Discounting Outcomes of Forensics Inpatient Residents

by

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Dedication

This thesis is dedicated to the team I worked along side for 8 long years, who constantly praised my work even if it meant more work for them, listened to my outrageous ideas, and saw more in me than I ever realized.

A special, heartfelt thanks and dedication to the clients that let me into their lives, and allowed me to get my hands dirty when I first entered the field. Thank you all for your support in my personal and professional development and in encouraging me when I decided to go back to school. Without your help in realizing my potential, I would probably have never taken this necessary step.
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Abstract

Impulsivity is prominently featured within the diagnostic criteria of many different psychiatric disorders (Few, Lynam, & Miller, 2015). Individuals diagnosed with a mental illness are more likely than the general population to display impulsive, challenging behaviours such as high risk and unsafe activities, which can be linked to hospitalization (Dumais, Larue, Drapeau, Ménard, & Allard 2011). Impulsivity can be measured as a personality measure using the Barrett Impulsiveness Scale (BIS-11; Stanford et al., 2009) and as a behavioural construct using delay discounting tasks (Odum, 2011). Delay discounting is the process of weighing the value of reinforcement (Crean et al., 2000); it involves the choice between a smaller, more immediate reinforcement or a delayed reward, typically of greater value (Melanko & Larkin, 2013). Delay discounting has been deemed a valid measurement of impulsivity (Crean et al. 2000). This thesis used both an experimental and correlational approach. The study examined the relationship between the use of both seclusion and PRN medication to manage challenging behaviours, and participants’ impulsivity scores as determined through the use of delay discounting tasks. Participants completed monetary and probability discounting questionnaires to determine individual indifference points (i.e., the point when an individual’s choice would switch from the delayed larger reward to the smaller more immediate one). Steep rates of discounting were not found in the sample population of forensic inpatients with complex mental illnesses and there were no correlations found between monetary discounting scores and the use of restrictive methods for managing challenging behaviours such as PRN use and seclusion. Results showed nonsignificant results and inconsistencies from past research. The relationship between impulsivity and time spent in seclusion and PRN use in a forensics setting may help clinicians determine alternative strategies to managing patients’ behaviour to better prepare them for transition to the community.
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Impulsivity is a prominent feature within the diagnostic criteria of many different psychiatric disorders (Few, Lynam, & Miller, 2015). Despite there being a vast amount of literature on the topic of impulsiveness, it has yet to be precisely operationally defined (Crean, de Wit, & Richards, 2000). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) includes a section specifically on impulse disorders but also explains impulsiveness in relation to being a common criterion for other disorders such as borderline personality disorder, attention deficit hyperactivity disorder, and antisocial personality disorder (Crean et al., 2000). Individuals with bipolar depression, bulimia, substance abuse disorders, and some forms of psychotic disorder have also been described as impulsive (Crean et al., 2000). Individuals diagnosed with a mental illness are more likely than the general population to display challenging behaviours such as high risk and unsafe behaviours, which may be a precursor to hospitalization (Dumais, Larue, Drapeau, Ménard, & Allard, 2011). Therefore, impulsivity may be prevalent in the sample population of forensic inpatients with complex mental illness.

Measures of delay and probability discounting are of interest due to their ability to describe impulsive and risky behaviours (McKerchar & Renda, 2012). The process of weighing the value of reinforcement is known as delayed discounting, and it has been deemed valid in measuring impulsivity based on growing evidence (Crean et al., 2000). Delayed discounting is when an individual selects an immediate reward over a delayed reward, typically of greater value than the immediate reward (Melanko & Larkin, 2013). In addition, as the perceived likelihood of receiving the reward decreases so too does its subjective value, which is known as probability discounting (McKerchar & Renda, 2012). These phenomena have been used to explain behaviours in which people may act impulsively, such as spending money, substance use or abuse, eating habits, smoking, and other maladaptive behaviours (Melanko & Larkin, 2013). Steep rates of discounting can be found among individuals diagnosed with a psychiatric disorder (Few et al., 2005). However, there is limited research to identify what variables contribute to steep rates of discounting in inpatients.

Seclusion, also known as isolation and pro re nata (PRN; as needed) behavioural medication administered as needed, are both used in the sample population of forensic inpatients with complex mental illness. Both seclusion and PRN behavioural medications are used to support patients unable to achieve an appropriate level of calm or who lack appropriate coping skills. It is difficult to understand the frequency of use of seclusion due to a lack of representation in the literature. One review by Thomas et al. (2009) found that 51 forensic psychiatric inpatients from the same hospital were secluded 140 times in one year. It is estimated that between 23% and 50% of psychiatric inpatients in the United States and 50% of patients in Canadian hospitals will receive a PRN medication to assist with managing their behaviour (Mugoya & Kampfe, 2010). It is of interest to examine whether variables such as the frequency of pro re nata (PRN; as needed) medication use and the frequency and duration of time spent in seclusion are affected by the discounting rate of a patient. This is of interest due to the reliance on PRN use and seclusion in inpatient psychiatric settings to assist in the management of challenging behaviours (Donat, 2005). It is hypothesized that those with steep discounting rates will also have high frequency rates of PRN use and seclusion among the sample population of forensic inpatients.
Chapter II: Literature Review

In a forensic inpatient setting for individuals with complex mental illnesses, a variety of strategies are often attempted by care staff to manage occurrences of challenging behaviours. However, this is often difficult to accomplish as individuals that are diagnosed with a mental illness can display high risk and unsafe behaviours. As impulsivity has been identified as a prominent feature within the diagnostic criteria of many different psychiatric disorders (Few, Lynam, & Miller, 2015), these difficult behaviours may appear quickly and without visible precursors. Impulsivity can be measured in two ways: first, as a personality measure using the Barrett Impulsiveness Scale (BIS-11; Stanford et al., 2009) and second, as a behavioural construct using delay discounting tasks (Odum, 2011). The present study will consider the results from both assessments to determine a better understanding of impulsivity within a forensic inpatient setting. The study will examine the relationship between the use of both seclusion and PRN medication to manage challenging behaviours, and participants’ impulsivity scores as seen by use of delay discounting tasks. This understanding of the relationship between impulsivity and time spent in seclusion and PRN use in a forensics setting may help clinicians determine alternative strategies to managing patients’ behaviour to better prepare them for transition to the community.

Impulsivity

In day-to-day life, there are many situations in which people are required to make decisions regarding costs and benefits over time. For example, you found a new item of clothing that you really want to purchase but you know there is a sale coming up at the store in a week’s time, do you make the purchase now or wait a week when it will be on sale? When you are stressed out or feeling sad, do you use your credit card to book the next flight to enjoy a Caribbean vacation, without considering your mortgage payment coming up at the end of the month or do you go for a walk in a beautiful park? Some of the decisions people make could be a reflection of a person’s lifestyle choice and create positive outcomes, while others could cause a serious negative consequence. Decisions that are made without any consideration of outcomes and potential consequences are considered impulsive decisions (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001).

Impulsivity is a fundamental component of many aspects of human behaviour and cognitions (Stahl et al., 2014). The ability to control stimuli, thoughts, and the tendency to respond is what shapes human cognitions and behaviours in daily life (Stahl et al., 2014). A spontaneous behaviour that is triggered by an internal or external stimulus and requires an incompatible response with achieving a long-term goal can be considered impulsive (Stahl et al., 2014). Having the ability to control impulses is paramount to individual and social functioning and has been identified in a variety of contexts such as developmental, cognitive, social, and abnormal psychology, as well as neurogenetics (Stahl et al., 2014).

Impulsivity is described as an individual being unable to resist drives or impulses that could potentially result in harm to one’s self or others, and can be a core feature of various psychiatric disorders described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (Stahl et al., 2014). Impulsivity is an important construct in psychopathology, and is often seen in those with attention-deficit/hyperactivity disorder, depression, obsessive-compulsive disorder, borderline personality disorder, substance abuse, as well as the impulse-control disorders such as pathological gambling or trichotillomania (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001).
Impulsivity is a term that many researchers have attempted to operationalize. However, to this day, it has not been explicitly defined (Crean, de Wit, & Richards, 2000). Impulsiveness is often viewed as a construct that explains normal individual differences in one’s personality but also extreme personality pathology within a clinical population (Stanford et al., 2009). Moeller, Barratt, Dougherty, Schmitz, & Swann (2001) defined impulsiveness “as a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individuals or to others” (p. 1784). Therefore, it can be questioned whether or not individuals are able to alter or adapt their thoughts and behaviours to align with society’s expectations or in a given environment (Stanford et al., 2009). Society views impulsive behaviour as counterproductive, and it has been linked to a variety of socially deviant behaviours such as substance abuse and aggression (Stanford et al., 2009).

Impulsivity can evoke many challenging behaviours in psychiatric patients and is a characteristic of mental illness that contributes to hospitalization such as in a forensic setting. It is important to understand impulsivity because of the many challenging behaviours it often induces. One of the most concerning consequences of impulsivity as it relates to mental illness, is its links to criminal behaviours that result in incarceration and forensic treatment.

**Forensic Mental Health**

The Centre for Addiction and Mental Health (CAMH; 2012) describes the mental health system as a network of services and professionals caring for individuals diagnosed with mental illness. The criminal justice system encompasses court proceedings, professionals, and institutions that handle individuals accused of or convicted of criminal acts. For individuals with mental illness who become involved in criminal proceedings, involvement in the forensic mental health system is a common outcome and treatment option versus traditional incarceration proceedings. For an individual to become involved with the forensic mental health system in Canada, they must be deemed not criminally responsible on account of a mental disorder (NCRMD; Maeder, Yamamoto, & Fenwick, 2015). To be found NCRMD, two things are necessary. First, it needs to be proven that, at the time of the offense, the defendant had a mental disorder. Second, the disorder must be deemed severe enough that it prevents the individual from understanding what they were doing at the time of the offense, and from knowing the act was wrong (Maeder et al., 2015). A ruling of NCRMD does not coincide with a verdict of guilt; it is a ruling by the court that finds the accused not criminally liable for their actions (Maeder et al., 2015).

Mentally disordered offenders typically end up being admitted as a patient in a forensic hospital (Maguire, Young, & Martin, 2012). The role of the hospital is to provide protection to the public by providing custody and treatment for patients (Maguire et al., 2012). Individuals who have been deemed NCRMD tend to remain institutionalized for a longer period of time than those who were incarcerated for committing the same crimes (Maeder et al., 2015). Pleading NCRMD may prove to be beneficial to the individual as it is then mandatory that they receive appropriate psychiatric care (Maeder et al., 2015). Within forensic mental health treatment, patients often exhibit challenging and aggressive behaviours that require the use of restrictive practices to ensure client and staff safety.

**Challenging Behaviour, PRN Medication, and Seclusion**

Large portions of forensic patients display more aggression in a forensic setting than in other acute psychiatric settings (Dickens, Piccirillo, & Alderman, 2013). Challenging behaviours that arise in a forensic inpatient setting are difficult to define generally, as individuals may display aggression and violence differently (Dickens et al., 2013). Behaviours may range from
life-threatening assaults to mild forms of verbal abuse (Dickens et al., 2013). Aggression is best described as any nonverbal, verbal, or physical behaviour that is a perceived threat to one’s self, others, or property; or physical behaviours that do in fact cause harm to one’s self, others, or property (Dickens et al., 2013, p. 533).

**PRN medication.**

Inpatient psychiatric care facilities function as a last resort for individuals with persistent, severe, and frequent dangerous impairments who have not responded well to services in the community (Donat, 2005). While a patient is in this type of facility, staff often must rely on restrictive interventions (Donat, 2005). A common preventative method often used in managing challenging behaviours is the use of psychotropic pro re nata (PRN; as needed) medication. PRN medication is often used to achieve sedation, creating a safe environment for both the patient and others in the vicinity (Donat, 2005).

Some research has argued that the administration of PRN medication may expose a patient to unnecessary psychotropic medications (Mugoya & Kampfe, 2010). These medications are prescribed and administered due to nurses’ subjective opinion of a client’s behaviour and as a preventative measure to reduce challenging behaviour (Mugoya & Kampfe, 2010). Without clear and objective definitions for challenging behaviours such as agitation and anxiety, the range of dosage for these orders is variable; this may result in an increase in adverse events for a client (Mugoya & Kampfe, 2010). There are serious risks that accompany PRN medication use. Some common concerns associated with this type of medication use include: a) misinterpretation of the efficiency of regular medication use during assessments, b) dosages being above the recommended level, c) the occurrence of polypharmacy, or patients being prescribed a combination of typical and atypical medications, d) higher rates of adverse interactions of medications, or e) an increase in morbidity (Mugoya & Kampfe, 2010). In addition, Donat (2002) explains that an excessive reliance on PRN medication to help minimize dangerous and disruptive behaviours will decrease the likelihood of a patient developing coping and daily living skill. However, these skills are required for transition back into the community. Drawing on Donat’s research, it is in the best interest of psychiatric patients for clinical staff to utilize alternatives to PRN medication, such as behavioural techniques, when managing challenging behaviours (Donat, 2005).

**Seclusion.**

In inpatient psychiatric treatment settings, seclusion and other forms of restraint are often used by care staff to manage violent and challenging behaviours when PRN use is ineffective (Stellwagen & Kerig, 2010). Seclusion occurs when a patient is confined to a locked room by staff for a period of time. It is used in an attempt to de-escalate conflict and prevent harm to one’s self or others (Stellwagen & Kerig, 2010). In a study conducted by Stellwagen and Kerig (2010), it was found that psychopathic attributes in children such as callous-unemotional traits, narcissism, and impulsivity were predictors for restrictive treatments including seclusion. A response of a child with callous, un-emotional traits style of response is “reward dominant”. Therefore, the study questioned whether or not seclusion served as a function of immediate reward following an incident of aggression for the sample population (Stellwagen & Kerig, 2010). Stellwagen and Kerig (2010) also identified one of the factors strongly associated with seclusion to be older age. Of the sample population in the study, it was not the children who had higher rates of seclusion, but the young adults. A study by Sourander, Ellila, Valimaki, and Piha (2002) also found that, in a psychiatric inpatient setting, seclusion was used more frequently with older individuals that were severely disturbed than with children.
Maguire, Young, and Martin (2012) reviewed the use of seclusion in an adult forensic mental health setting. They state that, in a forensic setting, aggression may be inevitable as individuals have generally been transferred from a prison setting and are hospitalized against their will (Maguire, Young, & Martin, 2012). Patients’ inability to manage their anger is often provoked by conflict of treatment and ongoing demands and expectations and may be compromised by a lack of skills necessary for anger management (Maguire et al., 2012). Not only does a mental illness influence challenging behaviours, so to does anti-social and entrenched negative attitude, and a history of substance abuse that can all play a large role in having the ability to control aggressive behaviours (Maguire et al., 2012). An act of violence is the most commonly seen offence committed by an individual with a mental illness (Maguire et al., 2012). Care staff have found it difficult to rely on a therapeutic alliance with patients whose behaviours are too difficult to manage without the use of interventions such as seclusion (Maguire et al., 2012). This study aimed to reduce the frequency and duration of seclusion being used with adult forensic inpatients using alternative strategies (e.g., sensory modulation rooms, daily schedules), and although there were individual reductions observed, there was no significant reduction found in the number of patients being secluded overall (Maguire et al., 2012).

The elimination of seclusion use has yet to be achieved (Maguire, Young, & Martin, 2012); these procedures are used to manage challenging behaviours in forensic inpatient settings, and to control violent behaviours and psychotic symptoms (Laiho et al., 2013). The reason for a patient’s behaviour is not always clear to care staff. However, based on subjective interpretations from brief daily verbal assessments of patient behaviour, the decision to use seclusion is still made (Laiho et al., 2013). Negative outcomes can be associated with the use of seclusion such as violation of personal integrity, disempowerment, anger and fear, anxiety, and damage to the patient and staff relationship (Laiho et al., 2013). Most importantly, using seclusion and other methods of restraint can be physically and emotionally difficult for everyone involved and can increase potential risk of injury and safety concerns (Laiho et al., 2013).

**Measuring Active Psychiatric Symptoms**

The Brief Psychiatric Rating Scale (BPRS) is an instrument that is widely used for assessing change in psychotic and affective symptoms (van Beek et al., 2015). The BPRS is typically used in psychiatric inpatient settings (van Beek et al., 2015). The BPRS is an instrument that allows clinicians to quickly assess patients for the presence and severity of psychiatric symptoms (van Beek et al., 2015). The BPRS was not developed to provide specific insight into violent or offending behaviours and therefore limits the availability of this research (van Beek et al., 2015). However, the BPRS can be used for research and clinical purposes in forensics (van Beek et al., 2015). For example, in a study by Hodgins (2008), it was found that individuals in a forensic psychiatric inpatient setting had higher scores on the BPRS than individuals with a psychiatric diagnosis alone. The BPRS is a 24-item semi-structured interview that uses interview and observational information and can be administered in approximately 20 minutes (van Beek et al., 2015). Items 1-14 are rated based on the individual's self-report, items 7, 12, and 13 are rated based on the combination of self-report and observed behaviour. Finally, items 15-24 are rated based on observed behaviour and speech. A predetermined set of probe questions and follow up questions during the interview assess an individual’s symptomology (Thomas, Donnell, & Young, 2004).

According to Hodgins (2008), general psychiatric patients differ significantly from a forensic population in social, behavioural, and economic measures and, therefore, arguably may
differ in symptomatology (van Beek et al., 2015). Understanding an individual’s current state of psychiatric symptoms is an important aspect when reviewing measurements of delay discounting and impulsive behaviour. The measurement of a patient’s active symptoms of mental illness can change on a regular basis as they experience psychosis and other symptoms of their mental disorder. This is important to acknowledge as an individual’s self-reported and evaluated scores of impulsivity (as measured using delay discounting) could be directly related to what active symptoms they are exhibiting as a result of their mental illness.

Discounting

When given the choice, it is typical that humans will prefer to choose large, immediate, and guaranteed rewards to small, delayed, and uncertain reward (Olson, Hooper, Collins, & Luciana, 2007). However, the perceived value of rewards can impact choices made by individuals selecting between an immediate reward and a delayed reward. As the perceived likelihood of receiving a delayed reward declines, so too does its perceived value (Olsen et al., 2007). This phenomenon is known as probability discounting; an individual may select a smaller, immediate, and guaranteed reward rather than a larger, uncertain delayed reward (Olson et al., 2007). Additionally, as the time prior to receiving a delayed reward increases, its perceived value typically declines (Olson et al., 2007). This is known as delay discounting, and can cause individuals to once more select a smaller, immediate reward rather than a larger reward accompanied by a delay (Olson et al., 2007).

When examining discounting behaviour in individuals, participants take part in discounting tasks that require them to choose between small, immediate rewards versus uncertain, larger, delayed rewards. According to Olson, Hooper, Collins, and Luciana (2007) this allows for the effects of manipulation of delays and probabilities to be calculated. This in turn provides information about an individual’s behaviour and how impulsive they may be. A number of different approaches have been hypothesized to determine an individual’s indifference point in terms of discounting and value (Odum, 2011). The indifference point refers to a hypothetical point reached during discount fading, at which time someone would switch their choice from a later larger reinforcer (LLR) to a sooner smaller reinforcer (SSR; Odum, 2011). The most well established quantitative model was proposed by Mazur (1987) and is determined by the calculation:

\[ V = \frac{A}{1+kD} \]

In this equation, the value of the indifference point (V) is equal to the amount of reward the individual will receive (A) divided by the length of delay before receiving the reward (D), and \((k)\) is a free parameter that represents the amount of value that the delay affects (Odum, 2011).

Kirby, Petry, and Bickel (1999) conducted a study to determine if heroin addicts discounted delayed rewards at higher rates than those that did not use alcohol or illicit substances. The paper and pencil monetary discounting questionnaire that was used was developed based on the questionnaire previously used in the Kirby and Maraković (1996) study. Fifty-six outpatient heroin addicts and 60 control subjects were provided with choices between a smaller reward immediately ($11-$80) or the larger reward ($25-$85) that would be provided after a delay varying from one week to six months. The order in which the 27 trials were presented was contrived, in that it would not correlate with amounts of the smaller immediate reward or larger delayed reward. Accurate responding by participants was encouraged by offering a 1-in-6 chance of receiving a sum of money that was chosen during the trials, this procedure was deemed successful. Furthermore, the results of this study showed that heroin addicts discounting rates were twice as high as those of the control group who did not use
alcohol or elicit substances. In addition, self-reported questionnaires such as the Eysenck’s Impulsivity Inventory (I-5) questionnaire and the Barratt Impulsiveness Scale, Version 10 (Bis-10) were completed as a measure of impulsivity and were found to positively correlate with discounting scores. The results of this study demonstrate the external validity of the experimental procedure because delay discounting is a measure of impulsiveness, which is a characteristic linked to substance use disorder (Kirby, Petry, & Bickel, 1999).

Petry (2002) also looked at the relationship between delay discounting, individuals with a substance abuse disorder and antisocial personality disorder (ASPD). Despite ASPD being rare in the general public, it often can commonly co-occur with a substance use disorder (Petry, 2002). Individuals diagnosed with ASPD have the inability to adapt to social norms, engage in criminal behaviour, are irresponsible, deceitful, have a lack of remorse, and display impulsive behaviour patterns (Petry, 2002). Petry (2002) stated that the study of delay discounting might be another approach in understanding decision-making and self-control in those with ASPD. As previous studies have identified that delay discounting is associated with impulsivity and substance use, Petry (2002) attempted to understand the discounting rate of individuals with both a substance abuse disorder and ASPD compared to those without. The study was conducted using 166 subjects, 75 substance abusers, 58 substance abusers with ASPD, and 33 control subjects who had no history of a substance use disorder or ASPD. The overall procedure used was similar to that in Kirby, Petry, and Bickel (1999) by using delayed monetary rewards. However, in Petry (2002) the procedure differed in that the rewards and delays were hypothetical and subjects were exposed to two conditions varying in magnitude of delayed monetary reward instead of one condition alone. The results of this study are consistent with previous discounting literature that suggests that substance users discount significantly more rapidly than those without a substance use disorder. The results further explain that the subjects with substance use disorder who were also diagnosed with ASPD, discount delayed rewards more significantly than substance abusers alone (Petry, 2002). According to Petry (2002), the results of this study were found to align with previous studies that used the same procedures of monetary delay discounting and hypothetical rewards.

Heerey, Robinson, McMahon, and Gold (2007) conducted a study using delayed discounting measures to assess how patients with schizophrenia made decisions about the future. A group of 42 outpatients diagnosed with schizophrenia and dopaminergic abnormalities and memory-related challenges, both of which are related to impulsive decision making, were selected for the study (Heerey, Robinson, McMahon, & Gold, 2007). A test of cognitive function and a delayed discounting measure was completed by 29 healthy participants and 42 patients with schizophrenia (Heerey et al., 2007). The same monetary discounting questionnaire used in Kirby, Petry, and Bickel (2009) was used. However, it was completed on the computer rather than using paper and pencil. The delayed discounting questionnaire required participants to select different monetary rewards; the choices were between a smaller immediate reward and a larger delayed reward (Heerey et al., 2007). The results of this study concluded that individuals with schizophrenia have significantly steeper rates of discounting the value of future rewards than healthy individuals and, therefore, are considered to be more impulsive (Heerey et al., 2007).

Based on the literature, delayed discounting seems to account for the choices individuals in a forensic impatient setting make towards rewards and value. Research has found that delay discounting directly relates to the behavioural construct of impulsivity. Odum (2011) has suggested that the definition of impulsivity can be related to delay discounting in that impulsivity
itself is a choice between a smaller sooner reinforcer (SSR) being more valued than a larger later reinforcer (LLR). The degree of delay discounting can therefore be described as a measure of a person’s impulsivity (Richards, Zhang, Mitchell, & De Witt, 1999).

A variety of discounting literature has identified that individuals with a mental illness are more impulsive than those without a diagnosis of mental illness. Individuals with complex mental illness make up the population found in a forensic inpatient hospital. Mental illnesses such as antisocial personality disorder, schizophrenia, bipolar disorder, borderline personality, and substance use disorder are commonly found among forensic inpatients. Discounting research that has used delay discounting tasks to identify that individuals with these diagnoses have higher discounting scores than the general public. Impulsivity can be described as an individual being unable to resist drives or impulses that could lead to harm to one’s self or others (Stahl et al., 2014) and can evoke challenging behaviours; this can often be seen in a forensic inpatient setting. Therefore, care staff often use PRN medication as a preventative measure (Mugoya & Kampfe, 2010) or seclusion as a consequence to manage challenging behaviours (Maguire, Young, & Martin, 2012).

When an individual completes a delay discounting task their score may provide clinicians with insight into how impulsive they are. This score may provide additional information in regards to challenging behaviours that may be exhibited by forensic inpatients. As PRN medication and seclusion have been identified as popular methods used to manage these types of behaviours, it is of interest in knowing whether or not delay discounting scores may be related to the frequency of challenging behaviours exhibited by forensics inpatients. To date, no research has compared forensic inpatients scores on delay discounting tasks to the frequency of PRN medication and frequency and duration of time spent in seclusion as a means developing alternative strategies to managing challenging behaviours exhibited by forensic inpatients with complex mental illness.

**Personal Measurement of Impulsivity**

In addition to delay discounting being deemed an appropriate measure of impulsivity, another measure that has a long lasting history of being a reliable tool is the Barrett Impulsiveness Scale, 11th edition (BIS-11; Stanford et al., 2009). The BIS has an extensive history of use and is the measure most commonly used in determining impulsivity in both research and clinical settings (Stanford et al., 2009). The BIS-11 is a 30-item self-report instrument that is meant to assess the behavioural and personality constructs of impulsiveness (Stanford et al., 2009). With 551 citations of the BIS-11 as of 2009, the BIS-11 has contributed significantly to the way in which impulsivity is conceptualized in psychiatry and psychology (Stanford et al., 2009). The BIS-11 has predominantly been used in research to better understand impulsivity as a characteristic of many clinical samples such as substance use disorders, suicide attempters, depression, attention-deficit/hyperactivity disorder, bipolar disorder, and criminal offenders (Stanford et al., 2009). The BIS-11 has also been used in a substantial amount of research where delay discounting procedures were also used with individuals to explain impulsivity. In a study by Coffey, Schumacher, Baschnagel, Hawk, and Holloman (2011), both delay discounting procedures and the BIS-11, among other instruments, were used to assess impulsivity with individuals diagnosed with borderline personality disorder with and without substance use disorder. Both measures were used to assess the association between the self-report and behavioural measures; the results were significantly correlated with one another in measuring impulsivity (Coffey, Schumacher, Baschnagel, Hawk, & Holloman, 2011). Continuous use of the BIS-11 in clinical populations will continue to provide information
regarding characteristics of impulsivity but can also contribute to effective diagnosis and treatment (Coffey et al., 2011).

Impulsivity can be viewed as a behavioural construct that includes a range of maladaptive behaviours. Different measures have been used when assessing impulsivity, such as self-reported personality questionnaires (i.e., the Barrett Impulsiveness scale-BIS-11) and behavioural tasks (i.e., delay discounting tasks). However, to date no study has employed both the personality measure and behavioural tasks in a forensic inpatient setting. The relationship between these measures may be relevant to understanding impulsivity in a forensic setting, as it could contribute to the ability to determine the severity of impulsivity among individuals such as forensic inpatients.

**Summary**

Impulsivity is an important construct in psychopathology, and can often be seen in those with complex mental illnesses (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). Due to impulsivity, individuals may have difficulties coping in both a hospital and community setting, which may result in an increase in challenging behavior. The Brief Psychiatric Rating Scale (BPRS) is a tool that allows clinicians to assess a patient for active symptoms of mental illness. Using the BPRS with patients in a forensic setting may be useful as it can provide further insight into predicting challenging behaviours that may arise. These behaviours may impact the safety of the person, others in the vicinity, and care staff (Mugoya & Kampfe, 2010). Therefore, care staff often use PRN medication as a preventative measure (Mugoya & Kampfe, 2010) or seclusion as a consequence to manage challenging behaviours (Maguire, Young, & Martin, 2012). As a result of the complex nature of mental illness, patients are unable to utilize or have not developed the skills deemed necessary to cope with daily routines in a forensic setting. Therefore, the likelihood of an individual with mental illness acting on an impulsive behaviour is higher.

Delay discounting is a measure deemed valid in measuring impulsivity in an individual (Odum, 2011). The Barrett Impulsive Scale is also deemed an appropriate self-report tool in measuring an individual’s impulsivity (Stanford et al., 2009). When used together in research, these measurements have demonstrated positive effects and validity for measuring an individual’s impulsivity. Using PRN and seclusion to reduce challenging behaviours have been found to result in many negative side effects for the patient (Mugoya & Kampfe, 2010). Therefore, alternative measures to the use of PRN and seclusion in a forensic inpatient setting should be considered to encourage and provide teaching of necessary life skills for an individual to experience a smooth and safe transition out of a forensic inpatient setting to community.

**The Present Study**

The purpose of the present study was to establish a relationship between delayed discounting of forensic inpatients and the use of restrictive methods to manage challenging behaviour in two ways. First, the present study aimed to determine if there was a relationship between the discounting rates of forensic inpatients and the frequency and duration of seclusion use to manage challenging behaviour. Second, this study aimed to identify a relationship between forensic inpatients’ discounting rates and the frequency of PRN use to prevent challenging behaviour. These findings may point to new directions in the treatment of the challenging behaviours of forensic inpatients.
Chapter III: Method

Participants
Altogether, 32 individuals participated in the present study. The participants ranged in age from 26 to 63 years of age. Participants were screened for meeting inclusion criteria, prior to taking part in the present study. The brief screening process was completed by the author using the agency’s Interprofessional Clinical Accountability and Record of Engagement system (I-CARE) allowing for a file review to be completed prior to scheduling an interview. The inclusion criteria for the participants included: (a) currently being an inpatient client of the Forensic Rehabilitation Program at the Centre for Addiction and Mental Health (CAMH), (b) a diagnosis of one or more major mental illnesses according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), (c) has been receiving services from the forensic program at CAMH for a minimum of one month, and (d) is able to provide informed consent if they agreed to participate in the study. Prior to the recruitment, the research study was reviewed and approved by both CAMH Research Ethics Board and the St. Lawrence College Research Ethics Board, for the use of human participants in research (Appendix A).

Support from two Behaviour Therapist (BT) of the Forensic Rehabilitation Program was instrumental throughout the interview stage due to safety concerns. The author of the study carried out all other associated tasks relevant to the current study, such as data collection and data analysis. Both the author and two BTs posted flyers and attended inpatient community meetings on the forensic units to recruit the potential participants (Appendix B). The individual’s participation was voluntary, as they were provided with a phone number in order to initiate scheduling an interview time. In order to participate in the study, qualifying individuals were required to provide two copies of written informed consent after having been informed of the study purpose and its methods (Appendix C). All individuals that showed interest in participating in the study provided informed consent.

Design
This thesis used both an experimental and correlational approach. The delay discounting and probability discounting tasks were the experimental component. The correlational component examined the simple associations between variables, and investigated the extent to which the variables of question are related. Discounting scores were determined using a k score, which has been indicated to represent impulsivity (Odum, 2011). The score of k is determined by examining the indifference points in relation to the independent variable which is the delay and amount (Odum, 2011). In addition, subjects scores of two or more variables were analyzed without manipulation of any of the variables, to determine whether there was a relationship. For example, a correlation between \(k\) and PRN medication and a correlation between \(K\) and seclusion were statistically analyzed. This analysis was completed using two or more of the variables for a single group of inpatients, i.e., 32 forensic inpatients with complex mental illness. Additionally, descriptive statistics were used to report on the results using scatter plots, tables, and charts.

In discounting, the indifference point refers to a hypothetical point reached during discount fading, at which time a participant would switch their choice from a later larger reinforcer (LLR) to a sooner smaller reinforcer (SSR; Odum, 2011). The most well established quantitative model was proposed by Mazur (1987) and is determined by the calculation:

\[
V = A/(1+kD)
\]
To determine the participants’ degree \((k)\) of discounting, choices were offered between something now and something later, which is the right-hand side of the equation from the free parameter \(k\). These stimuli, the delay and amount are the independent variable (Odum, 2011). The participants’ selection of one of these stimuli also known as the indifference point; the left hand side of the equation, is the dependent variable (Odum, 2011). These responses are converted to a degree of discounting score \((k)\).

The BPRS is a measure used to assess an individual’s current symptomology of mental illness. It provides an immediate glimpse of what symptoms are being exhibited and experienced both internally and externally by an individual with a mental illness and for this reason was used in the present study. The BPRS was utilized in this research to determine how severity of mental illness and symptoms could be related to impulsivity and delayed discounting rates. The BIS-11 is an empirically-based approach used to determine the level of impulsivity an individual exhibits. It can be used as an additional measure to verify impulsivity scores and to ensure that the results obtained are reliable and accurate. This self-report measure was chosen as a secondary measure in the current study to support the findings of the delayed discounting scores.

**Definition of variables.**

PRN (pro re nata, or as needed) is psychotropic medication administered by a nurse to assist with managing challenging behaviours and is ingested orally or given with an injection/intravenous (Mugoya & Kampe, 2010).

Seclusion is the act of secluding. It is the involuntary isolation of a patient in a locked room or other limited part of a facility. Seclusion limits the patient's movement and activities as well as contact with others (Stellwagen & Kerig, 2010).

Delay discounting refers to the decline in the present value of a reward as the function of the delay until its receipt (McKerchar & Renda, 2012).

Probability discounting refers to the decline in the value of a reward as a function of a decreasing likelihood of its receipt (McKerchar & Renda, 2012).

The Brief Psychiatric Rating Scale (BPRS) is a 24-item semi-structured interview that is used for quickly assessing patients for the presence and severity of active psychotic and affective symptoms (van Beek et al., 2015).

The Barrett Impulsiveness Scale - 11th edition (BIS-11) is a 30-item self-report instrument that is meant to assess the behavioural and personality constructs of impulsiveness (Stanford et al., 2009).

**Setting and Materials**

The present study was conducted at the Centre for Addiction and Mental Health (CAMH) in the Complex Mental Illness (CMI) inpatient forensic department. The setting for the study varied depending on the unit in which the clients disposition ordered the client to reside, i.e., forensic general unit or forensic secure unit. The interview was conducted in a private room on the unit with a table or desk and chairs.

A variety of materials were used during the study. The materials being used included a pencil or pen and monetary incentive in the form of a single ten dollar Canadian bill. In addition, a packaged envelope including all necessary documents was taken to each interview and labelled with a subject identifier. The prepared envelope included a data sheet for collecting information from the client’s file (Appendix D), two copies of the consent form (Appendix C), paper copies of both the monetary (Appendix G) and probability discounting questionnaire (Appendix H), the Barrett Impulsivity Scale (Appendix E), the Brief Psychiatric Rating scale (Appendix F), and a subject reimbursement form (Appendix I).
Measures

File review.

A file review and the collection of data was completed following each participant’s interview and entered into an Excel™ spreadsheet. This data collection was completed in the author’s office on a desktop computer at the Centre for Addiction and Mental Health (CAMH). The agency’s internal clinical database, the Interprofessional Clinical Accountability and Record of Engagement system (I-CARE), was used to collect information about the client. The client’s current 2015 Ontario Review Board (ORB) report was utilized for gathering and confirming additional information related to all variables. The participants’ demographic information was collected, i.e., age, sex, and diagnosis. In addition, data were collected on the type and frequency of PRN use per participant and the frequency and duration of seclusion per participant.

Monetary discounting measure.

The discounting questionnaire that was used in this study was derived from Kirby, Petry, & Bickel (1999). More specifically, the discounting task that was used was the 27-item monetary choice questionnaire (Appendix G; Kirby, Petry, & Bickel, 1999). In the present study, participants completed discounting tasks that required them to choose between small, immediate rewards versus uncertain, larger, delayed rewards (i.e., which would you rather have? a) $54, today or b) $55, 117 days from now). The order in which the 27 trials were presented was contrived, in that it would not correlate with amounts of the smaller immediate reward or larger delayed reward. Ordinal data were collected by using identifiers to record the participant’s choice. Each question had two choices available; choice A, was the smaller immediate reward represented as “0” and choice B, was the larger later reward represented as “1”. These data were entered into an Excel™ spreadsheet to be analyzed. Participants were encouraged to read the questionnaire to him/herself and independently and accurately document their answer. However, some participants opted to have the questionnaires read to them due to a cognitive deficit or poor vision. In these instances, the author read the choices aloud and documented the selected choice. Participants were reminded that the questionnaire was hypothetical and they would not be receiving the amounts of money discussed.

Probability discounting measure.

The senior research investigators involved in the study created questionnaires (Appendix H) utilizing questions that are applicable to the sample population, that is, to assess tendencies to leave the hospital against advice (e.g., AWOL). For example, would you rather abscond now with an 80% chance of being caught, or abscond in a month with a 40% chance of being caught? The probability values that were used in the probability discounting questionnaire were derived from a study by Richards, Zhang, Mitchell, & De Witt (1999) who examined the acute effects of drugs of abuse on impulsivity and self-control. Two findings that were identified during the study were that delay and probability discounting were well described by a hyperbolic function and that delay and probability discounting were positively correlated within subjects. The probability discounting measure in the present study included 70 questions related to AWOL. In the probability discounting task, the participant chose between relatively small but certain outcomes, and larger but uncertain outcomes. Similar to the monetary discounting measure, the subjective value of the larger outcome typically decreases as a function of the delay to receiving the outcome (in the delay task) or the odds against receiving the outcome (in the probability discounting task). Similar to the monetary discounting measure, ordinal data were collected by using identifiers to record the participant’s choice. Each question had two choices available;
choice A, was the smaller but certain outcome represented as “0” and choice B, was the larger but uncertain outcome represented as “1”. These data were entered into an Excel™ spreadsheet to be analyzed.

**The Barrett Impulsiveness Scale - 11th edition (BIS-11; Appendix E)**

The BIS-11 is a 30-item self-report instrument that is meant to assess the behavioural and personality constructs of impulsiveness (Stanford et al., 2009). It can be used to advance understanding of this construct and its relationship to other clinical phenomena. Ordinal data is collected and then later scored as a total sum. Items are scored on a 4-point scale: rarely/never = 1, occasionally = 2, often = 3, almost always/always = 4. Each participant completed the survey, and his or her total score out of 120 were totaled and entered into the Excel™ spreadsheet.

**The Brief Psychiatric Rating Scale 4.0 (BPRS; Appendix F)**

The BPRS is a 24-item semi-structured interview (van Beek et al., 2015). It is a rating scale, which clinicians or researchers use to measure psychiatric symptoms such as depression, anxiety, hallucinations, and unusual behaviour and speech. The scale is one of the oldest, most widely used scales to measure active psychotic symptoms and was first published in 1962. Its purpose is to quickly assess patients for the presence and severity of active psychotic and affective symptoms. Interval data are collected and then later scored. Each symptom is rated on a scale from “1” to “7” and a total of 24 symptoms are scored. Items 1-14 are rated based on the individual’s self-report, items 7, 12, and 13 are rated based on the combination of self-report and observed behaviour. Finally, items 15 - 24 are rated based on observed behaviour and speech. There are a predetermined set of probe questions and follow up questions during the interview that assess an individual’s symptomology.

**Procedures**

The participant called the extension assigned to the discounting project and left a voicemail message suggesting their interest in taking part in the research study. A brief file review was completed prior to returning the participant’s phone call to schedule an appointment. Once identified that the participant met the inclusion criteria, the author returned the phone call and an appointment was made with the participant that was best suited for both the participant and the author’s schedule. The participant met with the author at the scheduled interview time, in a private room under the supervision of a Behavior Therapist (BT) on the unit where they were living. Before entering the private room to begin, the author entered the nursing station to receive a report on the client’s mental status for that day; this was done for safety purposes. At the beginning of the interview, the author noted the time and reminded the participant that the interview may take anywhere from 40-60 minutes. The participant was briefed on the research study and what their role was as a participant, including signing two copies of the informed consent forms. One copy was placed in the client’s file and the other was given to the client. All forms were first reviewed with the participant, making them aware of all data that would be collected.

Note that all procedures below were repeated for each of the 30 participants on an individual basis. Not one client requested the results of any of the procedures involved and therefore the results were not shared with the participants and they were totaled at a later time and or date. In addition, the author received training from the senior research investigators on implementation and scoring the different measures.
The Interview Procedure

The Barrett Impulsiveness Scale 11th edition (BIS-11) was completed first with the participant. The personal evaluation was presented to the participant as they had an option in completing it themselves or having it read out loud. The participants typically chose to read it to themselves and checked off with a pen the circles, which they felt best described them. Alternatively, the author read the questions out loud and recorded the choice made. The participant completed all 30 questions of the self-evaluation. Occasionally, clarification was required for some of the questions such as “I am happy-go-lucky” or “I often have extraneous thoughts when thinking”.

Next, the Brief Psychiatric Rating Scale 4.0 (BPRS) was completed with the participant. This required anywhere from 10 - 25 minutes to complete. The author reviewed questions 1 - 14 of the BPRS, using the prompts provided throughout. During this time, the author recorded notes and observed the participant’s behavior and speech that contributed to answering the remainder of the questions, 15 - 24. Items 1 - 14 were rated on the basis of the participant’s self-report. Additionally, a review of the past 30 day’s mental status exams was completed by the author to contribute to the participant’s score regarding the first 14 questions.

The 27-item Monetary Questionnaire was completed next, followed by the Consequences of Absconding Questionnaire. The participant was asked to answer a series of questions that were intended to assess their choices on a variety of outcomes. The questions included both temporal and probabilistic aspects of the choice making process. Questions on the monetary questionnaire included the following: Which would you rather have, $54 today or $55 117 days from now? Which would you rather have, $55 today or $75 61 days from now? The participant answered twenty-seven questions in total.

Questions on the probability questionnaire included: Run away from CAMH for 1000 days with a 0% chance of being caught and having all passes and privileges suspended, or run away from CAMH for 1000 days with a 10% chance of being caught and having all passes and privileges suspended? Run away from CAMH for 1 day with a 0% chance of being caught and having all passes and privileges suspended, or run away from CAMH for 1000 days with a 75% chance of being caught and having all passes and privileges suspended? The participant had the opportunity to read and document his or her own answers on the questionnaire. However, if they were unable to read the questions, they were read aloud to them. Participants typically did not show difficulty while answering the monetary questionnaire. However, when completing the probability questionnaire, clients required a much more detailed explanation of the questionnaire prior to beginning and reassurance that it was a hypothetical questionnaire. This was done to establish trust in that the way in which they answered would not affect their care, or their treatment team would not have knowledge of. The author provided a detailed explanation on how the data would be used and there would be no effects on the client’s treatment.

At the end of the interview, the client was asked to sign a subject reimbursement receipt (Appendix I). The amount of money and participant’s study identifier was documented on the receipt and the participant was given $10 in the form of a single Canadian bill.

The measures used during the interview were later scored and the results were entered in an Excel™ data sheet. The data on the remaining variables, PRN and seclusion, were collected via chart review and ORB reports. This data was also entered into an Excel™ spreadsheet.
Chapter IV: Results

The primary goal of the thesis was to identify how impulsivity contributes to challenging behaviour by use of delay discounting measures. In addition, the study further aimed to identify if a relationship existed between delay discounting scores of forensic inpatients with complex mental illness and two intrusive methods commonly used to manage challenging behaviour in an inpatient setting. The relationship between delay discounting scores and seclusion, also known as isolation, and pro re nata (PRN; as needed) medication administration for challenging behaviours was also investigated. Originally both the monetary delay discounting and probability delay discounting measures were used during the interview process with each participant. However, due to procedural and contractual issues, the probability discounting data that was completed for each participant could not be included and only the monetary delay discounting data was analyzed for the purpose of this study.

Altogether, 32 individuals participated in the present study. Of the 32 participants, 27 were used in the study, 6 were female, and 21 were male. Due to not meeting inclusionary criteria, or receiving services for a minimum of one month, five participants were removed from the study. The mean score for the monetary delay discounting (k) questionnaire was 0.06 (N = 27, SD = 0.078), with a range of 0.000 to 0.250 (Table 1). The mean score for the participants PRN use of psychotropic medications over a one-month period was 77.70 doses (N = 27, SD = 16.765), with a range of 0 to 66 (Table 1). The mean score for the number of hours spent in seclusion was 25.73 (N = 27, SD = 131.013), with a range of 13.47 to 681.15 hours (Table 1). The mean score for the BIS-11 self-reported measure was 71.04 (N = 27, SD = 13.569), with a range of 36 to 95 (Table 1). The mean score for the BPRS was 44.19 (N = 27, SD = 15.292), with a range of 25 to 91 (Table 1).

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>K Score</td>
<td>27</td>
<td>0.057</td>
<td>0.078</td>
<td>0.000 - 0.250</td>
</tr>
<tr>
<td>PRN</td>
<td>27</td>
<td>7.704</td>
<td>16.765</td>
<td>0 - 66</td>
</tr>
<tr>
<td>Seclusion</td>
<td>27</td>
<td>25.726</td>
<td>131.013</td>
<td>13.47 - 681.15</td>
</tr>
<tr>
<td>BIS – 11</td>
<td>27</td>
<td>71.037</td>
<td>13.569</td>
<td>36 - 95</td>
</tr>
<tr>
<td>BPRS</td>
<td>27</td>
<td>44.185</td>
<td>15.292</td>
<td>25 - 91</td>
</tr>
</tbody>
</table>

Note. K Score = delay discounting; PRN (pro re nata) = number of doses; Seclusion = number of hours spent in isolation; BIS- 11 = Barrett Impulsiveness Scale; BPRS = Brief Psychiatric Rating Scale.
Table 2. Correlation Statistics

<table>
<thead>
<tr>
<th>Correlation Variables</th>
<th>N</th>
<th>p</th>
<th>r</th>
<th>r²</th>
</tr>
</thead>
<tbody>
<tr>
<td>K &amp; PRN</td>
<td>27</td>
<td>0.816</td>
<td>0.047</td>
<td>0.002</td>
</tr>
<tr>
<td>K &amp; Seclusion</td>
<td>27</td>
<td>0.938</td>
<td>0.016</td>
<td>0.000</td>
</tr>
<tr>
<td>K &amp; BIS – 11</td>
<td>27</td>
<td>0.366</td>
<td>0.181</td>
<td>0.033</td>
</tr>
<tr>
<td>K &amp; BPRS</td>
<td>27</td>
<td>0.974</td>
<td>0.006</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note. * Significant at the .05 level, ** Significant at the .01 level. K Score = delay discounting; PRN = pro re nata; Seclusion = in isolation; BIS-11 = Barrett Impulsiveness Scale; BPRS = Brief Psychiatric Rating Scale.

A Pearson correlation coefficient was computed to assess the relationship between the rate of monetary discounting by a forensic inpatient and the frequency of PRN use. There was no significant correlation found between the two variables, \( r = 0.047, n = 27, p = 0.816 \) (Table 2). A scatterplot summarizes the results (Figure 1). Overall, there was a nonsignificant correlation between delay discounting and the frequency of PRN use. The rate of discounting does not correlate with the amount of PRN medication used with forensic inpatients.

![Figure 1. This figure shows the correlation between delay discounting scores, using the monetary questionnaire.](image-url)
A Pearson correlation coefficient was computed to assess the relationship between the rate of monetary discounting by a forensic inpatient and the frequency and duration of seclusion. There was no significant correlation found between the two variables, $r = 0.016$, $n = 27$, $p = 0.938$ (Table 2). A scatterplot summarizes the results (Figure 2). Overall, there was a nonsignificant correlation between delay discounting and the frequency and duration of seclusion. The rate of discounting does not correlate with the amount of time spent in seclusion by forensic inpatients.

![Figure 2](image-url)

*Figure 2.* This figure shows the correlation between delay discounting scores, using the monetary questionnaire and the duration of hours spent in seclusion.

A Pearson correlation coefficient was computed to assess the relationship between the rate of monetary discounting by a forensic inpatient and the score from the self-report instrument, the Barrett Impulsiveness Scale (BIS-11), which assesses the behavioural and personality constructs of impulsiveness. There was no significant correlation found between the two variables, $r = 0.181$, $n = 27$, $p = 0.366$ (Table 2). A scatterplot summarizes the results (Figure 3). Overall, there was a nonsignificant correlation between delay discounting and the BIS-11. The rate of discounting does not correlate with the self-reported score of impulsiveness as seen by the BIS-11 by forensic inpatients.
Figure 3. This figure shows the correlation between delay discounting scores, using the monetary questionnaire and the Barrett Impulsivity Scale.

A Pearson correlation coefficient was computed to assess the relationship between the rate of monetary discounting by a forensic inpatient and the state of active symptoms measured by the Brief Psychiatric Rating Scale (BPRS). There was no significant correlation found between the two variables, \( r = 0.006, n = 27, p = 0.974 \) (Table 2). A scatterplot summarizes the results (Figure 4). Overall, there was a nonsignificant correlation between delay discounting and the score of the BPRS. The rate of discounting does not correlate with the active symptomology seen by forensic inpatients.
Figure 4. This figure shows the correlation between delay discounting scores, using the monetary questionnaire and the Brief Psychiatric Rating Scale.

The relationship was analyzed between monetary delay discounting scores of 27 forensic inpatients with complex mental illness, and two intrusive methods, PRN and seclusion use. Both intrusive methods are commonly used to manage challenging behaviour in an inpatient setting. Results were found to be nonsignificant during the analysis. In addition, the relationship between monetary delay discounting scores and the score from the BPRS and BIS-11 were also analyzed, and no significant results were found. The range for all variables was recorded and it appeared that there was a significant range for each variable. These nonsignificant results are inconsistent with previous research regarding monetary delay discounting.
Chapter V: Discussion

Overview
This study aimed to investigate the relationship between delay discounting by forensic inpatients and the use of restrictive methods to manage challenging behaviour in two ways. First, the aim of the present study was to determine if a relationship existed between the discounting rates of forensic inpatients and the duration of time spent in seclusion to manage challenging behaviours in a clinical setting. Secondly, the present study aimed to determine whether a relationship existed between the discounting rates of forensic inpatients and the frequent use of PRN medication as a way to manage challenging behaviours. Measurements included a monetary discounting questionnaire and a probability discounting questionnaire. Additional measurements used were the Barrett Impulsiveness Scale (BIS-11) and the Brief Psychiatric Rating Scale (BPRS). It was hypothesized that those with steep discounting rates would also have high rates of PRN administration and duration of hours spent in seclusion among the sample population of forensic inpatients. Both the monetary and probability delay discounting tasks were administered to 27 individuals diagnosed with complex mental illness, in a forensic inpatient setting. However, this study was only successful in answering half of the original hypothesis, as the probability discounting data that was completed for each participant could not be included in the final analysis due to contractual issues and only the monetary delay discounting data was analyzed. Therefore, the study examined the relationship between monetary discounting and the duration of time spent in seclusion and the frequent use of PRN medication.

This thesis was formulated on a strong empirical foundation, which illustrated the efficacy of using the delay discounting measure as a behavioural construct in measuring impulsivity across a variety of clinical populations. However, the results of this particular study showed nonsignificant results, as well as inconsistencies to previous research. For example, a study by Crean, de Wit, & Richards (2000) found that psychiatric patients that engaged in high risk behaviours showed steep rates of delay discounting. In the current study, steep rates of discounting were not found in the sample population of forensic inpatients with complex mental illnesses. In addition, there were no correlations found between monetary discounting scores and the use of restrictive methods for managing challenging behaviours such as PRN use and seclusion. In the current literature, no study has yet to identify delay discounting tasks being attempted with a forensic population. This may be the first study to investigate these variables with this population and, therefore, the findings can be considered preliminary.

Strengths
Despite this study not revealing significant correlations as reported with other populations, there were some strengths worthy of note. A primary strength of this study was that the discounting measures used were based on empirical evidence supporting the use of delayed discounting tasks as a behavioural construct for measuring impulsivity across a number of populations including those in a clinical setting.

Another strength of this study was the availability of a large sample size from an inpatient forensic population with complex mental illness. This was important, as it would allow a sample to be examined and the results more likely to be generalized to the targeted population.

Lastly, the research study used both an experimental and correlational approach. Because correlation was the statistical method being used in this study, it allowed for a large sample of variables to be compared. The use of an internal database containing all of the clients’ detailed files was available to the researchers throughout this study. This allowed for individual data sets...
of a number of variables to be compared to delay discounting scores. In addition, this study showed high levels of validity and reliability as a result of multiple related measures being used to demonstrate a correlation between the experimental factor and multiple variables. This factor provides support of the present study’s strengths because all of the measures utilized are empirically supported.

**Limitations**

Despite the present study discovering nonsignificant results, the procedures examined in this study should be used to guide future research regarding discounting rates and the use of intrusive measures to manage challenging behaviours among forensic inpatients. The present study demonstrated strong validity and reliability in the use of relevant measures to determine relationships of these variables. However, the results found in the present study are contrary to previous literature on delay discounting rates. Therefore, it is important to review and interpret the results of this study with a certain degree of caution and to have a thorough understanding of the limitations that were present in this research. By possessing a thorough knowledge of the limitations of the present study, future research could be directed to address some of these limitations and likely obtain more significant results.

Firstly, the inclusionary criterion that was used in the present study may have benefited from being more specific to ensure client variables such as individual diagnoses and symptoms related to different forms of mental illness, did not play a part in the correlation of discounting rates and restraint procedures. The researchers found that there was a high degree of variability among the clients included in this study, specifically in personal factors regarding diagnoses and symptoms, which may have impacted the results obtained. These factors can be observed when reviewing the scores of each individual’s BPRS interview; the interviews showed a range of 25 to 91 in the scores of individuals’ current symptomology throughout the study. This demonstrated that throughout the study there was a large variability in the symptomology that participants were experiencing, which could impact their monetary discounting (k) scores. While there were many factors that impacted the inclusionary criteria, each could be reviewed as an independent limitation to the research.

The inclusionary diagnosis for participants was a complex mental illness, meaning that each individual had more than one diagnosis. This in itself posed limitations for the present study because there were many factors of their symptomology at play throughout the study. Results of the BPRS were impacted by the positive (e.g., hallucinations, delusions) and negative (e.g., social withdrawal, depression) symptoms of mental illness that each participant was experiencing at different times throughout the study period. These factors may have influenced their thought processes and understanding during interviews and therefore may have impacted their responses.

One of the factors that posed issues for the inclusionary criteria was the level of security that each participant required within the clinical setting. Based on the findings of the BPRS scores for each individual, it was found that the participants in more secure units required higher levels of PRN and seclusion use. However, because these factors were related to the level of unit security inpatients received, participants who were likely to have a higher frequency of intrusive restraints were not as accessible for the present study.

Similarly, the type of population involved in the present study could have posed limitations to the findings. It is important for researchers to be aware that when conducting research with this population, a participant lacking a trusting relationship with the researcher during interviewing may have an impact on the results that will be obtained. The individuals involved in the current study were detained in an inpatient unit due to criminal history. Because a
forensic inpatient population was targeted, participants may have untruthfully answered questions during the interview due to concerns about potential consequences of their answers. Also, the clinical setting in which the interviews were conducted, as well as the attendance of clinical staff during the interviews, could have impacted the participants’ responses. On occasion, clients seemed hesitant and expressed a disinterest in participating in the current study due to concerns that information gathered may be used against them in the inpatient setting or potentially in an upcoming ORB hearing. This resulted in the need for reassurance by the researchers that confidentiality would be maintained throughout the study. Despite these reassurances, the participants’ responses to questions may have been altered or a pattern of responding may have occurred during research procedures. All of these factors related to the population could be based on the fact that there is unpredictability when targeting this population, as no research has been conducted on delayed discounting in a forensic population.

Secondly, the current study did not make use of participants who had high frequency or any use of PRN medication within the 30-day period prior to the study. In addition, some of the participants in the current study received psychotropic medications on a daily basis to manage challenging behaviours and, therefore, did not receive these types of medications in PRN form. In addition, if these individuals exhibited other maladaptive behaviours, it was more common for their current medication dosage to be adjusted rather than a PRN being prescribed. This practice was primarily used to alleviate the potential for challenging behaviours to arise before medication could be administered. In the hospital setting, common protocol is to conduct regular, daily medical assessments to determine whether current levels of medications are appropriate for each client and, if dosages require altering, psychiatrists are present to change medications as necessary rather than giving PRN medications as a last resort.

Thirdly, the interview structure utilized in the present study posed limitations in that there were inconsistencies in the delivery of measures and in the ability of participants to understand and answer questions accordingly. Inconsistencies existed surrounding whether participants read the questions themselves or if the researcher was required to read the delay discounting questions to them aloud. For a variety of reasons, some participants did not read the questions themselves and this could have had an impact on their responses. In addition, based on factors that should have been included in the delivery, one important component that was not included in the current research was a teaching component. This would have ensured that all participants had equal understanding of the procedures and implications of their responses, prior to exposure to the measurements and materials. Furthermore, individuals’ IQs were not measured and used as an inclusionary criterion of this study. This factor could have provided information about the individuals’ developmental and intellectual functioning and contributed to their level of understanding regarding the interview process.

The findings of this thesis were nonsignificant and steep rates of discounting were not found to be consistent across participants, as seen by the large range \((k) 0.00\) to \(0.25\) using the monetary delay discounting measure. While significant correlations were not found in this study compared to those found in research among other populations, some strengths were noted from the current study. Firstly, the discounting measures that were utilized were based on empirical evidence that supported the behavioural construct of delayed discounting to measure impulsivity across a variety of clinical populations. While there were a number of limitations in this research, these findings can provide positive outcomes and directions for future research. The limitations found in the current study provide important insight and factors that should be taken into consideration when conducting research in the future. In the current literature, no study has yet to
identify delay discounting tasks being attempted with a forensic population. This may be the first study to investigate these variables with this population and, therefore, the findings can be considered preliminary.

**Implications in the Field of Behavioural Psychology**

This study served to contribute to existing research, and create a pathway for examining new areas of research. The thesis and its directions have identified a gap in the research that undoubtedly holds valuable information. Because the present study focused on a forensic inpatient population, many questions have been raised that will help guide future research. Considerations include how this population’s discounting scores may differ from other similar populations such as psychiatric patients in a non-forensic clinical setting. Although the current study was limited in many ways, the process itself has prompted various considerations and possible solutions as to how to effectively further research in delay discounting in a clinical population such as forensic inpatients with complex mental illnesses. In addition, the results of this research suggest the need for future research in this area to determine a better understanding of impulsivity in a forensic inpatient population. This understanding of the relationship between impulsivity and time spent in seclusion and PRN use in a forensics setting may aid clinicians in determining alternative strategies to managing patients’ challenging behaviours, and ultimately help better prepare patients for a smoother transition into the community.

**Recommendations for Future Research**

The results of this initial research suggest that forensic inpatients’ delay discounting scores were not correlated with a high use of PRN and seclusion when managing challenging behaviours. Steep rates of discounting were not found, which is contrary to previous research. However, it is important to note that a significant difference in this study in comparison to all other research is that this study attempted to measure impulsivity in a forensic population, whereas previous research has never attempted to do so. Both the results and the limitations of the present study, necessitate the need for further research in the area of delay discounting among forensic inpatients.

It is recommended that the inclusionary criteria be made narrower in order to target exactly what is being measured. Due to the complexities of mental illness and each diagnosis presenting very differently as seen in the results of the BPRS, it may be more appropriate to analyze clients with differing diagnoses separately to first find commonalities among the same group. This means targeting those individuals that may be in a more secure unit. This also allows for similar clinical populations to be assessed, as similar to previous literature, by only changing one aspect, specifically that they are forensic patients. This is important as analyzing all members of this group may result in too much variability, as seen in the current study. Future research should aim to differentiate the diversity of diagnoses and study differing populations individually rather than as a large group sample.

Perhaps the most important consideration for future research is that, only those clients who have used PRN specifically, psychotropic medications, and seclusion as a means of managing challenging behaviours in the past 30 days should be considered for this type of study. This is important, as many clients in a forensic population may not necessarily require the same types of intrusive interventions if they are higher functioning and stable in regards to their mental illness.

Given the inconclusive nature of the results, further research would be necessary to fully evaluate whether those with steep rates of delay discounting will also have high frequency rates of PRN use and seclusion among the sample population of forensic inpatients. Rates of delay
discounting were found not to be similar to previous research because results were gathered from a forensic population. Further research should be conducted in other labs to gain more results regarding delay discounting in a forensic population. These recommendations and other refinements would broaden our understanding of delay discounting in forensic inpatients with complex mental illness.

**Multilevel Challenges to Service Implementation Report**

There are many challenges when working with individuals with complex mental illness who are involved in forensics, more specifically an inpatient forensic hospital setting. These challenges occur at a variety of different levels including: client level, program level, organizational level, and societal level.

**Client Level.**

It can be difficult to motivate clients to participate in a variety of activities including therapy while in a hospital setting. Clients are detained in a hospital to receive mandatory treatment as per the ORB. On occasion, individuals may lack insight into their mental illness or index offense that can pose as a barrier to building rapport. Clients require staff support to assist them in moving through the ORB successfully, which can be challenging when rapport has not been built. It is difficult to increase willing participation if a client does not trust you, believes they do not have a mental illness, thinks that they did not do anything wrong, and that they should not be in the hospital. This poses difficulty due to the fact that clients need to show progress in their lives and have structure prior to transitioning to the next step, which could be community reintegration. Due to clients occasionally lacking insight, they don’t have trust in their care team, therefore, they may feel the system is failing them as their stay in hospital may be prolonged.

**Program Level.**

In a fast paced and busy environment such as a hospital, it can be challenging to implement programs, activities, and research specific to one’s discipline. Although teams in the hospital are multi-disciplinary, the majority of the hospital staff are medical staff who follow a medical model regarding therapeutic interventions. Therefore, it is difficult to use principles of applied behaviour analysis or conduct research in a hospital setting. It is difficult in such a setting to connect and schedule appointments with clients due to restrictions surrounding the level of independence and privileges determined by the client’s detention order. Receiving assistance from nursing staff on the different units poses a challenge, as the research study may not have been a priority to staff. When this occurs, it is challenging to connect with the client, as most of the communication needs to be facilitated through their primary or charge nurse. This result in clients being unable to independently attend their scheduled meeting.

**Organizational Level.**

It is often that clients have more than just one challenge that requires the support from the team. CAMH uses a multi-disciplinary approach; this means that many different allied healthcare staff are involved in the clients’ therapy. In a setting such as an inpatient forensic setting, there are many policies and even laws that staff and clients need to obey due to the client being involved in the legal system. This makes therapy challenging as there may not be much flexibility. Due to the lack of flexibility, it can be challenging to create an environment in which a client can grow and be successful and transition the same supports to the community. Two things are lacking, first the environment on an inpatient unit holds a client back from reaching their full potential and maximizing their independence; second, therapy and supports that have
been in place while in hospital are not realistic or transferable into community. This is a barrier for ensuring successful transition.

**Societal Level.**

The lives of people with mental illness are often plagued by stigma. Stigma is a negative stereotype, but it is reality for many individuals with a mental illness. How society views people with mental illness acts as a barrier for individuals living a satisfying life. The lack of understanding surrounding ways in which mental illness can cause a person to act out, which may look “strange” or “harmful” to others, can impact an individual and possibly hinder them from accessing community supports when in crisis or experiencing psychosis. Behaviours that are seen by the community may not always be easy for one to control. However, if individuals receive treatment they can live as healthy and contributing members of society. If stigma continues, individuals living with mental illness may isolate themselves and experience changes in mood. Without seeking support or hospital care, outpatient clients may stop taking medications and relapse. If mental illness is not controlled they may end up back in the hospital.
References


patient: An integrative literature review. *Journal Of Psychiatric And Mental Health Nursing*, 20(9), 830-839.


Appendix A. Research Ethics Letter of Approval

October 5, 2015

SLC REB Reference Number: 2015-REC-13

Project Title: Discounting Outcomes of Forensics Inpatient Residents

Dear Nimi:

I am writing to advise you that the Research Ethics Committee – Psychology (REC-P), a subcommittee of the Research Ethics Board (REB) of St. Lawrence College, has granted Approval to the above-named research study. Your research may now begin.

You have one year to complete the project from the time of approval. Should you require more time to complete your project, you will be required to submit a request for ongoing ethics approval for your project. This must be submitted prior to REB approval expiry.

Please review St. Lawrence College’s Policy on Research Integrity, which is attached for your convenience. You are obligated to keep your files up to date and inform the REB of any changes to your study. Any changes to the approved protocol or consent materials must be reviewed and approved through the amendment process prior to its implementation. Both a Request for Amendment of an Approved Project form and a revised application must be submitted to the research office for review by the REB.

Any adverse or unanticipated events during the course of your research must be reported to the REB as soon as possible. The REB reserves the right to review your file at any time to ensure that research is being conducted in accordance with all SLC policies.

Once your project is complete, you are required to complete a Project Termination form (included with REC-P approval documents). This form must be submitted as a final report about your research to the REB.

Best wishes for the successful completion of your project.

Best Regards,

Alison Tucker
Chair, Research Ethics Board

cc. Cam McEachern, Director, Research
Andrew McLamara, faculty supervisor
Invitation to Participate in Research Study:
Delayed Discounting in Forensic Patients

Are you interested in participating in a study about how people make choices about present and future outcomes?

Contact Nimi Singh at 416-535-8501 x30791

- Leave your full name
- Leave your current location
- Leave a number you can be contacted at

Your privacy will be respected and you will be compensated for your time.

CAMH REB# 022-2015
Appendix C. Consent Form

Delayed Discounting Outcomes of Forensic Inpatients - Informed Consent Form

REB#: 022/2015

Study Name: Delayed Discounting Outcomes of Forensic Inpatients

Researchers: Treena Wilkie, Stephanie Penney, Albert Malkin, Louis Busch, Ross Violo, & Ryan Speelman

Purpose of the Research: Gaining an understanding of how different populations discount varying commodities may aide in identifying and implementing empirically validated treatment protocols to help teach self-control and decrease impulsive behavior patterns. The presence of various diagnoses and mental status may predict a high degree of impulsivity contributing to maladaptive behavior patterns. For example, assessing impulsivity as it relates to time away from the in-patient unit may be utilized as an objective tool to determine the likelihood of absconding during opportunities for exposure to community inclusion.

What You Will Be Asked to Do in the Research: You will be asked to complete a survey with an interviewer that could take up to one hour to complete. The researchers will compare your answers to other variables within your CAMH chart (age, diagnosis, medications, progress notes, index offense, etc.).

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research.

Benefits of the Research and Benefits to You: Participation will help clinicians better understand the factors that underlie the phenomena of delay and probability discounting and may potentially inform treatment for individuals within the forensic system. It is anticipated that treatment developed based on this understanding may contribute to decreased instances of impulsive behavior which prevents this population from greater integration into the community (e.g. absconding and drug abuse).

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the treatment you are receiving at CAMH or the nature of your relationship with the researchers or study staff or the nature of your relationship with CAMH.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, The Centre for Addiction and Mental Health, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. If you decide to participate you will still be offered the agreed upon incentive.
Confidentiality: The results of the surveys you complete will be compared with a number of variables from your personal health record such as your diagnosis, your age, the number of years you have been in hospital, the nature of your index offense(s), the number of attempted or successful AWOLs reported, the content and dosage of your prescribed and as needed (PRN) medications. Other clinical information may be retrieved from your clinical chart. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Data will be collected on handwritten notes, and then will be transferred to data files on CAMH’s secure server. Your name and identifying information will be separated from your clinical information and kept in two separate locations under lock and key so that these variables cannot be matched to one another. Hard copies of your interviews and completed surveys will be safely stored in a locked facility at the Centre for Addiction and Mental Health and only research staff will have access to this information. The data will be kept for approximately 1-year, and all identifying information will be destroyed after this time (name and birthdate). Confidentiality will be provided to the fullest extent possible by law.

As part of the Research Services Quality Assurance Program, this study may be monitored and/or audited by a member of the Quality Assurance Team. Your research records and CAMH records may be reviewed during which confidentiality will be maintained as per CAMH policies and extent permitted by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Dr. Padraig Darby either by telephone at (416) 535-8501, extension 36876 or by e-mail (Padraig.Darby@camh.ca). This research has been reviewed and approved by the Toronto Health Sciences Network and by CAMH’s Research Ethics Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Manager of Research Ethics at CAMH, Susan Pilon by email (Susan.Pilon@camh.ca) or by telephone at (416) 535-8501, extension 36352.

Legal Rights and Signatures:

I ___________________________ consent to participate in Delayed Discounting by Individuals Living with Mental Illness conducted by Treena Wilkie, Stephanie Penney, Albert Malkin, Louis Busch, Ross Violo, Nimi Singh & Ryan Speelman at the Centre for Addiction and Mental Health. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent to participate in the research project and to share my health record with the researchers.

Signature ___________________________ Date _________________
Participant

Signature ___________________________ Date _________________
Principal Investigator
**Appendix D. Variable Data Collection Sheet**

Discounting of Outcomes of Forensic In-Patient Residents Study

<table>
<thead>
<tr>
<th>Chart Review Data Collection Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject ID</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Current Psychiatric Diagnoses</td>
</tr>
<tr>
<td>Diagnosis at time of last ORB Report &amp; Date</td>
</tr>
<tr>
<td>Personality Disorder Diagnoses</td>
</tr>
<tr>
<td>History of Substance Abuse?</td>
</tr>
<tr>
<td>Current Psychotropic Medications</td>
</tr>
<tr>
<td>Current PRN Medications Prescribed</td>
</tr>
<tr>
<td>BPRS Scores</td>
</tr>
<tr>
<td>BIS-11 Scores</td>
</tr>
<tr>
<td>Hours in Seclusion (3 month range)</td>
</tr>
</tbody>
</table>
### Personal Evaluation

**ID #_______**

**Your Current Age ______**

**Date _______/_____/______**

**Sex M F**

**Directions:** People differ in the way they act and think in different situations. For each statement below mark an X in the appropriate circle to the right to indicate how the statement applies to you. Do not spend too much time on any statement. Answer quickly and honestly.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rarely</th>
<th>Occasionally</th>
<th>Often</th>
<th>Usually</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I plan tasks carefully.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. I do things without thinking.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. I make up my mind quickly.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. I am happy-go-lucky.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. I don’t “pay attention.”</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. I have “racing” thoughts.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. I plan events well ahead of time.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. I am self-controlled.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9. I concentrate easily.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10. I save regularly.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11. I &quot;squirm&quot; at plays or lectures.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12. I am a careful thinker.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13. I plan for job security.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14. I say things without thinking.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15. I like to think about complex problems.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16. I change jobs.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17. I act “on impulse.”</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18. I get bored easily when solving thought problems.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19. I act on the spur of the moment.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20. I am a steady thinker.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21. I change residences.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22. I buy things on impulse.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23. I can only think about one problem at a time.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24. I change hobbies.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25. I spend or charge more than I earn.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26. I often have extraneous thoughts when thinking.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27. I am more interested in the present than the future.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28. I am restless at the theater or lectures.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>29. I like puzzles.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>30. I am future oriented.</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>
Brief Psychiatric Rating Scale (BPRS) Expanded Version (4.0)

Introduction

This section reproduces an interview schedule, symptom definitions, and specific anchor points for rating symptoms on the BPRS. Clinicians intending to use the BPRS should also consult the detailed guidelines for administration contained in the reference below.

Scale Items and Anchor Points

Rate items 1-14 on the basis of individual's self-report. Note items 7, 12 and 13 are also rated on the basis of observed behaviour. Items 15-24 are rated on the basis of observed behaviour and speech.

1. Somatic Concern

Degree of concern over present bodily health. Rate the degree to which physical health is perceived as a problem by the individual, whether complaints have realistic bases or not. Somatic delusions should be rated in the severe range with or without somatic concern. Note: be sure to assess the degree of impairment due to somatic concerns only and not other symptoms, e.g., depression. In addition, if the individual rates 6 or 7 due to somatic delusions, then you must rate Unusual Thought Content at least 4 or above.

2. Very mild Occasional somatic concerns that tend to be kept to self.
3. Mild Occasional somatic concerns that tend to be voiced to others (e.g., family, doctor).
4. Moderate Frequent expressions of somatic concern or exaggerations of existing ills OR some preoccupation, but no impairment in functioning. Not delusional.
5. Moderately severe Frequent expressions of somatic concern or exaggerations of existing ills OR some preoccupation and moderate impairment of functioning. Not delusional.
6. Severe Preoccupation with somatic complaints with much impairment in functioning OR somatic delusions without acting on them or disclosing to others.
7. Extremely severe Preoccupation with somatic complaints with severe impairment in functioning OR somatic delusions that tend to be acted on or disclosed to others.

"Have you been concerned about your physical health?" "Have you had any physical illness or seen a medical doctor lately? (What does your doctor say is wrong? How serious is it?)"
"Has anything changed regarding your appearance?"
"Has it interfered with your ability to perform your usual activities and/or work?"
"Did you ever feel that parts of your body had changed or stopped working?"
[If individual reports any somatic concerns/delusions, ask the following]:
"How often are you concerned about [use individual's description]?"
"Have you expressed any of these concerns to others?"
2. Anxiety

Reported apprehension, tension, fear, panic or worry. Rate only the individual's statements - not observed anxiety which is rated under Tension.

2 Very mild Reports some discomfort due to worry OR infrequent worries that occur more than usual for most normal individuals.
3 Mild Worried frequently but can readily turn attention to other things.
4 Moderate Worried most of the time and cannot turn attention to other things easily but no impairment in functioning OR occasional anxiety with autonomic accompaniment but no impairment in functioning.
5 Moderately Severe Frequent, but not daily, periods of anxiety with autonomic accompaniment OR some areas of functioning are disrupted by anxiety or worry.
6 Severe Anxiety with autonomic accompaniment daily but not persisting throughout the day OR many areas of functioning are disrupted by anxiety or constant worry.
7 Extremely Severe Anxiety with autonomic accompaniment persisting throughout the day OR most areas of functioning are disrupted by anxiety or constant worry.

"Have you been worried a lot during [mention time frame]? Have you been nervous or apprehensive? (What do you worry about?)"
"Are you concerned about anything? How about finances or the future?"
"When you are feeling nervous, do your palms sweat or does your heart beat fast (or shortness of breath, trembling, choking)?"
[If individual reports anxiety or autonomic accompaniment, ask the following]:
"How much of the time have you been [use individual's description]?"
"Has it interfered with your ability to perform your usual activities/work?"

3. Depression

Include sadness, unhappiness, anhedonia and preoccupation with depressing topics (can't attend to TV or conversations due to depression), hopeless, loss of self-esteem (dissatisfied or disgusted with self or feelings of worthlessness). Do not include vegetative symptoms, e.g., motor retardation, early waking or the amotivation that accompanies the deficit syndrome.

2 Very mild Occasionally feels sad, unhappy or depressed.
3 Mild Frequently feels sad or unhappy but can readily turn attention to other things.
4 Moderate Frequent periods of feeling very sad, unhappy, moderately depressed, but able to function with extra effort.
5 Moderately Severe Frequent, but not daily, periods of deep depression OR some areas of functioning are disrupted by depression.
6 Severe Deeply depressed daily but not persisting throughout the day OR many areas of functioning are disrupted by depression.
7 Extremely Severe Deeply depressed daily OR most areas of functioning are disrupted by depression.

"How has your mood been recently? Have you felt depressed (sad, down, unhappy, as if you didn't care)?"
"Are you able to switch your attention to more pleasant topics when you want to?"
"Do you find that you have lost interest in or get less pleasure from things you used to enjoy, like family, friends, hobbies, watching TV, eating?"
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[If individual reports feelings of depression, ask the following]: "How long do these feelings last?" "Has it interfered with your ability to perform your usual activities?"

4. Suicidality

Expressed desire, intent, or actions to harm or kill self.

2 Very mild Occasional feelings of being tired of living. No overt suicidal thoughts.
3 Mild Occasional suicidal thoughts without intent or specific plan OR he/she feels they would be better off dead.
4 Moderate Suicidal thoughts frequent without intent or plan.
5 Moderately Severe Many fantasies of suicide by various methods. May seriously consider making an attempt with specific time and plan OR impulsive suicide attempt using non-lethal method or in full view of potential saviours.
6 Severe Clearly wants to kill self. Searches for appropriate means and time, OR potentially serious suicide attempt with individual knowledge of possible rescue.
7 Extremely Severe Specific suicidal plan and intent (e.g., "as soon as ________ I will do it by doing X"), OR suicide attempt characterised by plan individual thought was lethal or attempt in secluded environment.

"Have you felt that life wasn't worth living? Have you thought about harming or killing yourself? Have you felt tired of living or as though you would be better off dead? Have you ever felt like ending it all?"

[If individual reports suicidal ideation, ask the following]:
"How often have you thought about [use individual's description]?"
"Did you (Do you) have a specific plan?"

5. Guilt

Overconcern or remorse for past behaviour. Rate only individual's statements, do not infer guilt feelings from depression, anxiety, or neurotic defences. Note: if the individual rates 6 or 7 due to delusions of guilt, then you must rate Unusual Thought Content at least 4 or above, depending on level of preoccupation and impairment.

2 Very mild Concerned about having failed someone, or at something, but not preoccupied. Can shift thoughts to other matters easily.
3 Mild Concerned about having failed someone, or at something, with some preoccupation. Tends to voice guilt to others.
4 Moderate Disproportionate preoccupation with guilt, having done wrong, injured others by doing or failing to do something, but can readily turn attention to other things.
5 Moderately Severe Preoccupation with guilt, having failed someone or at something, can turn attention to other things, but only with great effort. Not delusional.
6 Severe Delusional guilt OR unreasonable self-reproach very out of proportion to circumstances. Moderate preoccupation present.
7 Extremely Severe Delusional guilt OR unreasonable self-reproach grossly out of proportion to circumstances. Individual is very preoccupied with guilt and is likely to disclose to others or act on delusions.

"Is there anything you feel guilty about? Have you been thinking about past problems?"
"Do you tend to blame yourself for things that have happened?"
"Have you done anything you're still ashamed of?"

[If individual reports guilt/remorse/delusions, ask the following]:
6. Hostility

Animosity, contempt, belligerence, threats, arguments, tantrums, property destruction, fights, and any other expression of hostile attitudes or actions. Do not infer hostility from neurotic defences, anxiety or somatic complaints. Do not include incidents of appropriate anger or obvious self-defence.

2 Very mild Irritable or grumpy, but not overtly expressed.
3 Mild Argumentative or sarcastic.
4 Moderate Overtly angry on several occasions OR yelled at others excessively.
5 Moderately Severe Has threatened, slammed about or thrown things.
6 Severe Has assaulted others but with no harm likely, e.g., slapped or pushed, OR destroyed property, e.g., knocked over furniture, broken windows.
7 Extremely Severe Has attacked others with definite possibility of harming them or with actual harm, e.g., assault with hammer or weapon.

"How have you been getting along with people (family, co-workers, etc.)?"
"Have you been irritable or grumpy lately? (How do you show it? Do you keep it to yourself?)"
"Were you ever so irritable that you would shout at people or start fights or arguments? (Have you found yourself yelling at people you didn't know?)"
"Have you hit anyone recently?"

7. Elevated Mood

A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, euphoria (implying a pathological mood), optimism that is out of proportion to the circumstances. Do not infer elation from increased activity or from grandiose statements alone.

2 Very mild Seems to be very happy, cheerful without much reason.
3 Mild Some unaccountable feelings of well-being that persist.
4 Moderate Reports excessive or unrealistic feelings of well-being, cheerfulness, confidence or optimism inappropriate to circumstances, some of the time. May frequently joke, smile, be giddy, or overly enthusiastic OR few instances of marked elevated mood with euphoria.
5 Moderately Severe Reports excessive or unrealistic feelings of well-being, confidence or optimism inappropriate to circumstances, much of the time. May describe feeling `on top of the world', `like everything is falling into place', or `better than ever before', OR several instances of marked elevated mood with euphoria.
6 Severe Reports many instances of marked elevated mood with euphoria OR mood definitely elevated almost constantly throughout interview and inappropriate to content.
7 Extremely Severe Individual reports being elated or appears almost intoxicated, laughing, joking, giggling, constantly euphoric, feeling invulnerable, all inappropriate to immediate circumstances.

"Have you felt so good or high that other people thought that you were not your normal self?" "Have you been feeling cheerful and `on top of the world' without any reason?"
[If individual reports elevated mood/euphoria, ask the following]:
"Did it seem like more than just feeling good?"
8. Grandiosity

Exaggerated self-opinion, self-enhancing conviction of special abilities or powers or identity as someone rich or famous. Rate only individual's statements about himself, not his/her demeanour. Note: if the individual rates 6 or 7 due to grandiose delusions, you must rate Unusual Thought Content at least 4 or above.

2 Very mild Feels great and denies obvious problems, but not unrealistic.
3 Mild Exaggerated self-opinion beyond abilities and training.
4 Moderate Inappropriate boastfulness, e.g., claims to be brilliant, insightful or gifted beyond realistic proportions, but rarely self-discloses or acts on these inflated self concepts. Does not claim that grandiose accomplishments have actually occurred.
5 Moderately Severe Same as 4 but often self-discloses and acts on these grandiose ideas. May have doubts about the reality of the grandiose ideas. Not delusional.
6 Severe Delusional - claims to have special powers like ESP, to have millions of dollars, invented new machines, worked at jobs when it is known that he/she was never employed in these capacities, be Jesus Christ, or the Prime Minister. Individual may not be very preoccupied.
7 Extremely Severe Delusional - same as 6 but individual seems very preoccupied and tends to disclose or act on grandiose delusions.

"Is there anything special about you? Do you have any special abilities or powers? Have you thought that you might be somebody rich or famous?"

[If the individual reports any grandiose ideas/delusions, ask the following]:
"How often have you been thinking about [use individuals description]? Have you told anyone about what you have been thinking? Have you acted on any of these ideas?"

9. Suspiciousness

Expressed or apparent belief that other persons have acted maliciously or with discriminatory intent. Include persecution by supernatural or other non-human agencies (e.g., the devil). Note: ratings of 3 or above should also be rated under Unusual Thought Content.

2 Very mild Seems on guard. Reluctant to respond to some `personal' questions. Reports being overly self-conscious in public.
3 Mild Describes incidents in which others have harmed or wanted to harm him/her that sound plausible. Individual feels as if others are watching, laughing or criticising him/her in public, but this occurs only occasionally or rarely. Little or no preoccupation.
4 Moderate Says other persons are talking about him/her maliciously, have negative intentions or may harm him/her. Beyond the likelihood of plausibility, but not delusional. Incidents of suspected persecution occur occasionally (less than once per week) with some preoccupation.
5 Moderately Severe Same as 4, but incidents occur frequently, such as more than once per week. Individual is moderately preoccupied with ideas of persecution OR individual reports persecutory delusions expressed with much doubt (e.g., partial delusion).
6 Severe Delusional - speaks of Mafia plots, the FBI or others poisoning his/her food, persecution by supernatural forces.
7 Extremely Severe Same as 6, but the beliefs are bizarre or more preoccupying. Individual tends to disclose or act on persecutory delusions. "Do you ever feel uncomfortable in public? Does it seem as though others are watching you? Are you concerned about anyone's intentions toward you? Is anyone going out of their way to give you a hard time, or trying to hurt you? Do you feel in any danger?" [If individual reports any persecutory ideas/delusions, ask the following]: "How often have you been concerned that [use individual's description]? Have you told anyone about these experiences?"

10. Hallucinations

Reports of perceptual experiences in the absence of relevant external stimuli. When rating degree to which functioning is disrupted by hallucinations, include preoccupation with the content and experience of the hallucinations, as well as functioning disrupted by acting out on the hallucinatory content (e.g., engaging in deviant behaviour due to command hallucinations). Include thoughts aloud ("gedenkenlautwerden") or pseudohallucinations (e.g., hears a voice inside head) if a voice quality is present.

2 Very Mild While resting or going to sleep, sees visions, smells odours or hears voices, sounds, or whispers in the absence of external stimulation, but no impairment in functioning.

3 Mild While in a clear state of consciousness, hears a voice calling the individual's name, experiences non-verbal auditory hallucinations (e.g., sounds or whispers), formless visual hallucinations or has sensory experiences in the presence of a modality-relevant stimulus (e.g., visual illusions) infrequently (e.g., 1-2 times per week) and with no functional impairment.

4 Moderate Occasional verbal, visual, gustatory, olfactory or tactile hallucinations with no functional impairment OR non-verbal auditory hallucinations/visual illusions more than infrequently or with impairment.

5 Moderately Severe Experiences daily hallucinations OR some areas of functioning are disrupted by hallucinations.

6 Severe Experiences verbal or visual hallucinations several times a day OR many areas of functioning are disrupted by these hallucinations.

7 Extremely Severe Persistent verbal or visual hallucinations throughout the day OR most areas of functioning are disrupted by these hallucinations. "Do you ever seem to hear your name being called?" "Have you heard any sounds or people talking to you or about you when there has been nobody around?" [If hears voices]: "What does the voice/voices say? Did it have a voice quality?" "Do you ever have visions or see things that others do not see? What about smell odours that others do not smell?" [If the individual reports hallucinations, ask the following]: "Have these experiences interfered with your ability to perform your usual activities/work? How do you explain them? How often do they occur?"

11. Unusual thought content

Unusual, odd, strange, or bizarre thought content. Rate the degree of unusualness, not
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the degree of disorganisation of speech. Delusions are patently absurd, clearly false or bizarre ideas that are expressed with full conviction. Consider the individual to have full conviction if he/she has acted as though the delusional belief was true. Ideas of reference/persecution can be differentiated from delusions in that ideas are expressed with much doubt and contain more elements of reality. Include thought insertion, withdrawal and broadcast. Include grandiose, somatic and persecutory delusions even if rated elsewhere. Note: if Somatic Concern, Guilt, Suspiciousness or Grandiosity are rated 6 or 7 due to delusions, then Unusual Thought Content must be rated 4 or above.

2 Very mild Ideas of reference (people may stare or may laugh at him), ideas of persecution (people may mistreat him). Unusual beliefs in psychic powers, spirits, UFOs, or unrealistic beliefs in one's own abilities. Not strongly held. Some doubt.

3 Mild Same as 2, but degree of reality distortion is more severe as indicated by highly unusual ideas or greater conviction. Content may be typical of delusions (even bizarre), but without full conviction. The delusion does not seem to have fully formed, but is considered as one possible explanation for an unusual experience.

4 Moderate Delusion present but no preoccupation or functional impairment. May be an encapsulated delusion or a firmly endorsed absurd belief about past delusional circumstances.

5 Moderately Severe Full delusion(s) present with some preoccupation OR some areas of functioning disrupted by delusional thinking.

6 Severe Full delusion(s) present with much preoccupation OR many areas of functioning are disrupted by delusional thinking.

7 Extremely Severe Full delusion(s) present with almost total preoccupation OR most areas of functioning disrupted by delusional thinking.

"Have you been receiving any special messages from people or from the way things are arranged around you? Have you seen any references to yourself on TV or in the newspapers?"

"Can anyone read your mind?"

"Do you have a special relationship with God?"

"Is anything like electricity, X-rays, or radio waves affecting you?"

"Are thoughts put into your head that are not your own?"

"Have you felt that you were under the control of another person or force?"

[If individual reports any odd ideas/delusions, ask the following]:

"How often do you think about [use individual's description]?"

"Have you told anyone about these experiences? How do you explain the things that have been happening [specify]?"

Rate items 12-13 on the basis of individual's self-report and observed behaviour.

12. Bizarre behaviour

Reports of behaviours which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behaviour and inappropriate affect.

2 Very mild Slightly odd or eccentric public behaviour, e.g., occasionally giggles to self, fails to make appropriate eye contact, that does not seem to attract the attention of others OR unusual behaviour conducted in private, e.g., innocuous rituals, that would not attract the attention of others.

3 Mild Noticeably peculiar public behaviour, e.g., inappropriately loud talking, makes inappropriate eye contact, OR private behaviour that occasionally, but not always,
attracts the attention of others, e.g., hoards food, conducts unusual rituals, wears gloves indoors.

4 Moderate Clearly bizarre behaviour that attracts or would attract (if done privately) the attention or concern of others, but with no corrective intervention necessary. Behaviour occurs occasionally, e.g., fixated staring into space for several minutes, talks back to voices once, inappropriate giggling/laughter on 1-2 occasions, talking loudly to self.

5 Moderately Severe Clearly bizarre behaviour that attracts or would attract (if done privately) the attention of others or the authorities, e.g., fixated staring in a socially disruptive way, frequent inappropriate giggling/laughter, occasionally responds to voices, or eats non-foods.

6 Severe Bizarre behaviour that attracts attention of others and intervention by authorities, e.g., directing traffic, public nudity, staring into space for long periods, carrying on a conversation with hallucinations, frequent inappropriate giggling/laughter.

7 Extremely Severe Serious crimes committed in a bizarre way that attract the attention of others and the control of authorities, e.g., sets fires and stares at flames OR almost constant bizarre behaviour, e.g., inappropriate giggling/laughter, responds only to hallucinations and cannot be engaged in interaction.

"Have you done anything that has attracted the attention of others?"
"Have you done anything that could have gotten you into trouble with the police?"
"Have you done anything that seemed unusual or disturbing to others?"

13. Self-neglect

Hygiene, appearance, or eating behaviour below usual expectations, below socially acceptable standards or life threatening.

2 Very mild Hygiene/appearance slightly below usual community standards, e.g., shirt out of pants, buttons unbuttoned, shoe laces untied, but no social or medical consequences.

3 Mild Hygiene/appearance occasionally below usual community standards, e.g., irregular bathing, clothing is stained, hair uncombed, occasionally skips an important meal. No social or medical consequences.

4 Moderate Hygiene/appearance is noticeably below usual community standards, e.g., fails to bathe or change clothes, clothing very soiled, hair unkempt, needs prompting, noticeable by others OR irregular eating and drinking with minimal medical concerns and consequences.

5 Moderately Severe Several areas of hygiene/appearance are below usual community standards OR poor grooming draws criticism by others and requires regular prompting. Eating or hydration are irregular and poor, causing some medical problems.

6 Severe Many areas of hygiene/appearance are below usual community standards, does not always bathe or change clothes even if prompted. Poor grooming has caused social ostracism at school/residence/work, or required intervention. Eating erratic and poor, may require medical intervention.

7 Extremely Severe Most areas of hygiene/appearance/nutrition are extremely poor and easily noticed as below usual community standards OR hygiene/appearance/nutrition require urgent and immediate medical intervention.

"How has your grooming been lately? How often do you change your clothes? How often do you take showers? Has anyone (parents/staff) complained about your grooming or dress? Do you eat regular meals?"
14. Disorientation

Does not comprehend situations or communications, such as questions asked during the entire BPRS interview. Confusion regarding person, place, or time. Do not rate if incorrect responses are due to delusions.

2 Very mild  Seems muddled or mildly confused 1-2 times during interview. Oriented to person, place and time.
3 Mild  Occasionally muddled or mildly confused 3-4 times during interview. Minor inaccuracies in person, place, or time, e.g., date off by more than 2 days, or gives wrong division of hospital or community centre.
4 Moderate  Frequently confused during interview. Minor inaccuracies in person, place, or time are noted, as in 3 above. In addition, may have difficulty remembering general information, e.g., name of Prime Minister.
5 Moderately Severe  Markedly confused during interview, or to person, place, or time. Significant inaccuracies are noted, e.g., date off by more than one week, or cannot give correct name of hospital. Has difficulty remembering personal information, e.g., where he/she was born or recognising familiar people.
6 Severe  Disoriented as to person, place, or time, e.g., cannot give correct month and year. Disoriented in 2 out of 3 spheres.
7 Extremely Severe  Grossly disoriented as to person, place, or time, e.g., cannot give name or age. Disoriented in all three spheres.

"May I ask you some standard questions we ask everybody?"
"How old are you? What is the date [allow 2 days]"
"What is this place called? What year were you born? Who is the Prime Minister?"

Rate items 15-24 on the basis of observed behaviour and speech.

15 Conceptual disorganization

Degree to which speech is confused, disconnected, vague or disorganised. Rate tangentiality, circumstantiality, sudden topic shifts, incoherence, derailment, blocking, neologisms, and other speech disorders. Do not rate content of speech.

2 Very mild  Peculiar use of words or rambling but speech is comprehensible.
3 Mild  Speech a bit hard to understand or make sense of due to tangentiality, circumstantiality, or sudden topic shifts.
4 Moderate  Speech difficult to understand due to tangentiality, circumstantiality, idiosyncratic speech, or topic shifts on many occasions OR 1-2 instances of incoherent phrases.
5 Moderately Severe  Speech difficult to understand due to circumstantiality, tangentiality, neologisms, blocking or topic shifts most of the time, OR 3-5 instances of incoherent phrases.
6 Severe  Speech is incomprehensible due to severe impairment most of the time. Many BPRS items cannot be rated by self-report alone.
7 Extremely Severe  Speech is incomprehensible throughout interview.

16. Blunted affect

Restricted range in emotional expressiveness of face, voice, and gestures. Marked indifference or flatness even when discussing distressing topics. In the case of euphoric
or dysphoric individuals, rate Blunted Affect if a flat quality is also clearly present.

2 Very Mild Emotional range is slightly subdued or reserved but displays appropriate facial expressions and tone of voice that are within normal limits.

3 Mild Emotional range overall is diminished, subdued or reserved, without many spontaneous and appropriate emotional responses. Voice tone is slightly monotonous.

4 Moderate Emotional range is noticeably diminished, individual doesn't show emotion, smile or react to distressing topics except infrequently. Voice tone is monotonous or there is noticeable decrease in spontaneous movements. Displays of emotion or gestures are usually followed by a return to flattened affect.

5 Moderately Severe Emotional range very diminished, individual doesn't show emotion, smile, or react to distressing topics except minimally, few gestures, facial expression does not change very often. Voice tone is monotonous much of the time.

6 Severe Very little emotional range or expression. Mechanical in speech and gestures most of the time. Unchanging facial expression. Voice tone is monotonous most of the time.

7 Extremely Severe Virtually no emotional range or expressiveness, stiff movements. Voice tone is monotonous all of the time.

Use the following probes at end of interview to assess emotional responsivity: "Have you heard any good jokes lately? Would you like to hear a joke?"

17. Emotional withdrawal

Deficiency in individual's ability to relate emotionally during interview situation. Use your own feeling as to the presence of an `invisible barrier' between individual and interviewer. Include withdrawal apparently due to psychotic processes.

2 Very Mild Lack of emotional involvement shown by occasional failure to make reciprocal comments, appearing preoccupied, or smiling in a stilted manner, but spontaneously engages the interviewer most of the time.

3 Mild Lack of emotional involvement shown by noticeable failure to make reciprocal comments, appearing preoccupied, or lacking in warmth, but responds to interviewer when approached.

4 Moderate Emotional contact not present much of the interview because individual does not elaborate responses, fails to make eye contact, doesn't seem to care if interviewer is listening, or may be preoccupied with psychotic material.

5 Moderately Severe Same as 4 but emotional contact not present most of the interview.

6 Severe Actively avoids emotional participation. Frequently unresponsive or responds with yes/no answers (not solely due to persecutory delusions). Responds with only minimal affect.

7 Extremely Severe Consistently avoids emotional participation. Unresponsive or responds with yes/no answers (not solely due to persecutory delusions). May leave during interview or just not respond at all.

18. Motor retardation

Reduction in energy level evidenced by slowed movements and speech, reduced body tone, decreased number of spontaneous body movements. Rate on the basis of observed behaviour of the individual only. Do not rate on the basis of individual's
subjective impression of his own energy level. Rate regardless of medication effects.

2 Very mild Slightly slowed or reduced movements or speech compared to most people.
3 Mild Noticeably slowed or reduced movements or speech compared to most people.
4 Moderate Large reduction or slowness in movements or speech.
5 Moderately Severe Seldom moves or speaks spontaneously OR very mechanical or stiff movements
6 Severe Does not move or speak unless prodded or urged.
7 Extremely Severe Frozen, catatonic.

19. Tension

Observable physical and motor manifestations of tension, `nervousness' and agitation. Self-reported experiences of tension should be rated under the item on anxiety. Do not rate if restlessness is solely akathisia, but do rate if akathisia is exacerbated by tension.

2 Very mild More fidgety than most but within normal range. A few transient signs of tension, e.g., picking at fingernails, foot wagging, scratching scalp several times or finger tapping.
3 Mild Same as 2, but with more frequent or exaggerated signs of tension.
4 Moderate Many and frequent signs of motor tension with one or more signs sometimes occurring simultaneously, e.g., wagging one's foot while wringing hands together. There are times when no signs of tension are present.
5 Moderately Severe Many and frequent signs of motor tension with one or more signs often occurring simultaneously. There are still rare times when no signs of tension are present.
6 Severe Same as 5, but signs of tension are continuous.
7 Extremely Severe Multiple motor manifestations of tension are continuously present, e.g., continuous pacing and hand wringing.

20. Unco-operativeness

Resistance and lack of willingness to co-operate with the interview. The uncooperativeness might result from suspiciousness. Rate only unco-operativeness in relation to the interview, not behaviours involving peers and relatives.

2 Very mild Shows non-verbal signs of reluctance, but does not complain or argue.
3 Mild Gripes or tries to avoid complying, but goes ahead without argument.
4 Moderate Verbally resists but eventually complies after questions are rephrased or repeated.
5 Moderately Severe Same as 4, but some information necessary for accurate ratings is withheld.
6 Severe Refuses to co-operate with interview, but remains in interview situation.
7 Extremely Severe Same as 6, with active efforts to escape the interview.

21. Excitement

Heightened emotional tone or increased emotional reactivity to interviewer or topics being discussed, as evidenced by increased intensity of facial expressions, voice tone, expressive gestures or increase in speech quantity and speed.
2 Very mild Subtle and fleeting or questionable increase in emotional intensity. For example, at times seems keyed-up or overly alert.

3 Mild Subtle but persistent increase in emotional intensity. For example, lively use of gestures and variation in voice tone.

4 Moderate Definite but occasional increase in emotional intensity. For example, reacts to interviewer or topics that are discussed with noticeable emotional intensity. Some pressured speech.

5 Moderately Severe Definite and persistent increase in emotional intensity. For example, reacts to many stimuli, whether relevant or not, with considerable emotional intensity. Frequent pressured speech.

6 Severe Marked increase in emotional intensity. For example, reacts to most stimuli with inappropriate emotional intensity. Has difficulty settling down or staying on task. Often restless, impulsive, or speech is often pressured.

7 Extremely Severe Marked and persistent increase in emotional intensity. Reacts to all stimuli with inappropriate intensity, impulsiveness. Cannot settle down or stay on task. Very restless and impulsive most of the time. Constant pressured speech.

22. Distractibility

Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterised by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc. Do not rate circumstantiality, tangentiality or flight of ideas. Also, do not rate rumination with delusional material. Rate even if the distracting stimulus cannot be identified.

2 Very mild Generally can focus on interviewer's questions with only 1 distraction or inappropriate shift of attention of brief duration.

3 Mild Individual shifts focus of attention to matters unrelated to the interview 2-3 times.

4 Moderate Often responsive to irrelevant stimuli in the room, e.g., averts gaze from the interviewer.

5 Moderately Severe Same as above, but now distractibility clearly interferes with the flow of the interview.

6 Severe Extremely difficult to conduct interview or pursue a topic due to preoccupation with irrelevant stimuli.

7 Extremely Severe Impossible to conduct interview due to preoccupation with irrelevant stimuli.

23. Motor hyperactivity

Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.

2 Very mild Some restlessness, difficulty sitting still, lively facial expressions, or somewhat talkative

3 Mild Occasionally very restless, definite increase in motor activity, lively gestures, 1-3 brief instances of pressured speech.

4 Moderate Very restless, fidgety, excessive facial expressions, or non-productive and
repetitious motor movements. Much pressured speech, up to one-third of the interview.

5 **Moderately Severe** Frequent restless, fidgety. Many instances of excessive nonproductive
and repetitious motor movements. On the move most of the time. Frequent pressured speech, difficult to interrupt. Rises on 1-2 occasions to pace.

6 **Severe** Excessive motor activity, restlessness, fidgety, loud tapping, noisy, etc., throughout most of the interview. Speech can only be interrupted with much effort. Rises on 3-4 occasions to pace.

7 **Extremely Severe** Constant excessive motor activity throughout entire interview, e.g., constant pacing, constant pressured speech with no pauses, individual can only be interrupted briefly and only small amounts of relevant information can be obtained.

24. **Mannerisms and posturing**

Unusual and bizarre behaviour, stylised movements or acts, or any postures which are clearly uncomfortable or inappropriate. Exclude obvious manifestations of medication side effects. Do not include nervous mannerisms that are not odd or unusual.

2 **Very mild** Eccentric or odd mannerisms or activity that ordinary persons would have difficulty explaining, e.g., grimacing, picking. Observed once for a brief period.

3 **Mild** Same as 2, but occurring on two occasions of brief duration.

4 **Moderate** Mannerisms or posturing, e.g., stylised movements or acts, rocking, nodding, rubbing, or grimacing, observed on several occasions for brief periods or infrequently but very odd. For example, uncomfortable posture maintained for 5 seconds more than twice.

5 **Moderately Severe** Same as 4, but occurring often, or several examples of very odd mannerisms or posturing that are idiosyncratic to the individual.

6 **Severe** Frequent stereotyped behaviour, assumes and maintains uncomfortable or inappropriate postures, intense rocking, smearing, strange rituals or foetal posturing. Individual can interact with people and the environment for brief periods despite these behaviours.

7 **Extremely Severe** Same as 6, but individual cannot interact with people or the environment due to these behaviours.
Appendix G. 27-item Monetary Choice Questionnaires

27-item Monetary Choice Questionnaires (Kirby, Petry, & Bickel, 1999)

For each of the next 27 choices, please mark which hypothetical reward you would prefer: the smaller reward today, or the larger reward in the specified number of days. While you will not actually receive the rewards, pretend you will actually be receiving the amount you indicate and answer honestly.

1. Which would you rather have?
   a. $54, today
   b. $55, 117 days from now

2. Which would you rather have?
   a. $55, today
   b. $75, 61 days from now

3. Which would you rather have?
   a. $19, today
   b. $25, 53 days from now

4. Which would you rather have?
   a. $31, today
   b. $85, 7 days from now

5. Which would you rather have?
   a. $14, today
   b. $25, 19 days from now

6. Which would you rather have?
   a. $47, today
   b. $50, 160 days from now

7. Which would you rather have?
   a. $15, today
   b. $35, 13 days from now

8. Which would you rather have?
   a. $25, today
   b. $60, 14 days from now

9. Which would you rather have?
   a. $78, today
   b. $80, 162 days from now

10. Which would you rather have?
    a. $40, today
    b. $55, 62 days from now

11. Which would you rather have?
    a. $11, today
    b. $30, 7 days from now

12. Which would you rather have?
    a. $67, today
    b. $75, 119 days from now

13. Which would you rather have?
    a. $34, today
    b. $35, 186 days from now

14. Which would you rather have?
    a. $27, today
    b. $50, 21 days from now

15. Which would you rather have?
    a. $69, today
    b. $85, 91 days from now

16. Which would you rather have?
    a. $49, today
    b. $60, 89 days from now

17. Which would you rather have?
    a. $80, today
    b. $85, 157 days from now

18. Which would you rather have?
    a. $24, today
    b. $35, 29 days from now
19. Which would you rather have?
a. $33, today
b. $80, 14 days from now

20. Which would you rather have?
a. $28, today
b. $30, 179 days from now

21. Which would you rather have?
a. $34, today
b. $50, 30 days from now

22. Which would you rather have?
a. $25, today
b. $30, 80 days from now

23. Which would you rather have?
a. $41, today
b. $75, 20 days from now

24. Which would you rather have?
a. $54, today
b. $60, 111 days from now

25. Which would you rather have?
a. $54, today
b. $80, 30 days from now

26. Which would you rather have?
a. $22, today
b. $25, 136 days from now

27. Which would you rather have?
a. $20, today
b. $55, 7 days from now
Appendix H. Consequences of Absconding Questionnaire

Consequences of Absconding Questionnaire

The following questions are hypothetical and will not occur in real life. Please answer them as if they are real scenarios. If you could leave CAMH by running away, with the possibility of being caught, which option would you prefer? If you are caught, your privileges will be suspended indefinitely and you will remain under the Ontario Review Board for much longer. Circle the option you would most prefer. Remember, these are only hypothetical situations. Your answers will not affect your current passes or privileges in any way.

Choose one of the options below by placing a checkmark beside your preferred option. Use the pie charts below as a reference for your choices, as needed.

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<th>0% chance (0 out of 100 times)</th>
<th>10% chance (10 out 100 times)</th>
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<td>OR</td>
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<td>Run away from CAMH for 1000 days with a 10% chance of being caught and having all passes and privileges suspended</td>
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<tr>
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Appendix I. Subject Reimbursement Receipt

Subject ID: ______________________________

Subject Reimbursement Receipt

Title of Study: Delayed Discounting of Forensic Inpatient Residents

Principal Investigator: Dr. Treena Wilkie

Date:

In acknowledgment of research study participation in:

Protocol Title: Delayed Discounting of Forensic Inpatient Residents

Received sum of: __________________________

Signed: ________________________________