Confessing their Crime: Factors Influencing the Offender's Decision to Confess to the Police

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Abstract

Confessions are crucial to successful police investigations but scholars have significantly overlooked factors that contribute to an offender's decision to confess a crime. This study aims to examine a large array of factors that play a role in the offender's decision to confess a crime to the police and potential interaction effect among them. A total of 221 adult males incarcerated in a federal Canadian penitentiary were recruited. Correctional files, police reports, and offenders' self-reported data were collected and analyzed. Controlling for sociodemographic, criminological, and contextual factors, a series of logistic regression analyses were conducted. Findings highlighted the predominant role of police evidence over and above other factors analyzed. Furthermore, sociodemographic and criminological factors played a more important role in the offender's decision to confess when police evidence was weak. Findings are discussed in light of the current scientific literature on the determinants of offenders' decision to confess their crime.

Keywords police interrogation; confession; police evidence; adult offenders; police investigation

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Police interrogation and the offender's confession are two important components of successful police investigations. The offender's confession has been a essential component in a substantial number of cases where criminal charges were laid against a suspect and a number of police interrogations included confessions that were crucial to the corroboration of incriminating facts and findings from the crime scene (Baldwin, 1993; Imbau, Reid, Buckley, & Jayne, 2001; Phillips & Brown, 1998). For example, in the USA, Leo (1996) found that in 33% of the 182 interrogation cases analyzed, evidence was too weak to justify laying charges without the suspect's confession. As well, Phillips and Brown (1998) also found that in 11% of cases reviewed, additional confessions from the suspects contributed to solving crimes for which the suspects had not been arrested. The offender's confession is vital in laying criminal charges and also in proving guilt. For example, in 13% of cases reviewed by McConville (1993) in the UK, the only court evidence was a suspect's confession. However, considering its importance to the success of police interrogations, scholars and researchers have largely overlooked closer examination of the suspect's confession, and only limited empirical studies exist that reveal its prevalence and associated factors. Recent studies have mainly focused on the phenomena of false confession and police investigators' ability to detect deception and false confessions (Blair, 2006; Bradford & Goodman-Delahunty, 2008; Elaad, 2003; Gudjonsson, Sigurdsson, Asgeirsdottir, & Sigfusdottir, 2007; Hartwig, Granhag, Strömwall, & Kronkvist, 2006; Kassin, 2008; Kassin, Meissner, & Norwick, 2005; Kassin et al., 2007; Vrij, 2005). The present study aims to fill this gap by examining key factors that influence the offender's decision to confess to the police.

Prevalence of Offenders' Confessions during Police Interrogation

Gudjonsson (2003) reviewed 13 empirical studies that used diverse research designs and found that 42–76% of offenders confessed their crime during police interrogation, with more

recent studies (Cassell & Hayman, 1998; Leo, 1996; Pearse, Gudjonsson, Clare, & Rutter, 1998; Phillip & Brown, 1998) showing a prevalence rate of about 50%. Comparing these rates is difficult because several legal, judicial, and methodological factors can influence these confession rates (Gudjonsson, 2003; Kassin & Gudjonsson, 2004; St-Yves, 2004). Whereas some of the US studies have revealed confession rates varying 42–47% (Cassell & Hayman, 1998; Leo, 1996), studies conducted in the UK revealed confession rates varying 55–59% (Moston & Stephenson, 1994; Pearse et al., 1998; Phillips & Brown, 1998; see, however, Moston, Stephenson, & Williamson, 1992). One possible explanation could be their distinctive legal and judicial systems and, more specifically, the different interrogation techniques used in the USA (i.e., Reid technique or other similar techniques), and in the UK (i.e., PEACE interviewing technique; standing for Preparation & Planning, Engage & Explain, Account, Closure, and Evaluate; under the Police and Criminal Evidence Act) (see Gudjonsson, 2003; St-Yves & Landry, 2004; Williamson, 1992).[1] Sampling criteria and the types of cases studied can also influence the confession rate.[2] Gudjonsson (2003) raised the possibility that the method selected to collect information about confessions (e.g., observation, police records, survey) might influence the confession rate. To our knowledge, no study has shown that one method is superior

[1] In the UK, the law permits no ruses or persuasive techniques to be used during the interrogation. At the beginning of the interview, it is also forbidden to discuss anything other than the index crime. In the USA, as in Canada, courts allow the use of such persuasive techniques. In both the USA and the UK, however, the offender's confession has to be obtained voluntarily, meaning that the selfincriminating statement has not been obtained from the suspect by fear of prejudice or hope of advantage, exercised or held out by a person in authority, or by oppression (Gudjonsson, 2003). In spite of this condition of admissibility, it is important to mention that the UK legal system does not recognize the right to remain silent, as it is the case in the USA and Canada. Hence, the caution made to suspects in the UK informs them that they do not have to say anything but it may, however, harm their defense if they do not mention when questioned something they later rely on in court (Home Office, 1995). This means that the judge and jury can draw adverse inferences of guilt against a suspect who decides to remain silent or fail to provide relevant facts during police questioning (Gudjonsson, 2003), putting pressure on the suspects to self-incriminate themselves and collaborate with the police.

[2] On the one hand, the confession rate is higher among cases that go to court than among those that do not go to court (Phillips & Brown, 1998). On the other hand, studies have also shown that confession rates vary according to crime type. For example, one study showed that the confession rate decreased as the seriousness of the crime increased: less serious offenses (e.g., prostitution, shoplifting) revealed a confession rate of 72%, whereas moderately serious offenses (e.g., burglary, arson) revealed a confession rate of 49%, and very serious offenses (e.g., homicide, rape) revealed a confession rate of 46% (Phillips & Brown, 1998).

to any other, as empirical studies typically use only one method to assess confession. Together, these studies have shown that the confession of a crime is not uncommon during police interrogation and that several factors come into play to explain the offender's decision to confess.

Explanatory Models of the Offender's Decision to Confess

Over the past 50 years, researchers have proposed different approaches to explain offenders' decision to confess their crime during police interrogation. Early explanatory models, arising from psychoanalytical theories of personality, described confession as the result of internal conflicts (i.e., guilt) (Berggren, 1975; Horowitz, 1956; Reik, 1959). This approach was based on the assumption that individuals are driven to respect social norms and conventions. As such, the commission of a crime is said to lead to high levels of anxiety, which precipitate a confession as a way of assuaging internal conflict and remorse. Hence, a high level of remorse and guilt might increase the likelihood of a confession, but this perspective was challenged when the consequences of a confession were more closely examined. Jayne (1986) argued that a suspect will confess to a crime when the perceived consequences of a confession are more desirable than the anxiety created either by deception or the decision not to confess. The suspect who perceives that a confession will give rise to significantly negative consequences is less likely to confess. As a result, when the crime committed is more serious and the sentence a suspect faces is more severe, it follows that a confession is less likely to happen.

Hilgendorf and Irving (1981) similarly applied principles of the rational choice approach by studying the suspect's analysis of the gains and losses of confessing. They emphasized that the subjective, rather than objective, perceptions of gains (e.g., ending the interrogation, reducing remorse and guilt) and losses (e.g., self-esteem, social disapproval of committing a crime) was pivotal in the offender's decision to confess or not. Hilgendorf and Irving argued that when the perceived losses exceeded the perceived gains, the offender is less likely to confess to a crime.

For example, individuals with high human and social capital (e.g., income, employment, intimate partner, and children) have more at stake and, therefore, have more to lose in confessing a crime. Gudjonsson (1992) stressed the importance of also considering events that took place prior to interrogation. Of importance, it was hypothesized that the offender's knowledge of, and familiarity with police procedures and the interrogation process would enhance their understanding of their legal rights. It followed that offenders whose criminal history was more extensive would be more knowledgeable about their legal rights and, as a result, would be less likely to confess. These models suggested that individual characteristics (e.g., social capital), criminological factors (e.g., criminal history of the offender), and the context of the interrogation (e.g., use of legal advice) might all play a role in the offender's decision to make a confession during police interrogation.

Empirical Investigation of Factors Associated with the Offender's Confession

Individual/sociodemographic factors. A first series of studies focused on individual and sociodemographic characteristics of the suspect and how these factors are associated with the likelihood of confessing a crime. Previous studies revealed mixed results as to the role of age on the offender's decision to confess, with several studies reporting a negative relationship between the suspect's age and the likelihood of a confession (Baldwin & McConville, 1980; Beauregard, Deslauriers-Varin, & St-Yves, under review; Pearse et al., 1998; Phillips & Brown, 1998; Softley, 1980), whereas other studies revealed no relationship (Leo, 1996; Mitchell, 1983; Moston et al., 1992; Neubauer, 1974; St-Yves, 2002). Mixed results have also been reported for the role of ethnicity, as some researchers reported evidence that Caucasians were more likely to confess compared to non-Caucasians (Leo, 1996; Phillips & Brown, 1998; St-Yves, 2002). However, two studies failed to replicate this finding (Pearse et al., 1998; Wald, Ayres, Hess, Schantz, & Whitebread, 1967). Only one study looked at the impact of the offender's civil status

on the confession rate (St-Yves, 2002). Results indicated that sex offenders, single at the time of the interrogation, were more likely to confess than offenders in a relationship, supporting the hypothesis that individuals who have more to lose by confessing are less likely to confess their crime.

Criminological factors. Regarding the suspect's criminological characteristics, several studies revealed that a confession was more likely to be obtained from a suspect without a criminal background (Gudjonsson, Sigurdsson, & Einarsson, 2004; Neubauer, 1974; Pearse et al., 1998; Softley, 1980). These results appear to support the idea that offenders who have had prior contact with the criminal justice system would be less likely to confess because they have some knowledge of their procedural rights. Other studies reported the opposite finding (Baldwin & McConville, 1980; Mitchell, 1983), and still others found no association between the offender's criminal background and the likelihood of making a confession (Leo, 1996; Moston et al., 1992; Phillips & Brown, 1998; St-Yves, 2002). The type of crime has also been the focus of empirical studies. Researchers have stated that the offender's decision to confess was influenced by the seriousness of the crime committed, and the possible consequences associated with the commission of such crime. Most studies revealed that offenders who have committed a less serious crime are more likely to confess (Moston et al., 1992; Phillips & Brown, 1998; St-Yves, 2002; however, see Leo, 1996). Also, previous results showed that suspects who have committed a nonviolent or a property crime (Mitchell, 1983; Neubauer, 1974) are more likely to confess. Moston et al. (1992), however, failed to replicate this relationship between the type of crime and the confession. Together, these studies suggest that young Caucasian suspects, single at the time of the interrogation, with no criminal record, and who are suspected of having committed a nonviolent or less serious crime are more likely to confess. These results, however, are based on a few studies that have provided either mixed or contradictory findings, thus not allowing drawing

firm conclusions about the role of these factors. These mixed findings might be explained by the fact that several of these studies did not control for more situational and contextual factors characterizing the interrogation.

Contextual factors. Studies that examined how contextual factors might influence the offender's decision to confess have mainly focused on the role of legal advice, the strength of police evidence, and the offender's sense of guilt at the time of interrogation. Empirical studies revealed that suspects who experienced a greater sense of guilt about the crime for which they were interrogated were more likely to confess than suspects who did not report such feelings (Gudjonsson & Petursson, 1991; Gudjonsson & Sigurdsson, 1999; Gudjonsson et al., 2004; Sigurdsson & Gudjonsson, 1994; St-Yves, 2002). Hence, these findings tend to support the hypothesis that some offenders might confess as a way of reducing internal conflicts and the remorse associated with the commission of their crime. These studies, however, did not take into consideration other contextual factors that might have operated during the interrogation. More specifically, other contextual factors might be moderating the link between guilty feelings and confession. In this regard, empirical studies have consistently shown that offenders who request access to legal advice are significantly less likely to confess during police interrogation (Leo, 1996; Moston et al., 1992; Pearse et al., 1998; Phillips & Brown, 1998). This can be explained by the fact that lawyers tend to recommend to their clients not to collaborate with police investigators in order to avoid making incriminating statements. It is unclear, however, to what extent the strength of police evidence might influence the suspect's decision to request legal advice.

Nonetheless, the suspect's perception of the strength of police evidence has been emphasized as one of the most important factors influencing the suspect's decision to confess to police (Gudjonsson & Petursson, 1991; Moston et al., 1992; Phillips & Brown, 1998).

Gudjonsson and Petursson (1991) observed that nearly 70% of suspects interrogated by police admitted that, had police not suspected them, they would not have confessed. Also, cases where evidence was strong were more likely to lead to a suspect's confession (Gudjonsson & Bownes, 1992; Gudjonsson & Petursson, 1991; Moston et al., 1992; Phillips & Brown, 1998; Sigurdsson & Gudjonsson, 1994). Two out of three suspects confessed their crime when they perceived that evidence against them was strong, compared to one out of three suspects when the evidence against them was perceived as modest. Only one out of 10 suspects admitted their crime when there was little or no evidence against them (Moston et al., 1992). Moreover, between 55% and 60% of the suspects said that they confessed because they were convinced that police had evidence against them (Gudjonsson & Bownes, 1992; Gudjonsson & Petursson, 1991; Sigurdsson & Gudjonsson, 1994). The explanation is rather straightforward, in front of overwhelming evidence, denying becomes useless (Gudjonsson, 2003; Gudjonsson & Petersson, 1991). In sum, suspects who feel no remorse, who are confronted with weak evidence, and who request access to a lawyer are far less likely to confess to the police. Although individual offender characteristics have yielded mixed results, contextual factors appear to more directly influence the offender's decision to confess during interrogation.

The Role and Importance of Police Evidence

Attempting to reconcile the mixed findings of previous studies, Moston et al. (1992) suggested that individual factors interacting with the contextual factors of the interrogation can produce different outcomes. Commenting on the methodological limitations of previous studies, Moston et al. stated that factors responsible for the offender's decision to confess should not be studied individually, but in combination. More specifically, these researchers emphasized the importance of examining the interactions between characteristics proper to the suspect (i.e., age, personality traits, crime seriousness), the contextual characteristics of the case (i.e., request of

legal advice, strength of police evidence), and the interviewer's interrogation techniques. Their model was based on the assumption that the strength of police evidence is one of the most important factors influencing the offender's decision to confess. Suspects' knowledge of the strength of police evidence against them is also important in understanding how they will respond to allegations made during the interrogation. As mentioned by Moston et al. (1992), if the offender was caught committing the crime, denying police allegations serves little purpose. On the other hand, if offenders are unaware of the strength of the evidence against them, they might assume that police do not have a strong case and may act accordingly. Hence, during the interrogation, the interviewer can use evidence to influence the offender's decision to confess. In this regard, Moston et al. (1992) found that the offender's perception of police evidence interacted significantly with several individual characteristics, including the suspect's criminal history. For example, the likelihood of confessing increased with the offender's perception of the strength of police evidence, and this increase was more prominent among offenders who did not have a criminal record. Police evidence was also found to interact with other situational factors, such as the suspect's request for legal advice. Although having legal advice did not seem to affect the outcome of the police interrogation when evidence was weak, when police evidence against the suspect was strong, it increased the likelihood that the suspect would not confess. According to Moston et al. (1992), these interaction effects might indeed explain conflicting results of previous studies.

Aim of the study

A limited number of empirical investigations have been conducted to examine the factors that influence the offender's decision to confess a crime. Furthermore, the majority of previous empirical studies have been conducted in the UK and it is unclear whether the findings can be generalized to North America considering their distinctive judicial system and interrogation

techniques. Moreover, these studies have mostly used two types of methodology: (1) observational studies (e.g., analyses and coding of videotaped interrogations of suspects) and (2) retrospective self-report studies (e.g., asking suspects, police officers, or students to answer questions related to the police interrogation process). Very few studies included more than one source of information in their methodology. Also, most studies focused either on factors related to offenders (e.g., age, personality, vulnerability) or on strategies used by police investigators during the interrogation. Most importantly, the majority of empirical studies did not examine situational or contextual factors (e.g., legal advice, strength of evidence) that could have some impact upon the offender's decision to confess during the interrogation. Finally, with the exception of two studies (Moston et al., 1992; Pearse et al., 1998), all previous researchers conducted bivariate statistical analyses only, thus leaving out possible interaction effects between their variables and neglecting the processes found by Moston et al. (1992), especially those that interact with the offender's perception of the evidence.

It is noticeable that there is a gap between the current knowledge of the factors playing a role on the offender's decision to confess and the key role of confession in a successful police investigation. Therefore, the current study aims to fill this gap by addressing the methodological limitations of previous investigations while clarifying the role of police evidence. First, this study aims to examine the prevalence of confession in a Canadian sample of offenders. Of importance, this study attempts to determine the confession rate by combining different methodologies (i.e., official and self-reported). Second, this study attempts to determine the role and impact of a large array of factors that could influence the offender's decision to confess their crime to the police. More specifically, the role of individual offender characteristics, criminological factors, and contextual factors are simultaneously analyzed using a series of logistic regression models. Third, following Moston et al. (1992), the possible interaction effects operating to influence the

offender's decision to confess are investigated. Of importance, this study looks at the possibility that different factors might be operating, depending on the strength of police evidence against the suspect. In other words, we hypothesize that the dynamics which impact the offender's decision making process to confess or not their crime will be different, depending on whether police evidence against the suspect is strong or weak.

Methodology

Sample

In total, 254 convicted offenders participated in the study. All participants were French-speaking adult males recruited at the Regional Reception Centre, a maximum security penitentiary in the province of Quebec, Canada. All convicted individuals who have received a federal sentence of more than two years are sent to this penitentiary at the beginning of their sentence, for a period of about six weeks, for classification purposes (i.e., correctional risk and treatment needs). A research assistant made several visits to the penitentiary in 2005 (April, June, September) to recruit research participants. Participants were met in a large room in groups of about 15–20, and were explained the purpose of the study. Subjects were questioned about the police interrogation of their index crime. The participation rate for this study was very good (77.7%). The sample of participants corresponds to 65.1% of the total number of convicted offenders admitted to this penitentiary for the study period.

Procedures

The research study was approved by the ethics board of the Correctional Service of Canada and the ethics board of the University of Montreal. Each participant signed a consent form stating that the information gathered would be used for research purposes only, and that their participation (or not) in the study would have no consequences either on their stay at the penitentiary, or on their classification risk level. All participants were asked to complete a

questionnaire that included questions related to: (1) sociodemographic characteristics, (2) offender's criminal history, (3) characteristics of the index crime, and (4) factors associated with the context of the interrogation. The survey was administered in a paper-pencil format and lasted approximately 20–30 minutes. Correctional files were used with a randomly selected subsample of research participants (n = 70; 30%) for triangulation purposes. Correctional files were also used to collect data on the following; sociodemographics, criminal history, index crime, having confessed or not, having used the service of a lawyer. Reliability was computed for this subsample (n = 70) using the Krippendorff's alpha (Hayes & Krippendorff, 2007) for each of these variables. The coefficients varied from .55–1.00, with an average of .81, suggesting very good overall reliability of self-reported data. The reliability of each variable is reported in the following sections. Analyses were conducted separately for official and self-reported data, and no significant differences were found between the two types of data. Therefore, we only report here the data referring to the self-reported information gathered through the survey. Furthermore, in the first stage of the study, a measure of social desirability was used to assess the extent to which offenders' self-reported information might reflect an individual tendency to provide more socially desirable answers. Our statistical analyses demonstrated this was not the case.[3]

[3] A French translation (Blais, Lachance, & Richer, 1991) of the short version (20 items, true or false) of the Marlowe-Crowne questionnaire (Crowne & Marlowe, 1960) was used (Strahan & Gerbasi, 1972). The questionnaire measures the level of social desirability or the tendency to act (consciously or not) according to the expectations of others. The score on the questionnaire was used to control for the possibility that offenders might be biased in responding to the questionnaire by trying to protect their self-esteem and/or their self-image. The questionnaire was administered to the first 126 research participants (54.8%). The scale was not administered to the full sample due to logistic concerns (i.e., not to interfere with the offenders/correctional activities and schedule). The statistical analyses presented here were conducted with this subsample. The mean score on the scale was 12.2 (s = 3.8; range 3–20). Among the correlations between scores on the social desirability scale and the independent variables, two were statistically significant (16.7%): (1) age ($r = .29$, $p < .01$); and (2) marital status ($r = .23$, $p < .05$). Therefore, older offenders, in a relationship, seemed to be more inclined to respond in a more socially desirable way to the survey. The correlation between score on the social desirability scale was unrelated to parental status, ethnicity, level of education, feeling guilty, crime seriousness, length of prison sentence, perception of police evidence, and use of legal advice. Importantly, no statistically significant association was found between the decision to confess and social desirability.

Missing Data

Of the 254 completed surveys, 13 (5.1%) were classified as invalid (i.e., it was impossible, using self-report and official data, to determine whether or not research participants had confessed or not confessed their crime to the police). Of the 241 cases left, 7 (2.9%) did not fill in the questionnaire. Also, of the 234 questionnaires left, 4 (1.7%) were classified as invalid because the answer pattern appeared arbitrary (e.g., same answer given to most, if not all, of the questions included in the survey). Finally, of the 230 valid cases left, 9 (3.9%) had to be removed for the subsequent analyses due to a proportion of missing data of more than 5%. Therefore, the study was based on 221 cases for which it was possible to determine the outcome of the interrogation, the questionnaire was completed, and the answers were considered valid.[4]

Measures

Age. The offender's age at the time of the study was used as a possible control variable. This was also an opportunity to further analyze the link between the offender's age and confession, which has provided mixed results in the scientific literature. In the current study, the sample of inmates was, on average, 34.77 years old (s = 10.61; range: 18–74) at the time of the police interrogation. The reliability for this variable was perfect when compared to that found in the correctional file (Krippendorff's alpha = 1.00).

Ethnicity. Offenders' ethnic origins were also included as a control variable, considering that some studies had shown that offenders who belong to minority groups tend to be less likely to confess their crime to the police. Caucasians represented 87.7% of our sample, followed by Blacks (5.1%), and First Nations (2.1%). This variable was coded as follows for statistical

[4] The sociodemographic variables in the group of deleted cases were compared to those cases included in the study to make sure the deleted questionnaires were not reflecting special characteristic of the offenders (e.g., education, reading and writing disabilities, age, etc.). None of the comparisons yielded significant differences at $p < .05$.

analyses purposes: (0) Caucasian; (1) Non-Caucasian. The reliability for this variable was excellent (Krippendorff's alpha = .93).

Education. Although this aspect has been neglected in the scientific literature, the offender's education level was also analyzed as a control variable. In our sample, 9.7% had completed elementary school only; 41.4% had completed junior high school; 34.2% had completed senior high school; and 14.8% had post-secondary school experience. For the purpose of statistical analyses, the variable education level was recoded as follows: (0) senior high school or more; (1) elementary school to junior high school. The reliability for this variable was good (Krippendorff's alpha = .69).

*Civil and parental status.*The offender's civil and parental status was included in the study. As for their civil status, 51.7% were single, 39.1% were married or in a common-law relationship, and 9.2% were divorced, separated or widowed. Furthermore, 57.4% of our sample reported having a child. For the purpose of statistical analyses, the variable marital status and parental status were recoded as follows: (0) not in a relationship at the time of the interrogation, (1) in a relationship at the time of the interrogation; (0) no children, (1) had children at the time of the interrogation. The reliability for these variables was good to excellent (Krippendorff's alpha: civil status = .71; parental status = .92).

Crime seriousness. In line with previous studies, we included a measure reflecting the level of seriousness of the index crime for which subjects had been recently arrested, interrogated, and convicted. In order to operationalize crime seriousness, we used a scale created by Blumstein, Cohen, Roth, and Visher (1986) adapted for the Criminal Code of Canada. The measure of crime seriousness is based on a 12- point scale; a higher score indicates a more serious index crime. For coding purposes, only the most serious offense committed was used. The frequency distribution of the scores on this scale was as follows: (12) homicide, 6.5%; (11)

sexual assault, 13.8%; (10) robbery, 23.5%; (9) kidnapping, forcible confinement, .5%; (8) assault, 10.1%; (7) arson, fire-setting, 2.3%; (6) break and entry, 18.4%; (5) auto theft, .5%; (4) drug-related offenses, 20.3%; (3) fraud, 1.8%; (2) theft, 2.3%; (1) vandalism, 0%. The mean score on the seriousness scale was 7.7 (s = 2.9; range: 2–12). The reliability of the information was good when compared to that found in the correctional file (Krippendorff's alpha = .78).

Length of prison sentence. The length of the prison sentence refers to the sentence received for the index crime. On average, the length of this sentence was 53.73 months (s = 58.52;range: 24–300), or about four and a half years. The reliability of this variable was almost perfect (Krippendorff's alpha = .99). The variable was first used as a continuous variable. The same variable was then used as an ordinal variable. Because the results were similar, we decided to use this variable in an ordinal format, the group with the 24-month sentence being the reference category for the multivariate statistical analyses. A majority of our sample had a short prison sentence; 27.1% had a 24-month (plus one day) sentence, and 45.7% had a sentence between 25 and 48 months. Finally, 27.1% of our sample had a sentence of more than 48 months.

Number of prior convictions. The offender's total number of prior convictions at the time of police interrogation was also included in the study. In total, 18.5% of our sample reported no prior convictions, 12.9% reported only one prior conviction, 22.3% reported two or three convictions, and 44.6% reported more than three convictions. Hence, our sample was composed mainly of recidivists. For the multivariate analyses, the variable was used as an ordinal variable, and the group without prior convictions (coded as 0) was the reference category to which two other categories were compared: (1) one prior convictions; (2) two or more prior convictions. The reliability for this variable was good when compared to official data (Krippendorff's alpha = .71).

Perception of the evidence. The offender's perception of police evidence at the time of the police interrogation was also included in the study. The variable was coded using a four-point

scale and the frequency distribution of scores for that scale was as follows: (1) very weak, 19.5%; (2) somewhat weak, 23.0%; (3) somewhat strong, 22.6%; and (4) very strong, 35.0%. The mean score on the scale was 2.7 (s = 1.1), meaning that on average, offenders reported that the evidence against them was somewhat strong. It was not possible to triangulate this variable with correctional files, as this question is not typically asked by either police investigators or by psychologists. Bivariate association between the measure of the offender's perception of police evidence and all other variables included in the study are reported in Table 1. This measure was related to two out of five (40%) sociodemographic factors, and three of the seven (43%) criminological indicators. Subjects who reported strong evidence against them were more likely to be Caucasian, to be single at the time of the interrogation, to have a higher number of previous convictions, to have been given a shorter federal sentence for their index crime, and less likely to have committed a sex crime as their index offense. They were also more likely to report feeling guilty about their index crime.

Use of legal advice. The survey included one question referring to whether or not the offender had used the service of a lawyer prior to the police interrogation.[5] The variable was coded as follows: (0) did not use the service of a lawyer; (1) used the service of a lawyer. In total, 66.7% of our sample consulted a lawyer prior to police interrogation. The reliability of this self-reported variable was moderate (Krippendorff's alpha = .55). Legal advice was related to none of

[5] In Canada, as in the USA, prior to commencing interrogation police must inform custodial suspects of their Constitutional rights to silence and appointed counsel, and that anything they say can be used against them (St-Yves & Deslauriers-Varin, in press). These rights have to be actively, voluntarily, and knowingly waived by the accused in order for their statements to be admissible at trial (Kassin et al., 2007). The caution is made to any person in custody, arrested or not, and interrogated for a crime he or she is likely to be implicated in. Contrary to the practice in the USA and the UK, Canadian laws do not recognize the moral necessity for the attorney to be present in the interrogation room; it only recognizes the right to inform the suspect of his or her right to remain silent and to contact an attorney without delay, usually by telephone. However, where the interviewee is an adolescent (aged 12–18 years), the Youth Criminal Justice Act provides for the presence of counsel during interrogation. With adults, police retain a discretionary power to allow the attorney to be present during the interrogation. In such a case, the attorney would become a witness and could be summoned as such if the statement is contested and a voir dire becomes necessary. Police officers will generally insist that the suspect contacts an attorney and will make sure that this strictly confidential conversation is entirely satisfactory to the suspect.

the five sociodemographic indicators, and to only one of the seven criminological indicators (14%) (Table 1). Interestingly, those who had legal advice received longer prison sentences.

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Guilt. Offenders were also asked whether or not they felt feelings of guilt with regard to the crime for which they were arrested. In order to measure the presence of guilt feelings, a three-point scale was used: (0) I felt no guilt about the crime; (1) I felt somewhat guilty about the crime; (2) I felt very guilty about the crime. Most offenders felt guilty about the crime, as 63.3% reported feeling very guilty at the time of the interrogation, 14.8% felt more or less guilty, and 21.8% felt no guilt. Feeling guilty about the index crime was significantly related to one out of five (20%) sociodemographic factors, and to one out of seven (14%) criminological factors (Table 1). Subjects who reported guilty feelings were more likely to be younger and to have committed a property crime as their index offense.

Dependent Variable

Confession. Each research participant had to answer whether or not they had confessed their crime during police interrogation. Confession refers here to the offender's acknowledgement of his responsibility and guilt for the crime for which he was interrogated. Just over 40% (44.8%) of the sample had confessed their crime, and just over 50% (55.2%) did not. The variable was coded as follows: (0) did not confess; (1) confessed. The information provided by the offender was then compared with information provided by police investigators in the police report produced after the police interrogation. This gave us access to an official account, from an official source, of the confession given during the interrogation. Here again, when comparing the results obtained from self-reports with those obtained from official data, reliability for the self-reported data was excellent (Krippendorff's alpha = .84).

Analytical Strategy

Logistic regression was used to identify the factors that best predicted the decision to confess a crime during police interrogation. We used a series of hierarchical logistic regression models to investigate the role of three types of factors on the offender's decision to confess. The three types of factors were entered as a series of blocks of predictors: (1) individual characteristics of the offender (i.e., age, ethnicity, marital status, parental status, level of education); (2) criminological factors (i.e., seriousness of index crime, number of prior convictions, sentence); and (3) situational/contextual factors (i.e., use of legal advice, perception of evidence, and feeling guilty about the offense). Hierarchical modeling allowed investigating the relative impact of each block of factors in predicting the offender's decision to confess. For each predictor entered in the model, we reported the odds ratio (OR) representing the strength of the association with the decision to confess. Note that the nature of the crime committed was not entered in the regression models in order to avoid possible problems of multicollinearity, as this variable would be strongly related to our measure of crime seriousness (see Table 1). The predictive accuracy of each model was assessed by analyzing: (1) the Cox & Snell pseudo-explained variance for logistic regression and (2) ROC curves (Zweig & Campbell, 1993).[6] Also for each model, following Tabachnick and Fidell (2007), multivariate outliers ($Z = |1.96|$, $p < .05$)

[6] The ROC (Receiver Operating Characteristic) curve allows examining simultaneously the sensitivity (i.e., the ability to identify true positives, or those predicted as having confessed and who did confess), and the specificity (i.e., ability to identify true negatives, or those predicted as nonconfessors and who did not confess). ROC curves are typically used by risk assessors to examine the predictive accuracy of risk assessment tools and the ability of the instrument to distinguish recidivists from non-recidivists. The same logic can be applied here by using ROC curves to assess the ability of the predictive models in distinguishing confessors from non-confessors. The ROC curve can be interpreted by looking at the area under the ROC-curve (AUC), and the relative improvement of the prediction model over chance (i.e., 50%, or .50). The AUC varies between 0 and 1.0, with values closer to one indicating perfect prediction of both true positives and true negatives. For example, an AUC value of .70 for a logistic regression model indicates that, 70% of the time, a randomly selected confessor would have a higher predicted probability of occurrence of the event (i.e., making a confession) than a randomly selected non-confessor.

were analyzed and removed from logistic regression models, when necessary, to avoid possible biases in the findings.

Results

Group Comparisons: Confessors versus Non-Confessors

Confessors and non-confessors did not significantly differ on any of the five sociodemographic factors (i.e., age, marital status, parental status, education, and ethnicity), with very small effect sizes (Cohen's d) ranging from .01 to .15 (see Table 2). Looking at criminological factors, two variables emerged as statistically significant between the two groups. First, confessors (χ = 8.2; s = 2.7) were more likely than non-confessors (χ = 7.4; s = 2.9) to have committed a more serious crime [t(219) = 2.06; p < .05; Cohen's d[7] = .28]. Also, confessors (18.9%) were less likely to have committed a drug-related crime compared with non-confessors (36.4%) [χ^2(1) = 7.88; p < .01; Cohen's d = .39]. The two groups did not differ as to the length of their sentence, number of previous convictions, having committed a property, violent, or a sexual crime. As for contextual factors, confessors and non-confessors were significantly different for all three variables investigated. As a group, confessors (χ = 3.0; s = .1) were more likely than non-confessors (χ = 2.5; s = .1) to report that the evidence against them was strong [t(219) = 4.00; p < .001; Cohen's d = .54]. Furthermore, confessors (56.0%) were less likely to report having used the service of a lawyer than were non-confessors (76.9%) [χ2(1) = 10.85; p < .01; Cohen's d = .45]. Finally, confessors (74.0%) were also more likely than non-confessors (56.2%) to report feeling guilty about their crime [χ2(2) = 8.05; p < .05; Cohen's d = .32].

---Insert Table 2---

[7] Lipsey's & Wilson's (2001) algorithms were used to compute Cohen's *d* effect sizes. According to Cohen (1988), in behavioral research, a *d* coefficient of about .20 represents a small effect (equivalent to a correlation of about .10), .50 represents a medium effect (equivalent to a correlation of about .25), whereas .80 represents a large effect size (equivalent to a correlation of about .40).

Prediction of the Offender's Decision to Confess their Crime

In this section, we ran a series of logistic regression to investigate the predictors of confessing a crime to the police. To this end, we conducted hierarchical regression models using the full sample of offenders (Table 3). The first model included only the offender's sociodemographic characteristics. The model showed poor predicting accuracy (Cox & Snell = .01; AUC = .56), with none of the variables being significantly associated with the decision to confess or not confess a crime. In other words, the offenders' decision to confess their crime was independent of their age, ethnicity, marital and parental status, as well as their education level. In Model II, the predictive accuracy of the model was increased by adding criminological factors (Cox & Snell = .06). The predictive accuracy of the model, although statistically significant, remained relatively weak (AUC = .65). Only one factor emerged as statistically significant: the score on the crime seriousness index (OR = 1.15; 95% CI = 1.03–1.29), meaning that the risk of confessing increased 15% for every one-unit increase on the crime seriousness index. Note that confession was independent of the sociodemographic characteristics, as well as the number of prior convictions and the length of the prison sentence.

--- Insert Table 3---

Contextual factors were entered in Model III, which drastically improved the predicting accuracy (Cox & Snell = .29) from the previous model. This model significantly predicted the offender's decision to confess with good predictive accuracy (AUC = .81). Multiple factors emerged as significantly related to confession. First, crime seriousness remained a significant predictor (OR = 1.19; 95% CI = 1.05–1.36), thus showing that this variable was unaffected by the addition of contextual factors to the model. Second, after controlling for contextual factors, the number of prior convictions emerged as significantly related to confession, with multi-recidivists being less likely to confess their crime (OR = .35; 95% CI = .13– .94). Third, as expected, the

offender's perception of police evidence emerged as one of the strongest predictors of confession (OR = 2.41; 95% CI = 1.68–3.45). Offenders who reported that police evidence against them was strong were much more likely to confess their crime. Fourth, using legal advice (OR = .17; 95% CI = .07– .37) was also strongly related to confession. In fact, using the service of a lawyer decreased the likelihood of a confession by 83%. Finally, offenders who reported feeling guilty about their crime were more likely to have confessed their crime to the police (OR = 1.96; 95% CI = 1.26– 3.04).

The Moderating Role of Police Evidence Group comparisons

In this section, we examined the importance of the offender's perception of police evidence in moderating the factors associated with the decision to confess or not confess a crime to the police. The sample was split in two, thus creating: (1) a group of offenders (n = 94) who reported weak or somewhat weak police evidence against them, and (2) a group of offenders (n = 127) who reported either strong or somewhat strong police evidence against them. The two groups were then compared on all sociodemographic, criminological, and contextual variables included in the study (Table 4). Using a series of chi-square and independent t-test analyses, group comparisons yielded some statistically significant differences. The variables of age [$t(219) = 2.29$; $p < .05$, Cohen's d = .31], ethnicity [$\chi^2(1) = 7.21$; $p < .01$; Cohen's d = .37], criminal history [$\chi^2(2) = 7.26$; $p < .05$; Cohen's d = .36], and feeling guilty [$\chi^2(2) = 9.43$; $p < .01$; Cohen's d = .42] emerged as the only factors for which the two groups were statistically different. Findings showed that, as a group, offenders who reported weak police evidence were more likely to be older, to be non-Caucasian, to have no prior criminal record, and to have reported not feeling guilty about their crime. Importantly, the two groups did not differ as to the scores on the crime seriousness index, the nature of the index crime, and the use of legal advice.

--- Insert Table 4---

Weak Police Evidence

First, we investigated the predictors of the offender's confession using a sample of offenders who reported weak police evidence in their case (n = 94). Analyses of the multivariate residuals (Standardized residuals Z > 1.96) of the models helped to identify seven outliers (7.4%) that were deleted from subsequent analyses.[8] A hierarchical logistic regression model was then examined by entering sociodemographic, criminological, and contextual factors in subsequent blocks of predictors (Table 5). Model I, which included only sociodemographic variables, significantly predicted the offender's decision to confess or not confess [$\chi 2$ (5) = 12.52; $p < .05$] with a relatively modest predictive accuracy (AUC = .72). Two factors were statistically significant, marital status and ethnicity: being single at the time of police interrogation (OR = .13; 95% CI = .03– .51), and non-Caucasian (OR = 3.89; 95% CI = 1.02–14.79) increased the likelihood of confessing. In Model II, when controlling for criminological factors, these two sociodemographic indicators remained statistically associated with confession. One criminological factor was significant: the index of crime seriousness. Surprisingly, perhaps, the likelihood of confessing increased with crime seriousness (OR = 1.29; 95% CI = 1.02–1.62).

---Insert Table 5---

When contextual factors were added to the prediction model, four significant results emerged. First, ethnicity became a nonsignificant predictor of the offender's confession, whereas marital status remained significant. Second, prior criminal activity became a significant predictor,

[8] Recall that outliers deleted from the analyses may artificially increase predictive accuracy of the model. The deletion, however, was necessary as outliers may create important biases in the parameter estimates (Tabachnick & Fidell, 2007). In this case, outliers had a minimal but significant impact on the overall classification accuracy of the predictive model. With the outliers included, the overall classification accuracy was 76.6% while the correct classification of confessors and nonconfessors were, respectively, 46.7% and 90.6%. Careful examination of the deleted cases (n = 7) showed that the majority of those offenders were Caucasian (n = 6), were multi-recidivist (n = 6), had confessed their crime (n = 6), and had received the minimal federal sentence of two years (n = 4), many of which were for a drug-related offenses (n = 3). For unknown reasons, the predicted model did not work well for this very small subgroup of offenders. A different dynamic might be at work that was not captured by the model tested. The subgroup, however, was too small to produce firm conclusions.

with recidivists (OR = .01; 95% CI = .00–.51), and multi-recidivists (OR = .14; 95% CI = .02–.89) being less likely to confess their crime. Third, crime seriousness remained positively associated with the offender's confession (OR = 1.56; 95% CI = 1.09–1.62). Four, use of legal advice (OR = .01; 95% CI = .00–.14), and feeling guilty (OR = 6.62; 95% CI = 2.16–20.30) emerged as strong predictors of the offender's decision to confess or not. More precisely, using legal advice and not feeling guilty significantly decreased the likelihood of confessing a crime to the police. Together, these predictors yielded very good prediction accuracy (AUC = .93), correctly classifying about 90% of confessors, and about 79% of non-confessors.[9]

Strong Police Evidence

Next, we examined the predictors of confession when the offender perceived that police evidence was strong (n = 127). Preliminary analyses helped identify two (1.6%) multivariate outliers that were deleted from subsequent analyses. In line with our analytical strategy, a hierarchical logistic regression model was conducted using three blocks of predictors (sociodemographic, criminological, and contextual factors) (Table 5). Model I, including only the sociodemographicpredictors, showed weak predictive accuracy (AUC = .58), with none of the variables being significantly related to the offender's decision to confess. When criminological factors were entered in Model II, only one factor, being a multirecidivist, was significantly related to confession (OR = .17; 95% CI = .03–.88). When the contextual factors were added to

[9] In order to test for a more parsimonious model, only the statistically significant predictors in Model III (marital status, index of crime seriousness, prior conviction, use of legal advice, guilt) were retained into a final model (model not shown). This allowed us to reduce the number of predictors and increase the statistical power of the analysis. The logistic regression model was statistically significant [$\chi 2$ (6) = 43.5, $p < .001$], with a pseudo-explained variance of 39.4% (Cox & Snell). This parsimonious model correctly classified 93.7% of the non-confessors and 70.8% of the confessors. Confessors were statistically more likely to have committed a more serious crime (OR = 1.58; 95% CI = 1.14–2.19) and have feelings of guilt (OR = 5.82; 95% CI = 2.19–15.50), but were less likely to be multi-recidivists (OR = .15; 95% CI = .03–.77) and to have used legal advice (OR = .02; 95% CI = .00–.18). For this model, marital status and being a recidivist were no longer predicting confession at $p < .05$. Hence, crime seriousness, feeling guilty, being a multi-recidivist, and using legal advice were the most significant factors in explaining the decision to confess or not when the offender perceived police evidence as weak or somewhat weak.

the prediction model, being a multirecidivist remained a significant factor, with the use of legal advice emerging as a significant predictor as well (OR = .24; 95% CI = .09–.63). Hence, when police evidence was perceived as strong, multi-recidivists and offenders who used legal advice were less likely to confess their crime. Overall, the model showed only a modest predictive accuracy (AUC = .72).[10]

Discussion

The current study reveals that about 45% of the sample of convicted Canadian inmates had confessed their crime to the police. This proportion is just below the 50% average observed in more recent empirical studies (Cassell & Hayman, 1998; Leo, 1996; Pearse et al., 1998; Phillip & Brown, 1998). Findings of the current study suggest that confession is influenced by individual characteristics, criminological factors, and most importantly, situational factors associated with the interrogation. Also of importance, this study reiterates the pivotal role of police evidence upon the offender's decision to confess or not confess a crime to the police. Our findings provide empirical support to the research of Moston et al. (1992), who observed that several individual and contextual factors interact with the strength of police evidence in determining the outcome of the police interrogation. We review these findings in light of the current scientific literature on the determinants of the offender's decision to confess their crime. Role of Offender Characteristics and Criminological Factors First, the findings provide additional empirical evidence that sociodemographic characteristics of the offender are nonsignificant with regard to the decision to confess or not a crime (Leo, 1996; Mitchell, 1983; Neubauer, 1974; Pearse et al., 1998; St-Yves, 2002). More specifically, the offender's age, ethnic group, education level, or

[10] A parsimonious model (not shown) was tested with only the two significant predictors (multirecidivist and use of legal advice). The results were unchanged from those observed in Model III, which show much stability in the findings. Hence, when police evidence was perceived as either strong or somewhat strong, being a multi-recidivist and using legal advice were the most significant factors associated with the offender's decision to confess or not.

marital/parental status had no effect on the tendency to confess. This could be partly explained by the relative homogeneity of the sample, composed mainly of adult male Caucasian offenders aged in their thirties. Different results might have been observed had we included juvenile offenders, who are more likely to confess than adults (Meyer & Reppucci, 2007; Phillips & Brown, 1998), although this finding has not been consistent Leo, 2006; Moston et al., 1992). Therefore, based on our findings, it appears that the decision to confess a crime is made independently of sociodemographic background characteristics in adult offenders.

Second, criminological factors significantly influence the offender's decision to confess, but this influence is relatively modest. Findings suggest that the likelihood of a confession increases with crime seriousness, a finding that contradicts what was reported in previous scientific literature (Gudjonsson, 2003). Recall that our study is the first to use a crime seriousness scale, whereas previous empirical studies used a broad categorization (e.g., trivial, moderate, and serious). Also, it is important to remember that our study only includes cases of offenders who were convicted and sent to prison, thereby excluding cases that did not go to Court. In this regard, our data are retrospective rather than prospective and partly reflect the work of the criminal justice system and police investigators, contrary to previous empirical studies (Moston et al., 1992; Phillips & Brown, 1998). Past studies showed that police investigators use more tactics and spend more time attempting eliciting incriminating information from offenders who committed more serious offenses, both of which increased the likelihood of obtaining a confession (Leo, 1996). The inverse relationship between crime seriousness and confession could be the result of increased police efforts to elicit a confession in more serious cases. Furthermore, and consistent with the observations of Moston et al. (1992), the contradictory findings related to criminal history observed in prior investigations could be explained by the presence of an interaction effect with contextual factors, which has not always been controlled for. In the current

study, multi-recidivists are less likely to confess only after we control for contextual factors. In line with Gudjonsson's (1992) hypothesis, this finding could be the result of the multi-recidivist's tendency, when deciding whether or not to confess their crime, to consider contextual factors (i.e., perception of evidence, use of legal advice) based on prior experience with the criminal justice system.

Third, results show that contextual factors weigh heavily on the suspect's decision to confess. Hence, offenders who report guilty feelings about their crime, who do not use legal advice, and who report strong police evidence against them, are more likely to make a confession to police investigators. The importance of feelings of guilt (Gudjonsson, 1992; Gudjonsson & Petursson, 1991; Gudjonsson et al., 2004; St-Yves, 2002), of legal advice (Moston et al., 1992; Pearse et al., 1998; Phillips & Brown, 1998), and of police evidence (Gudjonsson & Petursson, 1991; Gudjonsson & Sigurdsson, 1999; Moston et al., 1992; Phillips & Brown, 1998) replicates the findings of earlier investigations. Furthermore, our results show that this set of factors is significantly more important than sociodemographic and criminological factors to explain the offender's decision to confess.

To our knowledge, the current study is the first empirical investigation that examines and compares the relative contribution of sociodemographic, criminological, and contextual factors simultaneously using multivariate statistical modeling. When contextual factors are combined with sociodemographic and criminological factors, the prediction model reaches a relatively good predictive accuracy to identify subjects who confess and those who do not confess. Only three prior studies have conducted multivariate statistical analyses, two did not report the predictive accuracy or the explained variance of the model tested (Moston et al., 1992; Phillips & Brown, 1998). Combining criminological factors (i.e., using drugs 24 hours prior to arrest, past incarceration) and contextual factors (i.e., using legal advice), Pearse et al. (1998) correctly

classified 68% of their confessors and non-confessors. In the current study, 73% of confessors and non-confessors are correctly classified by the model, which explains 28% of offenders' decision to confess or not confess. The current study, therefore, achieves a better predictive accuracy, perhaps because of the wider range of contextual factors included in the model. Indeed, the three contextual factors examined (i.e., guilt feelings, use of legal advice, and the offender's perception of police evidence) show a significant odds ratio. In spite of those positive results, the overall classification accuracy could possibly be improved by controlling for other individual differences, such as the suspect's level of compliance and suggestibility (Blair, 2006; Gudjonsson, 2003; Gudjonsson et al., 2007; Sigurdsson & Gudjonsson, 2001). A closer look at the findings of the multivariate models, however, suggests that the strength of police evidence plays a key in the offender's decision to confess, independently of sociodemographic and criminological factors.

Key Role of Police Evidence

In line with prior empirical studies based on multivariate statistical analyses, our findings indicate that police evidence plays a pivotal role in the offender's decision to confess (Moston et al., 1992; Phillips & Brown, 1998). This is demonstrated by comparing factors that operate on the offender's decision to confess in circumstances where police evidence is either strong or weak. In circumstances where the offender is faced with strong police evidence, our prediction model is less accurate and reveals fewer predictors when we compare with cases of weak police evidence. Previous studies have shown that the strength of police evidence influences the interviewing styles or strategies used by police investigators. For example, Moston et al. (1992) observed that, in situations where police evidence was stronger, there was a tendency towards accusatorial strategies of questioning. Also, Leo (1996) reported that under such circumstances, police interrogators tend to appeal to their expertise and offer the suspect moral rationalizations for

confessing. Confronted with overwhelming evidence and external pressure from the police investigator, the offender might conclude that denying the crime is pointless and that collaboration is more rewarding (Gudjonsson, 2003; Gudjonsson & Petursson, 1991). This process could explain why, when faced with strong evidence, the confession rate steadily increases, independently of the offender's sociodemographic characteristics, crime seriousness, and feelings of guilt. This conclusion, however, might not apply to all offenders. Our findings indicate that in cases where police evidence is strong, two factors play a significant role on the offender's decision to confess. Multirecidivist offenders who receive legal advice are less likely to confess. In fact, without adjusting for covariates, the confession rate of first-time offenders is 80%, compared with 51% for multi-recidivists. Congruent with other studies (Gudjonsson et al., 2004; Moston et al., 1992; Pearse et al., 1998), career criminals are more likely to deny their offense, in spite of overwhelming evidence. Therefore, it can be hypothesized that interrogation strategies might not be as successful in obtaining a confession from this group of offenders, who appears more resistant to collaborate with police investigators.

Different results are observed in circumstances where the offender perceives that police evidence is weak. In such circumstances, several factors are statistically related to the offender's decision to confess. This model is very accurate in discriminating offenders who confess from those who do not confess. Results indicate that individuals who are most likely to confess are single at the time of interrogation; are guilty of having committed a more serious crime; have no prior criminal record; report feelings of guilt about their crime; and do not use any legal advice. Therefore, when police evidence does not influence the offender's decision to confess, several other factors come into play. These results corroborate those of Kassin and Gudjonsson (2004), who concluded that whereas most suspects confess for a combination of factors, internal and external pressures have the greatest impact when the police have little or no evidence against the

suspect. On the one hand, the offender's feelings of guilt can create an internal need to confess in order to assuage the resulting psychological distress (Berggren, 1975), and can lead to a strong desire to give their account of the crime (Gudjonsson, 2003). This might apply more to offenders who have no criminal history, as studies have shown that offenders with no prior record are more likely to give incriminating information while being interrogated (Moston et al., 1992), an observation that our findings also corroborate. On the other hand, the suspect's fear of reaction and rejection in their immediate social environment can hold them back from confessing a crime (Gudjonsson, 2003; Hilgendorf & Irving, 1981). Suspects who are single, however, are less preoccupied by such fears (St-Yves, 2002). The interrogation process can also act as an external pressure that leads an offender to confess, in spite of weak evidence. Moston et al. (1992) observed that in such cases, police interrogators tend to be less accusatorial (e.g., no overt accusations are made), as they cannot confront suspects with proof of guilt because that evidence has not been obtained. When police investigators have weak or limited evidence against a suspect, Leo (1996) also noted that they tend to use more interrogation tactics, to adopt the "good cop" style by praising and flattering the offender while appealing to the importance of cooperating with the police. The same approach tends to be used with offenders suspected of more serious offenses (Leo, 1996; Moston et al., 1992).

This study is not without methodological limitations. It is retrospective and cross-sectional, and as a result, the self-reported information might be biased due to weak memory recall. However, this study was conducted soon after subjects' admittance to prison, thereby limiting a possible memory bias. Moreover, the self-reported data are corroborated by official data in the offender's correctional file, which shows good reliability of our data. Also, we did not investigate here the prevalence and the role of wrongful conviction as it was outside the scope of this study. Furthermore, the study did not examine the prevalence of false confessions and

associated factors. Previous studies have shown that suggestibility and compliance, among others, may influence the outcome of the interrogation process. It is reasonable to think that these two mechanisms may have played a role in the offender's decision to make a confession. Note also that the study was based on a sample that includes only individuals convicted to a federal sentence in a Canadian penitentiary. The sample, therefore, excludes suspects who were not charged, convicted, and sentenced to a federal prison. Also, we did not control for techniques used by the interviewer during the interrogation and intended to elicit a confession from the offender, which might be demonstrated by our still moderate model accuracy. As such, it is not possible to determine whether the offender's perception of the strength of police evidence is based on police allegations during the interrogation, or based on the offender's assumptions of the evidence police might have against them. This is a crucial point that should be investigated in future studies, considering its importance on the outcome of the interrogation. The results of this study, therefore, should be interpreted accordingly. Moreover, as previous studies have demonstrated the importance of police interrogation techniques (Kassin et al., 2007; Leo, 1996), future studies should incorporate this aspect, along with sociodemographic, criminological, and contextual factors, to investigate the specific impact of police interrogation technique on the offender's decision to confess. This might help to improve the models proposed in the current study.

Conclusion

Our findings reaffirm the importance of contextual factors in the offender's decision to confess a crime to the police, and further highlight the role of police evidence over and above individual characteristics, criminological factors, and other situational/contextual factors at the time of the interrogation. We also conclude that key factors which influence the offender's decision to confess seem to operate when police evidence is weak, but not necessarily when

police evidence is strong. In other words, the interrogation phase of the investigation is crucial when police investigators have only weak evidence against the suspects. It is reasonable to assume that the interviewer's strategies and abilities in convincing the offender to confess their crime are an integral part of the interrogation outcome. Such abilities might be most effective with suspects who have no prior record, who are single at the time of the interrogation, who feel guilty about their crime, and who do not use legal advice.

These results, however, raise crucial concerns about the potential manipulation of evidence by police investigators during the interrogation of suspects. More specifically, false confessions might be more likely to occur with more vulnerable individuals, that is, suspects with no prior experience with the criminal justice system, who lack social support as well as those not invoking their legal right to consult a lawyer. Police interrogators should be careful and concerned about the potential possibility of wrongfully influencing the suspect's decision, especially those showing these characteristics. However, when police evidence is strong (e.g., the offender was caught committing the crime), individual characteristics, criminological factors, and contextual factors have a very limited influence on the suspect's decision to confess. Therefore, in circumstances where offenders perceive that police evidence against them is strong, most are likely to confess their crime. These results highlight the importance of case preparation and gathering evidence against a suspect prior to the police interrogation. It also stresses the importance of presenting the case as such to the suspect, in order to elicit a confession during the interrogation stage of the investigation.

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Table 1. Correlations among the variables included in the study

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	—														
2. Marital status	.05	—													
3. Parental status	.33***	.19**	—												
4. Ethnicity	−.03	.10	−.10	—											
5. Education	−.13*	.00	−.04	−.13	—										
6. Crime seriousness	.111	.07	.01	.12	.04	—									
7. Drug crime	−.09	.14*	.00	−.09	.06	−.49**	—								
8. Property crime	−.21**	.00	−.13	−.17*	.18**	−.29**	−.09	—							
9. Violent crime	−.12	−.13	−.11	.02	−.04	.59**	−.27**	−.19**	—						
10. Sexual crime	.22**	.08	.16*	.12	−.01	.53**	−.26**	−.24**	−.14*	—					
11. Sentence length	.01[1]	−.00	.06	.09	−.11	.37**[1]	−.05	−.29**	.32**	.05	—				
12. Prior convictions	.09	−.06	.05	−.21**	.18**	−.20**	−.08	.24**	−.04	−.26	−.17**	—			
13. Evidence	−.09	−.14*	−.02	−.24**	.10	−.06	−.02	.10	.01	−.14*	−.14*	.22**	—		
14. Legal advice	−.04	.12	.09	.04	.02	.03	.09	−.06	.02	.08	.18**	−.10	−.07	—	
15. Guilt	−.16*	−.01	−.10	−.02	.03	.02	−.07	.16*	.02	−.05	−.04	−.05	.21**	.11	—

[1]Pearson's *r* reported.

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

Unless otherwise indicated, Spearman's Rho was reported.

Table 2. Group comparisons between confessors and non-confessors

Variables	Confessors (n = 100)	Non-confessors (n = 121)	Group comparisons	Cohen's d
Sociodemographic factors				
Age	34.7 (10.0)	34.7 (11.5)	$t(219) = .08$	.01
Marital status (not single)	35.0%	42.1%	$\chi2(1) = 1.18$	.15
Parental status (having children)	59.0%	57.0%	$\chi2(1) = .09$	.04
Ethnicity (non-Caucasian)	14.0%	12.4%	$\chi2(1) = .12$	.05
Education (HS not completed)	52.0%	50,4%	$\chi2(1) = .06$	.03
Criminological factors				
Seriousness of index crime	8.2 (2.7)	7.4 (2.9)	$t(219) = 2.06$*	*.28*
Nature of index crime				
Drug crime (yes)	18.9%	36.4%	$\chi2(1) = 7.88$**	*.39*
Property crime (yes)	31.6%	31.4%	$\chi2(1) = .00$	.00
Violent crime (yes)	49.5%	39.8%	$\chi2(1) = 1.99$	.19
Sexual crime (yes)	13.7%	14.4%	$\chi2(1) = .02$	.02
Length of sentence				
24 months	31.0%	24.0%	$\chi2(2) = 1.93$	.07
Between 25-48 months	41.0%	49.6%		
More than 48 months	28.0%	26.4%		
Number of prior convictions				
None	20.0%	15.7%	$\chi2(2) = .77$	.06
Recidivist	13.0%	12.4%		
Multi-recidivist	67.0%	71.9%		
Situational/contextual factors				
Perception of evidence	3.0 (.1)	2.5 (.1)	$t(219) = 4.00$***	*.54*
Legal advice (yes)	56.0%	76.9%	$\chi2(1) = 10.85$**	*.45*
Guilt				
No	17.0%	24.8%	$\chi2(2) = 8.05$*	*.32*
Somewhat	9.0%	19.0%		
Very	74.0%	56.2%		

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

Table 3. Prediction of the offender's confession using hierarchical logistic regression models

	Model I		Model II		Model III	
Predictors	Exp(B)	95% CI	Exp(B)	95% CI	Exp(B)	95% CI
Sociodemographic						
Age	1.00	(.97-1.02)	.99	(.96-1.02)	1.00	(.97-1.04)
Ethnicity (non-Caucasian)	1.21	(.53-2.76)	1.04	(.44-2.46)	1.87	(.67-5.16)
Marital status (not single)	.65	(.36-1.16)	.71	(.39-1.29)	.93	(.46-1.88)
Parental status (having children)	1.30	(.71-2.38)	1.33	(.71-2.47)	1.69	(.81-3.53)
Education (HS not completed)	1.06	(.61-1.84)	1.03	(.58-1.85)	1.06	(.53-2.09)
Criminological						
Crime seriousness			1.15*	(1.03-1.29)	1.19**	(1.05-1.36)
Length of sentence[1]						
25-48 months	—	—	.54	(.27-1.08)	.51	(.23-1.15)
+48 months	—	—	.58	(.26-1.31)	.94	(.37-2.38)
Prior convictions[2]						
Recidivist	—	—	.70	(.25-1.99)	.36	(.10-1.33)
Multi-recidivist	—	—	.71	(.33-1.54)	.35*	(.13-.94)
Contextual						
Perception of evidence	—	—	—	—	2.41***	(1.68-3.45)
Use of legal advice (yes)	—	—	—	—	.17***	(.07-.37)
Guilt	—	—	—	—	1.96**	(1.26-3.04)
−2 Log likelihood	287.43		276.69		218.26	
χ^2(*df*) Model	2.57 (5)		13.30 (10)		71.73 (13)***	
Cox & Snell R^2	.01		.06		.29	
Non-confessors (% correctly classified)	80.3		77.8		76.1	
Confessors (% correctly classified)	23.4		46.8		68.1	
Overall (% correctly classified)	55.0		64.0		72.5	
AUC	.56 (.04)		.65 (.04)***		.81 (.03)***	

[1]Dummy variable used, with the category "Sentence of 24 months" used as a reference.
[2]Dummy variable used, with the category "No prior record" used as a reference.
*$p < .05$; **$p < .01$; ***$p < .001$.

Table 4. Group comparisons based on the offender's perception of police evidence

Variables	Weak evidence (n = 94)	Strong evidence (n = 127)	Group comparisons	Cohen's d
Sociodemographic factors				
Age	36.6 (12.3)	33.3 (9.4)	$t(219) = 2.29$*[1]	*.31*
Marital status (not single)	56.4%	64.6%	$\chi^2(1) = 1.52$	.17
Parental status (having children)	42.6%	41.7%	$\chi^2(1) = .01$	.01
Ethnicity (non-Caucasian)	20.2%	7.9%	$\chi^2(1) = 7.21$**	*.37*
Education (HS not completed)	47.9%	53.5%	$\chi^2(1) = .69$	.11
Criminological factors				
Seriousness of index crime	8.0 (2.8)	7.6 (2.8)	$t(219) = 1.14$	.16
Nature of index crime				
Drug crime (yes)	30.0%	27.6%	$\chi^2(1) = .14$	.05
Property crime (yes)	25.6%	35.8%	$\chi^2(1) = 2.52$	.21
Violent crime (yes)	46.7%	42.3%	$\chi^2(1) = .41$	.09
Sexual crime (yes)	17.8%	11.4%	$\chi^2(1) = 1.76$	.18
Length of sentence				
24 months	23.4%	29.9%	$\chi^2(2) = 1.31$	.15
Between 25-48 months	46.8%	44.9%		
More than 48 months	29.8%	25.2%		
Number of prior convictions				
None	25.5%	11.8%	$\chi^2(2) = 7.26$*	*.36*
Recidivist	12.8%	12.6%		
Multi-recidivist	61.7%	75.6%		
Situational/contextual factors				
Legal advice (yes)	68.1%	66.9%	$\chi^2(1) = .03$	.02
Guilt				
No	29.8%	15.0%	$\chi^2(2) = 9.43$**	*.42*
Somewhat	17.0%	12.6%		
Very	53.2%	72.4%		

[1]Equality of mean variance not assumed.
*$p < .05$; **$p < .01$.

Table 5. Prediction of offenders' confession according to perception of police evidence using hierarchical logistic regression models

	Offender's perception of the police evidence					
	Weak evidence (n = 94)			Strong evidence (n = 127)		
Predictors	Model I Odds (95% CI)	Model II Odds (95% CI)	Model III Odds (95% CI)	Model I Odds (95% CI)	Model II Odds (95% CI)	Model III Odds (95% CI)
Sociodemographic						
Age	.98 (.93-1.03)	.96 (.91-1.01)	.96 (.91-1.06)	1.02 (.98-1.06)	1.03 (.98-1.08)	1.03 (.98-1.07)
Ethnicity	3.89 (1.02-14.79)*	5.11 (1.15-22.80)*	6.49 (.83-50.84)	1.23 (.32-4.67)	1.02 (.24-4.35)	1.18 (.27-5.15)
Marital status	.13 (.03-.51)**	.11 (1.15-.51)**	.08 (.01-.59)*	1.15 (.54-2.47)	1.27 (.57-2.84)	1.69 (.71-4.04)
Parental status	2.40 (.73-7.83)	2.71 (.73-9.99)	5.83 (.-92-36.84)	1.20 (.55-2.61)	1.15 (.51-2.60)	1.39 (.57-3.35)
Education	.86 (.29-2.50)	.89 (.27-2.87)	1.57 (.31-7.99)	1.36 (.66-2.80)	1.58 (.73-3.44)	1.86 (.81-4.24)
Criminological						
Crime seriousness	—	1.29 (1.02-1.62)*	1.56 (1.09-1.62)*	—	1.12 (.97-1.30)	1.12 (.96-1.31)
Sentence[1]						
25-48 months.	—	.17 (.02-1.31)	.66 (.10-4.47)	—	.76 (.31-1.88)	.91 (.35-2.37)
>48 months.	—	.50 (.14-1.83)	1.77 (.22-14.18)	—	.62 (.22-1.77)	.91 (.30-2.77)
Prior convictions[2]						
Recidivist	—	.58 (.14-2.44)	.01 (.00-.51)*	—	.22 (.03-1.45)	.21 (.03-1.55)
Multi-recidivist	—	.64 (.13-3.03)	.14 (.02-.89)*	—	.17 (.03-.88)*	.16 (.03-.92)*
Contextual						
Use of legal advice	—	—	.01 (.00-.14)***	—	—	.24 (.09-.63)**
Guilt	—	—	6.62 (2.16-20.30)**	—	—	.90 (.51-1.57)
-2 Log likelihood	89.97	81.34	50.61	169.02	158.11	148.39
χ^2(df) Model	12.52 (5)*	21.15 (10)*	51.87 (12)***	2.46 (5)	13.38 (10)	23.09 (12)*
Cox and Snell R^2	.13	.22	.45	.02	.10	.17
Non-confessors(% correctly classified)	93.7	93.7	90.5	27.3	50.9	61.8
Confessors (% correctly classified)	16.7	58.3	79.2	88.6	74.3	62.9
Overall (% correctly classified)	72.4	83.9	87.4	61.6	64.0	62.4
AUC	.72 (.06)**	.81 (.06)***	.93 (.03)***	.58 (.05)	.66 (.05)**	.72 (.04)***

[1]Dummy variable used with the category "Sentence of 24 months" used as a reference.
[2]Dummy variable used with the category "No prior record" used as a reference.
*p < .05; **p < .01; ***p < .001.