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ANALYSIS OF PSYCHOPATHOLOGICAL SYMPTOMS AND AGGRESSIVE EXPRESSIVE AND INSTRUMENTAL BEHAVIOR AS A FUNCTION OF THE RISK OF VIOLENCE IN OFFENDERS

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Abstract

The goal of this research was to identify the most characteristic psychopathological symptomatology and type of aggression (expressive and instrumental) in individuals who presented a higher risk of violence in a sample of offenders. The sample consisted of 285 incarcerated males aged 20 to 67 years (*M*= 34.73, *SD*= 10.34) and it was divided into three groups according to violence risk (high, moderate, and low). The instruments used were the Symptom Checklist-90-R (SCL-90-R), the Instrumental and Expressive Aggression Questionnaire (CAIE) and the Self-Appraisal Questionnaire (SAQ). The results showed that, as violence risk increases, the levels of psychopathological symptomatology increase, as do expressive and instrumental aggressive behaviors, although psychoticism and expressive aggression best predicted belonging to the moderate- and high-risk groups. Therefore, moderate violence risk is sufficient to establish prevention and intervention measures in this population.

KEY WORDS: *expressive aggression, instrumental aggression, offenders, psychopathology, violence risk*.

Resumen

El objetivo de esta investigación fue identificar la sintomatología psicopatológica y la tipología de conducta agresiva (expresiva e instrumental) más característica en aquellos individuos que presentaron un mayor riesgo de violencia en una muestra de delincuentes. La muestra se compuso de 285 varones ingresados en prisión con edades de entre los 20 y los 67 años (*M*= 34,73; *DT*= 10,34) y se dividió en tres grupos en función del riesgo de violencia (alto, moderado y bajo). Los instrumentos utilizados fueron el "Cuestionario de 90 síntomas revisado" (SCL-90-R), el "Cuestionario de agresión instrumental y expresiva" (CAIE) y el "Cuestionario de autovaloración" (SAQ). Los resultados mostraron que, a medida que la muestra presentó mayor riesgo de violencia, también fueron mayores los niveles de sintomatología psicopatológica, así como de comportamiento agresivo expresivo e instrumental, aunque la pertenencia a los grupos de riesgo moderado y alto fue mayormente predicha por el psicoticismo y la agresión expresiva. Por tanto, se puede tomar el riesgo de violencia moderado

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como suficiente para establecer medidas de prevención e intervención en esta población.
PALABRAS CLAVE: *agresión expresiva, agresión instrumental, delincuentes, psicopatología, riesgo de violencia*.

Introduction

The interest that underpins the understanding of repeated violent behavior, and concern about its reduction and control, have led to the recent development of a large amount of research on the assessment of the risk of recidivism (Camacho Espinosa, 2020; Martin et al., 2019; Sariaslan, et al., 2020; Tuominen et al., 2017). In this sense, determining the factors that promote recidivism can improve the measures used in offenders' risk management and treatment (Swogger et al., 2015).

As indicated by Hare (2001), violent behavior can be influenced by different kinds of factors (biological, psychopathological, psychological, family, and social) that usually intervene conjointly. Therefore, it is a common misconception that there is a direct and causal relationship between suffering from a mental disorder and committing a crime or a violent act (Echeburúa, 2018), so a unique predictor is insufficient. However, as psychopathology is part of these influential factors in violent behavior, we should determine its relationship with the risk of future violence.

In this line, as can be seen below, the investigations that have tried to clarify this issue differ in a key aspect: the methodology used to assess the risk of violence. While a small number of investigations focus on its assessment through the use of specific psychometric instruments (Joyal et al., 2011; Negatsch et al., 2019; Olver & Kingston, 2019), the rest focus on the assessment of empirical recidivism, that is, through data obtained concerning previous arrests, criminal records, new arrests, etc. (Calvo et al., 2016; Honegger & Honegger, 2020; Weizmann-Henelius et al., 2019).

In particular, regarding the assessment of the risk of violence with specific instruments, several studies agree on the importance of substance use disorders in the risk of violence, usually associated with other pathologies such as antisocial personality disorder (Joyal et al., 2011; Krona et al., 2017; Olver & Kingston, 2019) and/or psychotic disorders (Negatsch et al., 2019; Simpson et al., 2018). Despite these results, most of these studies agree about the overestimation of violence in people diagnosed with a mental illness. These results are more evident in the research by Rodrigues et al. (2016) and Lee and Hanson (2016).

On the other hand, studies based on empirical recidivism have also established a relationship between recidivism and substance use or dependence disorders (Honegger & Honegger, 2020; Nagata et al., 2019; Walsh et al., 2020; Wilton & Stewart, 2017), as well as with other psychic pathologies when such disorders are comorbid (Calvo et al., 2016; Cappai et al., 2017; Weizmann-Henelius et al., 2019).

Specifically, several studies relate personality disorders to future incarceration (Calvo et al., 2016), even specifying the type of disorder (Martin et al., 2019; Walsh et al., 2020; Weizmann-Henelius et al., 2019), associating recidivism with antisocial personality disorder. Research also refers to a wider range of mental disorders that affect future recidivism. For instance, Sariaslan et al. (2020) linked the diagnosis of several psychiatric disorders (depression, bipolar disorder, anxiety, personality and substance use disorders) with higher rates of violent outcomes. Tuominen et al. (2017) also associated the presence of anxiety, mood disorder, schizophrenia, psychosis, personality disorders, psychopathy, and substance abuse with more convictions. Kingston and Olver (2018) did not specify disorders but indicated the existence of small but significant associations between the presence of psychiatric symptomatology and the risk of recidivism.

Finally, we must also consider investigations that found no significant relationship between the presence of psychiatric pathology and recidivism (Bertone et al., 2013; Bolaños et al., 2020; Halle et al., 2020; Pluck et al., 2014; Veeh et al., 2018), or those that even found a negative relationship between the presence of a specific type of disorder, such as psychosis, and recidivism or the number of arrests (Prins et al., 2014).

Therefore, as can be seen, there are few investigations that have focused on the specific assessment of the risk of violence through instruments designed for this purpose, but it is very common to find studies based on empirical recidivism using a broad variability of methodology. Specifically, the samples studied differ, using psychiatric population (Bolaños et al., 2020; Joyal et al., 2011; Sariaslan et al., 2020), penitentiary population (Martin et al., 2019; Olver & Kingston, 2019; Walsh et al., 2020), or even community population (Halle et al., 2020). Also, not all research has focused exclusively on the study of male samples, but has also included women (Pluck et al., 2014; Simpson et al., 2018; Veeh et al., 2018; Weizmann-Henelius et al., 2019). On the other hand, the studies developed in this field do not always evaluate the relationship between a broad range of mental health problems and the risk of recidivism, but focus instead on more specific pathologies such as personality disorders or substance use disorders (Cappai et al., 2017; Martin et al., 2019; Pluck et al., 2014). Thus, all these different methodological approaches partially explain the variability of the results obtained.

Another factor used to understand this area is aggressive behavior, considered behavior aimed at producing harm, suffering, or injuries in another person who will try to avoid it (Anderson & Bushman, 2002). Among the proposed classifications of aggressive behavior, one of them differentiates between aggressive instrumental behavior and aggressive expressive behavior, on which our study will focus. The first typology is defined as a deliberate and controlled act having a specific purpose, and the second typology is an excessive and uncontrolled reaction to a stimulus perceived, exaggeratedly, as threatening (Barrat et al., 1999; Dodge, 1991; Dodge & Coie, 1987; Scarpa & Raine, 1997).

In this line, studies carried out in prison or forensic population base their findings on reactive and proactive criminal thinking and its relationship with the risk of future recidivism (Gonsalves et al., 2009; Walters, 2012, 2020a, 2020b). More specifically, Walters (2020a) concludes that the scale of reactive criminal thinking correlates with a higher level of criminal risk, while in his other research (Walters, 2020b), although without finding significant results, he concludes that proactive criminal thinking shows a clear mediating effect between the presence of violent domestic antecedents and future intimate partner violence.

Gonsalves et al. (2009) sought to evaluate the predictive capacity of recidivism of the Psychological Inventory of Criminal Thinking Styles (PICTS; Walters, 1995). They found that the proactive factor of criminal thinking, evaluated through criminal data, was the only predictor of recidivism. Finally, the results obtained by Walters (2012) indicated that reactive criminal thinking correlates with the previous history of substance use and plays a potentially important role between such prior history and recidivism.

These discrepancies are also observed in investigations focusing on the relationship between the two types of aggressive behavior and recidivism (Claix & Pham, 2004; Ennis et al., 2017; Rouchy et al., 2019; Swogger et al., 2015; Zabala-Baños et al., 2019).

Among the studies that assess the risk of violence through specific psychometric instruments is that of Ennis et al. (2017), where instrumental aggressors scored higher in the two scales used. The highest trends in the risk of violence were related to reactive aggressors, although the differences were not significant. Along the same lines, Rouchy et al. (2019), in their research with the prison population, concluded that reactive aggressors were more closely associated with violent recidivism. On the other hand, Claix and Pham (2004) also assessed the risk of violence with psychometric instruments, finding that it was positively associated with instrumental homicide.

The divergence of the results also appears in research attempting to clarify the relationship between the typologies of aggressive behavior and empirically evaluated recidivism. Whereas Zabala-Baños et al. (2019) and Swogger et al. (2015) found a significant relationship between recidivism and aggressive proactive behavior in a sample of offenders, other studies reported a stronger association between reactive aggressive behavior and subsequent delinquency in a sample of primary adolescent offenders (Matlasz et al., 2020), and offenders with antisocial personality disorder (Martin et al., 2019).

This study aims to determine possible differences in the psychopathological symptomatology and aggressive instrumental and expressive behavior in the prison population as a function of the level of risk of violence, as well as to explore which kinds of aggressive behavior and psychopathological symptomatology increase the probability of belonging to the moderate- or the high-risk group. Thus, based on previous studies, we expect that the higher the risk of violence, the greater the

presence of psychopathological symptoms and the higher the level of aggressive behavior, both instrumental and expressive.

Method

Participants

The sample consists of 285 male inmates in three prisons in the Community of Madrid. Participation in the study was voluntary, and the inmates who decided to participate were informed about the research purposes of the data obtained and, therefore, their confidentiality. Of the inmates who agreed to participate in the study, those who met the following requirements were selected: Spanish speaking, possessing a basic level of literacy, and having accepted participation in the research through written informed consent. The sample consisted entirely of men with an average age of 34.73 years (*SD*= 10.34, range 20 to 67 years); 71.6% are Spanish and 28.4% of other nationalities.

Regarding their criminal characteristics, 49.1% (*n*= 140) of the sample were in prison for committing one or more crimes of aggression or injury, followed by 33.7% (*n*= 96) for committing one or more crimes of robbery with violence or intimidation, and 20.7% (*n*= 59) for committing one or more crimes of family abuse. Regarding the attitude shown towards the crime or crimes committed, 30.2% (*n*= 86) of the sample denied having committed the crime, 29.8% (*n*= 85) considered that the penalty imposed was excessive, and 14.7% (*n*= 42) stated that they had no choice.

Instruments

a) An *ad hoc* questionnaire on sociodemographic and criminal variables. This questionnaire was created to collect sociodemographic and criminal data from the sample concerning 4 areas: current prison admission, criminal and penitentiary history, child and adolescent history, family of origin, and adult and family history acquired. Data were collected through an individual interview with each participant and the review of the corresponding prison records.
b) *Symptom Checklist-90-R* (SCL-90-R; Derogatis, 1977), Spanish version of González de Rivera et al. (1989). The SCL-90-R evaluates a wide variety of psychological and psychopathological symptoms. It consists of 90 five-point Likert-type items, ranging from 0 (*absence of the symptom*) to 4 (*total presence of the symptom*). It measures 9 scales of primary symptoms: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The score for each of these dimensions is obtained by calculating the average of the number of items answered. This score can be between 0 and 4 points. Thus, higher scores reflect that the particular symptom has been experienced more frequently. In addition,

it provides three global indices of psychological distress: *the Global Severity Index (GSI), the Positive Symptom Distress Index (PSDI),* and the *Positive Symptom Total* (PST). In this study, the Spanish version of the instrument obtained high levels of reliability with a Cronbach's alpha coefficient of .97.

c) *Instrumental and Expressive Aggression Questionnaire* (Cuestionario de agresión instrumental y expresiva; CAIE; Andreu & Peña, 2019). This questionnaire was used to measure aggressive behavior in its two typologies: instrumental aggression, characterized by planning and positive assessment of its consequences ("When I attack someone, I usually think it's justified"), and reactive, uncontrolled aggression, or expressive aggression ("I don't usually remember the details after reacting aggressively"). The questionnaire is composed of 22 items with five response options in Likert-type format from 1 (strongly disagree) to 5 (strongly agree). The first eleven items of the tool make up the Instrumental scale, while the last eleven items make up the Expressive scale. Once the corresponding direct score is obtained, it is necessary to convert it into percentiles. If this percentile score is equal to or higher than 75, the existence of a predominantly instrumental, expressive, or mixed profile is evident. In this study, the instrument showed adequate levels of reliability, with Cronbach's alpha coefficients of .74 for the Instrumental scale, .81 for the Expressive scale, and .85 for the Total scale.

d) Self-Appraisal Questionnaire (SAQ; Loza, 2005), Spanish version of Andreu-Rodríguez et al. (2016). The SAQ predicts the risk of recidivism and treatment needs in prison population. It consists of 67 *true/false* items that evaluate the following scales: Criminal tendencies ("If necessary, I know how to get a gun on the street"), Antisocial personality problems ("I've been described as manipulative"), Behavior problems ("I damaged the property of others"), Criminal history ("I've committed different types of crimes"), Alcohol/drug abuse ("Alcohol or drugs make time more bearable"), Criminal associations ("I was raised in an environment where violence is frequent"), and Anger ("When I get angry, I can't control myself"). In addition, it estimates the dangerousness of an inmate as low, medium, or high. According to Loza and Loza-Fanous (2003), this differentiation can be calculated through the total score obtained in the test; that is, the risk of low recidivism corresponds to scores between 2 and 19 points; moderate risk between 20 and 30 points; and high risk between 31 and 58 points. In this research, the SAQ showed adequate levels of reliability, with an overall internal consistency of the total scale of .94, as well as in all its subscales, where Cronbach's alpha coefficients ranged from .70 to .86.

Procedure

This research was possible thanks to the existing agreement between the Complutense University of Madrid and the General Secretariat of Penitentiary Institutions. After the request and approval of the appropriate permissions to access

the three prisons, the sample was made up of the inmates who agreed to participate voluntarily in the study and who met the selection requirements.

After forming the sample (*N*= 285), under the supervision of the prison psychologists of each prison, we individually administered the psychometric tests in the above-mentioned order. The application required between 60-90 minutes per participant. Data collection began in 2019. At the beginning of each of the evaluations, the participants had to sign an informed consent in which they agreed to participate in the research and for researchers to access their prison file to complete and contrast the information collected. At this time, they were informed of the absence of prison benefits for participation, as well as the confidentiality of the data collected. This confidentiality was guaranteed through the absence of any personal data throughout the process.

This research was carried out with the approval and following the guidelines of the ethics committee of the Complutense University of Madrid.

Data analysis

Using the statistical program SPSS v25.0, we performed analysis of variance (ANOVA) for independent samples to determine the differences between the groups at risk of violence in psychopathological symptoms and the type of aggressive behavior (instrumental or expressive).

The differences between the three violence-risk groups were determined with post-hoc multiple comparisons with Bonferroni correction ($p< .05$). We used the partial eta-squared coefficient ($\eta 2$) to measure the effect size. Its values indicate a small (about .01), medium (about .06), or large (equal to or greater than .14) effect size.

Multinomial logistic regression analyses were performed to determine which kind of aggressive behavior (expressive and instrumental) and which psychopathological symptoms increase the probability of belonging to the groups of moderate or high risk of violence, and what type of aggressive behavior and symptomatology play a more relevant role.

Results

Risk of violence and psychopathological symptoms

Concerning the analyses of risk of violence and psychopathological symptomatology, all the results obtained were significant (Table 1). Psychoticism explained the highest percentage of the variance of risk of violence (27.2%), whereas phobic anxiety explained the lowest percentage of this variance (6.6%).

Table 1
ANOVA results: Psychopathological Symptoms (SCL-90-R) and groups at risk of recidivism

SCL-90-R´s subcales / Risk of violence	*N*	*M*	*SD*	*F*	*p*	η_p^2	*Post-hoc* (Bonferroni)		
							LRV	MRV	HRV
Somatization									
LRV	90	.37	.54				-	-.24*	-.56*
MRV	86	.61	.52	19.28***	.000	.120	.24*	-	-.31*
HRV	109	.93	.78				.56*	.31*	-
Interpersonal sensitivity									
LRV	90	.46	.41				-	-.12	-.44*
MRV	86	.59	.56	16.52***	.000	.105	.12	-	-.32*
HRV	109	.91	.68				.44*	.32*	-
Anxiety									
LRV	90	.38	.51				-	-.27*	-.75*
MRV	86	.65	.46	39.54***	.000	.219	.27*	-	-.48*
HRV	109	1.13	.75				.75*	.48*	-
Obsession-compulsion									
LRV	90	.44	.37				-	-.50*	-.61*
MRV	86	.94	.80	31.19***	.000	.181	.50*	-	-.11
HRV	109	1.06	.48				.61*	.11	-
Depression									
LRV	90	.81	.53				-	-.48*	-.87*
MRV	86	1.29	.71	41.06***	.000	.226	.48*	-	-.39*
HRV	109	1.68	.74				.87*	.39*	-
Hostility									
LRV	90	.19	.30				-	-.32*	-.72*
MRV	86	.52	.66	30.12***	.000	.176	.32*	-	-.40*
HRV	109	.92	.84				.72*	.40*	-
Phobic anxiety									
LRV	90	.13	.27				-	-.15	-.33*
MRV	86	.28	.54	9.97***	.000	.066	.15	-	-.17
HRV	109	.46	.64				.33*	.17	-
Psychoticism									
LRV	90	.24	.40				-	-.47*	-.77*
MRV	86	.71	.55	52.66***	.000	.272	.47*	-	-.29*
HRV	109	1.01	.60				.77*	.29*	-
Paranoid ideas									
LRV	90	.70	.63				-	-.52*	-.75*
MRV	86	1.22	.86	22.80***	.000	.139	.52*	-	-.23
HRV	109	1.46	.85				.75*	.23	-

Notes: SCL-90-R= Symptom Checklist-90-R; LRV= Low risk of violence; MRV= Moderate risk of violence; HRV= High risk of violence. *df*= (2, 284). ***p< .001, * p< .05.

As shown in Table 1, the group at high risk of violence presented higher levels of somatization (F= 19.28, p< .001), anxiety (F= 39.54, p< .001), depression (F= 41.06, p< .001), hostility (F= 30.12, p< .001), and psychoticism (F= 52.66, p< .001),

as significant differences were found between the three groups. Moreover, the psychopathological symptoms related to obsession-compulsion (F= 31.19, p< .001) were more significant in the group at high risk of violence compared to the group at low risk of violence, as well as in the group at moderate risk of violence compared to the group at low risk of violence. The comparison of the groups at high and moderate risk of violence was nonsignificant. These same results were obtained when comparing the different groups of violence risk in relation to paranoid ideas (F= 22.80, p< .001). We obtained significant differences between the groups at high and low risk of violence, and between the groups at moderate and low risk of violence, but not between the groups at moderate and high risk. Finally, interpersonal sensitivity (F= 16.52, p< .001) was significantly higher in the groups at high risk of violence compared to the groups at moderate and low risk of violence. However, when comparing the groups at moderate and low risk of violence, no significant differences were observed.

Regarding the predictive capacity of this symptomatology for the likelihood of belonging to a specific risk group (Table 2), the results obtained indicated that psychoticism very considerably increased the probability of belonging to the moderate- (OR= 77.19, p< .001) and high-risk groups (OR= 85.53, p< .001). To a lesser extent, depressive symptomatology (OR= 6.11, $p\leq$ .001) and hostility (OR= 3.54, p< .05) also predicted belonging to the high-risk group, although with much lower *odds ratios*.

Risk of violence and aggressive behavior

The results obtained in the ANOVA between the variables risk of violence and aggressive expressive behavior (F= 46.85, p< .001) and between risk of violence and aggressive instrumental behavior (F= 41.89, p< .001) were also significant (Table 3), indicating differences in aggressive behavior depending on the levels of risk.

As can be seen in Table 3, concerning aggressive expressive behavior, significant differences were observed between the three groups at risk of violence. Specifically, the group with the highest risk of violence presented the highest levels of aggressive expressive behavior compared to the group at moderate risk and the group at low risk of violence. Regarding aggressive instrumental behavior, significant differences were found in the comparison of the groups at high and low risk of violence, and also between the groups at moderate and low risk of violence. In both cases, the groups with a higher risk of violence presented more aggressive instrumental behavior. Conversely, no significant differences were found between the groups at high and moderate risk of violence.

Table 2
Estimates of the parameters in psychopathological symptomatology, taking as reference the group of low risk of violence

Risk of violence / Psychopathological symptomatology	B	Wald (χ^2)	*p*	OR	95% CI	
					Lower	Upper
Moderate risk						
Intersection	-2.26	26.54	.000			
Somatization	.66	.73	.393	1.93	.42	8.82
Interpersonal Sensitivity	-3.97	26.63	.000	.02	.00	.08
Anxiety	-2.05	7.04	.008	.13	.02	.58
Obsession-compulsion	1.17	5.65	.017	3.23	1.23	8.52
Depression	1.45	7.53	.006	4.29	1.51	12.13
Hostility	.98	2.43	.119	2.66	.77	9.15
Phobic Anxiety	-.89	1.62	.203	.41	.10	1.61
Psychoticism	4.34	26.75	.000	77.19	14.87	400.65
Paranoid ideas	.76	3.22	.072	2.15	.93	4.96
High risk						
Intersection	-2.99	40.70	.000			
Somatization	.58	.62	.431	1.80	.41	7.76
Interpersonal Sensitivity	-3.21	18.69	.000	.04	.01	.17
Anxiety	-.14	.04	.834	.86	.22	3.32
Obsession-compulsion	.58	1.20	.271	1.78	.63	5.02
Depression	1.81	11.84	.001	6.11	2.18	17.15
Hostility	1.26	4.31	.038	3.54	1.07	11.68
Phobic Anxiety	-1.72	5.89	.015	.17	.04	.71
Psychoticism	4.45	29.10	.000	85.53	16.98	430.63
Paranoid ideas	-.07	.02	.870	.93	.41	2.12

Table 3
ANOVA results between the variable groups at risk of violence and aggressive expressive and instrumental behavior

Factors	*N*	*M*	*SD*	*F*	*p*	η_p^2	*Post-hoc* (Bonferroni)		
							LRV	MRV	HRV
Expressive aggression									
LRV	90	.70	.98				-	-.51*	-1.26*
MRV	86	1.21	.78	46.85***	.000	.249	.51*	-	-.75*
HRV	109	1.96	.97				1.26*	0.75*	-
Instrumental aggression									
LRV	90	.41	.48				-	-.85*	-.91*
MRV	86	1.27	.93	41.89***	.000	.229	.85*	-	-.05
HRV	109	1.33	.80				.91*	.05	-

Note: LRV= Low risk of violence; MRV= Moderate risk of violence; HRV= High risk of violence. *dfl*= (2, 284). ****p*< .001; **p*< .05.

On the other hand, as shown in Table 4, aggressive expressive behavior predicted belonging to the moderate-risk group (OR= 9.29, *p*< .001) and the high-

risk group much more significantly (OR= 3.20, $p \leq .001$). Secondarily, aggressive instrumental behavior also predicted belonging to the high-risk group, although to a lesser extent (OR= 1.98, $p < .01$).

Table 4
Estimates of the parameters in aggressive behavior, taking as reference the group of low risk of violence

Variables	B	Wald (χ^2)	*p*	OR	95% CI	
					Lower	Upper
Moderate Risk of Violence						
Intersection	-1.045	18.003	.000			
Aggressive Expressive Behavior	2.229	32.798	.000	9.29	4.33	19.93
Aggressive Instrumental Behavior	-.749	7.214	.007	.47	.27	.81
High Risk of Violence						
Intersection	-1.669	34.263	.000			
Aggressive Expressive Behavior	1.163	10.358	.001	3.20	1.57	6.49
Aggressive Instrumental Behavior	.686	8.304	.004	1.98	1.24	3.16

Discussion

First, the objectives of our research were to determine possible differences related to psychopathological symptoms as a function of the level of risk of violence, and to establish which kind of symptomatology better predicts belonging to the moderate- and high-risk groups. Thus, our findings revealed significant differences in the presence of psychopathological symptoms between the moderate- and high-risk groups compared to the low-risk group. Specifically, psychoticism, a behavioral pattern of social withdrawal, isolation, schizoid lifestyle, and psychotic symptoms such as hallucinations and/or thought diffusion, was the symptomatology that best predicted belonging to the groups of moderate and high risk of violence. The presence of depressive symptoms and hostility predicted belonging to these groups to a lesser extent.

These results align with the research by Sariaslan et al. (2020) and Tuominen et al. (2017), which found a significant relationship between the presence of psychotic symptoms and depressive symptoms with higher rates of violent behavior and the number of convictions. Likewise, our findings agree with those obtained by Kingston and Olver (2018), who report that the presence of psychopathological symptomatology increases the risk of recidivism.

Consequently, the relationship found between the presence of psychopathological symptoms, especially in terms of psychoticism, and the risk of violence shows the importance of establishing psychological evaluation strategies in the prison setting not only to analyze the presence of psychopathology in this population but also each inmate's risk of violence. Thus, this would facilitate

establishing individualized intervention and risk management measures, taking into account the symptoms, primarily related to psychoticism, and the detected level of risk of violence, which, in turn, would increase the effectiveness and efficiency of treatments to reduce the risk of future violence.

These results are significant when considering the prevalence of psychological disorders in the prison population (Burneo-Garcés & Pérez-García, 2018; Macciò et al., 2015; Zabala-Baños, 2015). Specifically, the prevalence of mental disorders is 5.3 times higher than in the general population, with higher comorbidity of disorders (Zabala-Baños, 2015). The presence of mental disorders is detected among 58.7% of the prison population, whereas this prevalence rate is limited to 8.7% in the general population (Macciò et al., 2015).

On the other hand, this study also aimed to determine the existence of differences in aggressive instrumental or expressive behavior as a function of the risk of violence, as well as the most relevant typology of aggression to predict belonging to a specific group at risk of violence. In this sense, the findings of our research showed that, as the sample's score of risk of violence increases, the levels of aggression, both instrumental and expressive, also increase.

Additionally, according to the multinomial regression analysis performed, aggressive expressive behavior better predicted belonging to the moderate- and high-risk groups. In this regard, there has been a lack of convergence among the results of the different investigations. Whereas some find a more significant relationship between aggressive expressive behavior and the risk of recidivism (Martin et al., 2019; Matlasz et al., 2020; Rouchy et al., 2019), others establish this relationship with aggressive instrumental behavior (Claix & Pham, 2004; Ennis et al., 2017; Gonsalves et al., 2009; Swogger et al., 2015; Zabala-Baños et al., 2019). This variability could be explained by the different types of methodology used in these investigations, mainly when assessing the risk of violence or recidivism.

In this line, our results converge with those studies in which a more significant predictive capacity of aggressive expressive behavior versus aggressive instrumental behavior has been found (Martin et al., 2019; Matlasz et al., 2020; Rouchy et al., 2019). Likewise, we consider that these findings are also convergent because precisely expressive aggression is usually strongly linked to aspects related to hostility, attributional hostile biases, problems in anger management, and presence of concomitant psychopathological symptoms (Gagnon & Rochat, 2017; Helfritz & Stanford, 2006; Marsee & Frick, 2007; Stanford et al., 2008), so it is consistent that psychoticism is the best psychopathological predictor of moderate and high risk of violence.

Therefore, these results highlight the importance of considering the typology of aggressive behavior when performing evaluations and interventions in the prison setting, especially those related to assessing the risk of violence. Likewise, intervention programs in this environment should collect and emphasize specific aspects of aggression, especially expressive aggression, which would also reduce the probability of future recidivism.

The findings of this research indicate that it is not only essential to address psychopathological symptomatology, especially psychoticism, and the characteristics of aggressive behavior, especially expressive aggression, in individuals or groups with high levels of risk of violence, but they also indicate that a moderate risk of violence is sufficient to establish prevention and intervention measures in the delinquent population. In turn, this will favor the delimitation and specification of risk management resources, as well as their effectiveness in activating the necessary tools to anticipate, avoid, or minimize possible future criminal behavior (Loinaz, 2017).

However, this study has several limitations. Specifically, its retrospective design does not allow us to determine or predict participants' recidivism after they are released. In addition, we should consider the tendency of social desirability that can occur in the prison environment, which can condition the participants' responses to the evaluation instruments used. We also point out that the sample, composed exclusively of men, could condition this research. Therefore, this type of research should also be performed in the female delinquent population to determine women's most characteristic typology of aggressive behavior and psychopathological symptoms as a function of the risk of violence, to individualize and specialize prevention and intervention in women.

In short, the evaluation of the psychopathological symptomatology and the typology of aggressive behavior in prison environments, with special emphasis on psychoticism and aggressive expressive behavior, could constitute a key element in the assessment and management of the risk of violence in this population.

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