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Are the Effects of Poverty and Victimization on Criminal Recidivism Mediated by Depression as Predicted by General Strain Theory? A Longitudinal Study of Provincially Sentenced Women

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ARE THE EFFECTS OF POVERTY AND VICTIMIZATION ON CRIMINAL RECIDIVISM
MEDIATED BY DEPRESSION AS PREDICTED BY GENERAL STRAIN THEORY? A
LONGITUDINAL STUDY OF PROVINCIALY SENTENCED WOMEN

by

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Bachelor of Arts in Psychology, Wilfrid Laurier University, Waterloo, Ontario 2010

A thesis

presented to Ryerson University

in partial fulfillment of the
requirements for the degree of

Master of Arts

in the Program of

Psychology

Toronto, Ontario, Canada 2012

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Abstract

Are the effects of poverty and victimization on criminal recidivism mediated by depression as predicted by general strain theory? A longitudinal study of provincially sentenced women

Jennifer E. Newman

Master of Arts in the Program of Psychology, 2012

Ryerson University

The current study is a longitudinal analysis of psychosocial factors contributing to re-offending among 125 adult female offenders. Drawing on General Strain Theory (GST), the study examined the role of victimization and poverty on criminal recidivism and investigated whether this relationship was mediated by depression. Regression, survival, and mediational analyses were employed to examine the impact of these variables on criminal recidivism. Findings revealed that using illegal means to make ends meet, and having survived childhood sexual abuse, were particularly important predictors of recidivism for women in the study sample, although depression was not found to significantly mediate the relationship between strain and recidivism. Implications for future research on female recidivism and helping women to stay crime-free are discussed.

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Dedication

I would like to dedicate this thesis to my mother for her incredible guidance, love, and support.

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Introduction

Although females represent 50% of the adult population in Canada, only 4% of offenders under federal jurisdiction and 6% in provincial correctional facilities are female (Kong & AuCoin, 2008). This relatively small ratio of female offenders in comparison to male offenders may help to explain the significant lack of research investigating the conditions under which females offend. Although females make up only a small proportion of incarcerated individuals, recent evidence indicates that women are the fastest growing subpopulation of offenders in the criminal justice system (Hannah-Moffat, 2009; Holtfreter & Cupp, 2007; Van Voorhis et al., 2008) and are outpacing the growth of male offenders (Davidson, 2009). The majority of provincially sentenced females in Ontario are under 35 years of age and commit substantially fewer violent and serious offences than male offenders (Kong & AuCoin, 2008). Women appear to commit predominantly economic offences for monetary gain, such as minor property and theft offences (Finn, Trevethan, Carriere & Kowalski, 1999; Kong & AuCoin, 2008; Vir Tyagi, 2004).

The increased number of females in contact with the criminal justice system has caused more researchers to examine female offenders in their own right, separate from males (Flavin & Desautels, 2006). There is currently a great deal of debate as to whether psychological and criminological theories of offending apply equally well to *both* males and females, or whether females require more specific explanations of their offending behaviour (Blanchette & Brown, 2006). While gender-specific theories are only recently beginning to receive more attention within the research community, traditional, gender-neutral theories of offending continue to occupy a significant space in the research literature on criminal behaviour.

Gender-neutral versus Gender-specific Theories of Offending

It is the general criminological perspective that “the factors responsible for female crime are essentially the same as those for male crime” (Bonta, Pang, & Wallace-Capretta, 1995, p. 279). Blanchette and Brown (2006) purport that the general criminological perspective advocates for “gender-neutral” theories of offending behaviour, which “explicitly or implicitly assume that theories of criminal behaviour apply equally well to both genders” (p. 15). It is not surprising, then, that the majority of the most commonly used risk assessment tools are based on gender-neutral theories of offending. Research indicates that one of the most widely used gender-neutral risk assessment tools is the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995). According to Andrews, Bonta, and Wormith (2006), the most important static and dynamic risk factors in predicting future offending for both men and women are often referred to as the “central eight.” These risk factors include a history of antisocial behaviour, antisocial personality pattern, antisocial cognition, antisocial associates, poor quality of family/marital relationships, poor performance at school/work, increased involvement in criminal leisure and/or recreational activities, and substance abuse.

Several research studies have found support for gender-neutral risk assessment tools, such as the LSI-R, and advocate that they are valid for women in contact with the criminal justice system (e.g., Andrews, Dowden, & Rettinger, 2001; Holtfreter & Cupp, 2007; Smith, Cullen, & Latessa, 2009). Smith et al. (2009) conducted a meta-analysis of 25 studies on 14,737 female offenders to investigate the predictive validity of the LSI-R with this population. Overall, results indicated that the LSI-R performed equally well for men and women and should be regarded as the “best bet” for assessing recidivism of female offenders. Although these results provide convincing evidence for the use of gender neutral theories of assessments of offending

behaviour, additional studies examining the issue have yielded contradictory results (Belknap, 2007; Olson, Alderden, & Lurigio, 2003; Reisig, Holtfreter, & Morash, 2006; Salisbury, Van Voorhis, & Spiropoulis, 2009). Holtfreter, Reisig and Morash (2004) argue that researchers should be cautious when using the LSI-R to predict risk of female recidivism for two reasons. First, the LSI-R tends to over classify women as high risk for re-offending, which results in more women being placed in overly secure custody and intensive programs that do not meet their treatment needs (e.g., Lowenkamp, Holsinger, & Latessa, 2001). Second, Holtfreter et al. (2004) suggest that actuarial assessments developed with male offenders in mind do a poor job of identifying the most appropriate types of intervention for meeting women's needs because they were not informed by theories of female offending.

The use of gender-neutral tools to predict recidivism of women offenders has resulted in a contentious debate in the offending literature between two opposing sides: (1) "gender-neutral" scholars who argue that actuarial risk assessment tools can be used to predict future offending behaviour equally as well for both male and female offenders; and (2) "gender-specific" scholars who reject the notion that theories of offending are gender-neutral and, instead, argue that "gender-responsive" factors (e.g., childhood abuse) should be included into traditional gender-neutral assessments of offending behaviour to help explain female pathways into crime.

Gender-specific scholars advocate that gender-responsive factors must be taken into account when explaining female offending behaviour as they: a) do not typically occur among male offenders; b) are seen among male offenders but occur at a greater frequency among female offenders; or c) "occur in equal frequency among men and women but affect women in uniquely personal and social ways that should be reflected in current correctional assessments" (Van

Voorhis, Wright, Salisbury, & Bauman, 2010, p. 263).

Furthermore, many gender-specific scholars suggest that gender-neutral tools accurately classify only a small proportion of female offenders who do not follow a “gendered” pathway into crime (Reisig et al., 2006). These scholars suggest that gender-neutral tools (such as the LSI-R) accurately predict future offending behaviour among females who follow a similar offending context as males and fail to predict recidivism among females with gender-specific risk factors (e.g., childhood abuse) (Holtfreter & Cupp, 2007). An example of a gendered pathway into crime might be of a young girl who runs away from home to escape sexual abuse and must resort to criminal behaviour (i.e., stealing food) for survival. The notion that women sometimes follow a “gendered pathway” into crime was explored by Reisig et al. (2006) in a study testing the validity of the LSI-R among subgroups of female offenders who were classified as “gendered,” “nongendered,” and “unclassifiable.” Results demonstrated that the LSI-R predicted recidivism for women offenders in the nongendered and unclassifiable groups, but failed to predict recidivism for women in the gendered group.

Gender-specific scholars have advocated for the inclusion of gender-responsive factors in the traditional offending risk assessments of women to help explain female pathways into crime (Daly, 1992; Van Voorhis et al., 2010). The most commonly cited factors regarded to be specific to the female gender include: relationship problems; depression; parental issues; level of self-esteem; self-efficacy/self-concept; trauma; poverty; and previous or current victimization (Belknap, 2007; Burton et al., 1998; Farr, 2000; Holtfreter et al., 2004; Reisig et al., 2006; Schram & Morash, 2002; Wright, Salisbury, & Van Voorhis, 2007). Since strong empirical evidence indicates that the majority of Canadian female offenders lead impoverished lives (Holtfreter, et al., 2004), have a history of victimization (Browne, Miller & Maguin, 1999), and

often utilize poor coping strategies (Broidy & Agnew, 1997), these are certainly factors that warrant further attention in the research literature. Given that the current study examines the impact of poverty and previous/current victimization and abuse on recidivism among female offenders, a more thorough literature review has been conducted on these risk factors.

Poverty

It is a stable finding within the research literature that the number of women experiencing poverty is grossly disproportionate to men (Proctor & Dalaker, 2002) and many scholars argue that substantial financial concerns of women are the most significant predictors of female recidivism (Reckdenwald & Parker, 2008). Holtfreter et al. (2004) investigated the effects of poverty and state-sponsored support on recidivism rates of female offenders and found that poverty increased the odds of re-arrest for females by a factor of 4.6 and increased the odds of violating the terms of their supervision by a factor of 12.6. In addition, it was found that women who were given state-sponsored support to finance their housing were 83% less likely to recidivate (Holtfreter et al., 2004).

The most frequently cited theory of women's offending behaviour as a result of living in poverty is referred to as the "economic marginalization hypothesis" (Box & Hale, 1983). The economic marginalization hypothesis was derived from the feminist literature that emphasizes gender inequality in economic institutions as a significant contributor to women's subordinate and marginalized positions (Atwell, 2002; Belknap, 2007). The economic marginalization hypothesis posits that the economic disadvantage of women, created by social and structural factors in society, is a substantial predictor of female crime (Reckdenwald & Parker, 2008). Proponents of the economic marginalization hypothesis argue that women are motivated to commit crime as a rational response to economic disadvantage and poverty. Indeed, research has

demonstrated that the gender gap in crime decreases and females account for a greater proportion of crime when their economic well-being declines (Heimer, Wittrock, & Unal, 2005).

A number of social and structural factors have been suggested under the economic marginalization hypothesis as contributing to women's economic disadvantage and predicting female recidivism. A thorough examination of the literature revealed that unemployment, lack of education, and single mother-headed households are some of the most frequently cited circumstances directly impacting the economic disadvantage and offending behaviour of women (Holtfreter et al., 2004; Delveaux, Blanchette & Wickett, 2005; Belknap, 2007; Bonta et al., 1995; Van Voorhis et al., 2010). In 1999, the Bureau of Justice Statistics revealed that only 40% of women offenders reported full-time employment at the time of their arrest and two-thirds reported their highest hourly wage to be no greater than \$6.50.

In a more recent study, Delveaux et al. (2005) found that 72% of incarcerated women in Canada were unemployed prior to their arrest. In comparison, a study examining rates of unemployment among male offenders in the same year indicated that approximately 65% of male offenders were unemployed at the time of their arrest (Boe, 2005). Furthermore, Delveaux et al. (2005) found that 66% of female offenders in Canada do not have a high school diploma and 58% do not have a skill, trade, or profession that could help them obtain employment upon their release into the community. In support of these findings, Kong and Aucoin (2008) indicated that approximately 63% of women offenders experience treatment needs in relation to employment/education in comparison to 57% of male offenders.

Additionally, it is a prominent finding in the research literature that single mothers are some of the most economically disadvantaged members of society and represented approximately 49% of families living below the poverty line in 2001 (Proctor & Dalaker, 2002).

In their study of predictors of recidivism among incarcerated female offenders, Bonta et al. (1995) found that single mothers had significantly higher rates of recidivism than mothers who reported raising their children with a partner.

Childhood Abuse

It is well established in many literatures in this field that a history of victimization is an important factor in women's offending and re-offending (Belknap, 2007; Chesney-Lind & Pasko, 2004; Rettinger, 1998; Siegel & Williams, 2003). Many female offenders report a history of childhood physical and sexual abuse (Belknap, 2007). Gender-specific scholars support the hypothesis that victimization results in crime when young girls run away from home to escape the abuse they are experiencing and must engage in economic offences to survive (Belknap, 2007; Bloom, Owen, Rosenbaum & Deschenes, 2003). In addition, research has demonstrated that runaway females are more likely to be arrested for prostitution (Simons & Whitbeck, 1991) and drug related offences (Marcenko, Kemp, & Larson, 2000) than non-abused offenders. In a study examining predictors of female recidivism, Benda (2005) found that childhood sexual and physical abuse were two of the most powerful predictors of women's re-offending behaviour. Makarios (2007) supported these findings and argued that abuse in childhood substantially increased the likelihood of offending in adulthood for women offenders.

Adulthood Victimization

McCartan and Gunnison (2010) recently found that female offenders with a history of childhood sexual abuse are more likely to be involved in abusive relationships in their adulthood compared to those without a history of abuse. Other researchers support the finding that childhood victimization often leads to a vulnerability to male violence in adulthood for many female offenders (Richie, 1995). Adult victimization of females has been linked to difficulty

finding and maintaining employment (Browne, Salomon & Bassuck, 1999), which may lead women to engage in illegitimate means of monetary gain to obtain independence from an abusive partner (Chesney-Lind & Shelden, 1992). A history of sexual and physical abuse in adulthood has been found to be a particularly salient risk factor associated with female recidivism (Benda, 2005). Moth and Hudson (2000) supported these findings and argued that a history of physical abuse as an adult appears to be a particularly relevant risk factor for female offenders, which is not associated with recidivism in male offenders.

In addition, a study by Fleming, Mullen, Sibthorpe and Bammer (1999) found that a history of victimization was significantly associated with increased levels of depression, low self-esteem, and other mental health issues among women. Further research has indicated that females with a history of victimization and abuse are more likely to experience internalizing problems, such as depression or anxiety, than male offenders (Romano & De Luca, 2000). Additionally, James and Glaze (2006) found that 68% of female offenders with a mental health diagnosis also had a history of physical or sexual abuse and 17% were homeless or living in poverty in the year prior to their arrest. These findings point to the significant impact of victimization and poverty on the psychological well-being of female offenders.

The recognition of gender-specific needs and theories of offending has caused some researchers to reformulate traditional gender-neutral theories of offending to incorporate factors that pertain more specifically to females (Agnew, 1992; Steffensmeier & Allan, 1996; Van Voorhis, 2010). These more recently developed theories are known as “hybrid theories” and combine elements from both gender-neutral and female-specific perspectives (Blanchette & Brown, 2006). Hybrid theories are beginning to garner considerable attention in the research literature due to their more balanced view of the factors most relevant in offending behaviour.

General Strain Theory as a Theoretical Framework for Understanding Women's Offending

General strain theory (GST), first postulated by Agnew (1992), is perhaps the most well researched hybrid theory of offending and is a reformulated version of the gender-neutral classic strain theories of Merton (1938), Cohen (1955), and Cloward and Ohlin (1960). GST posits that stressful life events or personal strains create negative emotions, such as anger or depression, which result in criminal behaviour in the absence of strong coping skills (Broidy & Agnew, 1997). GST outlines more general sources of strain that were unaccounted for in classic strain theory.

According to classic strain theory, individuals engage in criminal behaviour when they are blocked from achieving positively valued goals in society (e.g., middle-class status or monetary success) (Merton, 1938). Classic strain theory posits that members of the lower class and those from disadvantaged minority groups commit crimes in order to achieve middle-class status or monetary success in the absence of legitimate means for attaining these goals (Blanchette & Brown, 2006). In other words, the inability to achieve status or wealth through legally-feasible means creates a significant source of strain or pressure on the individual and may lead them to solve their desire for status or wealth by engaging in criminal behaviour. Additional studies on classic strain theory have examined the relationship between blockage from other positively valued stimuli among adolescents (such as achieving high grades, popularity with the opposite sex, and success in athletics) and delinquent behaviour (Agnew, 1984; Elliot, Huizinga, & Ageton, 1985; Elliot & Voss, 1974).

Support for classic strain theory greatly diminished in the 1960's due to a lack of empirical evidence for the theory, greatly flawed methodologies, and oversimplification of the

theory found in many research studies (Agnew, 1992). In response to the criticisms against classic strain theory, Agnew offered an explanation of crime that captured additional sources of strain that may cause an individual to commit a criminal act. Agnew claimed that there are actually three major sources of personal strain that may prompt an individual to engage in delinquent behaviour. First, in accordance with Merton (1938), Cohen (1955), and Cloward and Ohlin (1960), Agnew agreed that individuals may experience strain when they are blocked from positively valued stimuli, such as blockage from obtaining monetary success. Second, Agnew proposed that one may experience strain as the result of the removal or loss of positively valued stimuli that one previously possessed. For example, loss of a job or a romantic relationship may cause an individual to engage in delinquent behaviour in an attempt to prevent its loss or seek revenge towards those responsible for its removal. Third, the last source of personal strain is the presentation of negative stimuli (e.g., childhood abuse, negative relations with others, etc.). This is certainly a significant contribution of GST as it acknowledges a significant source of strain for many individuals that had been overlooked in classic strain theory.

According to Agnew (1992), factors such as emotional, physical or sexual abuse or neglect in childhood or adulthood create an overwhelming source of strain that may be a driving force for some individuals into criminal behaviour. Importantly, Agnew explains that it is not just blatant victimization that qualifies as negative treatment, but also the strain associated with being a de-valued (and thus marginalized) member of society that leads to criminal behaviour. This includes marginalized members of society such as women, minority groups and those living in poverty.

In addition, Agnew (1992) recognizes that individuals may cope with strain in a number of ways that were not discussed in classic strain theory. According to Agnew, an individual may

cope with strain cognitively (e.g., mentally avoiding or minimizing the impact of strain); behaviourally (e.g., engaging in vengeful behaviour); and/or emotionally (e.g., self-soothing or meditating) to reduce negative emotions, such as anger and depression, that are associated with strain. Agnew suggests that it is the type of coping style an individual adopts that will determine whether they are likely to take a criminal or noncriminal stance in response to strain. Therefore, it is argued that an individual is more likely to engage in delinquent behaviour if they respond to strain with negative emotions and use poor coping strategies to alleviate these negative emotions. In contrast, an individual who uses positive coping strategies (e.g., seeking social support) to alleviate negative emotions will be less likely to respond to strain with delinquency.

Mediating Effects of Anger and Depression within GST

A central component of GST is the formation of negative emotional states as a direct result of particularly stressful events (Agnew, 1992). Agnew purports that it is the negative emotional responses to strain that mediate the relationship between strain and crime. More recent research has begun to examine GST in relation to the unique strains experienced by females and how their negative emotional reactions (i.e., anger and depression) in response to strain may lead to a gendered pathway of crime (Benda, 2005; Hay, 2003; Hoffman & Su, 1997; Jennings, Leeper Piquero, Gover & Perez, 2009; Leeper Piquero & Sealock, 2004). Broidy and Agnew (1997) posit that males are more likely to respond to strain with anger that is characterized by moral outrage, whereas females are likely to respond to strain with emotions that resemble sadness or depression. According to Mirowsky and Ross (1995) the angry male response to strain lowers one's inhibitions and causes him to seek revenge against others. This may help to explain why males tend to commit more serious and violent crimes against others in comparison

to the property and minor theft offences predominantly committed by females (Kong & AuCoin, 2008).

Additional research suggests, however, that females are also likely to respond to personal strain with anger, but that this anger looks much different than that of males (Campbell, 1993; Kopper & Epperson, 1991; Mirowsky & Ross, 1995). Campbell (1993) explains that the anger of women is typically accompanied by emotions such as fear, anxiety, sadness, guilt and shame. In their study examining sex differences in response to strain, Mirowsky and Ross explain that “for women, depression is anger’s companion: not its substitute” (1995, p. 465). Indeed, Broidy and Agnew (1997) suggest that both males and females respond to strain first with anger but women’s anger is more likely to progress into depression.

Differences in the expression of anger may be due to a variety of factors such as the tendency for women to blame themselves in comparison to men who are more likely to blame others for their misfortunes (Broidy & Agnew, 1997). In addition, females are more relational than males and tend to place great emphasis on their relationships with others (Bloom, Owen & Covington, 2003). As a result, females are less likely to engage in more serious types of crime for fear of hurting others (Blanchette & Brown, 2006; Broidy & Agnew, 1997). Broidy and Agnew (1997) stated that it is the interaction between anger and depression among females that results in a criminal response. Negative emotional reactions (i.e., depression and anger) are likely to result in a criminal response for females who lack supportive relationships, have poor coping skills and low self-efficacy, as well as those who do not have legal options for dealing with previous abuse (Broidy & Agnew, 1997).

In summary, GST appears to be well-suited for explaining female crime as it incorporates many of the gender-responsive risk factors that serve as significant personal strains for women.

Gender responsive risk factors such as poverty and victimization are particularly relevant strains for many female offenders. In fact, research suggests that low income women with a history of victimization are most likely to engage in crime (Belknap, 2007; Chesney-Lind & Shelden, 1992; Holtfreter, Reising, & Morash, 2004; Simpson & Ellis, 1995; Salisbury & Van Voorhis, 2009; Vir Tyagi, 2004) and are among the most economically and socially disadvantaged members of society.

Despite the increasing number of women in conflict with the law, the majority of research continues to investigate the factors most relevant in male offending. As recent research suggests that males and females sometimes commit crimes for different reasons, it is critically important to examine female offenders in their own right, separate from males. Investigating the factors most relevant in female's offending and re-offending will shed light on the circumstances that lead women into a gendered pathway of crime and perpetuate their offending behaviour.

The Current Study

The current study is a seven-year follow-up of a study conducted by Vir Tyagi (2004) who investigated psychosocial factors contributing to re-offending among 127 adult female offenders incarcerated in adult provincial institutions in Canada in 2004. Vir Tyagi used self-report data for both the psychosocial and criminal data and examined the influence of present day life circumstances, psychological functioning, attitude to crime, and historical factors (e.g. criminal history, childhood victimization) on female offending behaviour. Results of the study indicated that victimization in childhood and adulthood, substance abuse, poverty, and marginalization had a significant impact on women's mental health (Vir Tyagi, 2004). In addition, it was found that recidivists in the study sample experienced significantly greater levels of poverty and victimization across the lifespan than one- time offenders.

The current study sought to investigate two of the most substantial strains facing female offenders (i.e., child and adult victimization and poverty) and whether the effect of these strains on criminal recidivism was mediated by depression. The present study tested GST in relation to its ability to predict female recidivism as opposed to the onset of criminal behaviour more generally. According to GST, personal strain and crime are mediated by an emotional response, such as depression, in the absence of strong coping skills (Agnew, 1992).

The present study extends the original research by Vir Tyagi (2004) in two important ways. First, additional criminal data were obtained based on the women's official criminal records of recidivism rates from 2003-2011, inclusive, following their discharge from prison. The inclusion of official criminal records to measure recidivism is an obvious extension of the original study by Vir Tyagi, who examined predictors of criminal recidivism based on self-reported data. Second, the current study provides a longitudinal analysis of the relationship between female strain and recidivism by following up the sample of women approximately seven years since the original data were gathered in 2003. Longitudinal studies in relation to female recidivism are quite rare in the criminological literature and are critically important to understand female offending. Therefore, the present study provides a valuable contribution to the literature on female offending as it is a longitudinal study based on official records of recidivism to examine the factors most important to female re-offending and the psychological factors that may mediate this relationship. Identifying the risk factors most predictive of female recidivism and gaining an understanding of how depression may mediate this relationship has many implications for addressing the needs of women offenders and helping them find ways to stay crime-free. Additionally, this study contributes to theory building in understanding the factors more relevant in women's re-offending behaviour.

Research Questions Testing General Strain Theory (GST)

1. a) Do four indicators of poverty (i.e., Dependency, Instability, Food Banks, and Illegal Means) significantly predict recidivism? These indicators of poverty refer to Factor labels that were derived from a principal components analysis (PCA) of eight poverty items. (For a detailed explanation of this factor analysis, see the “Development of additional study variables” section of the Results section on p.23.)

 b) Do three types of childhood maltreatment (i.e., neglect, sexual abuse, and punishment), significantly predict recidivism?

 c) Do three types of adulthood victimization (i.e., physical, psychological and sexual victimization) significantly predict recidivism?
2. a) Are the effects of poverty on recidivism mediated by depression as predicted by GST?

 b) Are the effects of childhood maltreatment on recidivism mediated by depression as predicted by GST?

 c) Are the effects of adulthood victimization on recidivism mediated by depression as predicted by GST?

Additional Exploratory Research Questions

1. a) What is the relationship between poverty and time to recidivate?

 b) What is the relationship between type of childhood maltreatment and time to recidivate?

 c) What is the relationship between type of adulthood victimization and time to recidivate?
2. a) Does level of strain (low, medium, and high) significantly predict recidivism?

 b) What is the relationship between level of strain and time to recidivate?

3. a) Do three types of childhood maltreatment (i.e., neglect, sexual abuse, and punishment) predict adulthood victimization?
- b) Are the effects of childhood maltreatment on adulthood victimization mediated by depression?

Study Hypotheses

1. a) It is hypothesized that four indicators of poverty will significantly predict recidivism in the study sample.
- b) It is hypothesized that the three types of childhood maltreatment will significantly predict recidivism in the study sample.
- c) It is hypothesized that the three types of adulthood victimization will significantly predict recidivism in the study sample.
2. a) It is hypothesized that the effects of poverty on recidivism will be mediated by depression as predicted by GST.
- b) It is hypothesized that the effects of childhood maltreatment on recidivism will be mediated by depression as predicted by GST.
- c) It is hypothesized that the effects of adulthood victimization on recidivism will be mediated by depression as predicted by GST.

A moderator-mediational analysis was originally proposed to examine the effects of strain variables on criminal recidivism and their mediation by depression and moderation by type of coping strategy used. However, a preliminary analysis of the data indicated that 91.8% of offenders with depression endorsed problem avoidance (a poor coping style) which substantially limited variability among participants to perform this analysis. As a result, coping style as a moderating variable was dropped from the model.

Method

Sample

The sample comprised 127 adult female offenders who were recruited over an eight-month period in 2002-2003 from Vanier Correctional Institute, a medium security institution, and Metro West Detention Centre, a maximum-security institution, both in the province of Ontario. Demographic information in relation to the study sample at the time of interview is presented in Table 1. At the time of the initial interview, the women's mean age was 33.15 years ($SD = 9.0$). Eighty-two percent were repeat offenders and 18% were first time offenders. Although 127 women had completed all self-report measures in relation to demographic, strain and psychological functioning, the Ministry of Community Safety and Correctional Services was unable to provide sentencing information for two of the women in the study sample and so the final sample consisted of 125 women.

Measures

Indicators of strain (i.e., poverty and victimization) and depression were gathered by Vir Tyagi through semi-structured interviews and a battery of measures focusing on the social and psychological factors in offending behaviour (e.g. Shaw, 1994). Official criminal data for study participants were received in December, 2011 from the Ministry of Community Safety and Correctional Services (MCSCS).

Poverty. Eight poverty items were dummy coded as yes ("1") or no ("0"): (1) unstable housing for previous 6-12 months before offence; (2) dependent on the state; (3) unemployed at time of offence; (4) having money problems before offence; (5) illegal means to make ends meet; (6) food banks to make ends meet; (7) help from others to make ends meet; and (8) use of other sources to make ends meet. These items were entered into a principal components analysis

Table 1

Demographic Information about the Study Sample (N = 125)

Variables	Frequency (%)
Ethnicity	
Caucasian	97 (77.6)
Visible minority	17 (13.6)
Aboriginal	11 (8.8)
Education	
Less than high school	73 (58.4)
High school	37 (29.6)
Some secondary school	2 (1.6)
Community college	8 (6.4)
Undergraduate degree	5 (4.0)
Post graduate degree	0 (0)
Marital status	
Married	16 (12.9)
Common law	47 (37.9)
Living with partner	11 (8.9)
Divorced	1 (.80)
Single, not in a relationship	16 (12.9)
Single, dating	27 (21.8)
In a relationship, currently separated	6 (4.8)
Have children	97 (77.6)
Have juvenile record	55 (45.8)

(PCA) to examine the underlying latent dimensions of the data. A detailed description of these results can be found in the “Development of additional study variables” section of the Results section on p. 23.

Childhood abuse. The Child Abuse and Trauma Scale (CATS) is a 38-item, 5-point likert scale developed by Sanders and Becker-Lausen (1995) (See Appendix A). This scale is based on a three-factor structure of child abuse (neglect, punishment, and sexual abuse) and yields an overall childhood abuse score as well as separate subscale scores. The current study examined scores on each of the abuse subscales in order to examine the impact of specific types of childhood maltreatment on recidivism. The CATS has been standardized on adolescents,

young adults and psychiatric patients with separate norms for women and men (Sanders & Becker-Lausen, 1995).

Sanders and Becker-Lausen (1995) report that the internal consistency of the CATS was .90, as reflected in Cronbach's alpha. The internal consistency for each of the subscales is as follows: neglect ($\alpha = .86$), sexual abuse ($\alpha = .76$) and punishment ($\alpha = .63$). The overall test-retest reliability reported at 6 to 8 weeks was .89. The CATS has been found to correlate positively with clinical measures such as the Dissociative Experiences Scale ($r = .44$), Hospital Anxiety and Depression Scale ($r = .36$), Beck Depression Inventory ($r = .40$), and the Object Relations Scale ($r = .37$) (Kent & Waller, 1998). This scale is available in the public domain for widespread use.

Adult sexual victimization. The Sexual Experiences Survey (SES) is a 13-item, yes/no, forced-choice questionnaire developed by Koss and Oros (1983) (See Appendix B). This questionnaire is one of the most widely used measures for assessing the occurrence of rape and/or sexual assault in adults and asks about diverse experiences of sexual victimization, including physical coercion, verbal coercion, physical force as well as other acts of sexual aggression. This measure was developed on a sample of male and female college students and reports norms for both genders. This scale is available in the public domain for widespread use. For the present study, any woman who received a code of "yes" on any items from 3-13 on the SES was defined as experiencing sexual victimization as an adult.

Adult physical and psychological victimization. The Abusive Behavior Inventory (ABI) is a 30-item, 5-point likert scale developed by Shepard and Campbell (1992) (see Appendix C). The ABI measures physical and psychological abuse of women by their partners. This instrument was standardized on a sample of abused and non-abused women as well as abusive and non-abusive men. Alpha coefficients for internal consistency for the four groups

ranged from .70 to .92 and criterion validity was demonstrated in that it was able to distinguish between abused and non-abused groups. This measure was demonstrated to correlate positively with prior arrests for domestic violence ($r = .37$), clinical assessments of abuse ($r = .19$ to $.24$), and women's self-report of abuse ($r = .40$) (Shepard & Campbell, 1992). More recently, Zink, Klesges, Levin, and Putnam (2007) found that the ABI positively correlated with the revised Conflict Tactics Scale (CTS2) at .76. This scale is available in the public domain for widespread use.

Depression. The Brief Symptom Inventory - 18 (BSI-18) is an 18-item; self-report instrument based on the longer Brief Symptom Inventory (BSI) developed by Derogatis (1993). This scale assesses psychological distress in both community and clinical populations. It focuses primarily on three major scales for depression, anxiety and somatization as well as a Global Severity Index (GSI) which provides an overall level of psychological distress. For the purpose of the present study, only raw scores on the depression subscale of the BSI-18 were examined. GSI scores have been found to correlate positively with the Symptom Checklist-90 (SCL-90) at greater than .90. The BSI-18 is often favoured as a measure for psychological distress as it has been found to have strong psychometric properties, is easy to administer, and has available community norms for female populations.

Recidivism. Recidivism was defined as the first new conviction following discharge from prison in 2003. All new convictions were recorded from date of discharge in 2003 to December 1, 2011.

Time to recidivate. Time to recidivate was defined as the number of months from discharge from prison in 2003 to the time of a new conviction.

Procedure

Ethics approval was obtained from the Ryerson University Ethics Board (see Appendix D) and the Ministry of Community Safety and Correctional Services (MCSCS) (see Appendix E). All participant information was coded to maintain the anonymity of participants. The code key was kept in a locked cabinet within a locked room at the Psychology Research and Training Centre (PRTC) at Ryerson University and was only accessed by the principal investigator. The database was kept in a locked room on a password protected USB key within the PRTC and was only accessed by the principal investigator, and by Dr. David Day and Dr. Smita Vir Tyagi (co-investigators).

Plan of Analysis

Hypotheses 1a, b and c employed logistic regression to determine whether each type of strain (poverty, childhood maltreatment, and adulthood maltreatment) significantly predicted recidivism, controlling for age at time of interview and sentence length. Age at time of interview and sentence length were included as covariates as each of these variables have been found to be significant predictors of recidivism among female offenders (Bonta et al., 1995; Moth & Hudson, 2000). Previous research on these control variables has consistently found that younger age at time of interview is an important predictor of higher rates of recidivism (Bonta et al., 1995; Deschenes, Owen & Crow, 2006), although the literature is mixed as to whether longer (Bonta et al., 1995) or shorter (Deschenes et al., 2006) sentence lengths are better predictors of re-offending among female offenders. Hypotheses 2a, b and c employed mediational analyses to examine the effects of strain variables (i.e., poverty, childhood maltreatment, adult victimization) on criminal recidivism and their mediation by depression as predicted by GST. These analyses also included age at the time of interview and sentence length as control variables.

The first exploratory research question employed Cox regression to examine the relationship between type of strain and time to recidivate, controlling for age at time of interview and sentence length. Cox regression was determined to be the most appropriate statistical analysis to examine time to recidivate as it allowed the researcher to compare a number of variables simultaneously in terms of their ability to predict time to new conviction (a feature unique to this type of survival analysis). The second exploratory research question employed logistic regression and Cox regression to examine the relationship between level of strain (low, medium, and high) and recidivism, and level of strain and time to recidivate. Finally, the third exploratory research question employed multiple regression analyses and logistic regression analysis to determine whether three types of childhood maltreatment were significant predictors of adulthood victimization. In addition, the third research question employed mediational analysis to examine the mediating effect of depression in the relationship between types of childhood maltreatment and adulthood victimization.

Results

Data Screening and Preliminary Analyses

Official criminal records of the women in the original Vi Tyagi sample were obtained through the (Ontario) Ministry of Community Safety and Correctional Services (MCSCS). These records provided recidivism data to extend the original research of Vir Tyagi and allowed the researcher to examine incidences of re-offending since the original data were collected in 2003. All new criminal data was added to Vir Tyagi's original data set which included demographic and strain variables.

Descriptive statistics. Descriptive statistics revealed that 86 of the 125 women (68.8%) in the study sample were convicted of at least one new offence between 2003 and 2011 (see

Table 2 for descriptive information on convictions among recidivists). The number of convictions for each offender ranged from 1 to 47 ($M = 8.3$, $SD = 10.43$) (See Table 3 for frequency of new convictions among recidivists).

Survival analyses revealed that the median time to first new offence was 8.5 months following release from prison. The most serious offence (MSO) for each new conviction was classified under one of six different offence types (i.e., property, breach, violent, drug, sex and “other”). These offence types were based on the 26 offence severity codes developed in an analysis of 60,000 sentences given by Ontario judges during a 1-year period (Stasiuk, Winter, & Nixon, 1996). On average, recidivists appeared to commit predominantly property and breach offences as their MSO and committed substantially fewer violent, drug, sex, and “other” offences. Descriptive information in relation to type of strain (i.e., poverty, childhood maltreatment and adulthood victimization) is presented in Table 4 and Table 5. Furthermore, the percentage of women experiencing depression can be found in Table 6.

Development of additional study variables. First, time to recidivate was developed as an additional study variable in order to examine which types of strain were associated with earlier times to recidivate. Time to recidivate was measured by subtracting the date of the first criminal conviction following discharge from prison in 2003 from the offender’s discharge date. This variable was calculated in months.

Second, four indicators of poverty were developed from the eight poverty items that were coded Yes/No in the semi-structured interview. The eight poverty items were entered into a PCA in order to examine the underlying latent dimensions of the data (see Table 7). The following items were entered into the analysis: (1) unstable housing for previous 6-12 months before offence; (2) dependent on the state; (3) unemployed at time of offence; (4) having money

Table 2

Descriptive Statistics of Crime Variables among Recidivists (N=86)

Variables	<i>M (SD)</i>
Time to first offence (months)	16.31 (22.58)
Type of offence	
Property	3.32 (5.36)
Violent	.88 (1.71)
Drug	.57 (1.18)
Sex	.02 (.20)
Breach	2.80 (4.15)
Other ^a	.70 (1.34)
Total offences	8.30 (10.43)

Note. ^aOther includes any offences that do not fall under one of the other five offence categories. This may include offences under the Highway and Traffic Act or Liquor Control Act.

Table 3

Frequency and Percentage of Recidivists according to Number of New Convictions (N=86)

Number of new convictions	Frequency (%)
1	86 (100)
2	77 (89.5)
3	67 (77.9)
4	65 (75.6)
5	60 (69.8)
6	53 (61.6)
7	51 (59.3)
8	48 (55.8)
9	45 (52.3)
10	41 (47.5)
11	39 (45.3)
12	36 (41.9)
13	34 (37.2)
14	32 (31.4)
15	27 (31.4)
16	27 (31.4)
17	25 (29.1)
18	23 (26.7)
19	22 (25.6)
20	21 (24.4)
21	20 (23.3)
22	18 (20.9)
23	16 (18.6)
24	14 (16.3)
25	13 (15.1)
26	12 (14.0)
27	11 (12.8)
28	9 (10.5)
29	8 (9.3)
30	8 (9.3)
31	5 (5.8)
32	4 (4.7)
33	3 (3.5)
34-44 ^a	2 (2.3)
45-47 ^b	1 (1.2)

Note. ^{ab} Number of convictions among recidivists was grouped together for readability.

Table 4

Frequency and Percentage of Women Endorsing Poverty Variables in Total Sample (N=125)

Variables	Frequency (%)
Unstable housing in previous 6-12 months before offence ^a	60 (50.5)
Dependent on the State ^b	70 (56.0)
Unemployed at time of offence	76 (60.8)
Having money problems before offence	76 (61.3)
Making ends meet: Illegal ^c	34 (27.9)
Making ends meet: Food banks	12 (9.8)
Making ends meet: Help from others ^d	56 (45.9)
Making ends meet: Other ^e	40 (32.8)

Note. Item responses are Yes/No. ^a Unstable housing includes spending any time in 6-12 months before offence in a shelter, car, non residential building, public park, street, illegal or temporary accommodation, not having enough money for rent or sharing temporary quarters with someone else, or had been evicted on account of non-payment of rent. ^b Dependent on either ODSP or social assistance as main source of income. ^c Illegal means may include stealing food, stealing things, prostitution or drug dealing to make ends meet. ^d Help from others may include receiving help from family, friends or partner to make ends meet. ^e Other may include panhandling, cut down on going out, cutting corners, “hustling,” bills not paid, stagger payments, borrowing money, “Sugar Daddies,” or gambling on slots to make ends meet.

Table 5

Mean Raw Scores on Childhood Maltreatment and Adulthood Victimization Scales (N=125)

Variables	<i>M (SD)</i>
Childhood maltreatment (CATS Scores ^a)	
Neglect	26.39 (14.03)
Punishment ^b	11.20 (5.76)
Sexual abuse	5.45 (5.76)
Total abuse ^c	61.93 (31.42)
Adulthood victimization (SES Scores ^d)	
Sexual abuse ^e	.85 (.363)
(ABI Scores ^f)	
Physical	18.07 (10.07)
Psychological	44.57 (21.95)

Note. ^aCATS=Child Abuse and Trauma Scale (Sanders & Becker-Lausen, 1995). ^bPunishment includes severe forms of discipline such as being locked in a closet for a long time or being tied up. ^cTotal abuse refers to the sum of raw scores on the neglect, punishment and sexual abuse subscales of the CATS. ^dSES=Sexual Experiences Survey (Koss & Oros, 1983). ^eSexual abuse item responses are Yes/No for occurrence of rape and/or sexual assault. ^fABI=Abusive Behavior Inventory (Shepard & Campbell, 1992).

Table 6

Mean Raw Score on Depression Subscale of the BSI-18 (N=124)

Variable	<i>M (SD)</i>
Depression	11.91 (6.25)

Table 7

Summary of Factor Analysis for Poverty Items (N=116)

Item	Factor loadings			
	Dependency	Instability	Food Banks	Illegal Means
Unstable housing in previous 6-12 months before offence	.06	.72	.21	.11
Dependent on the State	.70	.11	.20	.02
Unemployed at time of offence	.82	-.01	-.07	.05
Having money problems before offence	.26	.60	.27	.33
Making ends meet: Illegal means	-.00	.05	-.14	.88
Making ends meet: Food banks	.16	.12	.80	-.25
Making ends meet: Help from others	.52	-.06	-.56	-.30
Making ends meet: Other	-.17	.73	-.26	-.32

Note. Factor loadings >.40 are in boldface. Extraction method: Principle component analysis. Rotation method: Varimax with Kaiser Normalization.

problems before offence; (5) illegal means to make ends meet; (6) food banks to make ends meet; 7) help from others to make ends meet; and (8) use of other sources to make ends meet. A PCA was conducted on the items with an orthogonal (varimax) rotation. The orthogonal rotation was conducted as the researcher made no a priori assumptions about the ways in which the poverty items would be related and did not have a strong theoretical basis for using an oblique rotation. It should be noted that an oblique rotation was also conducted on the poverty items for comparison purposes and yielded similar results as the varimax rotation. The KMO measure of sampling adequacy was .518, which indicated that the components were suitable for factor analysis (Kaiser, 1974). In addition the Bartlett's test of sphericity was significant, $\chi^2(28) = 69.693, p < .001$, indicating that the *R*-matrix was not an identity matrix and that factor analysis was appropriate.

Kaiser's criterion indicated that four factors from the eight linear components should be extracted from the dataset. Each of these factors had eigenvalues greater than one, which

indicated that these factors were reliable subscales. In combination, the four factors explained 67% of the variance. The component matrix was consulted to determine which items clustered on the same factors. Factor 1 was labelled 'Dependency' and included: being unemployed, dependent on the State, and receiving help from others to make ends meet. It should be noted that 'help from others' also loaded on Factor 3, but was instead included in Factor 1 (i.e., Dependency) due to its stronger theoretical fit with this factor. Factor 2 was labelled 'Instability' and included: having money problems before the offence, unstable housing in previous 6-12 months before the offence, and using other ways to make ends meet. Factor 3 was labelled 'Food Banks' and included only the using food banks to make ends meet item. Factor 4 was labelled 'Illegal Means' and included only the illegal means to make ends meet item.

Correlations among study variables. Table 8 presents the correlations for the variables in the study among all participants. A tetrachoric correlation (used in correlations of dichotomous variables) was not conducted for adult sexual victimization and recidivism as the point-biserial correlation was automatically calculated by SPSS into Pearson's r . Therefore, it should be noted that the correlation between these two variables ($r = .05$) reflects a Pearson's r correlation. A review of Table 8 revealed that recidivism was positively correlated with Illegal Means; childhood neglect; childhood sexual abuse; and adult psychological victimization, and was negatively correlated with sentence length. Interestingly, sentence length was negatively correlated with a number of study variables including: Food Banks; Illegal Means; and adult psychological victimization.

Childhood neglect was also positively correlated with a number of study variables including: Instability; adult sexual victimization; adult psychological victimization; childhood sexual abuse, childhood punishment, and depression. Furthermore, childhood sexual abuse was

Table 8

Summary of Correlations among Study Variables (N=125)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Recidivism ^a	--														
2. Time to recidivate ^b	?	--													
3. Age at interview	.14	.07	--												
4. Sentence length ^c	.43**	.14	.10	--											
5. Dependency ^d	.16	-.14	-.14	-.08	--										
6. Instability ^e	.01	-.02	-.02	-.02	.00	--									
7. Food Banks ^f	.10	-.20	.13	-.21*	.00	.00	--								
8. Illegal Means ^g	.24**	-.10	.06	-.21*	.00	.00	.00	--							
9. Child neglect ^h	.24**	.11	.04	-.08	.10	.19*	.07	.09	--						
10. Child sexual ⁱ	.27**	.02	-.01	.00	.10	.11	.03	.04	.61**	--					
11. Child punish ^j	-.05	.07	.04	.01	-.04	-.02	.01	-.11	.43**	.31**	--				
12. Adult sexual ^k	.05	.06	-.16	-.02	.01	.01	-.03	.09	.21*	.13	.12	--			
13. Adult physical ^l	.14	.06	-.04	-.10	.07	-.01	.13	-.03	.13	.12	.04	.18*	--		
14. Adult psych ^m	.19*	.18	.00	-.20*	.12	-.01	.13	.09	.23*	.19*	.05	.21*	.84**	--	
15. Depression	.08	-.07	.11	.17	.01	-.07	-.02	-.11	.20*	.15	.18	.25**	.14	.15	--

Note. ^a Recidivism: 0=No, 1=Yes. ^b Time to recidivate measured in months from discharge from prison. ^c Sentence length measured in days. ^{d,e,f,g} Refers to variables corresponding to poverty factors. ^{h,i,j} Refers to variables corresponding to types of child maltreatment. ^{k,l,m} Refers to variables corresponding to types of adulthood victimization. Adult sexual: 0=No, 1=Yes.

* $p < .05$. ** $p < .01$.

correlated with childhood punishment and adult psychological victimization. Adult sexual victimization was significantly correlated with adult physical victimization; adult psychological victimization; and depression. In addition, adult physical victimization was significantly correlated with adult psychological victimization.

For all tests related to the study's hypotheses and exploratory research questions, types of strain (i.e., poverty, childhood maltreatment and adulthood victimization) represented the independent variables. Across the study hypotheses and research questions, recidivism and time to recidivate represented the dependent variables. In study hypotheses and research questions proposing mediational analyses, depression represented the mediator variable. All analyses, with the exception of the exploratory research questions 2 and 3, controlled for age at time of interview and sentence length.

Hypotheses Testing General Strain Theory (GST).

Hypothesis 1. Hypotheses 1a, b and c predicted that poverty, childhood maltreatment, and adulthood victimization would significantly predict criminal recidivism. Tables 9 through 11 display the results of the logistic regression procedure using poverty, childhood maltreatment and adult victimization variables to predict recidivism, controlling for age at time of interview and sentence length. Results of the first regression, including poverty indicators as the independent variables and recidivism as the dependent variable, indicated that the overall model was significant ($\chi^2(6) = 27.65$ $p < .001$), with sentence length and Illegal Means significantly contributing to the model. The proportion of variance in type of poverty strain, as measured by the Nagelkerke Pseudo R^2 statistic, was 30% and the classification accuracy of the model 74.1%.

The second logistic regression, including type of childhood maltreatment as the independent variables and recidivism as the dependent variable, revealed that the model was

Table 9

Summary of Logistic Regression Analysis for Poverty Factors Predicting Recidivism (N=116)

Predictor	B	SE	Odds Ratio	Wald	95% CI for <i>Exp (B)</i>
Age at interview	.02	.03	1.02	.81	0.97, 1.07
Sentence length	-.01	.00	1.00	11.86**	0.99, 1.00
Poverty					
Dependency	.32	.23	1.38	2.03	0.89, 2.12
Instability	.02	.22	1.02	.01	0.67, 1.57
Food Banks	.04	.24	1.04	.03	0.66, 1.65
Illegal Means	.53	.26	1.70	3.89*	1.00, 2.85
Intercept	1.11	.89	3.03	1.55	

Note. *p<.05. **p<.01.

Table 10

*Summary of Logistic Regression Analysis for Childhood Maltreatment Variables Predicting**Recidivism (N=122)*

Predictor	B	SE	Odds Ratio	Wald	95% CI for <i>Exp (B)</i>
Age at interview	.04	.03	1.04	2.28	0.99, 1.10
Sentence length	-.01	.00	1.00	15.59**	0.99, 1.00
Child maltreatment					
Neglect	.03	.02	1.03	1.86	0.99, 1.10
Sexual	.17	.07	1.19	7.05*	1.05, 1.35
Punishment	-.18	.10	.84	3.32	0.70, 1.01
Intercept	1.24	1.26	3.46	.97	

Note. *p<.05. **p<.01.

Table 11

*Summary of Logistic Regression Analysis for Adulthood Victimization Variables Predicting**Recidivism (N=121)*

Predictor	B	SE	Odds Ratio	Wald	95% CI for <i>Exp (B)</i>
Age at interview	.04	.03	1.04	1.95	0.99, 1.10
Sentence length	-.01	.00	1.00	13.15**	0.99, 1.00
Adult victimization					
Physical	.02	.04	1.02	.14	0.93, 1.10
Psychological	.01	.02	1.01	.10	0.97, 1.05
Sexual	.25	.65	1.29	.16	0.36, 4.56
Intercept	-.06	1.13	.94	.00	

Note. *p<.05. **p<.01.

significant ($\chi^2(5) = 41.40$ $p < .001$), with sentence length and childhood sexual abuse significantly contributing to the model. Nagelkerke Pseudo R^2 statistic for childhood maltreatment strain was 40% and the classification accuracy of the model was 79%.

Finally, the third logistic regression, including type of adulthood victimization as the independent variables and recidivism as the dependent variable, revealed that the model was significant ($\chi^2(5) = 24.81$ $p < .001$), with only sentence length significantly contributing to the model. Nagelkerke Pseudo R^2 statistic for adulthood victimization strain was 26% and the classification accuracy of the model was 76%. It is possible that the high classification accuracy of the model was due to sentence length as a control variable. Age at interview as well as the remaining poverty factors (i.e., Dependency, Instability, and Food Banks), childhood maltreatment variables (i.e., childhood neglect and punishment) and adulthood victimization variables (i.e., psychological, physical and sexual victimization) did not significantly contribute to any of the regression models and were therefore unable to predict recidivism in this sample.

Hypothesis 2. Hypotheses 1a, b and c predicted that the relationship between strain (i.e., poverty, childhood maltreatment and adulthood victimization) and recidivism would be mediated

by depression as predicted by GST. Tests of mediation were performed according to the procedure outlined by Preacher and Hayes (2008). Each type of strain was entered into the mediational model as the independent variable with recidivism as the dependent variable and depression as the mediator. In addition, age at time of interview and sentence length were entered as control variables. The Preacher and Hayes mediational procedure allows the researcher to examine and test the significance of the indirect effect (amount of mediation) while simultaneously testing the direct effect of the predictor variable on the dependent variable (see Figure 1 for explanation of simple mediational model). All mediational analyses were conducted using bootstrapping procedures with the SPSS version of the process macro developed by Preacher and Hayes (2008).

Importantly, the process macro for SPSS includes a feature that allows for the estimation of models with a dichotomous outcome (Y) variable. Each of the mediational analyses used 10,000 bootstrap resamples and calculated point estimates for specific and total indirect effects for each sample. A mediational effect was found to be statistically significant at $p < .05$ if the confidence interval for each effect did not include zero. Results indicated that the effects of type of strain on recidivism were not significantly mediated by depression for any of the mediational models (see Table 12 for summary of results). Bias corrected bootstrap CIs at the $p < .05$ level were used to determine statistical significance.

Additional Exploratory Research Questions

Research Question 1. The first exploratory research question examined the relationship between type of strain (i.e., poverty, childhood maltreatment, adulthood victimization) and time to recidivate. Tables 13 through 15 display the results of the Cox regression procedure using poverty, childhood maltreatment, and adulthood victimization to predict time to recidivate,

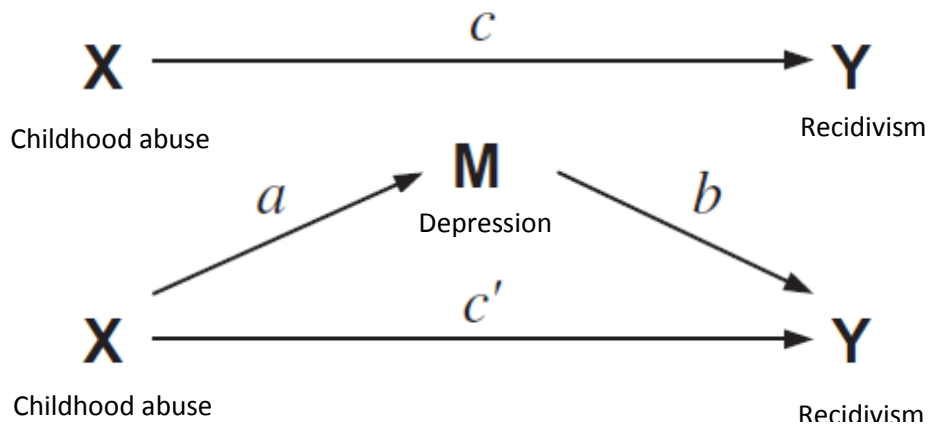


Figure 1. A Simple Mediation Model. This figure illustrates a simple mediation model where X is the predictor (e.g., childhood abuse), M is the mediator (e.g., depression), and Y is the outcome (e.g., recidivism). a refers to the pathway between the predictor and the mediator. b refers to the pathway between the mediator and the outcome variable. c refers to the total effect of the predictor on the outcome variable. c' refers to the direct effect of the predictor on the outcome variable.

Table 12

Summary of Results for the Effects of Type of Strain on Recidivism as Mediated by Depression

Predictor	a path	b path	c path	c' path	Point estimate	Nagelkerke R^2	95% CI
Poverty							
Dependency	.03	.06	.24	.24	.00	.29	-0.08, .11
Instability	-.33	.06	.06	.08	-.02	.28	-0.19, .04
Food Banks	.03	.06	.01	.01	.00	.25	-0.09, .13
Illegal Means	-.48	.07	.50*	.54*	-.03	.33	-0.22, .04
Childhood maltreatment							
Neglect	.09*	.05	.05**	.04*	.00	.35	-0.00, .02
Sexual	.17	.05	.18**	.17**	.01	.39	-0.00, .04
Punishment	.31	.07	-.01	-.03	.02	.29	-0.00, .09
Adulthood victimization							
Physical	.10	.06	.02	.02	.01	.29	-0.00, .02
Psychological	.05*	.06	.01	.01	.00	.30	-0.00, .01
Sexual	4.70**	.06	.45	.18	.29	.29	-0.07, .96

Note. * $p < .05$. ** $p < .01$.

Table 13

Summary of Cox Regression Procedure using Four Poverty Factors to Predict Time to

Recidivate (N=78)

Predictor	B	SE	Odds Ratio	95% CI for <i>Exp (B)</i>
Age at interview	-.03	.02	.97*	0.94, .99
Sentence length	-.00	.00	1.00	0.99, 1.00
Poverty				
Dependency	.08	.14	1.08	0.83, 1.41
Instability	.06	.13	1.06	0.82, 1.34
Food Banks	.10	.11	1.10	0.89, 1.34
Illegal Means	.10	.11	1.11	0.89, 1.34

Note. * $p < .05$.

Table 14

Summary of Cox Regression Procedure using Childhood Maltreatment Variables to Predict

Time to Recidivate (N=83)

Predictor	B	SE	Odds Ratio	95% CI for <i>Exp (B)</i>
Age at interview	-.02	.01	.98	0.96, 1.01
Sentence length	-.00	.00	1.00	0.99, 1.00
Childhood maltreatment				
Neglect	-.02	.01	.98	0.96, 1.00
Sexual	.05	.03	1.05	0.99, 1.11
Punishment	-.03	.04	.97	0.90, 1.05

Table 15

Summary of Cox Regression Procedure using Adulthood Victimization Variables to Predict Time to Recidivate (N=82).

Predictor	B	SE	Odds Ratio	95% CI for <i>Exp (B)</i>
Age at interview	-.02	.02	.98	0.95, 1.01
Sentence length	-.00	.00	1.00	0.99, 1.00
Adulthood victimization				
Physical	.03	.02	1.03	0.99, 1.08
Psychological	-.02	.01	.99*	0.96, 1.00
Sexual	.01	.34	1.01	0.52, 1.97

Note. * $p < .05$.

controlling for age at time of interview and sentence length. Results from the Cox regression - analysis using indicators of poverty to predict time to recidivate revealed that the model was nonsignificant, ($\chi^2(4) = 2.20$ $p = .700$), although age at time of interview was significant. Results from the Cox regression analysis using childhood maltreatment variables to predict time to recidivate indicated that the model was also nonsignificant, ($\chi^2(3) = 4.27$ $p = .234$). Finally, the results from the Cox regression analysis using adulthood victimization variables to predict time to recidivate revealed that the model was nonsignificant ($\chi^2(3) = 5.43$ $p = .143$), however, adult psychological abuse was found to be significant.

Research Question 2. The second research question comprised the following two questions: 1) Does level of strain (low, medium, and high) significantly predict recidivism?; and 2) What is the relationship between level of strain and time to recidivate? According to Linsky and Straus' (1986) accumulation theory, stressful life events have a cumulative impact on the individual, and it is not the quality of a single event on the individual that is stressful, but the cumulative impact of several events that is consequential. Agnew (1992) explains that it is "standard practice" in the stressful life events literature to measure level of stress with a

composite scale (or index) that sums the number of stressful life events experienced by an individual, creating an overall level of strain. This is also referred to as the “additive model” which assumes that each stressor has a fixed effect on delinquency and each type of strain has an equally stressful impact on the individual.

Agnew (1992) explains that if stressors have an additive effect on delinquency, then a linear effect on delinquency should be produced. To review, a participant may experience a total of four types of poverty strain according to the aforementioned poverty factors (i.e., Dependency, Instability, Food Banks, and Illegal Means). In addition, a participant may experience a total of three types of childhood maltreatment (i.e., neglect, sexual abuse, and punishment) and three types of adulthood victimization (i.e., physical, psychological, and sexual victimization). In order to determine whether an individual was high or low on a particular source of strain, a median split was conducted on all strain variables.

A number of studies report the negative consequences associated with dichotomization, such as the loss of information about individual differences, effect sizes and power (MacCallum et al., 2002). However, Farrington and Loeber (2000) suggest that dichotomizing study variables is a particularly useful and beneficial approach that is commonly employed in criminological and epidemiological research.

All participants were assigned a total strain score ranging from 0 to 10. Skewness and kurtosis values of the total strain variable indicated that the variable was normally distributed and did not require transformation. The total strain variable was then split into three groups in order to create overall levels of strain (i.e., low, medium, and high). An examination of the frequency of women experiencing each type of strain indicated that approximately 38% of the sample

experienced 0 to 4 types of strain (low group), 35% experienced 5 or 6 types of strain (medium group) and 27% experienced 7 or more types of strain.

Research question 2a employed logistic regression to determine whether level of strain (low, medium, and high) significantly predicted recidivism (see Table 16 for results). Results of the logistic regression indicated that, contrary to the additive model, level of strain was not significantly associated with recidivism ($\chi^2(2) = 4.63$ $p = .099$). The proportion of variance in level of strain, as measured by the Nagelkerke Pseudo R^2 statistic, was 5% and the classification accuracy of the model 68.8%.

Research question 2b employed Cox regression to determine the relationship between level of strain and time to recidivate (see Table 17 for summary of results). Results of the Cox regression indicated that level of strain was not significantly associated with time to recidivate, ($\chi^2(1) = .64$ $p = .424$). Furthermore, an examination of the median times to recidivate indicated that the low strain group offended at a median time of 11.40 months, while the medium and high strain groups re-offended at median times of 8.25 and 8.50 months respectively (see Figure 2 for a graphical representation of median times to recidivate based on high, medium and low strain groups).

Research Question 3. The third research question comprised the following two questions: 1) Do three types of childhood maltreatment (i.e., neglect, sexual abuse and punishment) predict adulthood victimization (i.e., physical, psychological and sexual victimization)?; and 2) Are the effects of childhood maltreatment on adulthood victimization mediated by depression?

First, two multiple regressions were conducted to examine the impact of the three types of childhood maltreatment on two types of adult victimization (i.e., physical and psychological

Table 16

Summary of Logistic Regression Analysis using Level of Strain to Predict Recidivism (N=125)

Predictor	B	SE	Odds Ratio	Wald	95% CI for <i>Exp (B)</i>
Low strain ^a				4.54	
Medium strain ^b	-.93	.51	.40	3.32	0.15, 1.07
High strain ^c	-.17	.56	.84	.09	0.28, 2.53
Intercept	1.27	.43	3.57	8.86	

Note. ^aLow strain refers to participants who experienced 0-4 types of strain. ^bMedium strain refers to participants who experienced 5-6 types of strain. ^cHigh strain refers to participants who experienced 7 or more types of strain.

Table 17

Summary of Cox Regression Procedure using Level of Strain to Predict Time to Recidivate

(*N*=125)

Predictor	B	SE	Odds Ratio	95% CI for Exp (B)
Low strain ^a				
Medium strain ^b	-.15	.27	.87	0.50, 1.48
High strain ^c	.17	.28	1.12	0.68, 2.04

Note. ^aLow strain refers to participants who experienced 0-4 types of strain. ^bMedium strain refers to participants who experienced 5-6 types of strain. ^cHigh strain refers to participants who experienced 7 or more types of strain.

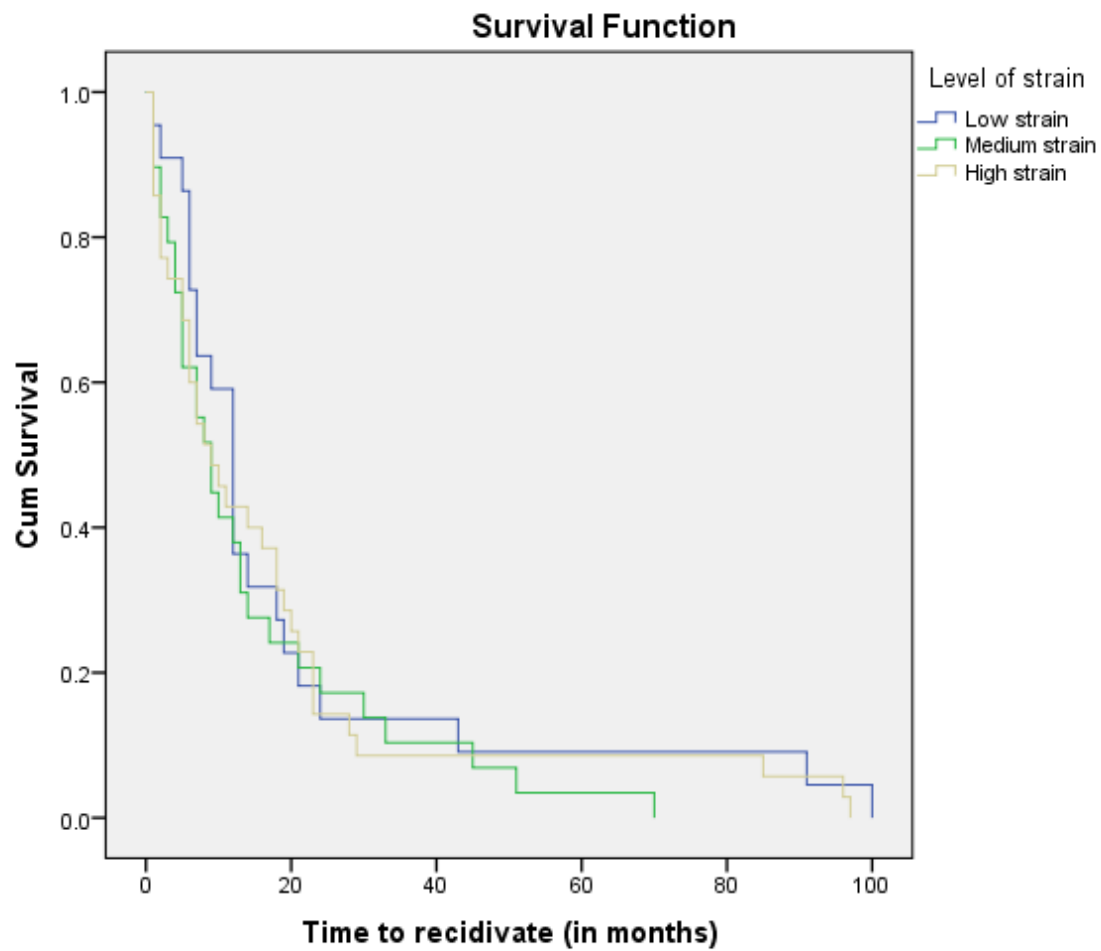


Figure 2. Cumulative Proportion of Survival Based on Low, Medium, and High Strain Groups
(N=86)

victimization) (see Tables 18 and 19 for summary results of multiple regressions).

A logistic regression was employed to determine whether childhood maltreatment significantly predicted adult sexual victimization as this was a dichotomous outcome variable. Adult sexual victimization was dummy coded as yes, sexual abuse as an adult (“1”) or no sexual abuse as an adult (“0”) (see Table 20 for summary results of logistic regression). Results of the first multiple regression analysis using childhood maltreatment variables to predict adult physical victimization revealed that the model was nonsignificant, ($F(3,118) = .805$ $p = .493$, $R^2 = .020$).

The second multiple regression analysis using childhood maltreatment variables to predict adult psychological victimization was also found to be nonsignificant, ($F(3,118) = 2.493$ $p = .063$, $R^2 = .060$). Finally, the logistic regression analysis using childhood maltreatment variables to predict adult sexual victimization was found to be nonsignificant, ($\chi^2(3) = 5.45$ $p = .142$). The proportion of variance in type of childhood maltreatment, as measured by the Nagelkerke Pseudo R^2 statistic, was 8% and the classification accuracy of the model 84.3%.

The second component of the research question examined whether the effect of each of three types of childhood maltreatment on adult victimization was mediated by depression. Nine tests of mediation were performed, one for each of three types of childhood abuse on each of three types of adult victimization, using the process macro by Preacher and Hayes (2008). A summary of the results for the mediational models can be found in Tables 21 to 23.

Each model was examined using type of childhood maltreatment (neglect, sexual abuse, and punishment) as the independent variables and type of adult victimization (physical, psychological, and sexual victimization) as the outcome variables. Depression was the mediator variable for all analyses. Each of the mediational analyses used 10,000 bootstrap resamples and calculated point estimates for specific and total indirect effects for each sample. Bias corrected

Table 18

Summary of Multiple Regression Analysis using Childhood Maltreatment Variables to Predict

Adult Physical Victimization (N=122)

Predictor	B	SE	β
Constant	16.46	3.40	
Neglect	.08	.09	.11
Sexual	.11	.20	.06
Punishment	-.08	.32	-.03

Note. $R^2=.02$.

Table 19

Summary of Multiple Regression Analysis using Childhood Maltreatment Variables to Predict

Adult Psychological Victimization (N=122)

Predictor	B	SE	β
Constant	38.99	7.28	
Neglect	.32	.19	.20
Sexual	.32	.43	.09
Punishment	-.43	.69	-.06

Note. $R^2=.06$

Table 20

Summary of Logistic Regression Analysis using Childhood Maltreatment Variables to Predict

Adult Sexual Victimization (N=122)

Predictor	B	SE	Odds Ratio	Wald	95% CI for <i>Exp (B)</i>
Neglect	.04	.03	1.04	2.17	0.98, 1.09
Sexual	.01	.06	1.01	.86	0.89, 1.14
Punishment	.04	.10	1.04	.71	0.86, 1.25
Intercept	.39	.94	1.48	.68	

Table 21

Summary of Results for the Effects of Type of Childhood Maltreatment on Adulthood Physical

Victimization as Mediated by Depression (N=121)

Predictor	a path	b path	c path	c' path	Point estimate	R^2	95% CI
Neglect	.09*	.16	.11	.09	.01	.04	-0.00, .06
Sexual	.16	.18	.17	.14	.03	.02	-0.00, .13
Punishment	.35	.20	.14	.07	.07	.02	-0.01, .26

Note. * $p < .05$.

Table 22

*Summary of Results for the Effects of Type of Childhood Maltreatment on Adulthood**Psychological Victimization as Mediated by Depression (N=121)*

Predictor	a path	b path	c path	c' path	Point estimate	R^2	95% CI
Neglect	.08 [*]	.44	.38 ^{**}	.34 [*]	.04	.07	-0.00, .15
Sexual	.16	.50	.68 [*]	.60	.08	.05	-0.01, .33
Punishment	.34	.57	.39	.19	.20	.03	-0.01, .68

Note. ^{*} $p < .05$. ^{**} $p < .01$.

Table 23

*Summary of Results for the Effects of Type of Childhood Maltreatment on Adulthood Sexual**Victimization as Mediated by Depression (N=121)*

Predictor	a path	b path	c path	c' path	Point estimate	Nagelkerke R^2	95% CI
Neglect	.09*	.11*	.04*	.04*	.01	.16	0.00, .03
Sexual	.16	.11*	.07	.06	.02	.12	-0.00, .06
Punishment	.35*	.11*	.11	.07	.04	.12	0.00, .11

Note. * $p < .05$.

bootstrap CIs at the $p < .05$ level were used to determine statistical significance. A mediational effect was found to be statistically significant at $p < .05$ if the confidence interval for each effect did not cross zero. Results indicated that depression significantly mediated the relationship between childhood neglect and adulthood sexual victimization. The effect for mediation was significant as the total indirect effect through the mediator, with a point estimate of .01, had a 95% bias corrected bootstrap Confidence Interval (CI) that did not include zero (95% CI [0.00, 0.03]). The overall model was statistically significant with a Nagelkerke Pseudo $R^2 = .16$, $p = .028$.

In addition, the effect for mediation was significant between childhood punishment and adult sexual victimization as the total indirect effect through the mediator, with a point estimate of .04, had a 95% bias corrected bootstrap CI that did not include zero (95% CI [0.00, 0.11]). However, the total effect (c) of childhood punishment on adult sexual victimization was not significant ($p = .190$) and the direct effect (c') was not significant ($p = .405$) for the model. The overall model was not significant with a Nagelkerke Pseudo $R^2 = .12$, $p = .051$. Furthermore, results indicated that depression was not a significant mediator in the relationship between all other types of childhood maltreatment and adulthood victimization.

Discussion

The present study examined General Strain Theory (GST) in its ability to predict recidivism among female offenders. According to GST, stressful life events or personal strains create negative emotions, such as anger and depression, which result in criminal behaviour in the absence of strong coping skills (Broidy & Agnew, 1997). As was previously mentioned, the vast majority of the women in the sample exhibited poor coping strategies to cope with strain. Due to limited variability among participants, coping style was dropped as a moderator from the model. As a result, this study examined two of the most substantial strains facing female offenders (i.e., poverty and victimization) and whether the effect of these strains on criminal recidivism was mediated by depression.

According to Bonta et al. (1995), knowledge of the predictors of recidivism for female offenders is important for two reasons. First, identifying the factors most predictive of female re-offending will ensure more reliable classification of women offenders who are at a higher risk to re-offend versus those at a lower risk. Accurately distinguishing high from low risk offenders is not only important for public safety, but also for ensuring that women are receiving the most appropriate rehabilitation services to match their treatment needs.

Second, knowledge of the predictors of criminal behaviour for female offenders can contribute to theory development. Although the general criminological perspective posits that theories of offending apply equally well to male and female offenders, this perspective has been heavily criticized by gender-specific scholars who argue that males and females can follow ‘gendered’ pathways of offending. Proponents of feminist theory suggest that there are “gender-specific” factors associated with women’s offending and re-offending and women offenders must be examined in their own right, separate from males (Belknap, 2007; Reisig et al., 2006;

Wright, Salisbury, & Van Voorhis, 2007). The present study provides an important contribution to the literature on predictors of female recidivism and theories of women's offending.

Type of Strain as a Predictor of Women's Recidivism

Hypotheses 1a, b and c examined whether different types of strain (i.e., poverty, childhood maltreatment, and adulthood victimization) significantly predicted recidivism. As the majority of Canadian female offenders lead impoverished lives (Holtfreter et al., 2004) and have a history of victimization (Browne et al., 1999), these are certainly areas of strain for women offenders that warrant attention in the research literature. Hypothesis 1a investigated whether four indicators of poverty significantly predicted recidivism. Results of the logistic regression, using indicators of poverty to predict recidivism, indicated that Illegal Means significantly predicted recidivism for the women in the study sample. Illegal Means was made up of one poverty item (using illegal means to make ends meet) and included behaviours such as stealing food, stealing things, and engaging in prostitution or drug dealing to make ends meet.

It is possible that Illegal Means as a predictor of recidivism could be interpreted as self-evident in the sense that using illegal means to make ends meet, is offending behaviour. However, additional analyses (not reported here) revealed that Illegal Means was a predictor of more general offending and significantly predicted property, drug, and breach offences. This is an important finding as it suggests that Illegal Means and recidivism are not redundant variables and Illegal Means, as an indicator of poverty, is an important variable for policy responses in preventing recidivism. In order to diminish the use of illegal means to make ends meet and, subsequently, reduce recidivism, interventions such as the provision of affordable housing, employment, education, and skills training, may be indicated.

Furthermore, results indicated that the other three poverty factors (Dependency, Instability, and Food Banks) did not significantly predict recidivism. To recall, Dependency included items such as unemployment, dependency on the State, and receiving help from others to make ends meet. Instability included having money problems before the offence, unstable housing in the previous 6-12 months before the offence, and using other ways to make ends meet. Food Banks included only using food banks to make ends meet.

A possible explanation for these findings may be that the women's impoverished living conditions motivated them to use illegal means to make ends meet as predicted by the economic marginalization hypothesis (Box & Hale, 1983). This explanation is supported by the literature on female offending, which suggests that women commit predominantly economic offences for monetary gain (Kong & AuCoin, 2008). Furthermore, demographic information about the study sample indicated that 40% of mothers were not married, in a common law relationship, or living with a partner, and 35% of single mothers endorsed using illegal means to make ends meet. As research suggests that being a single mother is a powerful predictor of women's recidivism (Bonta et al., 1995), it is possible that women in the sample may have stolen things they could not afford in order to fulfill childcare responsibilities.

The finding that unemployment was not a significant predictor of female recidivism may not be surprising as many of the women were dependent on the State or family and friends for financial support. These findings are supportive of the results of a previous study examining predictors of women's recidivism by Bonta et al. (1995). Bonta et al. found that, while illegal sources of income was a significant predictor of female re-offending, being unemployed at the time of arrest failed to predict recidivism. Holtfreter et al. (2004) found that women who were given state-sponsored support to finance their housing were 83% less likely to recidivate

(Holtfreter et al., 2004). As receiving help from others to make ends meet and dependency on the state were not found to be significant predictors of recidivism, it may be possible that these variables served as protective factors against re-offending for some women in the study sample. Furthermore, it is possible that using food banks to make ends meet also may function as a protective factor against recidivism for *some* women.

Hypothesis 1b examined whether three types of childhood maltreatment (i.e., neglect, sexual abuse, and punishment) significantly predicted recidivism. Previous research indicates that many women offenders have experienced childhood physical and sexual abuse (Belknap, 2007). Although an analysis of the zero-order correlations among childhood maltreatment variables and recidivism revealed that both neglect and sexual abuse were significantly associated with recidivism, logistic regression results indicated that only childhood sexual abuse significantly predicted recidivism for the women in the study sample, while neglect and punishment were not found to be significant predictors.

The finding that childhood sexual abuse significantly predicted recidivism for the women in the present study is consistent with previous research examining this association (Belknap, 2007; Chesney-Lind & Pasko, 2004; Gunnison & McCartan, 2005). Gender-specific scholars suggest that childhood sexual abuse may trigger a criminal career when young girls run away from home to escape the abuse they are experiencing and must engage in economic offences to survive. For example, runaway females are more likely to be arrested for prostitution (Simons & Whitbeck, 1991) and drug related offences (Marcenko et al., 2000) than non-abused offenders.

It is possible that the lack of significant findings for childhood neglect and punishment in the prediction of recidivism may be due to underreporting of abuse among women in the study

sample (Browne et al., 1999). These types of abuse may have been underreported as, compared to sexual abuse, having a commonly understood and standardized definition of neglect and punishment is arguably more difficult and open to interpretation. Furthermore, punishment on its own is a tool used with many children and is administered on a continuum. It is possible that some women failed to report previous abusive experiences as they were unsure whether their experiences would be considered abusive from an objective viewpoint. It is also possible that childhood neglect and punishment are not significant predictors of recidivism.

Hypothesis 1c examined whether three types of adulthood victimization (i.e., physical, psychological and sexual victimization) significantly predicted recidivism. A history of sexual and physical abuse in adulthood has been found to be a particularly salient risk factor associated with female recidivism (Benda, 2005). Results of the logistic regression analysis indicated that none of the three types of adulthood victimization significantly predicted recidivism for the women in the study sample. It is possible that these findings may also be due to underreporting of victimization among the women in the study sample or a lack of power to detect significant effects.

Finally, sentence length was found to be a significant predictor of recidivism in all three models examining type of strain (i.e., poverty, childhood maltreatment, and adulthood victimization) in the prediction of recidivism. Further analysis (not reported here) of the relationship between sentence length and recidivism for each of the models indicated that longer sentence length was significantly associated with future re-offending behaviour. This finding is consistent with previous research examining this association (Bonta et al., 1995). A possible interpretation of this finding is that women with longer sentence lengths experience greater difficulty maintaining contact with pro-social individuals in the community over the course of

their incarceration, compared to women with shorter sentence lengths. Although few studies have investigated the relationship between social support and recidivism among women offenders, there is compelling evidence that social support may be an important protective factor in fostering women's desistance from crime (Parsons et al., 2002; Benda, 2005). The possibility that longer sentence lengths may erode social supports suggests an important area for further inquiry. The findings of the current study may suggest the need for program interventions for women serving longer sentences, to mitigate this as a risk factor in recidivism.

Effects of Strain on Recidivism as Mediated by Depression

Hypotheses 2a, b and c examined whether the effects of strain variables (i.e., poverty, childhood maltreatment, and adulthood victimization) on criminal recidivism were mediated by depression as predicted by GST. Results of each of the mediational analyses revealed that depression did not significantly mediate the relationship between any of the strain variables and recidivism. These findings do not accord with GST, which posits that personal strain and crime are mediated by a negative emotional response, such as depression, in the absence of strong coping skills (Agnew, 1992).

Although depression did not significantly mediate the relationship between strain variables and recidivism, childhood neglect and adult psychological victimization were found to be significantly associated with depression (i.e., the 'a path' of the mediational model). This finding is consistent with previous research that suggests that the detrimental consequences of victimization on one's mental health may be particularly salient for women (Romano & De Luca, 2000). For example, Romano and De Luca (2000) found that women offenders with a history of victimization and abuse were significantly more likely to experience internalizing problems, such as depression or anxiety, than male offenders (Romano & De Luca, 2000).

Additional research has suggested that a history of victimization often results in feelings of depression and low self-esteem for many female offenders (Fleming et al., 1999). Furthermore, the results of the mediational analyses revealed that childhood neglect and sexual abuse were also found to be significantly correlated with recidivism (i.e., the 'c path' of the mediational model). In addition, the association between adult psychological victimization and recidivism in the bivariate correlation matrix was significant, although this pathway was not significant in the mediational analysis. The strong associations between types of victimization and recidivism are consistent with previous research examining this relationship (Belknap, 2007).

It is suggested that the lack of significant findings for depression as a mediating variable between strain and recidivism may be possible for the following two reasons. First, GST was originally designed to predict the onset or initiation of crime as opposed to the continuation and maintenance of crime. It may be possible that the effects of poverty and victimization on criminal behaviour are mediated by depression for an offender's first offence, but that depression fails to mediate the relationship between strain and recidivism.

Second, it is possible that depression was not a strong enough negative emotional response on its own to mediate the relationship between strain and recidivism. Many research studies on GST have demonstrated that anger is the most important mediator of strain and crime. Agnew (1992) argues that it is the interaction between anger and depression for females that results in a criminal response and both males and females respond to strain with anger first, but female's anger is more likely to progress into depression. Unfortunately, the current study was limited by the number of variables available in the dataset that would be more relevant in testing GST, such as anger. As anger was not measured, it is difficult to determine whether the women in the study sample were both angry and depressed, or depressed but not angry.

Findings from Exploratory Research Questions

Exploratory research questions 1a, b and c sought to determine the impact of type of strain (poverty, childhood maltreatment and adulthood victimization) on time to recidivate. This research question was of an exploratory nature to examine whether certain types of strain were more important than others in predicting earlier times to recidivate. Results of research question 1a indicated that none of the four indicators of poverty was significantly associated with an earlier time to recidivate. However, one of the control variables, age at time of interview, was a significant predictor of time to recidivate. Further analyses revealed that younger age at time of interview was associated with an earlier time to re-offend. This is consistent with the research, which indicates that younger age at time of interview is an important predictor of recidivism for female offenders (Bonta et al., 1995).

Research question 1b tested whether type of childhood maltreatment (i.e., neglect, sexual abuse or punishment) significantly predicted time to recidivate. Results indicated that none of the childhood maltreatment variables was a significant predictor of time to recidivate for the women in the study sample. Finally, research question 1c examined whether type of adulthood victimization (i.e., physical, psychological and sexual victimization) significantly predicted time to recidivate. Results indicated that only adult psychological victimization significantly predicted time to recidivate for the women in the study sample. This result was quite surprising as previous research on predictors of recidivism has suggested that adult physical and sexual victimization are important predictors of re-offending. It is possible that the lack of prediction for the physical and sexual victimization variables may be due to underreporting of these types of victimization among the women in the study sample or a lack of power to detect significant effects.

The finding that adult psychological victimization significantly predicted time to recidivate is quite interesting as this type of victimization is often neglected as a predictor in many research studies on female recidivism. Literature on female offending suggests that many women offenders are involved in relationships with antisocial partners that facilitate their criminal behaviour (Robertson & Murachver, 2007), and are often physically and/or mentally coerced by their partners to engage in criminal activity (Jones, 2008). Therefore, it is possible that some of the women in the study sample may have recidivated as a result of being psychologically manipulated or coerced into criminal activity by an abusive partner. This suggests that further research could be fruitful both on psychological victimization as a predictor of recidivism as well as a predictor of length of time to recidivate.

The second exploratory research question comprised the following two questions: 2.a) Does level of strain (low, medium, and high) significantly predict recidivism?; and 2.b) What is the relationship between level of strain (low, medium and high) and time to recidivate? Results of research question 2a indicated that, contrary to the additive model, level of strain did not significantly predict recidivism for the women in the study sample. In addition, results of research question 2b revealed that level of strain was not significantly associated with time to recidivate. An analysis of median times to recidivate among groups revealed that the low strain group had a median time to recidivate of 11.40 months, whereas the medium and high strain groups recidivated at median times of 8.25 and 8.5 months respectively. It appears that low strain individuals take a longer time to recidivate than medium and high strain individuals, although medium and high strain groups re-offend at approximately the same time. More specifically, these results indicate that individuals with five or more types of strain re-offend approximately three months sooner than individuals with 0 to 4 types of strain. These findings

suggest that individuals who report more types of strain are at a greater need for treatment programs that focus on positive coping strategies to strain.

The lack of support for the additive model of strain may have occurred for the following two reasons. First, it may be possible that there are more salient predictors of recidivism and time to recidivate that were not investigated in the present study that fall outside of GST. For example, it is possible that other gender-responsive factors such as relationship problems, poor self-efficacy, substance abuse, or parental issues may be particularly important predictors of female recidivism. Second, each of the strain scales did not include cut-off scores that could be used to establish a meaningful threshold for whether an individual was high or low on a particular type of strain. As a result, a median split was conducted on each of the variables to determine high and low degrees of strain among offenders. It is possible that offenders who were classified as high on particular strain variables did not truly exhibit meaningful levels of strain for each of the strain variables which may have skewed the results.

The third research question was comprised of the following two questions: 3.a) Do three types of childhood maltreatment (i.e., neglect, sexual abuse and punishment) predict adulthood victimization (i.e., physical, psychological and sexual victimization) and 3.b) Are the effects of childhood maltreatment on adulthood victimization mediated by depression? In order to test research question 3a, two multiple regressions and one logistic regression were conducted to examine the impact of the three types of childhood maltreatment on each type of adulthood victimization. Results indicated that none of the three types of childhood maltreatment significantly predicted adulthood victimization. As the literature indicates a well-established association between childhood maltreatment and adulthood victimization (e.g. McCartan & Gunnison, 2010), these results were quite surprising. An analysis of the zero-order correlations

between childhood maltreatment variables and adulthood victimization variables revealed a number of significant associations. Significant correlations were found between childhood neglect and adult sexual victimization as well as neglect and adult psychological victimization. In addition, sexual abuse was found to be significantly associated with adult psychological victimization. It is suggested that the lack of significant findings in the regression analyses may be due to underreporting on these scales or to a lack of power to detect significant effects.

Research question 3b examined whether the effects of childhood maltreatment on adulthood victimization were mediated by depression. Previous research has indicated that female offenders with a history of childhood abuse are more likely to be involved in abusive relationships in their adulthood compared to those without a history of abuse (McCartan & Gunnison, 2010). Furthermore, as was previously mentioned, Romano and De Luca (2000) found that women offenders with a history of victimization and abuse are more likely to experience internalizing problems (i.e., depression) than male offenders.

Nine tests of mediation were performed according to the procedure outlined by Preacher and Hayes (2008). Results of the mediational models indicated that depression significantly mediated the relationship between a) childhood neglect and adult sexual victimization, and b) childhood punishment and adult sexual victimization. These results suggest that we cannot fully understand the relationship between childhood abuse and adulthood victimization without considering issues of mental health (i.e. depression) among female offenders. Indeed, treatment groups targeting previous/current victimization and mental health of women offenders are beginning to receive increased attention in the research literature (e.g., Sorbello, Eccleston, Ward, & Jones, 2011). Findings of the current study suggest that a focus on improving the

mental health of women offenders may be critical in reducing the relationship between childhood abuse and adulthood victimization.

Limitations

Several limitations to the present study must be considered when interpreting the findings. It is suggested that this study was limited by the number of variables in the data set that would provide the most comprehensive test of GST among female offenders. As previously mentioned, the researcher was unable to measure anger, as this variable was not available in the data set. Therefore, it was impossible to determine whether the women in the sample were angry and depressed, or depressed but not angry. As research suggests that anger is the most important negative emotion in mediating the relationship between strain and recidivism, this is certainly a significant limitation. It is possible that results would vary if anger had been measured and included in the study design.

In addition, it is possible that GST is not an appropriate theory for predicting recidivism among female offenders, as it was originally proposed to explain the onset or initiation of crime among offenders. It may be that other theories are more effective in predicting future behaviour as opposed to criminal behaviour more generally. Furthermore, it is possible that there are more gender-responsive risk factors that fall outside of GST that are important predictors of women's recidivism that were not considered in the present study. Gender-responsive risk factors that are currently receiving increased attention in the research literature include: relationship problems; mental illness; drug abuse; poor self-efficacy/self-concept; and parental issues (Van Voorhis et al., 2010).

Additionally, the current study was limited by a lack of information on community and treatment variables that may have functioned as protective factors against future offending. As

information on strain variables (i.e., poverty and victimization) was collected while the women were incarcerated, it is difficult to determine whether these women received any support or treatment while incarcerated or in the community upon their release from prison.

Finally, the current study was limited by the scales that were used to assess previous and current abuse. As previously mentioned, these scales do not report cut-off scores that should be used to establish a meaningful threshold for determining whether an individual experienced a particular type of abuse. As a result a median split was conducted to determine whether an individual was high or low on specific types of abuse. A median split was also used on each of the poverty factors to create high and low levels of poverty. It is possible that dichotomizing predictor variables to create groups of strain resulted in a loss of information about individual differences, effect sizes and power (MacCallum et al., 2002).

Directions for Future Research

The majority of research on offending behaviour has been largely based on observations of male offenders (Bonta et al., 1995); however, the increased number of females in contact with the criminal justice system has caused more researchers to examine female offenders in their own right, separate from males (Flavin & Desautels, 2006). As research on female offenders, especially factors most predictive of female recidivism, is so limited, this is an important area for future research. A number of future directions have been suggested to better understanding factors associated with female offending and contribute to theory development.

First (and throughout), it is suggested that future studies testing GST to explain female offending should measure both anger and depression as negative emotions that mediate the relationship between strain and crime. The present study was limited as anger was not available in the data set and could not be measured among the women in the sample. Although GST was

not originally designed to test the relationship between strain and recidivism, it would be interesting to see if anger among female offenders can effectively mediate the relationship between strain and recidivism, as opposed to the initiation or onset of criminal behaviour. Furthermore, the inclusion of additional gender-specific strains, such as interpersonal relationship strain, may also be an important area to consider in future tests of GST among female offenders.

Second, very little research has been conducted on the cognitive schemas of female offenders (Van Voorhis et al., 2010). It is suggested that future studies examine the impact of factors such as self-efficacy, self-esteem, coping strategies and attributional style as predictors of recidivism for female offenders. A number of studies in the feminist literature have argued that women's ability to control their lives is likely an important protective factor against future offending (Rumgay, 2004; Schram & Morash, 2002), although more research is required to fully understand the relationship between cognitive styles and recidivism.

Third, the current study found that shorter sentence length was a significant predictor of recidivism. Most provincially sentenced women receive very short sentences and are often sent into the community with a variety of needs that are not adequately addressed (e.g., housing instability, abusive relationships, addictions and mental health problems, lack of employment). More research needs to be conducted on the effectiveness of programs that focus on gender-responsive risk factors that can be implemented in both the correctional facility as well as in the community to help women stay crime-free.

Appendix A

CATS

This questionnaire seeks to find out the general atmosphere of your home when you were a child or teenager and how you felt you were treated by your parents or principal caretaker. (If you were not raised by one or both of your biological parents, please answer the questions thinking of the person or persons who had the main responsibility for your upbringing as a child.) Where a question inquires about the behavior of both your parents and your parents differed in their behavior, please respond in terms of the parent whose behavior was the more severe or worse.

In replying to these questions, pick your answer according to the following definitions:

0 = Never 1 = Rarely 2 = Sometimes 3 = Very Often 4 = Always

Here is an example: Did your parents criticize you when you were young?

If you were rarely criticized, you should circle number 1.

Please answer all the questions. Circle one number as your answer

- | | |
|---|-------------------|
| 1. Did your parents ridicule you? | 0 1 2 3 4 |
| 2. Did you ever seek outside help or guidance because of problems
in your home? | 0 1 2 3 4 |
| 3. Did your parents verbally abuse each other? | 0 1 2 3 4 |
| 4. Were you expected to follow a strict code of behavior
in your home? | 0 1 2 3 4 |
| 5. When you were punished as a child or teenager, did you
understand the reason you were punished? | 0 1 2 3 4 |
| 6. When you didn't follow the rules of the house, how often were
you severely punished? | 0 1 2 3 4 |
| 7. As a child did you feel unwanted or emotionally neglected? | 0 1 2 3 4 |
| 8. Did your parents insult you or call you names? | 0 1 2 3 4 |
| 9. Before you were 14, did you engage in any sexual activity
with an adult? | 0 1 2 3 4 |
| 10. Were your parents unhappy with each other? | 0 1 2 3 4 |
| 11. Were your parents unwilling to attend any of your
school-related activities? | 0 1 2 3 4 |
| 12. As a child were you punished in unusual ways
(e.g., being locked in a closet for a long time or being tied up) | 0 1 2 3 4 |

Appendix A (continued)

0 = Never	1 = Rarely	2 = Sometimes	3 = Very Often	4 = Always	
13. Were there traumatic or upsetting sexual experiences when you were a child or teenager that you couldn't speak to adults about?	0	1	2	3	4
14. Did you ever think you wanted to leave your family and live with another family?	0	1	2	3	4
15. Did you ever witness the sexual mistreatment of another family member?	0	1	2	3	4
16. Did you ever think seriously about running away from home?	0	1	2	3	4
17. Did you witness the physical mistreatment of another family member?	0	1	2	3	4
18. When you were punished as a child or teenager, did you feel the punishment was deserved?	0	1	2	3	4
19. As a child or teenager, did you feel disliked by either of your parents?	0	1	2	3	4
20. How often did your parents get really angry with you?	0	1	2	3	4
21. As a child did you feel that your home was charged with the possibility of unpredictable physical violence?	0	1	2	3	4
22. Did you feel comfortable bringing friends home to visit?	0	1	2	3	4
23. Did you feel safe living at home?	0	1	2	3	4
24. When you were punished as a child or teenager, did you feel "the punishment fit the crime"?	0	1	2	3	4
25. Did your parents ever verbally lash out at you when you did not expect it?	0	1	2	3	4
26. Did you have traumatic sexual experiences as a child or teenager?	0	1	2	3	4
27. Were you lonely as a child?	0	1	2	3	4
28. Did your parents yell at you?	0	1	2	3	4
29. When either of your parents was intoxicated, were you ever afraid of being sexually mistreated?	0	1	2	3	4

Appendix A (continued)

0 = Never 1 = Rarely 2 = Sometimes 3 = Very Often 4 = Always

- | | | | | | |
|--|---|---|---|---|---|
| 30. Did you ever wish for a friend to share your life? | 0 | 1 | 2 | 3 | 4 |
| 31. How often were you left at home alone as a child? | 0 | 1 | 2 | 3 | 4 |
| 32. Did your parents blame you for things you didn't do? | 0 | 1 | 2 | 3 | 4 |
| 33. To what extent did either of your parents drink heavily
or abuse drugs? | 0 | 1 | 2 | 3 | 4 |
| 34. Did your parents ever hit or beat you when you did not expect it? | 0 | 1 | 2 | 3 | 4 |
| 35. Did your relationship with your parents ever involve
a sexual experience? | 0 | 1 | 2 | 3 | 4 |
| 36. As a child, did you have to take care of yourself before you
were old enough? | 0 | 1 | 2 | 3 | 4 |
| 37. Were you physically mistreated as a child or teenager? | 0 | 1 | 2 | 3 | 4 |
| 38. Was your childhood stressful? | 0 | 1 | 2 | 3 | 4 |
-

Appendix B

SES

These questions relate to sexual experiences that you may have had in your life. Please read the following statements carefully and answer the following questions and check a Yes or No answer.

1. Have you ever had intercourse with a man when you both wanted to? Yes_____ No_____
 2. Have you ever had a man misinterpret the level of intimacy you desire? Yes_____No _____
 3. Have you ever been in a situation where a man became so sexually aroused that you felt it was useless to stop him even though you did not want to have sexual intercourse? Yes_____ No_____
 4. Have you ever had sexual intercourse with a man even though you didn't really want to because he threatened to end your relationship otherwise? Yes_____ No _____
 5. Have you ever had sexual intercourse with a man when you didn't want to because you felt pressured by his continual arguments? Yes_____ No _____
 6. Have you ever found out that a man had obtained sexual intercourse with you by saying things he did not mean? Yes_____ No _____
 7. Have you ever been in a situation where a man used some degree of physical force [twisting your arm, holding you down etc.] to try and make you engage in kissing or petting when you didn't want to? Yes_____ No _____
 8. Have you ever been in a situation where a man tried to get sexual intercourse with you by threatening to use physical force [twisting your arm, holding you down etc.] if you didn't co-operate, but for various reasons sexual intercourse didn't occur? Yes_____ No _____
 9. Have you ever been in a situation where a man used some degree of physical force [twisting your arm, holding you down etc.] to try and get you to have sexual intercourse with him when you didn't want to but for various reasons sexual intercourse didn't occur? Yes_____ No_____
 10. Have you ever had sexual intercourse with a man when you didn't want to because he threatened some degree of physical force [twisting your arm, holding you down etc.] if you didn't co-operate? Yes_____ No _____
 11. Have you ever had sexual intercourse with a man when you didn't want to because he used some degree of physical force [twisting your arm, holding you down etc.] if you didn't co-operate? Yes_____ No _____
 12. Have you ever been in a situation where a man obtained sexual acts from you such as anal or oral intercourse when you didn't want to by using threats or physical force [twisting your arm, holding you down etc.] ? Yes_____ No _____
 13. Have you ever been raped ? Yes_____ No _____
-

Appendix C

ABI

Here is a list of behaviors that many women report have been used by their partners or former partners. We would like you to estimate how often these behaviors took place in your most recent intimate relationship. Your answers are strictly confidential.

In replying to these questions, pick your answer according to the following definitions:

1 = Never 2 = Rarely 3 = Occasionally 4 = Frequently 5 = Very Frequently

- | | | | | | |
|--|---|---|---|---|---|
| 1. Called you names and/or criticized you | 1 | 2 | 3 | 4 | 5 |
| 2. Tried to keep you from doing something you wanted to do
(example: going out with friends, going to meetings) | 1 | 2 | 3 | 4 | 5 |
| 3. Gave you angry stares or looks | 1 | 2 | 3 | 4 | 5 |
| 4. Prevented you from having money for your own use | 1 | 2 | 3 | 4 | 5 |
| 5. Ended a discussion with you and made the decision himself | 1 | 2 | 3 | 4 | 5 |
| 6. Threatened to hit or throw something at you | 1 | 2 | 3 | 4 | 5 |
| 7. Pushed, grabbed, or shoved you | 1 | 2 | 3 | 4 | 5 |
| 8. Put down your family and friends | 1 | 2 | 3 | 4 | 5 |
| 9. Accused you of paying too much attention to someone or
something else | 1 | 2 | 3 | 4 | 5 |
| 10. Put you on an allowance | 1 | 2 | 3 | 4 | 5 |
| 11. Used your children to threaten you (example: told you that you
would lose custody, said he would leave town with the children) | 1 | 2 | 3 | 4 | 5 |
| 12. Became very upset with you because dinner, housework, or
laundry was not ready when he wanted it done the way
he thought it should be | 1 | 2 | 3 | 4 | 5 |
| 13. Said things to scare you (example: told you something "bad"
would happen, threatened to commit suicide) | 1 | 2 | 3 | 4 | 5 |
| 14. Slapped, hit, or punched you | 1 | 2 | 3 | 4 | 5 |
| 15. Made you do something humiliating or degrading
(example: begging for forgiveness, having to ask his permission
to use the car or do something) | 1 | 2 | 3 | 4 | 5 |

Appendix C (continued)

1 = Never 2 = Rarely 3 = Occasionally 4 = Frequently 5 = Very Frequently

16. Checked up on you (examples: listened to your phone calls, checked the mileage on your car, called you repeatedly at work)	1	2	3	4	5
17. Drove recklessly when you were in the car	1	2	3	4	5
18. Pressured you to have sex in a way that you didn't like or want	1	2	3	4	5
19. Refused to do housework or childcare	1	2	3	4	5
20. Threatened you with a knife, gun, or other weapon	1	2	3	4	5
21. Spanked you	1	2	3	4	5
22. Told you that you were a bad parent	1	2	3	4	5
23. Stopped you or tried to stop you from going to work or school	1	2	3	4	5
24. Threw, hit, kicked, or smashed something	1	2	3	4	5
25. Kicked you	1	2	3	4	5
26. Physically forced you to have sex	1	2	3	4	5
27. Threw you around	1	2	3	4	5
28. Physically attacked the sexual parts of your body	1	2	3	4	5
29. Choked or strangled you	1	2	3	4	5
30. Used a knife, gun, or other weapon against you	1	2	3	4	5

Appendix D



To: Jennifer Newman

Psychology

Re: REB 2011-246: Are the effects of poverty and victimization on criminal recidivism mediated by poor psychological functioning as predicted by general strain theory?: A longitudinal study of provincially sentenced women

Date: August 25, 2011

Dear Jennifer Newman,

The review of your protocol REB File REB 2011-246 is now complete. The project has been approved for a one year period. Please note that before proceeding with your project, compliance with other required University approvals/certifications, institutional requirements, or governmental authorizations may be required.

This approval may be extended after one year upon request. Please be advised that if the project is not renewed, approval will expire and no more research involving humans may take place. If this is a funded project, access to research funds may also be affected.

Please note that REB approval policies require that you adhere strictly to the protocol as last reviewed by the REB and that any modifications must be approved by the Board before they can be implemented. Adverse or unexpected events must be reported to the REB as soon as possible with an indication from the Principal Investigator as to how, in the view of the Principal Investigator, these events affect the continuation of the protocol.

Finally, if research subjects are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research.

Please quote your REB file number (REB 2011-246) on future correspondence.
Congratulations and best of luck in conducting your research.

A handwritten signature in black ink, appearing to read "Nancy Walton".

Nancy Walton, Ph.D.
Chair, Research Ethics Board

Appendix E

RECEIVED

MAR 29 2011

P.E.S.A.R.

RESEARCH AGREEMENT

Research Project Title: Psychosocial Predictors of Recidivism in female offenders : A longitudinal study

This agreement is made between:

**Dr. Smita Vir Tyagi, Ontario Correctional Institute, Ministry of Community Safety and Correctional Services and
Ms. Jennifer Newman, graduate student, Ryerson University**

(hereinafter referred to as the **researcher(s)**)

and the

Ministry of Community Safety and Correctional Services

(hereinafter referred to as the **Ministry**)

Indicate method of research by checking one or both box(es) below:



The researcher(s) wishes to access the following records containing personal information in the custody or control of the ministry.

Request is for information on recidivism relating to data gathered on female offenders in 2002-2003 by Dr. Smita Vir Tyagi as part of her doctoral thesis. Only data relating to offenders in this data set (approximately 150 in number) is being sought.

Dr. Tyagi will supply the identifying information related to the offenders whose information is being sought.

Specifically, data being requested is as follows:

- 1) Sentence length and conditions at time of original data collection
- 2) Recidivism rates for female offenders for 2003 -2011 both years inclusive
- 3) Time to new offence from date of discharge from institution (at time of original data collection)
- 4) Criminal offences committed, charged with, and adjudicated for (where data are available)
- 5) LSI scores at time of original data collection and subsequently
- 6) Information related to offence circumstances
- 7) Information related to treatment programs recommended and completed while in custody or in the community
- 8) Information related to alerts on file at time of original data collection (mental health, substance use, violence etc.)
- 9) Information on record regarding mental health, substance use, violence, cognitive impairments, childhood maladjustment or adult victimization.

Appendix E (continued)



The researcher(s) wishes to interview ministry clients/staff/others.

There is no request for interviews of ministry staff or clients.

The researcher(s) understand and promise to abide by the following terms and conditions:

1. Interviews must be conducted on a voluntary basis with the informed consent of participants.
2. The researcher(s) will not use the information collected through interviews or file reviews for any purpose other than for the following research purposes. (Describe research purpose below.)

The purpose of this study is to examine the psychosocial predictors of (1) recidivism from time of discharge from Vanier Centre and Metro West Detention Centre subsequent to the original data collection by Dr. Vir Tyagi; (2) time to recidivate since discharge from these two facilities; and (3) dimensions of the criminal career, such as offence type and career duration.

3. The researcher(s) will give access to personal information (in a form in which the individual to whom it relates can be identified) only to the following members of the research team. (Name persons below e.g., research assistant.)

Dr. Smita Vir Tyagi, Ms. Jennifer Newman (thesis student, Ryerson University), and Dr. David Day (thesis supervisor, Ryerson University)

4. Before disclosing personal information to members of the research team, the researcher(s) will enter into a written agreement with members of the research team to ensure that they will not disclose it to any other persons. Copies of all such signed agreements must be sent to the ministry.
5. The researcher(s) will keep the information in a physically secure location to which access is given only to the researcher(s) and the persons mentioned above.
6. The researcher(s) agrees to provide the ministry with all data collected from the ministry excluding personal identifier information and a brief abstract and copy of the final research document.

Appendix E (continued)

7. The researcher(s) will destroy all individual identifiers in the information by December, 2012
8. The researcher(s) will destroy all raw data and related documentation by December, 2019
9. The researcher(s) will not contact any individual to whom personal information relates, directly or indirectly, without the prior written authority of the ministry.
10. The researcher(s) will ensure that no personal information will be used or disclosed in a form in which the individual to whom it relates can be identified.
11. The researcher(s) will notify the ministry in writing immediately upon becoming aware that any of the conditions set out in this agreement have been breached.
12. The researcher(s) further indemnify the Ministry, its employees and agents against all costs, losses, expenses and liabilities incurred as a result of a claim by an individual with respect to the inappropriate release by the researcher(s) of the individual's personal information in contravention of this agreement or otherwise.

Signed at Ontario Correctional Institute this 10th day of March, 2011.

[Signature] (Dr. Smita V. Tyagi) [Signature]
Signature of Researcher(s) (1) Signature of Ministry Representative

[Signature] (Jennifer Newman)
Signature of Researcher(s) (2)

[Signature], PL. 2 (Dr. David Day, Supervisor
Signature of researchers(3) for Ms. Newman)

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