

RESEARCH ARTICLE

Dropout and recidivism are partly explained by emotional decoding and perspective taking deficits of intimate partner violence perpetrators

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Abstract

Professionals and researchers have dedicated important efforts to understanding the underlying factors that explain the failure to complete interventions (dropout) and the recidivism of men convicted of intimate partner violence (IPV) against their female partners. There is a growing interest in measuring emotional decoding and empathic deficits in IPV perpetrators to better understand dropout and recidivism proneness, due to their direct impact on behavioral regulation. In the current study, we first aimed to examine whether the emotional decoding abilities of facial expressions and empathic abilities (cognitive and emotional), as well as their interrelationships in IPV perpetrators ($n = 561$), would explain dropout, treatment attendance, and recidivism (risk and official) once treatment ended. Our results allowed us to conclude that emotional decoding abilities and perspective taking (cognitive empathy) were significantly and negatively associated with dropout and recidivism. Two moderation models were significant. On the one hand, participants with low emotional decoding abilities presented lower intervention doses the lower their perspective taking. Furthermore, the percentage of participants that reoffended was higher among individuals with low and moderate perspective taking who dropped out. Therefore, our study highlights the importance of conducting emotional decoding and empathic assessments during the initial stages of intervention programs to clearly outline the therapeutic needs of IPV perpetrators. This would allow designing coadjuvant and complementary training programs that can support the main interventions by increasing treatment adherence and, in turn, reducing the risk of recidivism.

KEYWORDS

dropout, emotional decoding, empathy, intervention dose, intimate partner violence perpetrators, recidivism

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1 | INTRODUCTION

Over the last decades, professionals and researchers have dedicated important efforts to developing and implementing interventions focused on reducing the future risk of recidivism in men convicted of intimate partner violence (IPV) against their female partners (Arce et al., 2020; Cheng et al., 2021; Eckhardt et al., 2013; Karakurt et al., 2019). Research suggests that men who complete standard batterer interventions (SBIs) have a lower risk of recidivism due to the behavioral changes promoted in these interventions. This is especially the case for men who frequently and regularly attend programmed sessions (Muldoon & Gary, 2011). The risk of recidivism diminishes considerably regardless of whether those SBIs are designed while taking into account IPV perpetrator profiles and therapeutic needs (Juarros-Basterretxea et al., 2018; Weber et al., 2019) or include motivational strategies (Santirso et al., 2020).

However, accurately measuring the success of these interventions entails serious controversies and methodological difficulties (Arias et al., 2013). For this reason, many researchers have decided to employ objective measurements (e.g., official recidivism, validated scales assessing the future risk of recidivism, couple reports...) in combination with qualitative interviews to assess the success of the SBI (e.g., therapist reports after the end of the intervention that rank the risk...) (Arce et al., 2020; Arias et al., 2013; Babcock et al., 2004; Eckhardt et al., 2013; Radatz & Wright, 2016).

Due to the complexity of measuring the risk of recidivism (e.g., obtaining official reports, following individuals if they move to other countries after ending intervention, obtaining couple reports...), it is also useful to focus on certain therapeutic outcomes (e.g., attitudes toward victims, taking responsibility, distorted cognitions, substance abuse...) that directly impact recidivism (Babcock et al., 2004; Eckhardt et al., 2013). Therefore, determining the risk of recidivism depends on changes in those variables after completing the SBI. However, it is also important to monitor certain factors such as personality traits, anger traits, and impulsivity that act as confounding factors by directly interfering with changes in the variables mentioned above. In this regard, variables should be collected and/or measured before starting the intervention program (Capaldi et al., 2012; Eckhardt et al., 2013; Stover et al., 2009).

Empirical research has revealed that abandoning an intervention during the initial stages (dropping out), which indicates a lack of treatment adherence, considerably increases the risk of recidivism (Babcock et al., 2004; Bennett et al., 2007; Jewell & Wormith, 2010; Rondeau et al., 2001). Eckhardt et al. (2013) established that the link between dropout and recidivism was strong (e.g., Cohen's $d = 0.97$). This conclusion is also supported by posterior empirical research in multiple countries (Carbajosa et al., 2017; Graña-Gómez et al., 2017; Haggård et al., 2017; Lauch et al., 2017; Lila et al., 2019, 2020; Morrison et al., 2021).

Jewell and Wormith (2010) suggested that variables explaining dropout and recidivism were similar. A detailed analysis of underlying factors for IPV perpetrator dropout revealed the relevance of many sociodemographic factors such as age, educational level, cultural

values, language barriers, and employment status, among others (Jewell & Wormith, 2010; Muldoon & Gary, 2011; López-Ossorio et al., 2021). However, even though these variables are useful for building or targeting demographic profiles of non-completers (IPV perpetrators who dropout), they do not offer enough background regarding the main reasons for leaving the intervention program during its initial stages. It might, therefore, be interesting to collect information about how those men process surrounding information, which would allow us to make better inferences about decision-making processes that facilitate SBI abandonment. In this regard, exploring variables such as the ability to recognize facial expressions and empathic abilities (cognitive as well as emotional), which directly impact behavioral regulation, seems to be an important step forward in understanding the future risk of recidivism (Brown et al., 2012; Harris & Picchioni, 2013).

Facial emotion expression is a necessary tool for nonverbal communication as it offers relevant information regarding the individuals' inner states (Adolphs, 2002; Romero-Martínez, Sarrate-Costa et al., 2021). To guarantee and accurately decode/understand the meaning of these facial expressions, emitters as well as receptors of this information need a complex neurological system (Somerville et al., 2011). Poor emotional decoding abilities aimed at recognizing this basic source of information in daily social interactions, lower one's ability to make inferences regarding other's mental states, understand their intentions (perspective taking), and predict their behavior (Decety & Moriguchi, 2007; Thibault et al., 2006). Under certain circumstances of uncertainty, misunderstanding others' facial expressions might lead to maladjusted reactions, facilitating the intake of violence (or IPV perpetration). Especially when individuals are characterized by maddening hostile interpretations of others' intentions and have serious difficulties dealing with their own emotional states. In addition, this reaction is accentuated if alcohol and/or other drugs are being consumed abusively (Clements & Schumacher, 2010; Holtzworth-Munroe & Smutzler, 1996; Holtzworth-Munroe, Smutzler, Bates et al., 1996).

As explained above, deficits in emotional decoding processes might affect perspective taking by diminishing how accurately an individual can understand others' thoughts or feelings (Decety & Moriguchi, 2007; Somerville et al., 2011; Thibault et al., 2006). Perspective taking represents the cognitive component of empathy (understanding the feelings of others), but the construct of empathy also includes sharing others' emotions (emotional empathy) (Cuff et al., 2016; Davis, 1983, 1996). In terms of the emotional components, individuals can feel sympathy and compassion regarding the misfortune of others (empathic concern), feeling distressed and anxious in tense emotional situations of personal distress (Davis, 1983, 1996). Empathic concern has been shown to maintain a positive association with the emotional decoding of facial expressions and perspective taking, the association between the last-mentioned variables and personal distress being negative (Davis, 1980, 1983; Israelashvili et al., 2020). In other words, accurate facial expression recognition skills and the ability to adopt the perspective of others entails more sympathetic feelings for others (empathic concern) and

lowers distressing feelings which help when coping with tense emotional situations (personal distress).

One could hypothesize that diminished emotional decoding and empathic abilities (perspective taking, fantasy, empathic concern, and/or personal distress) might explain the failure to complete interventions, given that those individuals might feel overwhelmed by the emotional content of interventions or experience serious difficulties when dealing with the acceptance of their conviction and understanding the consequences of abandoning the intervention before completion. Premature abandonment is associated with a high risk of IPV given that the individual did not receive proper treatment for dealing with conflict couple situations (e.g., searching for alternatives or seeking a premature treatment when they detect signals that may trigger IPV, etc.) (Bock & Hosser, 2014; Narvey et al., 2021).

Regarding accuracy deficits when recognizing facial expressions (emotional decoding abilities) and empathy in IPV perpetrators, several studies concluded that IPV perpetrators tend to score lower in emotional decoding abilities and perspective taking than nonviolent men (Babcock et al., 2008; Nylene et al., 2018; Romero-Martínez et al., 2016), highlighting that low perspective taking abilities facilitate IPV proneness (Covell et al., 2007; Dodaj et al., 2020; Godfrey et al., 2020; Lafontaine et al., 2018). Furthermore, the higher the personal distress (self-oriented emotions of anxiety and discomfort facing another's distress) in IPV perpetrators, the higher the risk of IPV perpetration (Covell et al., 2007; Nylene et al., 2018; Romero-Martínez, Lila, Sariñana-González et al., 2013). Nonetheless, it seems that IPV perpetrators did not differ from nonviolent men in empathic concern (Nylene et al., 2018; Romero-Martínez, Lila, Sariñana-González et al., 2013), although this empathy variable was important among IPV perpetrators. Specifically, IPV perpetrators who presented the best empathic concern abilities reported the lowest levels of IPV perpetration (Godfrey et al., 2020).

The link between emotional decoding and empathic ability alterations with IPV proneness might be explained by the fact that IPV perpetrators tend to minimize or deny the effects of their violent behavior against their victims, which in turn, might affect their resistance to change or even a premature abandonment of the intervention. Research has pointed out that the lower the emotional decoding abilities, the higher the acceptability of IPV (Romero-Martínez, Lila, Gracia, Rodríguez et al., 2019), with dropout being considerably higher among those IPV perpetrators with the lowest emotional decoding abilities (Romero-Martínez et al., 2019a). Nonetheless, to our knowledge, less is known about the interaction between emotional decoding and empathic variables to predict dropout and recidivism in IPV perpetrators.

The aim of the present study was twofold. First, to examine whether emotional decoding interacts with empathic (cognitive and emotional) abilities to explain dropout, intervention dose (number of SBI sessions received), and/or recidivism (future risk and official) in a group of IPV perpetrators. Based on previous research in this field (Covell et al., 2007; Godfrey et al., 2020; Lafontaine et al., 2018; Nylene et al., 2018; Romero-Martínez, Lila, Sariñana-González et al.,

2013), we expected that worse emotional decoding and empathic cognitive (e.g., perspective taking and fantasy) and emotional (empathic concern and personal distress) abilities would imply higher dropout and recidivism. Furthermore, due to the interrelationships between predictors (emotional decoding and empathic abilities) (Decety & Moriguchi, 2007; Israelashvili et al., 2020; Somerville et al., 2011; Thibault et al., 2006), we hypothesized that worse emotional decoding abilities would interact with low perspective taking, fantasy, and empathic concern as well as with high personal distress to predict high dropout and recidivism. Moreover, based on Davis' (1980, 1983) conclusions about the interrelationships between the empathy subscales, we hypothesized that low perspective taking, and fantasy would interact with low empathic concern and high personal distress to predict high dropout and recidivism. The second objective was to evaluate how high dropout would interact with low emotional decoding and empathic abilities to predict recidivism, as dropout and recidivism tend to be closely related (Eckhardt et al., 2013). To control for potential confounding variables, we controlled the effect of sociodemographic variables and substance abuse, which are relevant for dropout and recidivism (Capaldi et al., 2012; Jewell & Wormith, 2010; Muldoon & Gary, 2011; López-Ossorio et al., 2021). We consider that the analysis of these variables and their relationships will offer a broader explanation of a complex phenomenon such as IPV. Nonetheless, it should be kept in mind that a proper analysis of IPV not only requires the analysis of individual factors (micro-level variables) but also other macro-level variables such as sexism and gender roles, among others.

2 | METHOD

2.1 | Participants

We followed Maxwell and Delaney (2004) to calculate the necessary sample size for the generalized regression models. Accordingly, we considered the number of men convicted of IPV in Spain during the last year (33,068 men) (Instituto Nacional de Estadística, 2022), a response distribution of 50% (we did not know the number of participants who would agree to participate so this is the most conservative assumption that would allow us to obtain a larger sample size), a confidence level of 95%, and an error margin of 5% ($\alpha = .05$, $1 - \beta = .95$). Thus, the calculation of power analysis determined a minimum sample size of 380 participants for our study.

The first step in the recruitment process was to describe the study to all men whose IPV sentence had been suspended in the last 2 years on the condition that they attend an intervention program designed specifically for this kind of violent population in our university. This led to a screening process of 657 individuals who agreed to participate, giving their written informed consent. From this initial sample, 71 participants were removed because they did not complete all measurements or there were missing data regarding dropout or recidivism. Another 21 participants were removed as they were previously diagnosed with mental disorders (e.g., schizophrenia,

depression, bipolar disorder, etc.) or brain damage (traumatic brain injury with severe sequelae, stroke, etc.). Therefore, only 561 were finally included in our study because they completed all the necessary measures for this research (see Table 1). It should be noted that there were no differences between the demographic profiles of IPV perpetrators who were included in our study and those who were removed from the statistical analysis for not completing all measurements. Specifically, they did not differ in age ($t = -0.496$, $p = .620$),

TABLE 1 Means, standard deviations, percentages, and means comparisons for sociodemographic and psychological variables

	IPV perpetrators ($n = 561$)
Age (M, SD)	40.66 (11.48)
Nationality (%)	
Spanish	76
Latin Americans	10
Others	14
Marital status (%)	
Married	23
Single/divorced/widowed	77
Level of education (%)	
Primary/lower secondary	55
Upper secondary/vocational training	36
University	9
Employment status (%)	
Employed	51
Unemployed	49
Alcohol misuse (M, SD)	5.08 (5.51)
Drug misuse (M, SD)	50.38 (27.59)
Emotional decoding abilities (M, SD)	18.39 (4.49)
IRI perspective taking (M, SD)	21.33 (5.27)
IRI fantasy (M, SD)	15.67 (5.07)
IRI empathic concern (M, SD)	21.85 (4.46)
IRI personal distress (M, SD)	17.94 (4.42)
Dropout (%)	
Yes	22
No	78
Intervention dose	25.35 (9.35)
Total risk of recidivism score	10.06 (5.71)
Official recidivism (%)	
Yes	16
No	84

Abbreviations: IPV, intimate personal violence; IRI, interpersonal reactivity index; M, mean; SD, standard deviation.

marital status ($X^2 = 4.20$, $p = .38$), nationality ($X^2 = 2.19$, $p = .14$), educational level ($X^2 = 1.28$, $p = .73$), or employment status ($X^2 = 3.62$, $p = .16$).

To take part in this study, participants had to be over 18 years old and have no physical or mental/cognitive problems (e.g., schizophrenia, severe traumatic brain injury, or strokes with severe brain damage). These IPV perpetrators had been sentenced to less than 2 years in prison and had no previous criminal record. Therefore, they received a suspended sentence on the condition that they would attend an intervention program designed specifically for convicted IPV men. Concretely, they were court-mandated to a psychoeducational and community-based intervention program.

This research project was designed according to the Declaration of Helsinki and was approved by the University Ethics Committee (assigned codes: H1515749368278 and H1537520365110).

2.2 | Instruments

The interpersonal reactivity index (IRI) assesses four aspects of empathic response; two correspond with cognitive aspects (e.g., perspective taking and fantasy) and the other two with emotional empathy (e.g., personal distress and empathic concern) (Davis, 1983). This self-report measure was conveniently adapted to Spanish (Mestre-Escrivá et al., 2004). The test consists of 28 items ranked on a 5-point Likert scale, ranging from 1 (does not describe me well) to 5 (describes me very well) and normally divided into four subscales (perspective taking, fantasy, empathic concern, personal distress). Even though attempts have been made to divide these 28 items into two factors (cognitive and emotional empathy), confirmatory analyses have revealed a poor model fit (Chrysikou & Thompson, 2016), reinforcing the four factors division as proposed by Davis (1983). The total score of each subscale is obtained by adding the score of each subscale item, some of them reversed. A high score is interpreted as having high empathic abilities (e.g., perspective taking, fantasy, empathic concern, and/or personal distress). Cronbach's α 's for each scale were: .70 (perspective taking), .70 (fantasy), .68 (empathic concern), and .70 (personal distress).

To measure *emotional decoding abilities*, we included the *Reading the Mind in the Eyes Test*, abbreviated as the *Eyes Test* (Baron-Cohen et al., 2001). This test consists of 36 black and white photographs that show the eye region of different men and women. Each photograph presents four alternative responses describing feelings and/or thoughts and participants have to select one of them. The total score ranges from 0 to 36, with a higher score indicating better emotional decoding abilities. Cronbach's α for this study was .61, which is congruent with conclusions indicated by a review assessing the psychometric properties of this test (Oakley et al., 2016).

We employed the alcohol use disorders identification test (Saunders et al., 1993) to measure *alcohol misuse*; in this case, we used the version adapted to Spanish (Contel Guillamón et al., 1999). This test consists of 10 self-report items rated from 0 (never) to

4 (daily or almost daily), with a minimum score of 0 and a maximum of 40. Cronbach's α for this study was .77.

To assess drug abuse, we employed the Millon clinical multiaxial inventory-III (MCMI-III; Millon, 1994), conveniently adapted into Spanish (Millon et al., 2007). This self-report was designed for measuring personality disorders. This inventory consists of 175 dichotomous items (true/false) grouped into 11 clinical personality pattern scales, 7 clinical syndrome scales, 3 severe syndrome scales, and 3 modifying scales. The Spanish version validation reported reliability ranging from 0.65 to 0.92 (Millon et al., 2007). For this study, we only employed the drug abuse subscale.

For assessing *Treatment compliance*, we employed two indicators. We employed a dichotomous variable (dropout) and dummy coded participants as *completers* (0) if they finished the intervention, or *dropout* (1) if they left the intervention before it ended. Furthermore, we employed a quantitative variable defined as *intervention dose* (i.e., the number of intervention sessions the participant attended).

We employed The Spousal assault risk assessment guide (Kropp et al., 1995), adapted to Spanish (Andrés-Pueyo et al., 2008), to measure the risk of recidivism. This test consists of 20 items, rated on a scale ranging from 0 (*absence*) to 2 (*presence*). This checklist was administered by trained psychotherapists specialized in this field to assess participants' risk of recidivism. The measurement was based on information provided by judicial and probation system professionals and by the participant. A higher total score indicates a higher risk of recidivism, with a maximum score of 40. Cronbach's α for this study was .70.

Regarding official recidivism, it was assessed 1 year after the treatment ended, using the monitoring system of the Spanish Ministry of the Interior (responsible for the penitentiary system), specifically the VioGén database. It was coded as 0 (if the participant did not reoffend) and 1 (if the participant reoffended).

2.3 | Procedure

Participants were informed, before agreeing, that being part of this study would not affect their legal status and that their answers would be confidential. All participants attended two sessions in the laboratories of the Faculty of Psychology. During the first session, data were collected regarding sociodemographic variables and substance misuse (e.g., alcohol and other drugs). Additionally, participants were interviewed to exclude individuals with physical or mental illnesses that could seriously disrupt the functioning of the intervention. The second session took place the following day between 10 a.m. and 2 p.m., to minimize possible effects of fatigue later in the day. During this session, a battery of self-reported measures and a neuropsychological assessment, including the eyes test, which took approximately 90 min, were administered.

Emotional decoding and empathic variables were collected before the IPV intervention started at the intervention program intake (evaluation process). The program is a manualized SBI conducted by psychotherapists who have extensive experience with

IPV perpetrators (for a more exhaustive description, see Lila et al., 2019, 2020).

Dropout and intervention dose data were collected throughout the intervention program, which lasted approximately 35 weeks (2 h per session). Additionally, official recidivism was provided by the Spanish Ministry of the Interior. This was recorded a year after the intervention ended.

2.4 | Data analysis plan

Before conducting moderation models, it is necessary to check whether variables (predictors and predicted outcomes) are significantly associated (Hayes & Rockwood, 2020). Therefore, partial correlation analyses were applied to assess significant associations between the emotional decoding and empathy variables (predictors and moderators) and dropout, intervention dose, total risk of recidivism score, and official recidivism (predicted outcomes) by introducing sociodemographic, alcohol, and drug misuse variables as covariates to control their potential confounding effects.

To evaluate the first aim of this study, the next step was to run a regression analysis between empathic variables and emotional decoding as predictors to explain dropout and recidivism (outcomes) following the Hayes and Rockwood (2020) guidelines for conducting moderation analysis. Concretely, dropout, intervention dose, total risk of recidivism score, or official recidivism were used as outcomes and the following variables as predictors: each of the IRI scales (continuous variables); emotional decoding (continuous variable) (Step 1), and the two-way interaction between one predictor and another one which acted as a moderator (Step 2). We controlled the effect of covariates by introducing them in Step 0. More specifically, we controlled the potential confounding effects of sociodemographic, alcohol, and drug misuse variables. As discussed by Igartua and Hayes (2021), we tested for simple slopes, specifically, for the interaction between each of the main predictors (e.g., one IRI subscale) and the moderators (e.g., eyes test or other IRI subscales), for "low (16th percentile)," "moderate (50th percentile)," and "high (84th percentile)." Hayes (2022) stated that those specific percentiles were sensitive values when the moderator was relatively skewed (although corresponding to $\pm 1SD$) and the predictor was normally distributed.

With regard to the second objective of this research, we checked whether predictors (emotional decoding and IRI subscales) moderated the association between dropout (dropout and intervention dose) to predict recidivism (total score and official recidivism). As stated above, we introduced the main effects of the predictors in Step 1, followed by the interaction terms between those predictors in Step 2 and controlled the effect of covariates by adding them in Step 0.

All statistical analyses were performed with IBM SPSS Statistics for Windows, Version 26.0, with the α level set at .05. To conduct the moderation analysis, we employed PROCESS 3.5.

3 | RESULTS

Results of partial correlations are summarized in Table 2. Specifically, the eyes test was positively associated with IRI perspective taking, as well as with dropout, intervention dose and total risk of recidivism score. Perspective taking, in turn, was significantly associated with the rest of the IRI subscales such as fantasy, empathic concern, and personal distress. Perspective taking was also associated with dropout, intervention dose, and official recidivism. Regarding the rest of the IRI subscales, even though fantasy, empathic concern, and personal distress were positively and significantly associated, none of these variables were significantly related to treatment outcomes. Last, dropout and low intervention dose entailed high total risk of recidivism score and official recidivism.

Regarding the first aim of this study, we initially hypothesized that the higher the emotional decoding and empathic abilities (e.g., high perspective taking, fantasy, empathic concern, and low personal distress), the lower the intervention dose and the higher the recidivism. Nonetheless, based on the significant correlational associations between variables, we first applied a regression model (checking for moderation models) between perspective taking and the eyes test to predict dropout and intervention dose. Of the two regression models we conducted, only one of them revealed a significant moderation model (Table 3). Concretely, the interaction between both IRI perspective taking and eyes test increased the amount of intervention dose explained variance (R^2 change = 0.021, $F = 10.07$, $p = .002$, $\text{coeff} = -.736$, $t = -3.17$, $p = .002$; 95% CI = -0.088 to -0.021), with the following values for the full model ($R^2 = 0.151$, $p = .002$). The Bootstrap analysis revealed the following values for the interaction between IRI perspective taking and eyes test ($\text{coeff} = -.055$, $\text{bootSE} = 0.019$, 95% CI = -0.096 to -0.018). The analysis of simple slopes highlighted the moderation to be exclusive to participants with "low" emotional decoding abilities (standardized effect = 0.374, $\text{SE} = 0.107$, $t = 3.50$, $p = .0005$, 95% CI = 0.164–0.584), but not moderate (standardized effect = 0.156, $\text{SE} = 0.096$, $t = 1.62$, $p = .106$, 95%

CI = -0.033 to 0.345) or high (standardized effect = -0.116 , $\text{SE} = 0.141$, $t = -0.826$, $p = .409$, 95% CI = -0.393 to 0.161). Hence, the lower the perspective taking, the lower the intervention dose for participants with low emotional decoding abilities (Figure 1).

Finally, with regard to the second objective of the study, we also checked whether the interrelated predictors (perspective taking or eyes test) would moderate the association between dropout and intervention dose and also between total risk of recidivism score and official recidivism. We hypothesized that low perspective taking and the eyes test would entail a low intervention dose, which in turn, would facilitate recidivism. We conducted four moderation models (Table 4 and Supporting Information: Tables 1 and 2) and only one of them was significant. The interaction between dropout and perspective taking increased the amount of explained variance for official recidivism (R^2 change = 0.024, $F = 11.15$, $p = .001$, $\text{coeff} = -.638$, $t = -3.34$, $p = .001$; 95% CI = -0.041 to -0.011), the following values for the full model being ($R^2 = 0.110$, $p = .001$). Bootstrap analysis revealed the following values ($\text{coeff} = -.149$, $\text{bootmean} = -0.164$, $\text{bootSE} = 0.087$, 95% CI = -0.349 to -0.007). The analysis of simple slopes highlighted the moderation to be exclusive to participants with "low" (standardized effect = 1.64, $\text{SE} = 0.406$, $Z = 4.05$, $p = .0001$, 95% CI = 0.848–2.44), and "moderate" perspective taking (standardized effect = 0.900, $\text{SE} = 0.353$, $Z = 2.55$, $p = .011$, 95% CI = 0.208–1.59), but not to IPV perpetrators with "high" perspective taking (standardized effect = 0.157, $\text{SE} = 0.567$, $Z = 0.276$, $p = .782$, 95% CI = -0.955 to 1.27). The percentage of participants officially reoffending was higher among individuals who dropped out with low and moderate perspective taking (Figure 2).

4 | DISCUSSION

The main aim of our study was to assess whether emotional decoding interacts with empathic (cognitive and emotional) abilities to explain dropout, intervention dose (number of SBI sessions received), and/or

TABLE 2 Relationships (partial correlations) of emotional decoding abilities and empathy with dropout, intervention dose, risk of recidivism, and official recidivism with sociodemographic, alcohol, and drug misuse variables as covariates

	1	2	3	4	5	6	7	8	9
1 Eyes test									
2 Perspective taking	.130**								
3 Fantasy	.023	.408***							
4 Empathic concern	.032	.331***	.280***						
5 Personal distress	-.074	.361***	.421***	.348***					
6 Dropout	-.137**	-.101*	-.047	.010	.020				
7 Intervention dose	.175***	.120*	.062	.004	-.037	-.703***			
8 Total risk of recidivism score	-.148**	-.064	-.038	.086	-.010	.227***	-.201***		
9 Official recidivism	-.080	-.129*	-.051	.040	.094	.205***	-.271***	.242***	

Statistical significance.

* $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 3 Regression models testing for the interaction between predictors (IRI perspective taking and eyes test) to predict dropout and intervention dose

Dropout							
Effect	B	95% CI for B		SE B	β	R^2	ΔR^2
LL	UL						
Step 0							
Constant	0.066	-0.180	0.313	0.126		0.027	0.027
Age	0.000	-0.004	0.004	0.002	.002		
Nationality	0.001	-0.003	0.005	0.002	.022		
Marital status	-0.017	-0.054	0.019	0.018	-.049		
Level of education	0.007	-0.047	0.060	0.027	.012		
Employment status	0.035	-0.044	0.113	0.040	.044		
Alcohol misuse	0.005	-0.002	0.013	0.004	.073		
Drug misuse	0.001	0.000	0.003	0.001	.099		
Step 1							
Constant	0.275	-0.054	0.603	0.167		0.035	0.009
Age	0.000	-0.004	0.003	0.002	-.007		
Nationality	0.000	-0.004	0.004	0.002	.009		
Marital status	-0.018	-0.054	0.018	0.018	-.051		
Level of education	0.012	-0.042	0.065	0.027	.021		
Employment status	0.033	-0.045	0.112	0.040	.042		
Alcohol misuse	0.005	-0.003	0.012	0.004	.063		
Drug misuse	0.001	0.000	0.003	0.001	.096		
IRI perspective taking	-0.003	-0.011	0.005	0.004	-.039		
Eyes test	-0.007	-0.016	0.002	0.005	-.080		
Step 2							
Constant	0.164	-0.428	0.756	0.301		0.036	0.000
Age	0.000	-0.004	0.003	0.002	-.007		
Nationality	0.000	-0.004	0.004	0.002	.009		
Marital status	-0.018	-0.054	0.018	0.018	-.051		
Level of education	0.013	-0.041	0.067	0.027	.023		
Employment status	0.034	-0.044	0.112	0.040	.043		
Alcohol misuse	0.005	-0.003	0.012	0.004	.063		
Drug misuse	0.001	0.000	0.003	0.001	.095		
IRI perspective taking	0.002	-0.023	0.028	0.013	.029		
Eyes test	-0.001	-0.031	0.029	0.015	-.009		
IRI perspective taking x eyes test	0.000	-0.002	0.001	0.001	-.109		
Dropout							
Intervention dose							
Effect	B	95% CI for B		SE B	β	R^2	ΔR^2
LL	UL						
Step 0							
Constant	28.19	22.06	34.33	3.123		0.072	0.072***
Age	-0.050	-0.143	0.042	0.047	-.057		

TABLE 3 (Continued)

Dropout							
Intervention dose							
Effect	B	95% CI for B		SE B	β	R ²	ΔR^2
		LL	UL				
Nationality	-0.103	-0.202	-0.003	0.051	-.099*		
Marital status	0.438	-0.462	1.339	0.458	.049		
Level of education	1.23	-0.096	2.556	0.674	.088		
Employment status	-1.23	-3.175	0.719	0.990	-.061		
Alcohol misuse	-0.199	-0.382	-0.017	0.093	-.108*		
Drug misuse	-0.055	-0.093	-0.018	0.019	-.150**		
Step 1							
Constant	14.33	6.39	22.28	4.043		0.130	0.058***
Age	-0.030	-0.120	0.060	0.046	-.034		
Nationality	-0.069	-0.167	0.029	0.050	-.067		
Marital status	0.474	-0.400	1.349	0.445	.053		
Level of education	0.917	-0.380	2.215	0.660	.066		
Employment status	-1.156	-3.05	0.733	0.961	-.057		
Alcohol misuse	-0.154	-0.333	0.024	0.091	-.084		
Drug misuse	-0.052	-0.089	-0.015	0.019	-.141**		
IRI perspective taking	0.219	0.032	0.407	0.095	.108*		
Eyes test	0.467	0.245	0.690	0.113	.202***		
Step 2						0.151	0.021**
Constant	-4.65	-18.79	9.49	7.19			
Age	-0.031	-0.120	0.058	0.045	-.035		
Nationality	-0.075	-0.172	0.022	0.049	-.073		
Marital status	0.494	-0.371	1.36	0.440	.055		
Level of education	1.12	-0.174	2.41	0.656	.080		
Employment status	-1.08	-2.95	0.790	0.951	-.054		
Alcohol misuse	-0.151	-0.328	0.026	0.090	-.082		
Drug misuse	-0.053	-0.089	-0.016	0.018	-.142**		
IRI perspective taking	1.14	0.542	1.75	0.306	.564***		
Eyes test	1.57	0.852	2.29	0.365	.680***		
IRI Perspective taking x eyes test	-0.055	-0.088	-0.021	0.017	-.736**		

Abbreviations: CI, confidence interval; IRI, interpersonal reactivity index; LL, lower limit; SE, standard error; UL, upper limit.

* $p < .05$; ** $p < .01$; *** $p < .001$.

recidivism (risk and official) in a group of IPV perpetrators. The results allowed us to conclude that only two moderation models were significant. In particular, the lower the perspective taking of participants with low emotional decoding abilities, the lower the intervention dose. Additionally, the percentage of participants that reoffended was higher among individuals with low and moderate perspective taking who dropped out.

With regard to the first aim of this study, we initially hypothesized that the higher the emotional decoding and empathic abilities (perspective taking, fantasy, empathic concern, and low personal distress), the lower the dropout and recidivism rates. However, from all the variables included for the group of IPV perpetrators, the ones which were significantly related to dropout, intervention dose, and recidivism (risk and official) were emotional

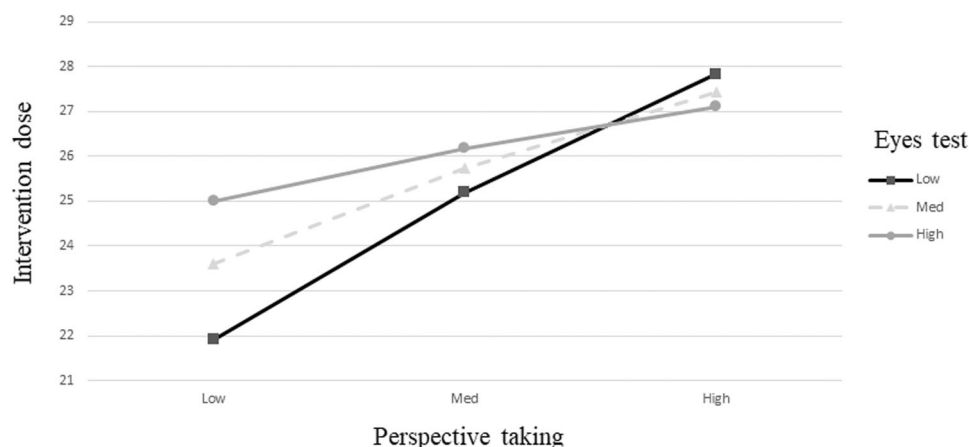


FIGURE 1 Perspective taking as a predictor of intervention dose moderated by emotional decoding abilities in IPV perpetrators. IPV, intimate partner violence.

decoding abilities and perspective taking (cognitive empathy). These results supported previous conclusions in this field (Covell et al., 2007; Godfrey et al., 2020; Lafontaine et al., 2018). That is, the lower the emotional decoding and cognitive empathy abilities, the higher the dropout and risk of recidivism. In both cases, results were congruent with previous findings in this field (Covell et al., 2007; Nylene et al., 2018; Romero-Martínez, Lila, Sariñana-González et al., 2013). Contrary to our expectations, we failed to report significant results associating empathic concern with dropout and risk of recidivism, as stated by Godfrey et al. (2020). Discrepancies between studies might be explained by the fact that those authors employed violence intake, measured with the Conflict tactics scale-2, instead of recidivism, as in our current study. In this sense, recidivism in our study not only compromised physical or psychological expressions of violence, but also other types of behaviors (e.g., breach of restraining order). This should be kept in mind for further studies.

Regarding the moderation models, out of the six models that were checked only two of them were significant. Concretely, emotional decoding abilities and perspective taking significantly interacted to predict intervention dose and official recidivism, especially considering the group of IPV perpetrators who scored below the 16th percentile in emotional decoding abilities. Moreover, perspective taking also moderated the association between dropout and recidivism (total risk score and official recidivism). Hence, all models point in the same direction, but it should be noted that only two of them remained significant after including covariates. Therefore, this interaction should be considered of moderate importance for predicting a complex phenomenon such as recidivism, and drug abuse or sociodemographic characteristics of IPV perpetrators should be taken into account.

The premature abandonment of the intervention during the initial stages of the SBI (dropout) among those IPV perpetrators with poor emotional decoding and cognitive empathic abilities might be explained by the overwhelming feelings they could be experiencing from the emotional content of SBIs, as well as difficulties dealing with their own and other's inner states. In previous studies, the likelihood

of SBI dropout was also considerably higher during precontemplation than in posterior phases (e.g., Scott, 2004). Thus, these poor abilities might explain the resistance of those men to promote change, or in other words to go from precontemplation (state of change) to other phases, as they also misunderstand the emotional consequences of their behavior for their victims by minimizing it.

Regarding the second aim of this study, we hypothesized that high dropout would interact with low emotional decoding and empathic abilities to predict recidivism. From the four moderation models tested, only one of them was significant. In particular, the percentage of participants that reoffended was higher among individuals with low and moderate perspective taking who dropped out. Hence, our data allowed to conclude that the interaction between the above-mentioned variables not only explained dropout, but also recidivism. Facilitation or proneness toward recidivism might be explained by the fact that difficulties regarding the dispositional tendency to adopt another's perspective is a strong predictor of serious anger management difficulties, especially after being provoked (Day et al., 2012; Mohr et al., 2007). Therefore, when these men abandon the SBI prematurely, without receiving training to cope satisfactorily with potentially distressing situations, it would facilitate a violent response under uncertain circumstances or couple arguments. Obviously, perspective taking is not the main reason behind violence proneness. In fact, this is a piece of a complex puzzle. However, they are important processes for interpreting a basic source of information, which together with hostile schemas or personality traits belonging to cluster b, might in turn facilitate violence intake. Thus, our data might alert psychologists of the need to focus on decoding emotional signals as well as successfully interpreting this kind of information before starting SBIs.

Accurately measuring those deficits or alterations might allow us to carefully implement training for developing these abilities in the future. In this regard, emotion recognition training (ERT) (e.g., matching facial expression picture with corresponding emotions or feelings) has been found to improve how offenders identify facial

TABLE 4 Regression models testing the interaction between dropout with perspective taking to predict official recidivism

Effect	B	95% CI for B		SE B	β	R ²	ΔR^2
		LL	UL				
Step 0							
Constant	0.376	0.163	0.589	0.108		0.034	0.034*
Age	−0.002	−0.006	0.001	0.002	−.078		
Nationality	0.001	−0.003	0.004	0.002	.021		
Marital status	−0.004	−0.035	0.027	0.016	−.013		
Level of education	−0.061	−0.107	−0.015	0.023	−.128*		
Employment status	−0.022	−0.090	0.045	0.034	−.033		
Alcohol misuse	0.0000	−0.007	0.006	0.003	−.004		
Drug misuse	0.001	0.000	0.002	0.001	.074		
Step 1							
Constant	0.546	0.298	0.794	0.126		0.085	0.052***
Age	−0.002	−0.005	0.001	0.002	−.077		
Nationality	0.001	−0.003	0.004	0.002	.020		
Marital status	−0.001	−0.031	0.030	0.016	−.003		
Level of education	−0.063	−0.108	−0.018	0.023	−.132**		
Employment status	−0.028	−0.094	0.038	0.034	−.041		
Alcohol misuse	−0.001	−0.007	0.005	0.003	−.015		
Drug misuse	0.001	−0.001	0.002	0.001	.054		
Dropout	0.161	0.079	0.242	0.041	.186***		
IRI perspective taking	−0.009	−0.015	−0.002	0.003	−.125**		
Step 2							
Constant	0.391	0.130	0.653	0.133		0.110	0.024**
Age	−0.002	−0.005	0.001	0.002	−.078		
Nationality	0.000	−0.003	0.004	0.002	.012		
Marital status	0.003	−0.027	0.033	0.015	.009		
Level of education	−0.059	−0.104	−0.015	0.023	−.125**		
Employment status	−0.027	−0.092	0.039	0.033	−.039		
Alcohol misuse	−0.001	−0.007	0.005	0.003	−.013		
Drug misuse	0.001	0.000	0.002	0.001	.071		
Dropout	0.694	0.370	1.02	0.165	.801***		
IRI perspective taking	−0.003	−0.010	0.005	0.004	−.039		
Dropout x perspective taking	−0.026	−0.041	−0.011	0.008	−.638***		

Abbreviations: CI, confidence interval; IRI, interpersonal reactivity index; LL, lower limit; SE, standard error; UL, upper limit.

* $p < .05$; ** $p < .01$; *** $p < .001$.

emotion expressions, reducing violence proneness (Penton-Voak et al., 2013; Schöenberg et al., 2014). However, the effectiveness of this kind of tasks should be regarded carefully considering a previous study did not observe improvements in IPV perpetrators' emotional decoding abilities (Romero-Martínez, Santirso et al., 2021) after a cognitive training through ERT tasks that represented less than 25%

of the total activities. Furthermore, a previous study which implemented motivational strategies together with SBIs effectively improved emotional decoding as well as perspective taking abilities (Romero-Martínez et al., 2019b). Hypothetically, the positive impact of motivational strategies in these processes might be explained because the IPV perpetrators were trained in a step-by-step process

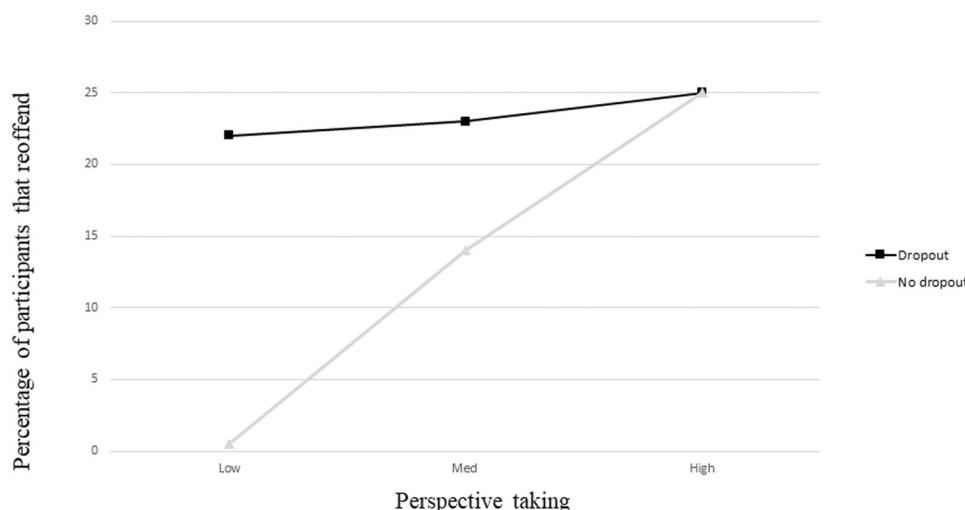


FIGURE 2 Dropout as a predictor of official recidivism moderated by perspective taking in IPV perpetrators. IPV, intimate partner violence.

to carefully process distressing situations or used role playing to adopt another's perspective. In any case, there is not enough background information to carefully identify the ideal type of program that could be used to develop those abilities in IPV perpetrators. This means that it is completely open to new ideas or coadjuvant programs.

Despite the interest sparked by our data to understand the main factors, at least in part, of dropout, and recidivism in a larger sample size of IPV perpetrators, this study is not exempt of limitations. For example, the nature of this study is uncontrolled, which restricts how we address causal or stronger associations between variables. It would, therefore, be important to conduct new studies which include robust designs (e.g., randomized controlled studies) to control the potential effect of confounding variables. The other limitation affects the instrument included to assess emotional abilities, concretely, the relatively low internal consistency of the eyes test. Nonetheless, the value for this study was congruent with the reported value from previous studies in different countries (Oakley et al., 2016). However, it would be important to include other instruments with good internal consistency or even other instruments including videos and/or that rate emotional valence and not only accuracy. Furthermore, we only employed a self-report measure for assessing empathy. Even though it is largely extended among the scientific community to assess empathy, we would need other complementary instruments to assess a complex construct such as empathy without the inherent limitations of self-reports. It is important to keep all these limitations in mind to implement new studies in this field.

Our data highlighted the importance of considering emotional decoding abilities and perspective taking to clearly understand treatment compliance and recidivism. Most of the studies in this field have ignored these emotional variables by focusing on other important factors which are mainly based on self-reports. This also stresses the need to complement self-report measures with other objective measurements (i.e., laboratory tasks, neuroimaging techniques) and qualitative measurements

(behavioral control during therapy, personality, etc.) reinforcing, in turn, the value of our conclusions. Moreover, future studies should incorporate the malingering test to strengthen the value of a neuropsychological test such as the eyes test. Finally, future studies should also control for respondents' general intelligence level because it could act as a potential confounding variable in moderation models.

In summary, our conclusions emphasize the importance of implementing new screening tools to assess emotional decoding and empathic abilities during the initial stages of SBIs. This would allow developing coadjuvant cognitive training programs or including motivational strategies focused on these dysfunctions, which clearly interfere with IPV perpetrators' current adherence to intervention programs as well as recidivism. In addition, we do not deny that the possibility of combining cognitive treatments with other alternatives such as noninvasive stimulation brain techniques could increase the success of current interventions because they could increase the success of psychological interventions. Therefore, studies that consider all these variables will allow us to build a biopsychosocial model of treatment compliance and recidivism.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data sets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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SUPPORTING INFORMATION

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