in their psychopathic offenders of manipulative psychopaths (LC1), with a relatively low score on the antisocial facet. In this case, their factor 2 score would be lower than that of the aggressive psychopaths (LC2), thus attenuating the observed psychopathy–striatal effects. Parenthetically, examination of the striatal brain correlates of LC1 offenders would help to determine if effects are more related to one of the facets in factor 2 than to the other, or if the effects require a high score on each factor 2 facet.

Some offenders with intermediate PCL-R scores (27–30) probably fit the LC3 profile, with a low score on factor 1 and a high score on factor 2. If so, this would reduce the striatal differences between offenders with moderately high PCL-R scores and those with very high PCL-R scores.

Finally, several LPAs of the PCL-R facet scores of an entire sample of offenders have identified four LCs (6,7). We interpreted the four profiles as reflecting the following: a psychopath group (C1), with a mean PCL-R score of 28.4 and elevations on all four

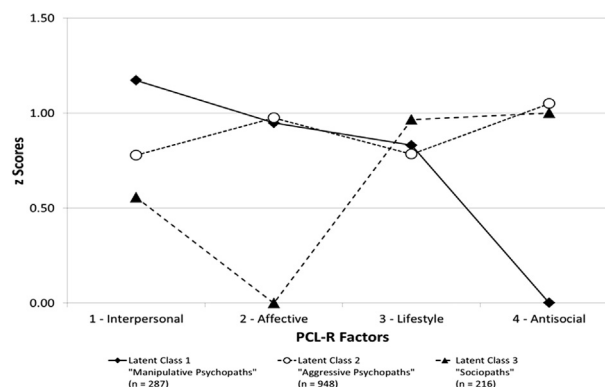


Figure 1. Mean z scores of each latent class on each Psychopathy Checklist–Revised (PCL-R) facet, referenced against the mean facet scores of 5408 male offenders described in the PCL-R Manual (2), depicted on the bottom line as a z score of 0. The offenders each had a PCL-R score ≥ 27 . [Adapted from Mokros *et al.* (5) with permission.]

SEE CORRESPONDING ARTICLE ON PAGE 149

PCL-R facets; a callous-conning group (C2), with a PCL-R score of 16.8 and elevations mainly on the interpersonal and affective facets; a sociopathic offender group (C3), with a PCL-R score of 19.6 and elevations on the lifestyle and antisocial factors; and a general offender group (C4), with a mean PCL-R score of 8.9 and a low score on all factors. C1 breaks down into the two variations on the theme of psychopathy (LC1 and LC2) described above. I expect that C1 and C3 will show psychopathy–striatal associations similar to those reported by Korponay *et al.* (1).

Elsewhere (9), I asked what implications neuroscience has for the criminal justice system, particularly with respect to psychopathy and legal culpability: Is psychopathy a mitigating factor or an aggravating factor? Space does not permit a detailed discussion of this and related questions, and I encourage the reader to read the full account (available at www.hare.org), from which the following quotations and much of the material is taken, with permission of Oxford University Press (9). Most neuroscience researchers refer to psychopathy in terms of some form of neurobiological deficit, dysfunction, deviance, or abnormality. But what are the ranges of “normality” and how different from “normal” do brain structure and function need to be in order to be considered “abnormal” or “deviant” for theoretical and legal purposes? In most cases the effect sizes for psychopathy–brain findings are small to moderate.¹

We should consider the possibility that the actions of psychopaths reflect cognitive, affective, and behavioral processes and strategies that are different from those of other people, but for reasons other than neuropathology or deficit, in the traditional medical and psychiatric sense of the terms. I say this because it is tempting for experts and laypersons alike to explain the callous, manipulative, and remorseless behavior of psychopaths in terms of “something” that doesn’t work properly. Such explanations are understandable when the observed differences between psychopathic and other individuals involve brain regions and circuitry that are related to emotional, social, and executive functions. It is not surprising that many observers view clinical descriptions and empirical findings through a prism of dysfunction when dealing with adjudicated criminals, particularly those who are violent. It is more difficult to do so with respect to psychopathic entrepreneurs, stock brokers, financial consultants, politicians, clinicians, lawyers, academics, and so forth.

The issues associated with describing psychopathic offenders as dysfunctional or “damaged” are reflected in the recent application of imaging research to the legal system (10).

My own view is that psychopathic individuals have an intellectual understanding of the rules of society and the conventional meanings of right and wrong, and know enough about what they are doing to be held accountable for their actions. Like Iago in Shakespeare’s *Othello*, they choose which rules to follow or to ignore, based on their own self-interest and a lack of concern

¹Although Korponay *et al.* (1) used the PCL-R total and factor scores as continuous variables, they provided a table containing data for three PCL-R groups (psychopathic, PCL-R score >30; intermediate; and nonpsychopathic, PCL-R score <20). It would be interesting to know what proportion of participants in each group had striatum volumes and functions that might be considered “pathophysiological.”

for the feelings or welfare of others. They lack empathy, guilt, or remorse for their actions, and are emotionally “disconnected” from others. But they do not ignore or impulsively break every moral or legal code, nor do they make everyone they encounter a victim. There is little doubt that many psychopathic features are associated, in theoretically relevant ways, with a variety of brain structures and functions that differ from those of many other individuals. But this does not necessarily mean that they suffer from a neurological deficit or dysfunction. Indeed, psychopaths might claim that because they are not encumbered by emotional baggage they are more rational than most people. As a psychopathic offender in one of my research projects put it, “The psychiatrist said that my problem is I think more with my head than with my heart.” He did not see this as a problem, and went on to say that he was “a cat in a world of mice.” This unintended but succinct allusion to the evolutionary view of psychopathy as an adaptive life strategy implied that he merely was doing what nature intended him to do.

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Article Information

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