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Imprisonment or release. What matters for recidivism?

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Abstract

Research tries to discover which factors of the imprisonment experience and the conditions of release are relevant to reduce the risk of recidivism. We conducted research with persons serving a prison sentence (in ordinary prison, open prison or on parole) (n=538) to test whether factors pointed out by general strain, social support, and differential association/social learning theories are related to recidivism. Unlike previous research, we found that the level of coercion, support, and learning experienced during imprisonment is unrelated to the risk of recidivism. We found that subjects who benefited from supervised release, in comparison to those who were released without supervision at the expiration of the sentence, were associated with a significantly lower risk of recidivism. This study should be seen as a confirmation of the emerging research that underlines that the release stage is critically related to challenging recidivism, and this can be achieved when individuals benefit from supportive supervision aimed at challenging criminogenic needs and promoting social integration.

Keywords: Imprisonment. Release. Recidivism. Supportive supervision.

Introduction

Most research on the effects of prison sentences on recidivism has been based on the comparison between prison sentences and alternatives to prison. While experimental research shows a null effect of prison sentences, non-experimental designs back a weak criminogenic effect of imprisonment (Nagin et al., 2009; Petrich et al., 2020; Villettaz et al., 2015). However, less research has dealt with the effects of prison sentences on recidivism in relation to the differences in the experience of imprisonment. This is an important issue, given its policy implications, to which the present paper is devoted.

Recent research has mainly used three theoretical frameworks to analyse the impact of serving a prison sentence on recidivism. Firstly, general strain theory (Agnew, 2006) has been proposed to explain why experiencing particularly harsh conditions during imprisonment (such as victimization, negative prison environment, unfair treatment, sanctions for misbehaviour) may lead to an increase in recidivism. Secondly, social support theory (Cullen, 1994) has analysed whether receiving professional, family, or community support during imprisonment may decrease recidivism. Finally, differential association/social learning theory (Akers et al., 2017) has been used with two different purposes: to test whether taking part in cognitive-behavioural, educational, or vocational programs aimed at challenging criminogenic needs reduces the risk of recidivism, and to test the school of crime hypothesis that associating with individuals with more intense offending trajectories will increase recidivism.

In addition to the above, recidivism has also been linked to how persons are released and which conditions they will face in the community. Strain/social support theory predicts that when individuals on conditional release (parole) receive support from professionals, families and other members of the community, the strain of the release will be moderated and therefore recidivism will be reduced. The same theory

predicts opposite results when relations with family are mainly a source of strain and conflict (Boman & Mowen, 2018). Finally, social learning theory has also been considered to test whether the attitude of individuals regarding the success of the desistance process will reduce the risk of recidivism (Burnett, 1992).

Labelling theory, which is the main theory to understand the likely criminogenic effects of prison compared to non-custodial sanctions, is less useful to understand the differential effects of the experience of imprisonment because all the imprisoned individuals are subjected to some level of labelling. However, the labelling effect is affected by the theories considered in the research and mainly by social support theory. This theory identifies factors that may reduce labelling effect and decrease the risk of recidivism (Cullen, 1994).

The extant research on the impact of serving a prison sentence on recidivism has two main limitations that justify the research presented in this paper: first, on some issues there are still contradictory findings that require further investigation and, second, most of the research comes from jurisdictions in the US and in order to assess the validity of the theories in dispute it seems reasonable to test them in a different context.

Theoretical framework

Several criminological theories—rational choice, strain, differential association/social learning, control, labelling, among others—have been used to understand the impact of prison sentences on recidivism. However, we think that most of the factors that have been considered in recent research can be included in the following three criminological theories: general strain theory (GST), social support theory and differential association/learning theory. GST (Agnew, 1992, 2006) states that suffering negative stimuli that generate serious strain (high in magnitude, perceived as unjust and leading

to a decrease in control) may create a negative emotional state (anger, depression, frustration) that will be conducive to reoffending. Social support theory (Cullen, 1994), a theory that can be included in the framework of strain theory, states that the level of instrumental and expressive support received from others (family, community, state) may reduce both the strain and the development of negative emotional states and prevent reoffending. Finally, differential association/social learning theory (Akers et al., 2017), underlines the importance of differential contact and reinforcement –from conventional and non-conventional sources–on the development of attitudes and behaviours that may explain whether the person leans toward recidivism or toward desistance after serving a prison sentence. Although these three theories are relevant to understanding the factors that affect both imprisonment and release, most research on this issue has been focused on imprisonment or on release variables. Therefore, our research reviews the capability of these three theories to illuminate the impact of prison sentences, differentiating between how imprisonment is served and under what conditions persons are released.

Imprisonment and recidivism

General strain theory (GST) directs its focus on several factors that may make the experience of imprisonment harsher when compared to the rest of the imprisoned population. Some of the factors that have been linked to an increase in the risk of recidivism are the following: suffering victimization during imprisonment (Listwan et al., 2011, Shappel et al., 2016, Zweig et al., 2015); living in a negative prison environment (indirect victimization) (Daquin et al., 2016, Listwan et al., 2011); suffering more sanctions for misbehaviour (Barrick et al., 2014; Cochran et al., 2014); serving the sentence in a more restrictive unit (Gaes & Camp, 2009); and feeling unfairly treated by prison staff (Beijersbergen et al., 2016). Other factors such as the

length of the sentence (Nagin et al., 2009; Snodgrass et al., 2011; Stam et al., 2024) or the subjective perception of the severity of the sentence (Raaijmakers et al., 2017) do not seem to affect the risk of recidivism. Although the existing research on the impact of experiencing differential coercion during imprisonment is limited in number and geographically (research in the US and in The Netherlands) it seems valid to sustain the hypothesis that those who experience more coercive imprisonment conditions might develop the negative emotional states predicted by the GST with more intensity and this will increase the risk of reoffending at release.

Social support theory explains that the amount of help persons received from family, community and professionals during imprisonment may be able to lessen the strain suffered, prevent the emergence of negative emotional states, and promote the rise of desistance narratives. Social support from families, volunteers and professionals may motivate individuals to engage in prosocial activities during imprisonment and build a prosocial identity (Chouhy et al., 2020; Cid & Martí, 2012). Social support may produce reintegrative effects that are just the opposite of stigmatization (Cullen, 1994). Most research on this issue has focused on the impact of receiving family or communitarian visits during imprisonment, mainly linked to a reduction of recidivism (Bales & Mears, 2008; Duwe & Clark, 2011). A second area of research is the provision of support by family during imprisonment. Although some research demonstrates positive results (Barrick et al., 2014; Cobbina et al., 2010), other research has shown that family support is irrelevant for recidivism, probably because part of persons supported by family may develop a conflictive relation at release. Formerly incarcerated individuals may feel pressured to obtain money to adapt to the male breadwinner role, or families may not accept drug use, and these kinds of interactions may lead to recidivism (Martí & Cid, 2015; Mowen & Visser, 2015). Therefore, we found some contradictory research,

because although one indicator of family and communitarian support—visits—seems able to prevent recidivism, a more complex indicator used by other research (a scale of family support) might not prevent recidivism because it might also convey a family conflict.

Differential association/social learning theory focuses on two different factors. On the one hand, individuals may participate in programs aimed at challenging criminogenic needs and if these programs are effective, they may prevent the risk of recidivism. On the other hand, they may develop contacts with other persons that transmit antisocial attitudes, and this may increase the risk of recidivism at release. In this respect, prison will be schools of crime. Regarding the first issue, a review of research indicates that some programs—such as education, training, drug treatment, and cognitive-behavioral programs—can prevent recidivism (Mackenzie, 2006). However, it seems very difficult to replicate these findings in studies like the present one, because the variables used—participation in programs, hours devoted—may lack the quality needed for evaluation (for example if participants have successfully completed the programs) (Harper & Chitty, 2005). Given this limitation of the data used it is not surprising that in some studies participation in programs fails to appear as a factor that explains recidivism (Listwan et al., 2011).

Regarding the second issue, the research on whether associating with individuals with more intense offending trajectories during imprisonment may promote antisocial attitudes and increase recidivism is not very large. Recent research with young or young adult offenders confirms that mixing individuals with other individuals convicted of the same offence increases the risk of recidivism, backing the metaphor of prisons as schools of crime (Bayer et al., 2009; Damm & Gorinas, 2020). Research on the adult population is less confirmatory. Although one study shows that being placed in harsher

regimes increases recidivism, which might be considered confirmation of this theory (Gaes & Camp, 2009), another study that has tested more directly whether being in prison with more offending experienced individuals increases recidivism does not confirm the hypothesis (Harris et al., 2018). The impact of both sides of differential association/learning theory during imprisonment is therefore in need of more research.

Release and recidivism

In most jurisdictions incarcerated persons are released to the community in different ways: some are released unconditionally at the expiration of the prison sentence and others are released conditionally before having served the whole sentence. An intermediate situation, normally before achieving conditional release, is when persons serve the sentence in open prisons or similar, in which case during some time they are in the community under supervision. The research on the effects of prison sentences on recidivism has explored the relevance of the type of supervision and other aspects of the social life of released individuals that may be relevant for recidivism.

Regarding general strain theory we might consider whether serving the whole sentence in an ordinary prison, in comparison with those that served part of the prison sentence in the community, is a more coercive situation that could increase recidivism. However, given that those conditionally released are submitted to some kind of supervision, it seems difficult to isolate the effect of suffering less coercion from the possible effect of benefiting from supervision. Another factor leading to strain that has been considered is experiencing stressful or conflicting relations with the family during the release period, with some research showing that it increases the risk of recidivism (Martí & Cid, 2015; Mowen & Boman, 2019).

Moving to social support theory, it has been researched whether benefiting from family support during the release period reduces the risk of recidivism. Research seems

favorable to this hypothesis (Barrick et al., 2014; Berg & Huebner, 2011; Boman & Mowen, 2018) but we also found some non-confirmatory results (Martí & Cid, 2015; Mowen & Boman, 2019), always linked to the idea that some family relations may be conflictual, and this conflict is a factor that may increase recidivism.

More research, coming from different jurisdictions, has revealed that receiving professional support at release reduces the risk of recidivism. This research has mostly shown the effectiveness of programs that provide support in all or some of the following areas: work, accommodation, link to social services or drug rehabilitation programs (Aaltonen et al., 2017; Anderson & Wildeman, 2015; Bhuller et al., 2009; Karimi-Haghighi et al., 2025; Kurlychef & Kempinen, 2006; Peled-Laskov et al., 2019; Ramakers et al., 2017; Schlager & Robbins, 2008; Versey et al., 2014; Wan et al., 2016; Zhang et al., 2006). Some non-confirmatory results have also been found (Ostermann, 2013; Salomon et al., 2005), but an explanation provided by the authors is that the supervision programs analysed were of low intervention or were more aimed at surveillance than at providing support. The results of this research can be considered as a confirmation that some correctional systems, when they are oriented to providing support in basic areas of social integration, may moderate the structural effect of labelling and prevent recidivism.

Learning theory has been considered to analyse the effect of supervised release. On the one hand, it has been tested whether parole officers who follow the principles of the Core Correctional Practice (Dowden & Andrews, 2004) have a positive impact on the attitudes of individuals on parole and prevent recidivism, with some research showing the expected association (Bares & Mowen, 2020; Chamberlain et al., 2018). Other research has analysed parole programs aimed at challenging criminogenic needs and learning self-control, also with positive results (Antonio & Crossett, 2016; Schaefer

& Little, 2020). Regarding attitudes as a mechanism of change, some studies have analysed whether more self-confident or optimistic persons are better able to avoid recidivism, with some contradictory results (Burnett, 1992; Dhimi et al., 2006; Howerton et al., 2009)ⁱ.

From the above review of research we may conclude, first, that in order to understand recidivism linked to a prison sentence we should analyse both how imprisonment is served and how persons are released; second, that the three aforementioned criminological theories—general strain, social support and differential association/social learning—are able to identify the main factors and mechanisms that have been proposed to understand the impact of serving a prison sentence on recidivism; and finally, that with regard to many issues, research is still inconclusive and justifies further investigation coming from different jurisdictionsⁱⁱ.

Aim and hypothesis.

With the general aim of extending the research on how the experience of imprisonment and the conditions of release affect recidivism, and based on previous research, we assume the following hypotheses:

With regard to the imprisonment period:

1. Experiencing coercion during imprisonment will be associated with a higher risk of recidivism.
2. Receiving family support during imprisonment will be associated with a lower risk of recidivism.
3. Benefiting from rehabilitation programs during imprisonment will be associated with a lower risk of recidivism.

4. Associating with delinquent peers during imprisonment will be associated with a higher risk of recidivism.

With regard to the release period:

5. Experiencing family conflict during release will be associated with a higher risk of recidivism.

6. Receiving family support during release will be associated with a lower risk of recidivism.

7. Being confident about avoiding offending will be associated with a lower risk of recidivism.

8. Receiving professional support, throughout supervised release, will be associated with a lower risk of recidivism.

Methods

Studies on the consequences of imprisonment on recidivism face the challenge of distinguishing causal effects from selection effects. Experimental designs are rare due to the ethical and practical difficulties involved in randomly assigning incarcerated individuals to different imprisonment conditions (but see Gaes & Camp, 2009).

Consequently, most research in this field relies on observational designs. Since these designs are susceptible to selection effects—as individuals less prone to recidivism are more likely to be assigned to better imprisonment conditions—they require the use of matching techniques or multiple regression methods to disentangle causal effects from selection bias.

Our study adopts an observational strategy, administering a questionnaire to a sample of 538 individuals who had completed their prison sentences in Catalonia (Spain). The analysis employs multiple regression models with a comprehensive set of

control variables. Nevertheless, this approach limits causal interpretation, as the results may still be confounded by selection effects inherent to the observational design.

Sample

The research design was specifically aimed at collecting data which tests the hypotheses we want to contrastⁱⁱⁱ. The aim of the sampling procedure was to obtain a representative sample of persons who fulfilled their prison sentence in 2016 or 2017 in Catalonia (Spain). Participants were recruited from 10 ordinary prisons, 6 open prisons, and 4 conditional release offices, covering all correctional institutions of the region. The sample was obtained in four stages between April 2016 and July 2017. The prison directorate compiled a list of persons who were going to complete their prison sentences in each of the correctional institutions within a 6-month period and we approached them in the final months of serving their prison sentences (4 months before the expiration of the prison sentence on average).

Prison staff distributed a letter from the research team to eligible participants, explaining the aim of the research. They were invited to attend a meeting in which trained researchers asked for informed consent and those consenting filled out a self-administered questionnaire, with the help of the researchers when required.

Questionnaires were mostly completed in the correctional facilities (ordinary prisons, open prisons and conditional release centers) without the supervision of prison staff^{iv}.

In total we obtained a list of 1394 individuals. Prison staff contacted 1072 individuals to invite them to participate in the research. The remaining 322 had been transferred to a different institution or for other reasons—illness, home leaves, work—were considered by prison staff not to be available to participate in the research. From the 1072 that had been invited to participate in the research, 538 (50.2%) agreed to

participate. The response rate was higher in ordinary prisons (57.5%) and open prisons (58.3%) than in conditional release centers (33.7%); this different rate seems to be due to the fact that individuals on parole needed to be contacted on an individual basis and to agree on a day to attend the conditional release center in order to fill out the questionnaire. Questionnaires took an average of 75 minutes to be completed, and participants were given 10€ as compensation for their time.

The sample contains three different ways of serving a prison sentence in Spain: persons that served the whole sentence in an ordinary prison and are released without supervision at the expiration of the sentence; persons that served part of the sentence in an open institution, where they only spent the week nights, and spent the rest of the day in the community under supervision; and finally, persons who, after being in open regime, served the final part of their prison sentence on parole, under community supervision. We decided to group all participants in two categories: early released individuals—in open regime or parole—who benefited from professional support at release and persons released from an ordinary prison at the expiration of the sentence, who did not have any professional supervision. Table 1 shows the population and the sample distribution regarding sex, age, nationality, and the type of release.

Dependent variable

The dependent variable of the research is reincarceration for a new offence committed since the participants achieved parole or served the entire sentence^v. Individuals released on parole or at the expiration of the sentence have been followed for 3.79 years and considered recidivist if they have been reincarcerated during this time for a new offence as pretrial or convicted prisoners. To prevent overrepresentation of non-recidivists, we have excluded from the sample those non-recidivist participants that

have been at risk of recidivism for less than 365 days. For this reason, 93 of the 538 participants have been excluded for not meeting this criterion. Of the remaining 445 participants, 38 are missing cases, excluded for not having information about some of the variables considered. The analysis has been conducted with the remaining 407 participants.

[Table 1 about here]

Independent variables

Coercion during imprisonment

To test the first hypothesis of the research—experiencing coercion during imprisonment is associated with a higher risk of recidivism—we have constructed four variables that reflect this dimension: suffering direct victimization by other incarcerated persons, indirect victimization (the perception of living in a negative prison environment), being frequently the object of disciplinary sanctions and feeling unfairly treated by prison staff. For the first variable, direct victimization, we have constructed a 4-item scale asking about the frequency with which participants had been humiliated, assaulted, threatened, and stolen from by other incarcerated persons. The scale has a Cronbach's Alpha of 0.80. To construct the variable of indirect victimization, we adapted the scale of "Negative environment scale" developed by Listwan et al. (2011, p. 24) in which participants were asked to report about the frequency of violence and other offences among incarcerated persons. Considering that the quality of life in prison may depend on both interpersonal violence and on the treatment by staff (Bottoms, 1999), we aggregated questions to reflect whether participants had perceived unfair treatment of incarcerated persons by staff. The final scale has a Cronbach's Alpha of 0.88.

Concerning the third variable—frequently being the object of disciplinary sanctions—13% of the sample had been sanctioned frequently while serving their sentence and the remaining 87% reported never or only occasionally having been sanctioned. For the final variable, feeling unfairly treated by staff, we have constructed a 7-item scale to know whether participants felt equally treated, respected, listened to and answered by prison staff. The scale has a Cronbach’s Alpha of 0.89.

Support during imprisonment

We have considered the two main factors devised by research: visits received and family support during imprisonment. Regarding visits we have constructed an index about the frequency (weekly, monthly, occasionally, or never) of having been visited by family, partner, and friends. Regarding family support, we took the scale of Visher and O’Connell (2012) from the Returning Home research, which used a scale to measure the level of closeness, mutual support and peaceful relationships between participants and family members while serving the prison sentence. We considered that to measure the impact of family support on subjective desistance it was also relevant to include a question on whether the family expected a change in attitudes and behavior of the participant. With this aim, we created a 7-item scale that measured emotional support, instrumental support, and the commitment of the family to the participant’s change. Scores ranged from 0 to 3, higher scores indicating a higher level of conventional support, with a Cronbach’s Alpha of 0.86.

Rehabilitation during imprisonment

We asked participants whether they have taken part in rehabilitation programs that are offered in penitentiary facilities (drug rehabilitation programs, mental health programs, vocational training, and violence control) and whether the participation in these programs had been useful to achieve its aims (challenge the addiction, improve mental

health, improve professional skills, and improve self-control and problem-solving skills). We separated the answers in two categories: participants who enrolled in some of these programs and reported profit from them and participants who did not enroll in them or enrolled without reporting profit.

Association with individuals that offended during imprisonment

We asked a single question on whether participants have some friend that was involved in criminal offenses while inside prison. 41% of participants reported to have been in friendship with at least one incarcerated person who committed criminal offenses while in prison.

Family conflict at release

In our research we only interviewed participants in the final months of the sentence and therefore we do not have information for all participants about whether they have experienced some conflict at release^{vi}. However, we asked participants about expectations of suffering violence by a member of the family or the expectation of not having relationships with the family at the expiration of the sentence. 13% of the sample reported that it was likely that they would experience one of these two situations.

Family support at release

Not having direct information for all participants about family support at release, we used a scale, previously used by Visher & O'Connell (2012), that measures the expectation of expressive and instrumental support by the family after the expiration of the sentence. The 11-item scale with a range of 0 to 3 shows a high average of 2.45, and the scale has a Cronbach Alpha of 0.96.

Professional support at release

Considering professional support, we divided our participants in two categories: those who were released at the expiration of the sentence from an ordinary prison and those

who were early released and served the final part of the sentence in open regime or on parole. At the time of the interview—an average of 4 months before the expiration of the sentence—63% of the sample had not received early release, meaning that they were serving the sentence in an ordinary prison. Only early released persons had the support of a supervision officer to deal with all the problems of reentry, such as work, housing, legal help for foreigners, and links with social services, among others (Cid & Ibàñez, 2019).

Confidence in avoiding recidivism

Following Bottoms and Shapland (2011), we asked participants about their perceived probability of avoiding recidivism after the expiration of the prison sentence. We divided the participants into two groups. We considered participants confident in avoiding recidivism if they answered that they had already quit offending or that they had made a decision to quit offending. We included in the second group those who answered that they were not sure whether they could quit offending or that they thought it was not likely that they could quit offending. 84.5% of the sample was confident of avoiding recidivism.

Control variables

Following Nagin et al. (2009), we control for variables that may affect recidivism: sociodemographic data (sex, age, and nationality), current offence, previous incarcerations, and previous drug use. 35% of participants had been sentenced for a violent offence (homicide, sex offence, robbery, assault or IPV), and the remaining 65% for other offences (property offences, drug offences and others). The average number of previous incarcerations was 1.44. Concerning previous drug use, we measured the frequency of the use of 10 drugs, 6 months prior to being admitted to prison. The

possible answers ranged from 0 (no use) to 5 (daily use) and the final value is the aggregation of the frequencies of use of the 10 drugs. The mean is 3.34 and Cronbach's alpha was 0.79.

Table 2 summarizes the means and distribution of the variables used in the analysis

[Table 2 about here]

Analysis

We have opted to test the hypotheses of the research with the Cox regression technique because in recidivism studies it is important not only to distinguish between recidivists and non-recidivists, but also to take into account the differences in the duration until recidivism occurs. As in epidemiological research, the aim of correctional intervention is not only to prevent recidivism but also to have individuals remain longer in the community without committing further offences (Smith & Akers, 1993).

Results

Table 3 shows the results of the Cox regression. According to the aims of the research, we have tested three models. Model I includes only control variables. Model II includes variables related to the experience of imprisonment. Model III includes variables present during release that may be related to recidivism.

[Insert table 3 over here]

We may summarize the results of the Cox regression in the following points.

First, some of the control variables related to the background of individuals when entering prison are associated with the hazard ratio of recidivism. Previous incarcerations are associated with a higher risk of recidivism. Each previous stay in prison increases the hazard ratio of recidivism by 3%. Individuals convicted of violent offences have a 40% lower hazard ratio of recidivism than offenders sentenced for non-violent property offences, drug dealing, or other offences. Finally, drug use before being admitted to prison is associated with a significant increase in the hazard ratio of recidivism. For each unit of increase in the scale, the risk of recidivism rises by 33%.

Second, contrary to our hypotheses 1, 2, 3, and 4, none of the variables related to the experience of imprisonment were associated with the risk of recidivism. Suffering more coercive imprisonment is not associated with the risk of recidivism. Receiving more visits or benefiting from more family support during imprisonment was not associated with a lower risk of recidivism. Engaging in rehabilitation programs was also not associated with a decreased risk of recidivism. Finally, we also failed to confirm the idea of prisons as a school of crime, showing that forming friendships with individuals who commit offences in prison was not associated with an increase in the risk of recidivism at release.

Third, regarding the relevance of the release period, we had four hypotheses to test. We failed to confirm the importance of the family: family conflict is not associated with a higher risk of recidivism, nor is the level of family support associated with a decreased risk. We were also not able to confirm that a more confident attitude about avoiding offending was significantly associated with a lower risk of recidivism.

Fourth, the only hypothesis confirmed is the one related to professional support at release. Being released on open regime or on parole, relative to being released from

an ordinary prison at the expiration of the sentence, is associated with a 63% decrease in the hazard ratio of recidivism^{vii}.

Discussion

Contrary to our hypotheses, this research has found that none of the dimensions of the imprisonment experience is associated with recidivism in our sample. This conclusion contradicts relevant research and calls for possible explanations. Regarding the lack of confirmation of the hypothesis that experiencing more coercion during imprisonment will be related to an increase in recidivism, we suggest that other theories not considered in this research —such as rational choice theory— may predict that those who experienced more severe imprisonment feel greater deterrence from committing further offences. If some criminogenic effect is produced in some persons and some preventive effect is produced in others, then the consequence is the lack of significant effect at the aggregate level (Blumstein, 2004). Another possible explanation is that there were contextual differences between the US (from which most of the research confirming the impact of suffering coercion on recidivism comes) and Spain. It seems that, compared to the US, a higher percentage of incarcerated persons in Spain receive visits^{viii}. If coercion and support produced inverse consequences on offending (Colvin et al., 2002), it might be that the effect of suffering coercion on developing negative emotional states leading to offending was moderated more by social support in Spain than in the US. However, we tested this moderation hypothesis, and the results (not shown) do not confirm the hypothesis.

Null results regarding social support during imprisonment may have different explanations. The fact that, different from other jurisdictions (Cochran, 2014), most persons (93.9%) receive visits makes it more difficult to produce an effect on

recidivism. Other possible reasons that may explain the irrelevance of this factor are, as suggested by previous research, that family may be a source of strain or conflict when re-entering individuals have no money or have problems with drug use (Marti & Cid, 2015; Mowen & Visher, 2015).

Regarding the relevance of (prosocial and antisocial) learning during imprisonment, we did not confirm our hypothesis. The finding that participation in treatment programs in prison is unrelated to the risk of recidivism contradicts consolidated research that shows the effectiveness of these programs (MacKenzie, 2006). Although we tried to construct a measure that captures the reality of taking part in useful programs—dividing the sample into those who have not participated in programs or who have not reported taking full advantage of them and those who have been involved and reported taking full advantage of them—we need to be critical of the reliability of our own measurement. The main research on the effectiveness of rehabilitation programs is based on the comparison between individuals in need of the program who either take part in it or do not take part in it. In our research, we are not able to discard the possibility that some of those who did not take part in programs or did not report taking advantage of them did not have the criminogenic needs that the programs were aimed at addressing.

The second measure to test differential association/social learning theory in the present research is the fact that participants were in friend relationships with persons who committed criminal offences during imprisonment. Here we tested the hypothesis, recently backed by juvenile and young-adult samples (Bayer et al., 2009; Damm & Gorinas, 2020), that prisons are criminogenic because they may function as a school of crime. The lack of confirmation of the hypothesis is, however, in line with research with the adult population (Harris et al., 2019). For some, the friendship with persons who

commit offences in prison may produce a reinforcement of antisocial attitudes; for others, as suggested by these authors, it may produce deterrent effects —due to the perception of possible negative consequences (disciplinary sanctions, stricter regimes, lack of progression to open release and parole)— that generate avoidance of criminal offending after release.

Regarding how participants in this research have been released, we did not confirm our hypotheses regarding family conflict (hypothesis 5), family support (hypothesis 6), and personal confidence in desisting (hypothesis 7). None of these variables was significantly associated with recidivism. These results regarding the role of family relations during release contradict the findings of several researchers who have shown that family support during release is beneficial to avoid recidivism and that family conflict increases the risk of recidivism (Barrick et al., 2014; Berg & Huebner, 2011; Mowen & Boman, 2019). The only explanation we can suggest for the lack of positive results is that our participants were over-optimistic regarding support (the average expectation of family support was 2.45 out of 3), and they did not anticipate possible causes of strain and conflict (only 12% of the sample expected bad or lack of relationships with the family) —a result that has been found by other researchers (Dhami et al., 2006; Martí & Cid, 2015). The same reason can explain why the level of confidence in desisting was also unrelated to the risk of recidivism.

The only hypothesis we have confirmed is number 8, namely that receiving professional support throughout supervised release will be associated with a reduction in recidivism. The confirmation of this hypothesis is substantial because, compared with those persons released from an ordinary prison at the expiration of their sentence, the hazard ratio for recidivism is reduced by 63% when individuals benefit from early release (open regime or parole).

The main objection to the results obtained in the present research is that the association comes from observational data and not from an experimental design. In Spain, the process of granting open regime and conditional release is discretionary, and prison authorities select those who are granted these regimes. Theoretically, it is possible that the association we have found between being released early and reducing the risk of recidivism was spurious because a third variable (not considered in the research) might explain both being released early and having a lower risk of recidivism. We have tried to minimize this risk by considering the variables that, according to previous research, explain the risk of recidivism.

The finding that the type of release shows a strong association with the risk of recidivism is consistent with both theoretical predictions and previous empirical research. On the one hand, all the theories analysed predict that early release with supervision may have a positive effect. GST should acknowledge that, compared with serving the entire sentence in prison, benefiting from open regime or being granted parole implies the removal of a negative stimulus, thereby reducing the individual's strain. Social support theory will see the period of supervision as an opportunity to solve the main problems of reentry (work, housing, contact with social services and treatment providers), moderating the labelling effects that formerly incarcerated individuals experience, and reducing strain. Social learning theory will see the role of the supervisor as a model and reinforcer of prosocial behaviour. Other theories not considered in our theoretical framework, such as rational choice theory, may also contribute to explaining the association between early release and recidivism, because for early released persons the violation of the conditions of supervision may lead to reimprisonment.

On the other hand, recent research confirms the importance of release supervision to reduce the chances of recidivism when some conditions are met.

Research done in different jurisdictions has underlined two elements that seem to be relevant for the effectiveness of these release programs. The first element is the supportive orientation of the supervision officer. Supervisor agents seem to achieve better results in preventing recidivism when they see their role as providing help to offenders to solve their problems (Chamberlain et al., 2018), follow this role with professionalism (Andersen & Wildeman, 2015; Bares & Mowen, 2019), and provide help according to the needs of the offender (Braga et al., 2009). The second element consists of directing the supervision period toward a double aim: challenging criminogenic needs and promoting social integration. Programs that show effectiveness seem to deal with both aims (Braga et al., 2009; Peled-Laskov et al., 2019; Versey et al., 2014; Zhang et al., 2006) and promote social integration through facilitation of contact with social services and help to find work and housing (Aaltonen et al., 2017; Bhuller et al., 2009; Schlager & Robbins, 2008; Versey et al., 2014; Zhang et al., 2006). The evidence we have on the release supervision system in Spain reveals that the supervision period is oriented toward the problems of individuals and is aimed at dealing with both criminogenic needs and social integration (Cid & Ibáñez, 2019). Regarding social integration, the system is mainly oriented toward providing work to individuals released on open regime and parole, and it seems effective in achieving this aim (Alós et al., 2015).

Besides the type of release, the risk of recidivism is affected by several factors related to the background of persons admitted to prison (Nilsson, 2003): more prior incarceration, non-violent conviction, and higher level of drug use before entering prison increase the risk of recidivism in the final model. Although these results are not part of our hypotheses, they deserve some comment. The relevance of criminal history (tested in this research with the variable of prior incarcerations) seems clear in previous

research (Nagin et al., 2009; Nilsson, 2003) and may be explained by several criminological theories, such as the cumulative disadvantage theory (Sampson & Laub, 1997). Regarding drug use, research on desistance has shown that it is very difficult to sustain a desistance process without drug recovery, because drug use reduces the possibilities of benefiting from turning points (Laub & Sampson, 2003) or increases the link with antisocial partners and peers (Schroeder et al., 2007). The same result was found in the present research. Drug users benefited less from early release, and when they were granted early release, their risk of recidivism was higher than that of other early released persons. Finally, the finding that individuals sentenced for violent offences have a lower risk of recidivism was also anticipated by previous research (Nagin et al., 2009; Moore & Eikenberry, 2021).

Conclusion

The research on which this paper is based was aimed at examining, in the Spanish context, hypotheses about the association between the imprisonment experience and recidivism that had been tested in other jurisdictions. Previous research indicated that coercion and negative learning increase recidivism, whereas support and positive learning lead to the prevention of recidivism.

Lack of confirmation of the hypothesis that those who experience more painful imprisonment will have a higher chance of recidivism might be due to contextual differences between jurisdictions. The research on the impact of imprisonment coercion on recidivism comes mainly from the US, and probably prison experience in Spain is more moderate than in the US and therefore less able to show a significant association with recidivism. The same reason may explain why family support during imprisonment—and in particular family visits—appears unrelated to recidivism. In other jurisdictions

where research has shown the relevance of family visits to prevent recidivism, only half of the prisoners are visited; however, the familistic nature of Spanish society explains that more than 90% of incarcerated individuals receive family visits during imprisonment. Nevertheless, other failures to confirm hypotheses may be due to the limitations of the research. Given the conclusive research on the impact of participation in some treatment programs on recidivism, our lack of positive results is probably due to the fact that we have not been able to select a measure that captures the reality of individuals who needed to participate in these programs and completed them.

The main result of this research is that what matters for recidivism is the way of release. In our sample, 44% of the imprisoned individuals were released on open regime or parole, while the remaining 56% were released from an ordinary prison at the expiration of the sentence. Being released on open regime or parole means that individuals may receive support to find employment and address other social needs. They may also be supervised to prevent drug use or reoffending, and accompanied in rebuilding their personal networks and a less stigmatized identity. In contrast, individuals released at the expiration of the sentence did not benefit from support and supervision and may only apply for a temporary unemployment benefit. Positive results regarding the association between supervised release and recidivism are well explained by theories and backed by empirical evidence. All the theories under consideration — general strain theory, social support theory, and differential/social learning theory— agree that benefiting from early release (through open regime and parole) implies a reduction of coercion, and the process of supervision may be an opportunity to help the person manage the difficulties of reentry and moderate the labeling impact of imprisonment. Furthermore, during this period the supervisory agent may have a positive influence in helping the person challenge criminogenic needs. This research

should be added to other relevant research from different jurisdictions that confirms that the period of release is an opportunity to help formerly incarcerated persons achieve a conventional life.

The main limitation of the present research is its observational nature and the possibility that the results are confounded by selection bias, wherein individuals less prone to recidivism were more likely to be released on an open regime or conditional release. However, the use of multiple control variables allows us to complement other observational research on the relevance of gradual release, while minimizing the relevance of other imprisonment conditions.

Our final conclusion is that a supervised release with the aim of helping with job placement and challenging criminogenic needs is probably the most effective way to prevent recidivism after serving a prison sentence.

References

- Aaltonen, M, Skardhamar, T, Nilsson, A, Andersen, LH, Bäckman, O, Estrada, F and Danielsson, P (2017) Comparing employment trajectories before and after first imprisonment in four Nordic countries. *The British Journal of Criminology*, 57(4): 828–847.
- Agnew R (2006) *Pressured into Crime. An Overview of General Strain Theory*. Los Angeles: Roxbury.
- Akers RL, Sellers CS and WG Jennings (2017) *Criminological Theories* (7^a ed.). Oxford: Oxford University Press.
- Alós R, Esteban F, Jódar P et al. (2015) Effects of prison work programmes on the employability of ex-prisoners. *European Journal of Criminology* 12(1): 35–50.

- Andersen LH and Wildeman C (2015) Measuring the effect of probation and parole officers on labor market outcomes and recidivism. *Journal of Quantitative Criminology* 31, 629–652.
- Antonio ME and Crossett A (2016) Evaluating the effectiveness of the national curriculum and training institute’s “cognitive life skills” program among parolees supervised by Pennsylvania’s board of probation & parole. *American Journal of Criminal Justice* 42: 514 - 532.
- Bahr, S. J., Harris, L., Fisher, J. K. et al. (2010) Successful reentry: what differentiates successful and unsuccessful parolees? *International Journal of Offender Therapy and Comparative Criminology* 54(5): 667–692.
- Bales WD and Mears DP (2008) Inmate social ties and the transition to society: does visitation reduce recidivism? *Journal of Research in Crime and Delinquency* 45(3): 287-321.
- Bares KJ and Mowen TJ (2020) Examining the parole officer as a mechanism of social support during reentry from prison. *Crime & Delinquency* 66(6–7); 1023-1051.
- Barrick, K, Lattimore PK and Visser CA (2014) Reentering women: the impact of social ties on long-term recidivism. *The Prison Journal* 94(3): 279-304.
- Bayer, P, Hjalmarsson, R and Pozen, D (2009) Building criminal capital behind bars: peer effects in juvenile corrections. *The Quarterly Journal of Economics*, 124(1):105–147.
- Beijersbergen, KA, Dirkzwager, AJE and Nieuwbeerta, P (2016) Reoffending after release. Does procedural justice during imprisonment matter? *Criminal Justice and Behavior* 43 (1): 63-82.
- Berg MT and Huebner BM (2011) Reentry and the ties that bind: an examination of social ties, employment, and recidivism. *Justice Quarterly* 28(2): 382-410.

- Blumstein A (2004) Prisons: A Policy Challenge. In: Wilson JQ and Petersilia J (eds) *Crime*. Oakland: ICS Press, 451-482.
- Boman JH and Mowen TJ (2018) The role of turning points in establishing baseline differences between people in developmental and life-course criminology. *Criminology* 5(1): 191-224.
- Bottoms, AE (1999) Interpersonal violence and social order in prisons. *Crime and Justice* 26, 205-280.
- Bottoms AE and Shapland J (2011) Steps towards desistance among male young adult recidivists. In: Farrall S, Hough M, Maruna S et al. (eds) *Scape Routes. Contemporary Perspectives on Life After Punishment*. London: Routledge, 42-77.
- Braga AA, Piehl AM and Hureau D (2009) Controlling violent offenders released to the community: an evaluation of the Boston reentry initiative. *Journal of Research in Crime and Delinquency* 46(4): 411–436.
- Bhuller, M, Dahl, GB, Løken, KV and Mogstad, M (2009) Incarceration, recidivism, and employment. *Journal of Political Economy* 128(4), 1269-1324.
- Burnett, R (1992). *The Dynamics of Recidivism*. Oxford: Oxford Centre for Criminological Research.
- Chamberlain AW, Gricius M, Wallace DM et al. (2018) Parolee–parole officer rapport: does it impact recidivism? *International Journal of Offender Therapy and Comparative Criminology* 62(11): 3581–3602.
- Chouhy C, Cullen FT and Lee H (2020) A social support theory of desistance. *Journal of developmental and life course criminology* 6(2): 204-223.
- Cid, J and Ibàñez, A (2019) Prisoner resettlement in Spain –good practices for early-released prisoners and prisoners lost in transition that fully serve their sentence. In:

Düinkel F, Pruin I, Storgaard A and Weber J (eds) *Prisoner Resettlement in Europe*. London: Routledge, 313-327.

- Cid, J and Martí J (2012) Turning points and returning points. Understanding the role of family ties in the process of desistance. *European Journal of Criminology*, 9(6): 603–620.

- Cobbina JE (2010) Reintegration success and failure: factors impacting reintegration among incarcerated and formerly incarcerated women. *Journal of Offender Rehabilitation* 49(3): 210-232.

- Cochran JC (2014) Breaches in the wall: imprisonment, social support, and recidivism. *Journal of Research in Crime and Delinquency* 51(2): 200–229.

- Cochran JC, Mears DP, Bales, WD et al. (2014) Does inmate behaviour affect post-release offending? Investigating the misconduct-recidivism relationship among youth and adults. *Justice Quarterly* 31(6): 1044-1073.

- Colvin M Cullen FT., & Ven T (2002) Coercion, social support, and crime: an emerging theoretical consensus. *Criminology* 40(1): 19-42.

- Cullen FT (1994). Social support as an organizing concept for criminology. *Justice Quarterly* 11(4): 527-559.

- Daquin JC, Daigle LE and Listwan, SJ (2016) Vicarious victimization in prison. Examining the effects of witnessing victimization while incarcerated on offender reentry. *Criminal Justice and Behaviour* 43(8): 1018-1033.

- Damm P and Gorinas C (2020) Prison as a criminal school: peer effects and criminal learning behind bars. *The Journal of Law and Economics*, 63(1): 149-180.

- Dhami MK, Mandel DR, Loewenstein G et al. (2006) Prisoners' positive illusions of their post-release success. *Law and Human Behaviour* 30(6): 631-647.

- Dowden C and Andrews DA (2004) The importance of staff practice in delivering effective correctional treatment: A meta-analytic review of core correctional practice. *International Journal of Offender Therapy and Comparative Criminology* 48(2): 203-214.
- Duwe G and Clark V (2011) Blessed be the social tie that binds: the effects of prison visitation on offender recidivism. *Criminal Justice Policy Review* 24(3): 271–296.
- Gaes GG and Camp SD (2009) Unintended consequences: experimental evidence for the criminogenic effect of prison security level placement on post-release recidivism. *Journal of Experimental Criminology* 5: 139-162.
- Harper G and Chitty C (2005) *The Impact of Corrections on Re-offending: a Review of 'What Works'*. Home Office Research Study 291. London: Home Office.
- Harris HM, Nakamura K and Bucklen KB (2018) Do cellmates matter? A causal test of the schools of crime hypothesis with implications for differential association and deterrence theories. *Criminology* 56(1): 87-122.
- Howerton A, Burnett R, Byng R et al. (2009) The consolation of going back to prison: What 'revolving door' prisoners" think of their prospects. *Journal of offender rehabilitation* 48: 439-461.
- Karimi-Haghighi M, Castillo C, Tolan S et al. (2025). Effect of conditional release on violent and general recidivism: A causal inference study. *Journal of Experimental Criminology*, 21: 407-449.
- Kurlychef M and Kempinen C (2006) Beyond boot camp: the impact of aftercare on offender reentry. *Criminology and Public Policy* 5(2): 363-388.
- Laub JH and Sampson RJ (2003) *Shared Beginnings, Different Lives. Delinquent Boys to Age 70*. Cambridge: Harvard University Press.

- Listwan SJ, Sullivan CJ, Agnew R. et al. (2011) The pains of imprisoned revisited: the impact of strain on inmate recidivism. *Justice Quarterly* 30(1): 144-168.
- Mackenzie DL (2006) *What Works in Corrections. Reducing The Criminal Activities of Offenders and Delinquents*. New York: Cambridge University Press.
- Martí J and Cid, J (2015) Encarcelamiento, lazos familiares y reincidencia. *Revista Internacional de Sociología*, 73(1): 1-13.
- Moore J and Eikenberry J (2021) Recidivism by conviction offense type and release status among prisoners released in Iowa. *Crime & Delinquency* 67(3): 344-365.
- Mowen TJ and Boman JH (2019). Do we have it all wrong? The protective roles of peers and criminogenic risks from family during prison reentry. *Crime & Delinquency* 65(5): 681–704.
- Mowen TJ and Visher CA (2015) Drug use and crime after incarceration: the role of family support and family conflict. *Justice Quarterly* 32(2), 327-359.
- Nagin DS, Cullen FT and Jonson CL (2009) Imprisonment and reoffending. *Crime and Justice* 38(1), 115-200.
- Nilsson, A (2003) Living conditions, social exclusion and recidivism among prison inmates. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 4(1): 57-83.
- Ostermann M (2013) Active supervision and its impact upon parolee recidivism rates. *Crime & Delinquency* 59(4): 48-509.
- Peled-Laskov R, Shoham E and Cojocaru L (2019) Work-related intervention programs: desistance from criminality and occupational integration among released prisoners on parole. *International Journal of Offender Therapy and Comparative Criminology* 63(13): 2264–2290.

- Petrich, DM, Pratt, TC, Jonson, CL et al (2020). *A revolving door? A meta-analysis of the impact of custodial sanctions on reoffending*. Working paper, University of Cincinnati.
- Raaijmakers EAC, Loughran TA, De Keijser JW et al. (2017) Exploring the relationship between subjectively experienced severity of imprisonment and recidivism: a neglected element in testing deterrence theory. *Journal of Research in Crime and Delinquency* 54(1): 3-28.
- Ramakers A, Nieuwbeerta P, van Wilsem J et al (2016) Not just any job will do: a study on employment characteristics and recidivism risks after release. *International Journal of Offender Therapy and Comparative Criminology*, 61(16), 1795-1818.
- Sampson RJ and Laub JH (1997) A life-course theory of cumulative disadvantage and the stability of delinquency. In: Thornberry T (ed) *Developmental Theories of Crime and Delinquency*. New Jersey: Transaction Publishers, 131-161
- Schaefer L and Little SA (2020) A quasi-experimental evaluation of the “environmental corrections” model of probation and parole. *Journal of Experimental Criminology* 16, 535–553.
- Schappell A, Docherty M and Boxer, P. (2016) Violence and victimization during incarceration: relation to psychological adjustment during reentry and community. *Violence and Victims* 31(2): 361-378.
- Schlager MD and Robbins K (2008) Does Parole Work?—Revisited: Reframing the Discussion of the Impact of Postprison Supervision on Offender Outcome. *The Prison Journal* 88(2): 234–251.
- Schroeder RD, Giordano PC and Cernkovich SA (2007) Drug use and desistance processes. *Criminology* 45(1): 191-222.

- Smith LG and Akers RL (1993) A comparison of recidivism of Florida's community control and prison: a five-year survival analysis. *Journal of Research in Crime and Delinquency* 30(3): 267–292.
- Snodgrass GM, Blokland AAJ, Haviland A et al. (2011) Does the time cause the crime? An examination of the relationship between time served and reoffending in the Netherlands. *Criminology* 49(4): 1149-1194.
- Solomon AL, Kachnowsky V and Bhati A. (2005) *Does parole work? analysing the impact of postprison supervision on rearrest outcomes*. The Urban Institute. Available at: <https://webarchive.urban.org/publications/311156.html> (accessed April 2024)
- Stam, MTC, Wermink, HT, Blokland, AAJ et al., (2024) The effects of imprisonment length on recidivism: A judge stringency instrumental variable approach. *Journal of Experimental Criminology*, 20(3): 973–1004.
- Veysey BM, Ostermann M and Lanterman JL (2014) The effectiveness of enhanced parole supervision and community services: new jersey's serious and violent offender reentry initiative. *The Prison Journal* 94(4): 435-453.
- Villettaz P, Gillieron G and Killias M (2015) *The Effects on Re-Offending of Custodial Versus Non-Custodial Sanctions*. Swedish Council for Crime Prevention. Available at: <https://doi.org/10.4073/csr.2015.1> (accessed April 2024)
- Visher CA and O'Connell DJ (2012) Incarceration and inmates' self perceptions about returning home. *Journal of Criminal Justice* 40: 386-393.
- Wan, WY, Poynton S and Weatherburn D (2016) Does parole supervision reduce the risk of re-offending? *Australian & New Zealand Journal of Criminology* 49(4): 497–511.

- Zhang SX, Roberts REL and Callanan VJ (2006) Preventing parolees from returning to prison through community-based reintegration. *Crime & Delinquency* 52(4): 551–571.

-Zweig J, Yahner J, Visher CA et al. (2015) Using general strain theory to explore the effects on prison victimization experiences on latter offending and substance use. *The Prison Journal* 95(1), 84-113.

Table 1 (Population and Sample)

	Population whose sentence expired in 2016		Sample		Percent points (Difference)
	N	%	N	%	
Sex					
Men	2833	92.0	363	89.2	-2.8
Women	247	8.0	44	10.8	+2.8
Age					
Up to 35	1236	40.1	146	35.9	-4.2
Older than 35	1844	59.9	261	64.1	+4.2
Nationality					
Spanish	1842	59.8	257	63.1	+3.3
Foreigner	1239	40.2	150	36.9	-3.3
Expiration of the sentence					
Ordinary prison	1737	56.4	228	56.0	-0.4
Open prison	566	18.4	81	19.9	+1.5
Parole	778	25.3	98	24.1	-1.2
n	3080	100.0	407	100.0	

Table 2. Sample (descriptives)

	Minimum	Maximum	Mean	Std. deviation
Dependent variable				
Recidivism	0	1	.19	.39
Control variables				
Sex (Male)	0	1	.89	.31
Age	19	76	40.44	10.95
Nationality (Spanish)	0	1	.63	.48
Current offence (violent)	0	1	.36	.48
Prior incarcerations	0	55	1.44	3.9
Pre-prison drug use	2	10	3.29	1.52
Independent variables				
Coercion during imprisonment				
Direct victimization	0	3	.48	.64
Negative prison environment	0	3	1.55	.74
Disciplinary sanctions (frequent)	0	1	.13	.33
Unfair treatment	0	24	10.10	6.38
Support during imprisonment				
Visits (frequency)	0	9	4.07	2.57
Family support	0	3	2.14	.92
Rehabilitation during imprisonment				
Program participation (positive)	0	1	.40	.49
Differential association during imprisonment				
Delinquent peers	0	1	.43	.50
Coercion at release				
Family conflict (expectation)	0	1	.13	.33
Support at release				
Family support (expectation)	0	3	2.46	.69
Release on open regime/parole	0	1	.44	.50
Learning at release				
Confidence in desisting	0	1	.85	.36

n=407

Table 3. Cox regression. Time to recidivism^{ix}.

	Model 1 (Control variables)			Model 2 (Control plus imprisonment variables)			Model 3 (Control, imprisonment, and release variables)		
	B	SE	HR	B	SE	HR	B	SE	HR
Sex (Male)	0.408	0.428	1.503	0.459	0.438	1.582	0.460	0.453	1.585
Age	-0.022	0.012	0.978	-0.022	0.013	0.979	-0.014	0.013	0.986
Nationality (Spanish)	0.068	0.261	1.070	0.051	0.268	1.053	0.156	0.275	1.169
Previous Incarcerations	0.033	0.013	1.034**	0.031	0.014	1.032*	0.033	0.015	1.033*
Current offence (Violent)	-0.393	0.247	0.675	-0.462	0.253	0.630	-0.515	0.255	0.598*
Pre-prison drug use	0.363	0.067	1.438***	0.328	0.079	1.388***	0.289	0.081	1.336***
Victimization				0.010	0.203	1.010	-0.052	0.205	0.949
Negative prison environment				-0.177	0.206	0.838	-0.074	0.206	0.928
Disciplinary sanctions (frequent)				0.359	0.309	1.432	0.308	0.316	1.360
Unfair treatment				0.017	0.023	1.017	0.006	0.023	1.006
Visits				-0.004	0.055	0.996	-0.003	0.058	0.997
Family support				-0.090	0.143	0.913	-0.088	0.165	0.916
Participation in rehabilitation programs				-0.276	0.253	0.759	-0.276	0.256	0.759
Delinquent peers in prison				0.346	0.244	1.413	0.384	0.247	1.468
Family conflict (Expectation)							0.028	0.346	1.028
Family support (Expectation)							0.086	0.230	1.090
Release on open regime/parole							-0.987	0.338	0.373**
Confidence in desistance							0.389	0.338	1.475
n			407			407			407

Likelihood ratio test: Model 1 (42.76); Model 2 (49.59); Model 3 (61.54).

Significant codes: *** = p<0.001; ** = p<0.01; * = p<0.05.

ⁱ Another area of research that has yielded no clear results is the impact of associating with individuals with more intense criminal trajectories during the release period (Boman & Mowen, 2018; Mowen & Boman, 2019). Our research cannot test the effects of this factor.

ⁱⁱ A reviewer cautions us “against placing too great a stock in the idea that we can pin down which mechanisms are at work when we can’t seem to pin down whether imprisonment has discernible or consistent effects”. We agree with the reviewer that the null effect detected by experimental studies makes the investigation of underlying mechanisms less relevant than if a consistent criminogenic effect were established in the literature. However, we think that the experience of imprisonment may differ among individuals and have preventive effects for some and criminogenic effects for others (Blumstein, 2004).

ⁱⁱⁱ The main basis for the questionnaire elaborated for the present research was the first interview of the US research: *Returning Home:*

Understanding the Challenges of Prisoner Reentry. The questionnaire used in the present research will be available at:

<https://webs.uab.cat/criminologia>

^{iv} The Ethical Committee of the University exempted this research from their approval.

^v During the period of open regime, persons may be recalled to an ordinary prison for violation of technical rules (drug use, bad behaviour, arrest).

These cases are not considered recidivism, because most of the reasons that lead to recall are not criminal offences.

^{vi} Only the group of participants early released (in open regime or parole) may have a more real expectation of the future relation with the family.

^{vii} Following a reviewer's suggestion, we tested whether reincarceration occurred for only one type of offense or across multiple types, and we replicated our models differentiating by the offense type for which individuals were originally convicted. We found no relevant differences among offense types, and the results remained consistent with those from the overall sample

^{viii} In the research of Bales and Mears (2008) the percentage of persons ever visited was 32%. In the present research the percentage is 94%.

^{ix} No multicollinearity issues were found.