

THE ASSESSMENT OF PSYCHOPATHIC TRAITS IN PERPETRATORS WITH SCHIZOPHRENIA AND PSYCHOPATHY AS COMORBIDITY

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SUMMARY

This paper discusses the assessment of psychopathic traits in perpetrators with schizophrenia in the light of common assumption that perpetrators with schizophrenia are not homogenic group but rather heterogenic group whose future risk does not rest exclusively on the psychopathology of the underlying disease. Our sample consists of 150 perpetrators with schizophrenia who committed a criminal act and were subjects of forensic evaluation in the University Hospital of Psychiatry Vrapče, Center for Forensic Psychiatry throughout a period of 11 years. All data were extracted from written evaluations. In our research, the assessment of psychopathic trait was performed by PCL-R (Psychopathy Checklist- Revised) - the assessment tool rarely used in Croatia. Data were analysed by methods of descriptive statistics and multivariate discriminatory analysis. Our results show that some of psychopathic traits exist in all of our evaluatees, but with markedly different intensity. The average PCL-R score was 19,92 (SD=8,30), and by defining the cut off at 26, our subjects were divided into two groups: subjects with a higher level of psychopathy trait (High-P) and those with a lower level of psychopathy trait (Low-P). These two groups showed significant differences in all of the items. The confirmation of our hypothesis opens new areas for discussion and future research: problem of comorbidities in patients with schizophrenia in a forensic setting and a rationale for the routine usage of PCL-R in forensic evaluations.

Key words: schizophrenia – psychopathy - PCL-R - comorbidity

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INTRODUCTION

The paradigm of a psychiatric condition – schizophrenia – has presented challenge for many researchers throughout history. Due to its phenomenological variety and researchers' ambitions for better understanding the disorder, finding new and better therapeutic options for patients and improving ways to assess future risks as precise as possible, it stays one of the major topics of interest in psychiatry. Many comorbidities between schizophrenia and other conditions are described and reported, but only a few studies focused on relationship between psychopathy and schizophrenia. Most often, psychopathy is assessed by the PCL-R (Psychopathy Checklist-Revised), which was developed and validated by Hare in 1991 (Buzina 2012). Since then, PCL has consistently been improved to the 20-item scale with four factors included (Hare 2020). However, previous studies of psychopathic traits associated to schizophrenia are rather inconsistent. The study conducted on 51 individuals with diagnosed schizophrenia showed that comorbidity between psychopathy and schizophrenia increased risk for committing violent criminal offences (Nolan et al. 1999). Presence of psychopathic traits among violent male perpetrators diagnosed with schizophrenia was investigated in a Swedish study in 2002 (Tengström & Hodgins 2002). The cohort was assembled of male subjects who underwent an evaluation with PCL-R, between 1988 and 1993. After defining the score of 26 as a cut-off, prevalence of psychopathy reached 21 %,

with an average score 17.96 (SD=7.8). In the Canadian study from 1995 (Rice & Harris 1995), prevalence of 8% was detected (total sample was 161). In both studies, the PCL-R assessment was performed by means of medical reports. Rasmussen and Levander in 1995 published results of their research - among patients with schizophrenia, prevalence of psychopathy was 25%. A dozen of other papers reported prevalence of psychopathy between 3% and 35% on samples of patients with severe psychiatric diagnosis (Hart & Hare 1989, Heilbrun et al. 1998, Hodgins & Cote 1998, Young et al. 1998). Many studies show that PCL-R total score in patients with schizophrenia can be a good predictor of violent recidivism, especially when it comes to committing violent crimes. Salekin et al. in 1998 published a meta-analysis which confirmed that PCL-R score correlates moderately to strongly with both violent and nonviolent recidivism. Bont et al. conducted another meta-analysis where importance of some other factors, such as criminal history and early onset of antisocial behaviour, were pointed out. In their cohort study that included patient with schizophrenia, Tengström et al. in 2002 showed that those who had comorbidity of schizophrenia and psychopathy were four times more likely to commit a criminal offence in future than those with a mere diagnosis of schizophrenia (OR=4.12). Interestingly, odds ratios for substance use disorder and behavior problems at school were lower (OR=3.30 and OR=2.06, respectively). Psychopathic traits in patients with schizophrenia were subject of interest in a study conducted by

Abushua'leh et al. in 2006. Although primarily with a small sample (N=35), they divided it into two sub-samples - aggressive (N=12) and not aggressive (N=16). The results suggested that improving the underlying disease in terms of reducing psychotic symptoms did not decrease the rate for recidivism in patients with a high psychopathic profile. Regarding the fact there has been no prior studies in Croatia which investigated psychopathic traits in perpetrators with schizophrenia, we believe this study will contribute to the better understanding of criminal behaviour in individuals with schizophrenia, but at the same time, open up new organizational and therapeutic possibilities when it comes to an adequate treatment of patient in forensic facilities.

SUBJECTS AND METHODS

Sample

Our sample consisted of 150 perpetrators of a criminal act who were diagnosed with schizophrenia and were evaluated throughout a period of 11 years in the University Psychiatric Hospital Vrapče, Center for forensic psychiatry. Inclusion criteria, regardless of individuals' sex, were the diagnosis of schizophrenia given by two independent psychiatrists according to the ICD-10 and DSM-IV criteria and commitment of a criminal act. Subjects who were diagnosed with either a severe physical or neurological condition were excluded from the study. In our sample, 90% of them were male, 10% were women. Their age ranged from 17 to 72 (AV=37.73, SD=11.8). The majority of subjects were in the age group 28-39, followed by 39-50 (29%). 21% of the subjects were of the age between 17 and 28, while 16% of them were within the range of 50 to 69 years. Only 1% of subjects were above 61. Prior psychiatric treatment was reported in 90% of subjects. The average age at which a psychiatric disorder was registered was 26.76 (SD=8.72). The youngest subject was 12 when psychiatrically treated for the first time, whilst the oldest was 61. Average age at which subjects committed criminal acts for the first time was 31.21 (SD=12.09). The youngest perpetrator was 11 and the oldest was 61. Murder or attempted murder were the criminal acts for which the subjects were most often evaluated for (35.3%), followed by offences against property with 18.7% and treasuring, robbery and causing bodily injury with 9.0%.

PCL-R (Psychopathy Checklist-Revised)

The Psychopathy Checklist-Revised (PCL-R), introduced by Hare (2008, 2003, 1991) made operationalization of psychopathy possible. It is a 20-item scale, with each item being rated on a three-point scale with 0= "does not apply", 1= "applies to some extent", and 2="applies". An individual can obtain a score between 0-40. After initial two-factor model, in 2005 Hare and Neumann proposed a four-factor model, namely Inter-

personal (glibness/superficial charm, grandiose self-worth, pathological lying, conning/manipulative), Affective (lack of remorse or guilt, shallow affect, callous/lack of empathy, failure to accept responsibility for actions), Lifestyle (need for stimulation/proneness to boredom, impulsivity, irresponsibility, parasitic lifestyle, lack of realistic long-term goals), and Antisocial (poor behaviour control, early behaviour problems, juvenile delinquency, revocation of conditional release, criminal versatility) (Zwets et al. 2015). There are two possible ways of performing PCL-R assessment: based on a semi-structured interview and information from written evaluations or based solely on written evaluation. Some experts suggested a threshold of 26 as indicative for psychopathy, and therefore we also took 26 as a cut-off for distinguishing subjects with a lower PCL-R score from those with a higher score. Hare and colleagues reported very good metric properties and recommended the instrument for assessing psychopathic traits (Hare 2006; Hare et al. 2005, 2006, Neumann et al. 2007, Bolt et al. 2004; Guay et al. 2007, Hare & Neumann 2008). In her thesis, the author of this paper N.B. translated PCL-R to Croatian, and reported acceptable validity after a factor analysis on the assessments of patients diagnosed with schizophrenia in the forensic facility. Three distinguished factors were extracted, with very good metric properties ($\lambda_6=0.961$; $\alpha=0.931$; $\rho=0.922$; $r_{tt}=0.922$; $R=0.948$; $h=0.373$) (Buzina 2011).

Data analysis

Methods of descriptive statistics were used to determine frequencies (absolute and relative), average values and standard deviations. To assess the distribution of PCL-R scores, the sample was divided into strata, starting from the lowest score to the highest, using the Kolmogorov-Smirnov test. After identifying two groups (Low-P and High-P), the multivariate test was performed. Factor analysis was performed on both the Low-P and the High-P subsample in order to determine the latent structure of the two scales, respectively. In addition, Pearson correlation matrices were calculated. Orthogonal and oblique rotation were done as well as pattern and structure matrices. Since the structure matrices were designed, congruence factors between them had to be calculated. Considering statistical significance ($p<0,001$), we proceeded to determine which of the variable had significantly different means. In order to check whether the differences between low-P and high-P were significant, a discriminant function was extracted by using software for robust discriminant analysis ROBDIS (Nikolić 1991) followed by calculation of average values for subjects with the low level of psychopathy (Low-P) and those with the high level of psychopathy (High-P), respectively. Moreover, SD, F-test and type I error (alpha) were also calculated. To determine differences between each variable covering psychopathic traits, univariate analysis was performed.

RESULTS

The average score in the overall sample (N=150) on PCL-R scale was 19.92 (SD=8.30). The lowest reported score was 4.2 and the highest score 37.0 out of maximum score of 40.0. The average score for High-P subjects (score above 26) was 29.31 (SD=3.27), while Low-P subjects completed questionnaire with the average score of 14.94 (SD=5.31). After dividing our total sample into strata based on PCL-R score, we found the following results: The majority of subjects had a total PCR-R score somewhere between 23.9-30.4, followed by 23% of subjects who had 10.8-17.3, 19% of them had 4.2-10.8, and the least percentage of subjects (11%) had the result between 30.4 and 37. In Table 1. the distribution relative frequencies (%) pertaining to Low-P and High-P subjects and every PCL-R items separately are provided. It is important to highlight that Low-P subjects, generally, had more 0s (“does not apply”) and 1s (“applies to some extent”) categories, whereas high-p subject had more 1s (“applies to some extent”) and 2s (“applies”).

In Low-P subsample four significant components were extracted based on PB criteria (Momirović & Štalec 1984). These four components take up to 55.8% of total variance Factor 1 (“pathological affect and irresponsible lifestyle”) consists of the following items: PCL-R7, PCL-R13, PCL-R16, PCL-R6, PCL-R6, PCL-R15, PCL-R9. Factor 2 consists of two very strong variables: PCL-R1 and PCL-R2 (0.87; 0.83). According

to its content, this factor can be named “shallow interpersonal relationships”. Factor 3 is defined by PCL-11 and PCL-R17, although with medium correlations (0.0; 0.65), thus it can be named “high risk sexual lifestyle”. Factor 4 (“high risk and antisocial lifestyle) contains the following items: PCL-R3 and PCL-R18, also with medium correlatons (0.78; 0.68). In Table 2, the proportions of total variance of each factor along with correlations between factors are presented. The correlation (0.45) between Factor 1 and Factor 2 indicates a certain “overlap” between these two factors.

In High-P subsample five components were identified which pertained to 57.22% of total variance. Factor 1 (“shallow interpersonal relationships”) consists of the following items: PCL-R1, PCL-R2, PCL-R3, PCL-R11. These correlate with factor 1 at the range of 0,60-0,82. Factor 2 consists of three variables: PCL-R18, PCL-R19 and PCL-R20. These items correlate negatively (from -0.64-0.78). According to its content the factor can be named “poorly expressed antisocial behaviour”. Factor 3 is defined by PCL-10, PCL-R14 and PCL-R15, although with medium correlations (0.76; 0.72 and 0.64), thus it can be named “impulsive lifestyle”. Factor 4 (“pathological affect) contains two strong following items: PCL-R6 and PCL-R8 (0.83 and 0.71). Factor 5 (“adaptive lifestyle”) is defined by the following items: (PCL-R13; -0.81), and PCL-R12, PCL-R9 and PCL-R5 with weaker correlations at the range from -0.45 to 0.57. In Table 3, the proportion in total variance of each factor along with correlations between factors are provided.

Table 1. The percentages of the distribution of relative frequencies of PCL-R scores in low-p and high-p subjects. (N=98)

| Items | Low-P (65.3%) Categories | | | High-P (34.7%) Categories | | |
|---------|-----------------------------|----|----|------------------------------|----|----|
| | 0 | 1 | 2 | 0 | 1 | 2 |
| PCL-R1 | 64 | 35 | 1 | 29 | 58 | 13 |
| PCL-R2 | 59 | 35 | 6 | 19 | 64 | 27 |
| PCL-R3 | 41 | 57 | 2 | 58 | 42 | 0 |
| PCL-R4 | 54 | 46 | 0 | 4 | 60 | 37 |
| PCL-R5 | 34 | 59 | 7 | 15 | 85 | 0 |
| PCL-R6 | 5 | 53 | 42 | 2 | 98 | 0 |
| PCL-R7 | 2 | 71 | 27 | 38 | 62 | 0 |
| PCL-R8 | 3 | 63 | 34 | 6 | 94 | 0 |
| PCL-R9 | 40 | 49 | 11 | 6 | 33 | 62 |
| PCL-R10 | 1 | 59 | 40 | 8 | 92 | 0 |
| PCL-R11 | 89 | 10 | 1 | 73 | 25 | 2 |
| PCL-R12 | 68 | 30 | 2 | 6 | 40 | 54 |
| PCL-R13 | 11 | 59 | 30 | 17 | 83 | 0 |
| PCL-R14 | 7 | 62 | 31 | 15 | 95 | 0 |
| PCL-R15 | 8 | 63 | 29 | 4 | 96 | 0 |
| PCL-R16 | 3 | 50 | 47 | 8 | 92 | 0 |
| PCL-R17 | 96 | 4 | 0 | 92 | 8 | 0 |
| PCL-R18 | 94 | 5 | 1 | 23 | 35 | 42 |
| PCL-R19 | 90 | 7 | 3 | 23 | 44 | 33 |
| PCL-R20 | 89 | 10 | 1 | 21 | 31 | 48 |

Table 2. The proportion of factors in total variance and correlations between factors in Low-P subsample (N=98)

| Factors | Variance (N) | Variance (%) | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|----------|--------------|--------------|----------|----------|----------|----------|
| Factor 1 | 5.12 | 45.92 | 1 | 0.14 | -0.12 | 0.45 |
| Factor 2 | 2.20 | 19.73 | 0.14 | 1 | 0.10 | 0.14 |
| Factor 3 | 1.83 | 16.41 | -0.12 | 0.10 | 1 | -0.17 |
| Factor 4 | 2.00 | 17.94 | 0.45 | 0.14 | -0.17 | 1 |
| | 11.15 | 100 | | | | |

Table 3. The proportion of factors in total variance and correlations between factors in High-p subsample (N=52)

| Factors | Variance (N) | Variance (%) | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|--------------|--------------|----------|----------|----------|----------|----------|
| Factor 1 | 2.80 | 24.47 | 1 | 0.24 | -0.19 | 0.01 | -0.12 |
| Factor 2 | 2.41 | 21.07 | 0.24 | 1 | -0.14 | 0 | 0.07 |
| Factor 3 | 2.35 | 20.54 | -0.19 | -0.14 | 1 | 0 | 0.13 |
| Factor 4 | 1.87 | 16.35 | 0.01 | 0 | 0 | 1 | 0.11 |
| Factor 5 | 2.01 | 17.57 | -0.12 | 0.07 | 0.13 | 0.11 | 1 |
| | 11.44 | 100 | | | | | |

Table 4. Congruence factors based upon the structure matrices

| Factors | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|----------|
| Factor 1 | -0.097 | -0.179 | 0.312 | 0.34 | -0.466 |
| Factor 2 | -0.709 | 0.229 | -0.061 | 0.199 | -0.123 |
| Factor 3 | 0.506 | 0.735 | -0.445 | 0.06 | -0.096 |
| Factor 4 | 0.099 | -0.413 | 0.254 | 0.188 | -0.558 |

Table 5. Extracted discriminant function and average values for the Low-P and the High-P

| Discriminatory function | Average value | | SD | | F | P |
|-------------------------|---------------|--------|-------|-------|--------|---|
| | Low-P | High-P | Low-P | Low-P | | |
| 1 | -1.76 | 3.32 | 1.86 | 1.05 | 405.74 | 0 |

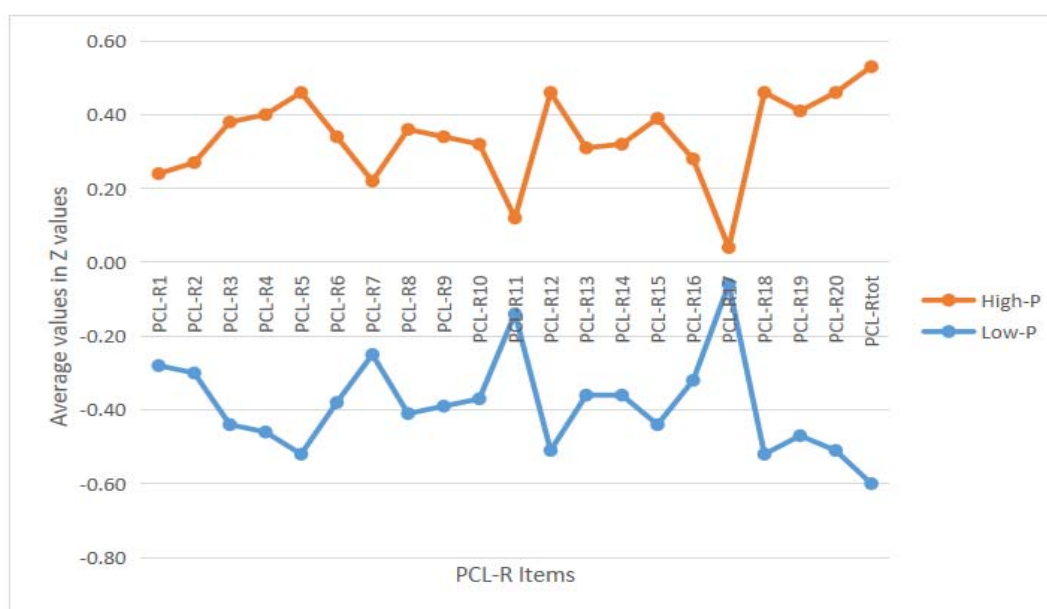


Figure 1. Graphical representation of differences between subjects regarding level of their psychopathic traits. PCL-R items are ordered in a such a way as they are assessed in PCL-R

As shown in Table 4, coefficients of factor congruence are very low. All of the coefficients are below 0.80 which suggests there are clear differences between the two structures. Results after robust discriminant analysis are summarized in Table 5. This was followed

by performing univariant analysis of variance in Z-values. After these calculations, we made graphical representation of differences based on their average values between subjects regarding level of their psychopathic traits (Figure 1).

DISCUSSION

Our results show that subjects with lower level of psychopathic traits and those with higher level of psychopathic structures can be completely distinguished from each other. This is also confirmed by robust discriminant analysis and based on these results, we can conclude the two groups differ in all PCL-R items and their structures are completely different. This result questions common view about patients with schizophrenia as a homogenic group whose risk for future violent behaviour lay only on descriptive psychopathology of their underlying condition. Similar as in other European countries, cut-off used in this study was 26 (Hildebrand & de Ruiter 2004). If only psychopathic traits are observed, it is apparent there are two groups - subjects with lower level of psychopathic traits (Low-P) and those with higher level (High-P). We emphasise here that based solely on these differences, different recommendation in therapeutic guidelines should be adapted. However, this does not indicate strict psychical separation during the treatment, but more complex approach should be taken when it comes to treating High-P patients with schizophrenia. However, it is important to pinpoint the importance of recognizing and separating symptoms of schizophrenia from psychopathic traits, hence avoiding facilitation of psychopathic traits and behaviour by improving symptoms of schizophrenia. The impact psychopathic trait can have on phenomenology of schizophrenia is reported in some papers. Abu-Akel et al. in 2015 showed that increased PCL-R scores in schizophrenia patient sample were associated with a decline in metacognitive abilities until cut-off was reached. Those with psychopathy scores above cut-off have their metacognitive abilities mostly intact. The authors believe this could contribute to explaining goal directed aggression among some individuals with schizophrenia. Therefore, future violence risk is increased. On the other hand, the term "double dose" can be found in literature. It pertains to greater impairment when comorbidity of psychopathy and schizophrenia occurs. Sedgwick et al. in 2017 proved there was greater impairment in sensorimotor gating characteristics of violent patients with both psychosis and psychopathy. This implies that heterogeneity among patients with schizophrenia and psychopathy. We believe PCL-R scale should be implemented in clinical forensic practice. Apart from mere informative knowledge about prevalence of psychopathy in patient with schizophrenia, application of the scale provides better risk assessment of future criminal behaviour in patients with schizophrenia according to many researchers (Haris et al. 1993, Forth et al. 1990, Hill et al. 1996, Quinsey et al. 1995, Rice & Harris 1992, Serin 1991, 1996, Serin & Amos 1995). Therefore, psychopathy as a comorbidity in patients with schizophrenia is considered as a construct posing the greatest risk for future criminal behaviour. Application of PCL-R could probably be the most appropriate during the psychiatric evaluation, so the best possible

treatment for an individual could be suggested or planned if the judge decide criteria for involuntary inpatient treatment in forensic facilities are met. After meticulous study of forensic written reports, it appears that not enough attention is paid for risk assessment which is in accordance with observation of other experts (Douglas et al. 2017). Besides, there are scattered references on risk factors with possible significance for future criminal behaviours, despite the fact that such information could guide future therapists in planning treatment. Therefore, highlighted risk factors should be certainly integrated in experts' conclusion for risk assessment. Within the field of forensic psychiatry, criminology and related disciplines more debates emerge regarding risk management as a specific area in the mental health field (Strand et al. 1999, O'Shea et al. 2013). However, necessity for proper education and experts' qualifications needed for PCL-R administration could present potential limitations in applying the scale along with additional costs.

CONCLUSION

Purpose of this study was to expand understanding of psychopathy in perpetrators with schizophrenia. We are addressing psychopathy as a comorbidity of schizophrenia which can have marked clinical and forensic significance. Our confirmed hypothesis contributed in opening new areas for discussion and future research: problem of comorbidities in patients with schizophrenia in a forensic setting and rationale for using PCL-R in forensic evaluation. Psychopathy as a comorbidity and its role in predicting redivism is still a topical issue. A more systemic approach, personnel motivated for an education and considerable financial resources are needed if we want to push the boundaries in better understanding psychopathy in general, especially in forensic psychiatry. It is indicative that new findings could potentially improve therapeutic outcomes which means not only better future for a patient but for whole society from which psychopaths emerge.

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Contribution of individual authors:

Nadica Buzina made substantial contributions to conception and design of this paper, extracting and interpretation of data, as well as in drafting the article. In addition, the author approved the final version.

Ante Periša has made suggestions about the scope of this paper as well as revising the manuscript and eventually contributed in writing.

Goran Arbanas has made suggestions about the scope of this paper and also edited and approved final version of the paper.

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