Evaluation of an Educational Intervention for Employees Exposed to Workplace Trauma

By
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A thesis submitted in conformity with the requirements for the degree of Master of Science Graduate department of the Institute of Medical Science University of Toronto

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ABSTRACT

Introduction: This thesis evaluated the effectiveness of an educational intervention for Toronto Transit Commission (TTC) employees exposed to a traumatic event at work.

Methods: This study used a sequential mixed methods design. The primary outcome was the proportion seeking mental health treatment after an educational intervention (BPI) compared to a group not receiving an educational intervention (TAU). Qualitative interviews aimed to understand what compelled participants to seek help and perceptions of the educational intervention.

Results: 60 TAU and 50 BPI participants were recruited. A larger proportion of BPI participants sought specialty mental health treatment compared to the TAU (p=0.034). Reasons for seeking treatment were varied and we found overall positive responses to the educational intervention, particularly normalization of reactions.

Conclusions: A greater proportion of those receiving the educational intervention sought help. However, the interviews showed that although the educational intervention was helpful, it was not central to this decision.
ACKNOWLEDGEMENTS

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RESEARCH AIMS
CHAPTER 1
PURPOSE, OBJECTIVES & HYPOTHESES

1.1 Purpose

The purpose of this study was to evaluate the effectiveness of an educational intervention for employees exposed to a psychologically traumatic event in the workplace. This may include events such as threats, assaults, or witnessing death. Previous research shows that a large majority of the population has experienced at least one traumatic event in their lifetime (e.g. Kessler et al., 1995) and a significant minority of those will go on to develop further psychological problems such as post-traumatic stress disorder (PTSD). Since PTSD symptoms are often chronic, (e.g. Kessler et al., 1995) it is imperative to understand the role of components of treatment in order to alter the course of symptoms and improve outcomes.

This study is embedded in the Acute Psychological Trauma (APT) Study, which is a collaboration among St. Michael’s Hospital, the Centre for Addiction and Mental Health (CAMH) and the Toronto Transit Commission (TTC) (see chapter 9 for detailed information about the APT Study). The purpose of the APT study is to evaluate a Best Practices Intervention (BPI) against a Treatment as Usual (TAU) comparison group. The BPI consists of four main elements: education and training for exposed workers, screening and surveillance, referral to specialty services and return to work coordination.

In the current study, we developed, implemented and evaluated an educational intervention for traumatized TTC employees using mixed methods (qualitative following quantitative). The primary outcome of this study was to examine the proportion of
participants seeking mental health treatment in 2 groups: a group receiving an educational intervention, compared to a group that did not receive an educational intervention. We also evaluated secondary outcomes such as the length of time to seek mental health treatment, the proportion in each group returning to work, the length of time to return to work, the knowledge gained by the intervention and change in PTSD symptoms. The goal of the qualitative phase was to enhance our understanding of the role of this educational intervention. A sample of participants who sought mental health treatment were interviewed in order to better understand their decision to seek specialty mental health care as well as exploring their perceptions regarding the educational intervention they received.

1.2 Objectives

The three main objectives of this study were:

1) To develop an educational intervention for TTC employees exposed to a traumatic event at work;

2) To evaluate the effectiveness of this educational intervention;

3) To explore factors that compelled participants to seek mental health care after a traumatic event and explore perceptions of the educational intervention.

The results from this study may help us better understand the role of educational interventions for people who have experienced a traumatic event at work.

1.3 Hypotheses

Our primary hypothesis was that a greater proportion of people in the BPI group who receive the educational intervention will seek specialty mental health treatment within 90 days of the traumatic event.
BACKGROUND
CHAPTER 2
PSYCHOLOGICALLY TRAUMATIC EVENTS

2.1 The definition of a traumatic event

The current definition of a traumatic event requires two components to be met: 1) the person experienced, witnessed or was confronted with an event that involves actual or threatened death or injury, or a threat to the physical integrity of oneself or others and 2) the response to this event involved intense fear, helplessness or horror (DSM IV, 2000). Thus, as Davidson (1997) explains, a traumatic event includes an “objective” event with an accompanying “subjective” reaction. It is this subjective sense which may lead to inconsistencies between people’s definition of a traumatic event. As Rubin and Springer (2009) explain,

“Regardless of the nature of the trauma and its context...it will shatter basic assumptions and lead to exaggerated appraisals regarding one’s vulnerability and self-image and the trustworthiness of other people”. (p. 4)

Therefore, the psychological appraisal of the event should also be considered in addition to the objective characteristics of the traumatic event.

2.2 Epidemiology of exposure to traumatic events

The prevalence of exposure to a traumatic event has been investigated in a number of studies (Table 1). Breslau et al. (1991) evaluated 1000 adults in an urban U.S. city and found that approximately 43% of men and 37% of the women interviewed had experienced
at least one traumatic event in their lifetime. Of these, the most common type of traumatic event was a sudden injury/serious accident (9.4%).

Norris (1992) used the Traumatic Stress Schedule (TSS) to assess the past incidence of nine types of traumatic events (e.g. robbery, sexual/physical assault) in a sample of 1000 adults in four U.S. states. Although men were more likely to have experienced a traumatic event over their lifetime, (73.6% for men vs. 64.8% for women) women were more likely to have been exposed to a traumatic event in the past year (22.4% vs. 19.5%). Norris also examined the impact of age and noted a trend for past-year exposure to a traumatic event to decrease with age. For any reported event, 27% of the younger age group (18-39), 21% of the middle-aged group (40-59) and 14.2% of the older age group (60+) had experienced a traumatic event in the past year. However, when taking into consideration the type of event, this trend may change due to a cohort effect. For instance, a much larger percentage of older adults (20.4%) reported being traumatized due to serving in combat, while only 7.7% of middle-aged individuals and 0.5% of younger adults reported this event.

Kessler et al. (1995) examined data from the National Comorbidity Survey (NCS) which evaluated data from approximately 8100 non-institutionalized, civilian men and women aged 15-54 in the United States. Participants were assessed with the Composite International Diagnostic Interview (CIDI) and the Diagnostic Interview Schedule (DIS) PTSD module. The lifetime prevalence of trauma exposure was found to be 51.2% for women and 60.7% for men. Moreover, many participants had experienced multiple traumatic events in the lifetime.

Stein et al. (1997) used telephone interviews to determine lifetime prevalence of exposure to traumatic events and found that 74.2% of women and 81.3% of men had
experienced at least one of these events in their lifetime. Finally, Breslau et al. (1998) asked 2200 adults about their exposure to 19 types of traumatic events, finding that 92.2% of men and 87.1% of women in their sample had experienced a traumatic event.

Van Ameringen, Mancini, Patterson & Boyle (2008) also used telephone interviews to determine the lifetime prevalence of trauma exposure and PTSD in a sample of 2991 Canadians aged 18 and over. In the total population, 75.9% of respondents reported exposure to one or more traumatic events in their lifetime (73.4% women, 78.5% men).

These epidemiological studies reveal a number of important factors. First and perhaps most importantly, a large proportion of the general population has experienced a traumatic event. With the exception of the Breslau et al. (1991) study, at least 50% of people have been exposed to a trauma. Moreover, the rather low percentages found in the Breslau et al. study in 1991 may be related to the fact that this sample was generated from a large U.S. HMO, who likely come from a higher socioeconomic status (Solomon & Davidson, 1997). Overall, men are more likely to have experienced a traumatic event in their lifetime and the type of traumatic event tends to vary by sex. For instance, men are more likely to report assaultive or physical incidents (e.g. Breslau, 2001) while women are more likely to experience rape or sexual assault (e.g. Kessler, 1995). In general, the type of traumatic event experienced most by both sexes is the sudden, unexpected death of a loved one (Yehuda, 1998). These epidemiological studies have also found that the majority of people who report exposure to a traumatic event have in fact experienced multiple traumas (e.g. Kessler et al., 1997; Breslau et al., 2001).
In Canada, more than two-thirds of adults have experienced a traumatic event and like many studies, the most common traumatic event reported was the serious illness or injury of a close family member (Statistics Canada, 2003).

Table 1. Lifetime prevalence of traumatic events in six studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breslau et al., 1991</td>
<td>43.0</td>
<td>36.7</td>
</tr>
<tr>
<td>Norris, 1992</td>
<td>73.6</td>
<td>64.8</td>
</tr>
<tr>
<td>Kessler et al., 1995</td>
<td>60.7</td>
<td>51.2</td>
</tr>
<tr>
<td>Stein et al., 1997</td>
<td>81.3</td>
<td>74.2</td>
</tr>
<tr>
<td>Breslau et al., 1998</td>
<td>92.2</td>
<td>87.1</td>
</tr>
<tr>
<td>Van Ameringen et al., 2008</td>
<td>73.4</td>
<td>78.5</td>
</tr>
</tbody>
</table>

2.3 Common reactions following a traumatic event

Most people will experience transient psychological reactions after experiencing a traumatic event (O’Donnell, Bryant, Creamer & Carty, 2008). However, the timeline of when these reactions occur varies between people and these periods of stress may begin during the event itself or emerge some time after the event occurs (Yehuda et al., 1998). The psychological reaction to a traumatic event may include feelings of anxiety, depression, agitation, shock, conversion, dissociation (Shalev, 2002), insomnia and/or hyperarousal (O’Brien, 1998). To account for these early psychological reactions and to aid in identifying people at risk for developing post-traumatic stress disorder, (PTSD) the DSM-IV introduced the diagnosis of acute stress disorder, (ASD) which is diagnosed within the first 4 weeks of the incident.
Physiological post-traumatic reactions are thought to be the result of alterations in brain chemistry. Ravindran and Stein (2009) point to a number of neurotransmitter systems which may become dysregulated with the development of PTSD: norepinephrine (NE), serotonin, glutamate and the hypothalamic – pituitary (HPA) axis. For instance, NE acts on the sympathetic nervous system (SNS) and major brain structures implicated in PTSD symptoms – the hippocampus, amygdala and medial prefrontal cortex (Shin, Rauch and Pitman, 2006). The release of NE produces reactions such as increased heart rate and increased blood flow to the heart (Ravindran & Stein, 2009). Alterations in these neurotransmitter systems may result in the physiological reactions experienced by traumatized individuals.
CHAPTER 3
POST- TRAUMATIC STRESS DISORDER

3.1 Criteria for diagnosis of post-traumatic stress disorder (PTSD)

Post-traumatic stress disorder (PTSD) was first introduced into the medical literature in the DSM-III in 1980 (Friedman, Keane, & Resick, 2007). Since then, the required criteria for a diagnosis has changed slightly (e.g. the definition of the stressor or traumatic event has changed in subsequent editions of the DSM). In the current edition, the DSM-IV-R (2000), PTSD is listed under the umbrella of anxiety disorders. Formal diagnosis of PTSD requires the individual to meet the following criteria:

A. The person has been exposed to a traumatic event in which both of the following have been present:

   (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others (2) the person’s response involved intense fear, helplessness, or horror. (1 and 2 required)

B. The traumatic event is persistently re-experienced in one (or more) of the following ways: (1 or more required)

   (1) Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions.

   (2) Recurrent distressing dreams of the event

   (3) Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated).

   (4) Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
(5) Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following: (at least 3 required)

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma

(2) efforts to avoid activities, places, or people that arouse recollections of the trauma

(3) inability to recall an important aspect of the trauma

(4) markedly diminished interest or participation in significant activities

(5) feeling of detachment or estrangement from others

(6) restricted range of affect (e.g., unable to have loving feelings)

(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following: (at least 2 required)

(1) difficulty falling or staying asleep
(2) irritability or outbursts of anger
(3) difficulty concentrating
(4) hypervigilance
(5) exaggerated startle response

E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than one month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

These symptoms can be debilitating, and the functional impairment criterion (F) suggests that people with PTSD are negatively affected in their everyday lives.
As mentioned, PTSD can only be diagnosed four weeks after the occurrence of a traumatic event. The DSM-IV-TR diagnosis includes specifiers regarding the course of PTSD symptoms. Acute PTSD is diagnosed when symptoms last less than 3 months. Those who continue to suffer post-traumatic symptoms past 3 months are considered to have chronic symptoms (Solomon & Davidson, 1997). Conversely, in cases in which the aforementioned symptoms first manifest some time later, a diagnosis of post-traumatic stress disorder with delayed-onset may be applicable (Andrews, Brewin, Philpott & Stewart, 2007). The delayed onset specifier requires that a minimum of six months has elapsed between the traumatic event (stressor) and the onset of symptoms (DSM IV, 2000). It is noteworthy that in the Kessler et al. (1995) epidemiological study, approximately 90% of participants with PTSD had symptoms for more than 3 months.

### 3.2 Prevalence of PTSD from epidemiological studies

The lifetime prevalence of PTSD can be examined from the epidemiological studies previously mentioned. "Lifetime prevalence" in these studies refers to the proportion of the population ever meeting diagnostic criteria for PTSD (Norris, 1992). One of the earliest studies to investigate the epidemiology of trauma and PTSD is that of Breslau, Davis, Andreski and Peterson (1991). In this study, 1007 adults were randomly sampled from a health maintenance organization in a U.S. city. A diagnosis of PTSD was made using the National Institute of Mental Health Diagnostic Interview Schedule. The authors found that the overall lifetime prevalence of PTSD was 9.2%. When separated by gender, 11.3% of women and 6% of men had PTSD (Table 2).
Norris (1992) sampled 1000 people in four American cities. Using questions from the Traumatic Stress Schedule (TSS) to first determine trauma exposure and subsequent PTSD symptoms, she found that for any type of traumatic event, 7.3% of respondents had a lifetime history of PTSD. In the sample, 8.5% of women and 6.1% of men met criteria for PTSD.

Kessler et al. (1995) used data from the National Comorbidity Survey (NCS) to evaluate the prevalence of post-traumatic stress disorder in a sample of 8098 adults in the U.S. Using a modified version of the Composite International Diagnostic Interview (CIDI), they found an overall prevalence of 7.8%. Women were more likely to have developed PTSD (10.4%) while the lifetime prevalence of PTSD in men was 5%.

In a Canadian sample, Stein, Walker, Hazen and Forde (1997) used the Modified PTSD Symptom Scale (MPSS) by telephone to assess PTSD. In this study, the authors were interested in the current prevalence of PTSD as opposed to the previously mentioned studies which evaluated lifetime prevalence. The current prevalence of PTSD by sex was 2.7% for women and 1.2% for men.

Breslau et al. (1998) examined data from the 1996 Detroit Area Survey of Trauma. The sample consisted of 2181 adults who were interviewed by telephone. The authors investigated participants' conditional risk of PTSD, defined as “the probability of developing PTSD in persons exposed to trauma” (Breslau et al., p. 19). Of those who had been exposed to a traumatic event, 9.2% went on to develop PTSD in their lifetime. Women were more likely to develop PTSD (13%) than men (6.2%).

Finally, Van Ameringen, Mancini, Patterson & Boyle (2008) found that the lifetime prevalence of PTSD in their sample was 9.2%. As with the previously discussed studies,
women were more likely to develop PTSD compared to men (12.8% and 5.3%, respectively).

These epidemiological studies show that although the chance of developing PTSD is relatively low, a large percentage of the general population has been exposed to a traumatic event at least once in their lifetime. This may translate to a large number of potential PTSD cases.

Separating prevalence of PTSD by gender, it is of note that although men are more likely to experience a traumatic event, women are more likely to go on to develop post-traumatic stress disorder.

Table 2. Lifetime prevalence of PTSD overall and by gender

<table>
<thead>
<tr>
<th>Study</th>
<th>Overall (%)</th>
<th>Men (%)</th>
<th>Women (%)</th>
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<td>8.5</td>
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<td>Kessler et al., 1995</td>
<td>7.8</td>
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<td>10.4</td>
</tr>
<tr>
<td>Stein et al., 1997*</td>
<td>-</td>
<td>1.2</td>
<td>2.7</td>
</tr>
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<td>Breslau et al., 1998</td>
<td>9.2</td>
<td>6.2</td>
<td>13</td>
</tr>
<tr>
<td>Van Ameringen et al., 2008</td>
<td>9.2</td>
<td>5.3</td>
<td>12.8</td>
</tr>
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</table>

*Current PTSD
CHAPTER 4

TRAUMA & PTSD IN THE WORKPLACE

4.1 Occupations at high-risk for trauma

As mentioned, the DSM-IV considers an event “traumatic” if it involves actual or threatened death or injury (directly or indirectly) and a reaction that includes fear, helplessness or horror. Incidents of this sort may occur often in occupational settings. Occupations such as police (e.g. Martin, Marchand, Boyer & Martin, 2009), firefighters (e.g. Corneil et al., 1999), emergency medical workers (e.g. Bennett, Williams, Page, Hood & Woollard, 2004), psychiatric nurses (e.g. Nhiwatiwa, 2003) and those in the military (e.g. Zatzick et al., 1997) are at high-risk for experiencing a traumatic event due to the nature of the occupation. Assaults can happen in most occupations which involve interaction with the public, and many workers may experience traumatic incidents such as workplace violence, horrific injuries, burns, mass disasters or other unforeseen accidents. Research has also noted a high number of traumatic injuries in transportation workers due to both physiological and psychological stressors (Tse, Flin & Mearns, 2006).

4.2 Traumatic events & PTSD in transportation workers

The transportation industry has been noted as one at high-risk for exposure to traumatic events (McFarlane & Bryant, 2007) and includes subway, train and bus operators. Traumatic events in this occupational setting may include serious or fatal collisions, violence, person under train (PUT) incidents (most often suicides or attempted
suicides) and verbal harassment. Results from a large sample of train drivers exposed to a PUT incident show acute distress after the event, with more than half of drivers reporting medium to high distress in the days and hours following the incident (Limosin et al., 2006). A considerable number of those exposed to these events will go on to develop PTSD symptoms. Indeed, in a sample of London railroad operators, 17% endorsed PTSD symptoms (Tranah & Farmer, 1994). In addition to psychological distress, transportation workers involved in PUT accidents are more likely to have taken time off work soon after the event and even up to 1 year post-event (Theorell, Leymann, Jodko, Konarski, Norbeck & Eneroth, 1992).

Negative interactions with passengers can also be a stressor in this population (Evans, 1994) and include verbal and physical assaults or threats. In fact, the possibility of an assault was the most frequently cited stressor in a sample of 376 bus drivers (Duffy & McGoldrick, 1990).
CHAPTER 5
TREATMENT FOR PTSD

5.1 Types of treatment

The National Institute for Clinical Excellence (NICE) issued a set of guidelines for the management of adults with PTSD (NICE, 2005). The guideline indicates that trauma focused psychological treatment (usually Cognitive Behaviour Therapy, or CBT) should be offered to individuals who experience PTSD symptoms in the month following the traumatic event. Pharmacological treatments are also used for treatment of PTSD and have varying effects on PTSD symptoms (Davidson, 1997).

Cognitive Behavioral Therapy (CBT). The first line treatment for PTSD is CBT. CBT generally involves four primary components: psychoeducation, exposure therapy, cognitive restructuring and anxiety management training (Harvey, Bryant & Tarrier, 2003). Psychoeducation aims to provide information on common reactions after a traumatic event, explain negative strategies such as avoidance or isolation (Friedman, Keane & Resick, 2007) and normalize or legitimise one’s traumatic reaction (Harvey, Bryant & Tarrier, 2003). Exposure therapy (sometimes referred to as prolonged exposure) has been well studied with generally positive results (Foa, Keane & Friedman, 2000). Exposure therapy techniques aim to help traumatized individuals confront thoughts that are feared or avoided (Foa, Keane, Friedman & Cohen, 2009). The rationale behind exposure therapy is that when the individual confronts the feared situation or memory and the negative effects they expect to occur do not, they become habituated and thereby experience a
decrease in anxiety (Rubin & Springer, 2009). However, Craske et al. (2008) explain that reduction in the level of fear within an exposure exercise does not predict overall improvement and suggest moving away from immediate reductions in fear in favour of a greater tolerance of fear. Imaginal exposure requires the person to think about the traumatic event while in vivo exposure requires the person to confront situations they previously avoided, typically in a graded fashion (Rubin & Springer, 2009). As well, a goal for the individual is to understand that remembering the event is not dangerous in itself nor is this one incident indicative of the world being generally unsafe (Harvey, Bryant & Tarrier, 2003). Cognitive restructuring requires patients to re-appraise automatic negative thoughts and evaluate their beliefs about the traumatic event and their environment at large (Harvey, Bryant & Tarrier, 2003). However as Foa, Keane and Friedman (2000) mention, cognitive restructuring techniques were originally designed for use with female sexual assault victims and thus may be modified with other populations. The goal of anxiety management strategies are to give patients a feeling of control over their fear and to provide coping skills. Stress inoculation training (SIT) may also be a component of anxiety management approaches. SIT involves the use of relaxation skills and self-talk. However, as with cognitive restructuring, SIT has most often been used with female assault survivors (Foa, Keane & Friedman, 2000).

**Pharmacotherapy.** The first line pharmacological treatment for PTSD is typically anti-depressant medications, (Foa, Keane & Friedman, 2000) and are the most commonly prescribed pharmacological treatment for PTSD (Mohamed & Rosenheck, 2008). SSRI’s (selective serotonin reuptake inhibitors) have been tested in randomised controlled trials and are particularly effective in reducing symptoms of PTSD in addition to addressing
comorbid depression (Foa, Keane & Friedman, 2000) or dysthymic disorder (Mohamed & Rosenheck, 2008). Benzodiazepines (anxiolytics) are sometimes prescribed for patients with sleep disturbances or irritability. However, further studies are required to confirm their utility for individuals with PTSD (Ravindran & Stein, 2009).
CHAPTER 6
(PSYCHO) EDUCATIONAL INTERVENTIONS

6.1 Educational/psychoeducational interventions

Educational interventions have been used in a number of different research areas. For instance, previous studies have evaluated educational interventions involving people with diabetes, (e.g. Deakin, McShane, Cade & Williams, 2009) children with asthma, (Guevara, Wolf, Grum & Clark, 2003) smoking cessation studies, (e.g. el-Guebaly, Cathcart, Currie, Brown & Gloster, 2002) and breast cancer patients (e.g. Appleton et al., 2004). In addition, psychoeducational interventions are often used for people with mental illnesses such as schizophrenia, (e.g. Pekkala & Merinder, 2000; Pitschel-Walz et al., 2009) bipolar disorder (Even et al., 2009) and depression (e.g. Dowrick et al., 2000). The target of educational interventions may be the patients themselves, their caregivers (e.g. McWilliams et al., 2010) or healthcare professionals (e.g. Louis et al., 2000).

6.2 Psychoeducation for trauma/PTSD

The International Consensus Group on Depression and Anxiety state three central aspects to manage PTSD: education, psychosocial support/treatment and pharmacological treatment (Ballenger et al., 2000). Psychoeducational strategies are used within different treatment modalities for PTSD (e.g. CBT and psychological debriefing sessions). Wessely et al. (2008) explain psychoeducation for PTSD as "the provision of information, in a variety of media, about the nature of stress, posttraumatic and other symptoms and what to do..."
about them” (p. 287). The provision of psychoeducational information may occur before a traumatic event has occurred, (in order to prevent it) after an event, or when symptoms begin to develop.

The goal of psychoeducation is generally to relate common reactions after experiencing a traumatic event, offer coping strategies, normalize post-traumatic reactions, and convey options for treatment. As Wessely et al. (2008) discuss, there are several positive aspects of providing psychoeducational information to someone who has experienced a traumatic event: a) by knowing in advance the types of symptoms one may experience, it may be less upsetting, b) helping people understand that they are not weak for having these symptoms may increase self-esteem, c) psychoeducation may be a motivating factor in seeking help if necessary, d) negative beliefs about one’s perception of oneself or the traumatic event may be corrected and/or made adaptive and e) knowledge on the subject may lead to a sense of empowerment by the affected person. Moreover, education regarding the treatment process and how it can help may encourage the person to prepare themselves for treatment (Phoenix, 2007).

However, some studies have found an increase in PTSD symptoms after an educational intervention (e.g. Neuner, Schauer, Klaschik, Karunakara & Elbert, 2004; Yeomans, Formans, Herbert & Yuen, 2010), but the reasons for this are as yet unknown. However, Yeomans, Formans, Herbert & Yuen (2010) suggest that novel information learned via an educational intervention may exacerbate or alter symptoms rather than normalize them. However, a link between exacerbation of symptoms due to an educational intervention has not yet been established.
6.3 Educational interventions for trauma/PTSD in the literature

To identify studies evaluating educational interventions for trauma or PTSD, the terms ‘education*’, ‘psychoeducation’, ‘intervention’, ‘trauma’, ‘psychological’ and ‘PTSD’ were entered into MEDLINE. Using the resulting studies and looking at the reference lists lead to five articles examining educational interventions for people exposed to a traumatic event. In some of these, psychoeducation has been used as a control group with other treatments (e.g. testing the effectiveness of cognitive therapy versus an educational intervention). These five studies will be summarized below.

**Turpin, Downs & Mason, 2005.** The aim of this study was to assess the effectiveness of self-help information for people exposed to a road traffic accident, occupational injury or assault. Potential participants had attended an accident and emergency department in a hospital in Sheffield, England. The 291 individuals who agreed to participate completed the Post-traumatic Diagnostic Scale (PDS) and the Hospital Anxiety and Depression Scale (HADS) at three time points: baseline (2 weeks), post-intervention (10-12 weeks) and follow-up (24-26 weeks). Approximately 6-8 weeks into the study, the intervention group received an 8 page self help booklet discussing common psychological, emotional and behavioural reactions after a traumatic injury as well as information on seeking support, while the control group received a letter but no self-help information.

At baseline, no significant differences on the PDS or HADS were found between the intervention and control groups. Post-intervention, scores on the PDS and HADS decreased with time but no significant group differences were found for either measure. Interestingly, only 21% of participants in the intervention group had improved scores on the PDS while
50% in the control group showed improvement. At follow-up, significant effects of time for the PDS and HADS were found, but no group differences were revealed.

In addition, a number of participants in the intervention group were asked to rate the usefulness of the booklet on a scale of 0 (not useful) to 5 (very useful). The resulting mean for usefulness was 2.98. Overall, the results from this study do not support the effectiveness of self-help information for this population. The self-help material did not affect scores on either the PDS or the HADS.

**Scholes, Turpin & Mason, 2007.** This study was a replication of the Turpin, Downs and Mason study discussed above. Patients attending an accident and emergency department due to a road traffic accident, occupational injury or assault were eligible to participate. Those who agreed to participate completed a questionnaire assessing acute stress disorder (ASD). Based on their score on this measure, participants were assigned to either a high-risk intervention (HI) group, high-risk control (HC) or a non-ASD control group (LC). All groups received the PDS, HADS and a quality of life questionnaire at baseline (1 month), post-intervention (3 months) and follow up (6 months). At baseline, the HI group received a self-help booklet and were told to complete the questionnaires before reading the booklet. This booklet contained information on psychological consequences of trauma and advice based on cognitive behavioural strategies. In addition, the HI group were asked if they had read the booklet and/or had employed any of the strategies mentioned and were asked to rate the usefulness of the booklet.

As with the previously discussed study, the results failed to show a reduction in scores on the PDS, HADS and the quality of life measure due to the educational booklet at any time point, though reductions over time were found. Perceptions of the usefulness of
the booklet were very high, with about 94% of responders rating it ‘very useful’ or ‘extremely useful’.

**Nhiwatiwa, 2003.** This study was the only one to look at trauma in the workplace. Forty nurses who had been assaulted by patients were assigned to an intervention (education) or control group. At baseline, all participants completed the Impact of Events Scale (IES) which assesses post-traumatic phenomenon and the General Health Questionnaire (GHQ-28) which evaluates several areas of mental health functioning. The intervention group received an educational booklet discussing the effects of trauma and coping mechanisms. At follow-up, participants in both groups once again completed the IES and GHQ-28.

The results from this study showed that nurses in the intervention group who had received the educational booklet had higher scores on the IES at follow-up. In other words, nurses who had read the educational booklet were more distressed at the three month follow-up. Conversely, no significant differences were found between groups for the GHQ-28 or from baseline to follow-up.

**Ehlers et al., (2003).** In contrast to the previously mentioned studies which focused on the effectiveness of educational material, this study looked at three groups: a cognitive therapy group, a self-help group, and a control group (repeated assessments).

Eligible participants had experienced a motor vehicle accident and presented to an accident and emergency department in two hospitals in England. All participants were tested for PTSD via the PDS, and for Axis I disorders and borderline personality disorder with the SCID. Those meeting criteria for PTSD were randomly assigned into a cognitive therapy (CT) group, a self-help (SH) group or a repeated assessments (RA) group. The CT
group received 12 sessions of CT, which each session lasting approximately 90 minutes. The self-help group received a 64 page booklet which explained cognitive behavioural principles for the treatment of PTSD and a 40 minute session with a clinician to explain how to use the booklet. The repeated assessments group served as a control, and participants were told that they would be monitored over time.

At 3 months, post-intervention outcomes were collected. These included: the PDS, the Clinician-Administered PTSD Scale (CAPS-SX), Beck Anxiety Inventory, Beck Depression Inventory and the Sheehan Disability Scale. These measures were once again collected at a 9 month follow-up.

The results from this study showed the cognitive therapy group to be more effective than the self-help group and the repeated assessment group on all measures at 3 months (post-intervention) and at follow up. Moreover, the self-help group did not do better than the repeated assessments group, suggesting that self-help is not superior to repeated assessments in terms of symptom reduction.

Pratt et al., (2005). Pratt et al.’s study differs from the previous four as the sample consisted of 70 inpatients in a U.S. psychiatric hospital who met criteria for PTSD. The main goal of this study was to evaluate the feasibility of providing an educational intervention to patients with a chronic mental illness.

Patients who screened above threshold for PTSD were invited to participate in the study. At baseline, participants completed the Knowledge of PTSD Test (KPTSD), a multiple choice test assessing knowledge of trauma and PTSD. The psychoeducational intervention consisted of three 15-20 minute sessions with a psychologist or a pastoral counsellor. Each session included a videotape (and a corresponding manual) which was viewed either alone
or in a group. The first session introduced the term “post traumatic stress disorder”, the second focused on symptoms of PTSD, and the third discussed typical problems associated with PTSD symptoms. After the third session, participants once again completed the KPTSD test and completed a 10-item scale assessing satisfaction with the program.

Results showed that scores on the KPTSD increased after the psychoeducational intervention. Scores on the satisfaction scale showed that most participants were satisfied with the intervention. For instance, 52% of participants strongly agreed that they found the information easy to understand and 42% strongly agreed that they learned more about PTSD after the intervention.

6.4 **Consensus on educational interventions in the literature**

The studies discussed above suggest that educational interventions alone cannot alter scores on PTSD, depression, anxiety/distress or quality of life (see Table 3). These results may be due to a number of factors, such as the type of intervention (e.g. a self-help booklet alone vs. sessions with a mental health professional), the modality of the intervention (written information, internet interventions) and the outcomes being evaluated.

Three out of five of these studies used a self-help booklet alone as an educational intervention (Turpin, Downs & Mason, 2005; Scholes, Turpin & Mason, 2007; Nhiwatiwa, 2003). These studies may not have shown decreases in symptoms due to the solitary nature of this type of education. That is, people may have chosen to not read the material, may have limited grasp of the English language and therefore not fully comprehend the material or may not have been motivated to put ideas or strategies into practice. For
instance, Ruzek, Young and Walser (2003) note that written information alone cannot easily demonstrate behaviour such as relaxation skills or assertiveness training. Moreover, since difficulties with concentration are a core symptom of the ‘increased arousal’ category of PTSD, it may be particularly difficult for traumatized individuals to focus on written material for long periods of time. The help of a trained individual may help to overcome these problems. Didactic communication about the material may help the information seem more individualized, better understood by the traumatized person and may lead to agreed upon actions (Ruzek, Young & Walser, 2003).

The method of delivery of the intervention should also be considered. For example, Pratt and colleagues utilized three modalities: a video, a manual and time with a clinician, which may have helped these participants understand the material in more depth. One-on-one interventions should be tested against group interventions to evaluate the advantages of each type. Internet based psychotherapy or “Interapy” (Lange, Rietdijk, Hudcovicova, van de Ven, Schrieken & Emmelkamp, 2003) is also being tested for its usefulness. Lange et al.’s (2003) Interapy program included psychoeducational information and required writing sessions where the participants later received feedback from therapists. The psychoeducational information was delivered throughout the 5 week trial in order to provide a rationale for each step of the program (e.g. education about the importance of cognitive re-appraisal). The authors found significant improvements in trauma-related symptoms with this internet-based program. Moreover, internet-based interventions may be particularly useful in situations where access to treatment is difficult, due to travel or financial constraints (Knaevelsrud & Maercker, 2010).
The outcomes to be evaluated should also be considered. Four of the five discussed studies assessed changes in post-traumatic symptoms, anxiety and/or depression. Unfortunately, the results of these studies suggest that educational interventions alone cannot ameliorate symptoms. Therefore, it may be more efficacious to identify other areas which educational interventions can target. For example, using educational interventions to decrease stigma or negative attitudes about trauma/PTSD, increasing knowledge about trauma and PTSD and encouraging help-seeking behaviours may be alternative outcomes to evaluate. In a study involving the U.K. Royal Navy, Gould, Greenberg & Hetherton (2007) showed that a psychoeducational program could improve attitudes towards PTSD and help-seeking. In Pratt et al’s (2005) study, approximately 75% of individuals agreed or strongly agreed with the statement ‘Am more likely to seek treatment for trauma/PTSD’. In addition, Gray, Elhai & Frueh (2004) note that educational interventions can increase one’s knowledge about their medical condition. Future studies involving educational interventions for trauma/PTSD should investigate these outcomes in order to better understand the role of educational interventions.
<table>
<thead>
<tr>
<th>Study</th>
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<td>PDS, HADS</td>
<td>8 page self-help booklet</td>
<td>Randomised into self help or control group; did not support effectiveness of self-help educational intervention</td>
</tr>
<tr>
<td>Scholes, Turpin &amp; Mason, 2007.</td>
<td>Experienced road traffic accident, occupational injury or assault, reported to accident and emergency dept.</td>
<td>PDS, HADS, WHOQoL-BREF</td>
<td>Self-help information booklet</td>
<td>Randomised into high-risk intervention, high-risk control or low-risk control based on diagnosis of Acute Stress Disorder; did not support effectiveness of self-help intervention, subjective ratings of usefulness of booklet high</td>
</tr>
<tr>
<td>Nhiwatiwa, 2003.</td>
<td>Nurses assaulted by patients while at work</td>
<td>IES, GHQ-28</td>
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<tr>
<td>Ehlers et al., (2003).</td>
<td>Survivors of a motor vehicle accident</td>
<td>PDS, CAPS-SX, Beck Depression Inventory, Beck Anxiety Inventory, Sheehan Disability Scale</td>
<td>64 page self-help booklet and single session with a clinician to explain booklet</td>
<td>Randomised to CT, SH or RA group; CT group had lower scores on all measures vs. SH and RA group. RA and CT did not differ in effectiveness on any outcome measures.</td>
</tr>
<tr>
<td>Pratt et al., (2005).</td>
<td>Psychiatric inpatients meeting criteria for PTSD</td>
<td>KPTSD, Satisfaction scale</td>
<td>Three sessions with a videotape, manual and discussion with a clinical facilitator</td>
<td>Knowledge about trauma and PTSD increased after the intervention; participants reported satisfaction with the program</td>
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CHAPTER 7
TREATMENT SEEKING

7.1 Mental health treatment seeking in the literature

The extant research on treatment seeking shows that many people with a mental disorder do not seek treatment (e.g. Fikretoglu, Brunet, Guay & Pedlar, 2007; Wang, Lane, Olfson, Pincus, Wells & Kessler, 2005). Moreover, of those who do, relatively few receive care from a specialized mental health provider such as a psychiatrist or psychologist (Wang et al., 2005). In the National Comorbidity survey mentioned previously, only 41% of people with a mood, anxiety, substance abuse or impulse control disorder sought treatment, and approximately 26% of this care was through a mental health specialist (psychiatrist or a nonpsychiatrist mental health specialist) in the past year (Kessler et al., 1995). In a Canadian sample, only 28% of adults with a diagnosed DSM-III disorder sought treatment in the previous year. Of this 28%, the majority (22%) sought help from a physician/general practitioner, 8.3% sought help from a psychiatrist and only 5.2% spoke to a psychologist (Bland, Newman & Orn, 1997).

For individuals with PTSD, rates of treatment seeking are also low. Data from the National Comorbidity Survey (NCS) shows that only 22.3% of people with PTSD sought specialty mental health treatment in the past 12 months (Kessler, 1999). Speciality mental health treatment was defined as consultation with a psychiatrist, psychologist, social worker, counsellor or a psychiatric nurse. This data suggests that even with a broad definition of mental health services, this area is underutilized. In a replication of the NCS,
Wang et al. (2005) found that only 22.6% of individuals with PTSD sought help from a psychiatrist. Including non-psychiatrist mental health professionals (e.g. psychologists, social workers or mental health counsellors), only 34.4% of participants with a diagnosis of PTSD sought help from a mental health specialist. These studies show two important trends: 1) many people with a mental disorder (including PTSD) do not seek any type of treatment and 2) few individuals seek care from mental health practitioner.

There may be a plethora of reasons that people with a mental disorder such as PTSD do not seek mental health treatment. In a sample of adults with PTSD, Koenen, Goodwin, Struening, Hellman & Guardino, (2003) found that beliefs such as “afraid of what people with think” and “treatment won’t help” were barriers to seeking treatment. In addition, lack of resources such as “no insurance” or “not knowing where to get help” were endorsed by participants. In a qualitative study evaluating veterans’ decision to seek care, Sayer et al. (1999) noted 7 barriers. Trauma related avoidance (i.e. one of the symptoms of PTSD) makes it difficult for some to seek care, knowing that they will have to confront the trauma. Values and priorities included a sense of self-reliance and viewed professional help as a last resort. Individuals also held treatment-discouraging beliefs, such as expecting mental health professionals to not believe their stories. Importantly, this theme also encompassed the stigma of having a mental illness. That is, some felt that if others knew of their seeking help, they would be perceived as “weak” or “crazy”. Concerns about the healthcare system were also a barrier to help seeking, as were barriers in knowledge. For instance, some individuals were unaware of the types of events that can lead to PTSD and the types of treatment available. Barriers to access such as time, distance and cost were also discussed, as well as a perceived negative environment. Addressing these barriers by decreasing
stigma and increasing knowledge may facilitate treatment seeking in individuals with a mental health problem such as PTSD.
CHAPTER 8
TRAUMA and the TORONTO TRANSIT COMMISSION (TTC)

8.1 Burden of psychological trauma on the TTC

As mentioned, transportation workers have been identified as being at high risk for experiencing a traumatic event at work. The TTC is the third largest transportation system in North America, with over 11,000 employees. A significant number of events occur every year which can be considered psychologically traumatic events. In 2007, there were a total of 143 lost time injuries due to mental stress, in 2008 this number deceased to 126 injuries, and in 2009 increased again to 134 mental stress injuries. Overall, lost-time injuries due to mental stress represented 26% of all lost time injuries in 2009 (V. Consentio, personal communication, February 16, 2010). As well, a 2008 article published in the Toronto Star reported that the rate of PTSD is 4 times higher in TTC employees compared to Toronto police officers (The Toronto Star, 2008).

In regards to the types of events that lead to mental stress lost-time injuries, the majority encompass five categories: public interaction disputes, priority 1's (employee witnessed a suicide or its aftermath), collisions, fare/service disputes and witnessing a non-suicide event. In 2009, the TTC was ordered to release statistics on the number of suicides on the subway. The report showed that from 1998-2007, there were 250 suicides or attempted suicides on the subway, with an average of about 25 per year\(^1\).

\(^1\) http://www3.ttc.ca/News/2009/November/26_11_09_suicide_statistics.jsp
In 2009, 32 mental stress lost time injuries were due to public interaction disputes, 31 to priority 1 incidents, 22 to collisions, 12 to fare/service disputes and 14 to witnessing an event. Of the various divisions in the TTC, bus operators are most likely to experience a traumatic event. In fact, in 2009, 44% of mental stress injuries were in this group alone (V. Cosentino, personal communication, February 16, 2010).

The cost to the TTC is also significant in terms of insurance claims. In 2004, the WSIB approved 66 claims diagnosed as anxiety, stress and neurotic disorders, with the majority (37) diagnosed as PTSD. In the same year, the total time lost to WSIB approved psychological claims was in excess of 3,100 days.
CHAPTER 9
THE ACUTE PSYCHOLOGICAL TRAUMA (APT) STUDY

The Acute Psychological Trauma (APT) study is a collaborative project involving the Suicide Studies Unit at St. Michael’s Hospital, the Centre for Addiction and Mental Health (CAMH) and the Toronto Transit Commission (TTC). The study used a sequential mixed methods design to understand workplace trauma, first, by using qualitative methods to examine the facilitators and barriers to treatment-seeking and return to work for traumatized TTC employees, and second, by using quantitative methods to implement and evaluate a “best practice intervention” (BPI).

Eligibility for the APT study requires a TTC employee to have experienced an acute traumatic event while at work. For the purposes of the study, acute traumatic events may include: physical assaults, threats from verbal to weapon related, driving vehicles involved in suicides or fatal accidents, collecting body parts and cleaning the scene post-incident, witnessing or being subject to street crime and observing vehicle collisions involving serious bodily injury or death. The employee would have to report the incident to Occupational Health and Claims Management at the TTC and complete an Occupational Injury and Disease Report with lost time or no lost time injuries (WSIB Form 7). After completion of the WSIB form 7, occupational health staff contacted the employee to obtain initial verbal consent from to be contacted by the APT study research coordinator. The research coordinator would then explain the study and schedule a baseline appointment to discuss the study. If agreeable, the research coordinator would obtain signed, informed consent to participate in the study.
The APT study consists of 3 distinct phases. The first phase, called the treatment as usual or TAU phase commenced in May 2008. Sixty TTC employees who had experienced an acute traumatic event were recruited and completed a number of independent measures. Participants were screened for PTSD symptoms at 1, 3 and 6 months post-event and assessed for any psychiatric disorders via the Structured Clinical Interview for DSM-IV (SCID). These participants were followed for 6 months after the event, whereupon treatment and return to work-related variables were collected. In addition, interviews with a number of participants were undertaken in order to better understand the barriers and facilitators for employees to seek treatment and return to work. The results of this qualitative component were used to inform the development of the Best Practice Intervention (BPI).

The intervention phase (the Best Practices Intervention) commenced in July 2009. One-hundred twenty-four participants who experienced a traumatic event at work were recruited and completed the same set of independent measures as the TAU participants. They were screened for PTSD at 1, 3 and 6 months and if PTSD symptomatology was detected at any time, the participant was enrolled into the BPI. The BPI has 4 main elements: education/training for exposed workers, screening for symptoms, referral to specialized services and return to work coordination. The BPI took place at the Psychological Trauma Program (PTP) at CAMH, a multidisciplinary treatment program specializing in the mental health needs of injured workers. Participants were followed for 6 months and the same treatment and return to work variables were collected at follow-up.

Finally, the third phase is the evaluation phase, where the TAU and BPI groups will be compared, with time to return to work as the primary outcome. Secondary outcomes to be
evaluated are total number of days lost from work, time to seek treatment and cost-effectiveness.
METHODOLOGY
10.1 Study design

This study utilized a sequential mixed methods design with the qualitative phase following the quantitative phase. Mixed methods research is defined as “the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study” (Johnson & Onwuegbuzie, 2004, p. 17). Mixed methods designs may be particularly useful when further insights and a more in depth understanding of a problem is desired (Johnson & Onwuegbuzie, 2004) and specifically, “the qualitative (text) data can be used to help explain or elaborate on the quantitative results obtained in the first phase” (Ivankova, Creswell & Stick, 2006 p. 5). Moreover, the combination of using two methods may lead to more robust conclusions (Ivankova, Creswell & Stick, 2006).

The rationale for choosing a sequential mixed-methods design for the present study was to gain a better understanding of the role of the educational intervention and its effect (if any) on participants. In this way, the qualitative phase could refine and explain the results from the quantitative phase.

10.2 Study sample

Eligibility criteria

To be eligible for the study, the TTC employee would have experienced a traumatic event that was reported to the Occupational Health and Claims Management Section of the
Human Resources Department at the TTC. The sample included individuals completing the TTC Occupational Injury and Disease Report (WSIB Form 7) with lost time and/or no lost time injuries related to psychological trauma. In addition, Occupational Health and Claims Management were able to identify other employees who presented with a subsequent secondary diagnosis of psychological injury. At the time of reporting, if the participant met the eligibility criteria Occupational Health staff would obtain initial verbal consent to be approached by the study coordinator. These individuals were referred to the study coordinator who explained the study, asked them to participate, and if agreeable, would obtain signed informed consent.

Exclusion criteria

Individuals who sustained severe physical injury and individuals who reported a traumatic event caused by a workplace conflict or dispute between co-workers were excluded from this study. Events due to conflicts between co-workers were excluded since these types of events are handled via a different mechanism (i.e. non-WSIB).

10.3 Ethics

The APT study received ethics approval from both St. Michael's Hospital and the Centre for the Addiction and Mental Health. It was determined by the St. Michael's Hospital REB that the current study was embedded in the overall APT study and therefore would not require separate ethics approval. All participants were anonymized by assigning each an identification number and all identifying information on WSIB forms was blacked out so that it was unable to be read.
10.4 Sample size

The sample size was determined using a logistic regression model including one group variable and at least one other independent variable. From previous research on treatment seeking, we assumed that approximately 28.35% of people with PTSD will seek treatment within one year (Wang et al., 2005, Kessler et al., 1995). We expect this number to double as a result of the educational intervention to 56.8% seeking treatment. This doubling was based on discussions with clinicians and would represent a clinically significant change. The resulting sample size of 103 participants in total with 51 in the TAU and 52 in the BPI achieves 80% power to detect this difference at 5% significance.

10.5 Study procedure

Treatment as Usual

The procedure for this study follows the protocol for the APT Study and the sample of TAU participants was recruited from May 2008 to July 2009. Staff in the Occupational Health and Claims Management department at the TTC contacted employees who experienced a traumatic event and completed a Workplace Insurance and Safety Board (WSIB) Form 7 (with injuries related to emotional trauma). If the traumatized employee agreed to be contacted by the APT Study research coordinator (RE), the names were forwarded. After receiving the name, the research coordinator attempted to contact the individuals to arrange an appointment.

Each participant met with the research coordinator at a mutually convenient location and time. At the baseline meeting, the purpose of the APT Study, the responsibilities of the potential participant and confidentiality/ethics information was
discussed. If the individual agreed to participate, he or she was asked to provide signed consent. After this, demographic information was collected. If four weeks had passed since the traumatic event, the participant was assessed for PTSD symptoms via the Modified PTSD Symptom Scale (MPSS). Axis I and Axis II DSM disorders were also assessed via the Structured Clinical Interview for DSM-IV disorders (SCID I and SCID II) by the research coordinator. At the end of the appointment, the individual was given a binder with instructions to note the date of any medical appointments (e.g. with a GP or a mental health professional) as well as space to write any medications prescribed after the incident. As part of the APT Study protocol, the binder also contained a number of questionnaires assessing potential confounders to return to work such as the Beck Depression Inventory (BDI) and social support. These questionnaires were to be completed as soon as possible after beginning the study.

If post-traumatic symptoms were above threshold on the MPSS or if the individual met criteria for PTSD on the SCID I, he or she was asked to provide consent to have a letter sent to his or her family doctor explaining the findings. At 3 months post-incident, the individual was again tested for PTSD symptoms via the MPSS. Participants were also asked to provide copies of any WSIB forms relating to the event. These forms and the self-report information from the binders were used to note any appointments with mental health professionals in the data collection process.

**Best Practice Intervention**

Data collection for the BPI commenced in July 2009. The procedure for recruitment in the BPI was identical to the TAU. However, at the baseline meeting, I was also present to meet with the participant. After signing consent, they completed the pre-intervention
Knowledge of PTSD test (KPTSD) and received the educational intervention (see section 10.8 for details regarding the educational intervention). At 1 month and 3 months post-event, they again completed the KPTSD test (post-intervention test and follow-up test). If the participant scored above threshold for PTSD via the MPSS, they were referred for an appointment at the Psychological Trauma Program (PTP) at the Centre for Addiction and Mental Health (CAMH).

It is important to note that due to circumstances beyond our control, there were some delays in accessing treatment for participants in the BPI (e.g. staffing issues, wait lists at the Psychological Trauma Program). These delays may have an effect on our results.

10.6 Outcomes

Primary Outcome

The primary outcome is the proportion of traumatized employees in both the TAU and the BPI who have sought specialty mental health treatment by the three month follow-up. “Specialty mental health treatment” specifically refers to appointments with a psychologist, psychiatrist or any other mental health professional and does not include visits with a primary care physician.2

Secondary Outcomes

We also conducted a number of exploratory analyses including:

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2 Although primary care physicians often provide counseling services to patients (e.g. Harvey, Nelson, Lyons, Unwin, Monaghan & Peters, 1998), it is beyond the scope of the current study to evaluate this type of treatment.
(1) **Length of time to seek specialty mental health treatment.** The length of time to seek treatment is defined as the number of days between the traumatic event and the first mental health appointment.

(2) **Proportion returning to work.** The proportion of TAU and BPI participants returning to work within 90 days of the traumatic event will be evaluated and compared between groups.

(3) **Length of time to return to work.** Length of time is defined as the number of days between the incident date and the first day of work at the TTC (modified or regular duties).

(4) **Knowledge gained by the intervention.** This was assessed via change in score on the pre-intervention Knowledge of PTSD Test (KPTSD) and post-intervention KPTSD test.

(5) **PTSD symptoms.** PTSD was assessed via Modified PTSD Symptom Scale (MPSS), a self-report questionnaire assessing both the frequency and severity of PTSD symptoms. Although the test allows for separate scores for the severity and frequency of scores, only the total score will be evaluated.

10.7 **Measures**

**Knowledge of PTSD Test (KPTSD)**

This test was designed by Pratt et al. (2003) for their study evaluating a psychoeducational program for psychiatric inpatients. The KPTSD is a 15 item multiple choice test assessing participants' knowledge about trauma and PTSD. For example, one question asks the participant to choose the correct answer to the following question: “What
is a symptom of avoidance? a) being in a bad mood b) not taking prescribed medications or
c) staying away from things that remind you of the bad event”. Seven of the 15 questions
are true/false questions while the others ask the participants to choose from 3-4 possible
answers. Participants were asked to read each question and circle the answer they feel is correct. The duration of the test was approximately five minutes but varied
slightly between participants. Since the KPTSD has only been used in 2 studies, (both
involving psychiatric patients) its properties have not yet been psychometrically validated.

(2) Modified PTSD Symptom Scale (MPSS)

The MPSS is a 17-item self-report questionnaire assessing PTSD. The MPSS
corresponds to DSM-III-R criteria for PTSD and evaluates both the frequency and severity
of symptoms. The respondent is required to read each of the 17 items and determine the
frequency and severity of each scenario in the preceding 2 weeks. Frequency is assessed on
a scale ranging from 0 (not at all) to 3 (5 or more times per week/very much/almost
always). If the respondent has experienced the item (e.g. answers above 0), he/she then
indicates the perceived severity of the item on a scale ranging from A (not at all distressing)
to E (extremely distressing). The MPSS has been validated on treatment and community
samples and has shown good overall internal consistency. In addition, the MPSS has shown
good concurrent validity with the PTSD module on the SCID (Falsetti, Resnick, Resick &
Kilpatrick, 1993).

A sample item from the MPSS is “Have you had recurrent or intrusive distressing
thoughts or recollections about the event(s)”? The respondent would then indicate if they
had experienced distressing thoughts about the event and/or how often (the frequency)
and then determine the level of distress they feel due to it. The scale takes approximately
15 minutes to complete. To calculate the total score, each number on the frequency criterion is summed (range 0-51) and each letter on the severity scale is converted to a number (A=0-E=4) and is then summed, leading to a range of 0-68, with the highest possible total score being 119. A score of 46 or higher indicates that the individual was "positive" for PTSD i.e. meets criteria for “probable PTSD” (Falsetti, Resnick, Resick & Kilpatrick, 1993).

10.8 Educational intervention procedure

The educational intervention took place at the baseline meeting with participants in the BPI phase of the APT Study. At this time, written and informed consent to participate in the APT Study was given and demographic information was collected. The entire educational intervention takes approximately 30 minutes to complete (see Table 4). To begin, I explained to the participant that I was a Masters student working on the APT Study, and asked them to complete the KPTSD questionnaire. After completing the questionnaire, it was explained that we would discuss educational information about trauma and PTSD, and they could stop me or interrupt me at any time if they had any questions. We then went through the 19 slide PowerPoint presentation on a laptop. After this, the participant received a package of written information and any last minute questions regarding the educational intervention or the study were discussed.
Table 4. Educational intervention components

<table>
<thead>
<tr>
<th>Item</th>
<th>Time (approximate total = 30 minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction, explanation of intervention</td>
<td>1-2 minutes</td>
</tr>
<tr>
<td>Knowledge of PTSD Test (KPTSD)</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>PowerPoint presentation</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Questions, written materials, explanation of future meetings</td>
<td>1-2 minutes</td>
</tr>
</tbody>
</table>

10.9 Development of the educational intervention

(1) PowerPoint presentation. The PowerPoint presentation was the medium used to present the educational information to participants. This presentation consists of 19 slides discussing three main topics: traumatic events, post-traumatic stress disorder and options for treatment (see appendix 3). PowerPoint was chosen since it could be used as background information to discuss the relevant topics. That is, each slide was designed to have very little written content, so as to promote active discussion with the participant. The content of the presentation was determined by reviewing educational interventions used in previous studies and by any other relevant literature on trauma and PTSD. As well, information was gathered from the National Center for PTSD website (www.ptsd.va.gov), which is a division of the U.S. Veterans Affairs website.

The literature suggests a number of areas to be discussed with trauma survivors. The educational intervention should normalize post-trauma reactions, help to decrease stigma, promote help-seeking and discuss coping strategies. Indeed, Phoenix (2007) explains that the information should “provide a cognitive framework for their experience
and help minimize adverse reactions” (p. 123). To do this, it may be helpful to explain possible reactions one may experience (e.g. negative memories about the event) in order to make them more understandable. In fact, Robertson, Klein, Buller & Alexander (2002) note that the section rated most helpful in their educational leaflet was that discussing information on typical reactions after a traumatic event. Therefore, participants were taken through the types of reactions they may experience (e.g. physical, mental or emotional reactions). Moreover, to decrease stigma, it was explained that many people have these types of reactions, and that they were not a sign of weakness. There was also a slide dedicated to the role of the brain in traumatic reactions. That is, it was explained that there is a biological component to traumatic reactions (e.g. “fight or flight response”). This was added in order to help participants understand that their reactions were not the result of personal “weakness” or an inability to deal with the situation. Hence, this information was added to decrease stigma and normalize their reaction.

To promote help seeking, participants were told that although post-trauma reactions are typical in the short term, reactions that continue past a month and which are distressing should be discussed with a doctor or mental health practitioner.

Knowledge of coping strategies for adverse reactions may help the individual feel a sense of control (Phoenix, 2007). In the PowerPoint presentation, information regarding positive and negative coping strategies was discussed. For example, the importance of social support was underscored as a positive coping strategy as well as basic self-care such as proper diet habits and exercise. Conversely, negative coping strategies such as social isolation and substance abuse were noted.
Symptoms of post-traumatic stress disorder were then discussed with the participant. It is made clear that not everyone that is exposed to a traumatic event will develop PTSD, but that it may be helpful for them to know the signs and symptoms. Each category (re-experiencing symptoms, avoidance/numbing symptoms and increased arousal symptoms) were discussed in sequence, and it was explained that a DSM-IV diagnosis requires these symptoms to be present for at least 4 weeks with negative effects on work/family functioning.

Delayed-onset PTSD is also mentioned briefly. Since most TTC employees go back to the same job they were performing soon after the event or after a period off work or on modified work duties, their environment may act as a trigger. As Andrews, Brewin, Philpott, & Stewart (2007) mention, reminders of an earlier traumatic event may trigger later onset on PTSD. Therefore, the participant was told that in a minority of cases, distressing PTSD symptoms could emerge later in time, and that if in the future they noticed any symptoms of PTSD, to talk to their doctor or a mental health professional.

Treatment for PTSD was the final section of the PowerPoint discussion. The basis and components of CBT were explained and exposure therapy was highlighted as a key component. Pharmacological treatments were also discussed briefly.

The PowerPoint presentation went through several modifications before it was presented to participants. For instance, the amount of information presented on each slide was decreased. This was done for two main reasons: first, the participant’s ability to concentrate may have been compromised due to the traumatic event they experienced. That is, a lengthy, complicated presentation may be frustrating to the individual and not be effective. Additionally, the lesser the amount of information on the slide, the more is open
for discussion. That is, with a single line or phrase to indicate a topic, the participant is free to engage in a didactic conversation about the material as opposed to listening to a more rigid script.

The content of the presentation was vetted by a number of individuals before presented to participants. These include an expert in education, Dr. Ivan Silver, an expert in PTSD treatment, Dr. Ash Bender, and the Chief Safety Officer at the TTC, Mr. John O’Grady. As well, the PowerPoint information was presented to the APT Study’s Advisory Committee including representatives from Toronto Police, Toronto Fire and Toronto EMS. All suggestions were taken into account and modified on the PowerPoint presentation if agreed upon by myself and the thesis supervisor, Dr. Links.

(2) Written material package. At the end of the PowerPoint presentation, each participant was given a package of written materials specifically made for this study. The written materials consisted of: a booklet entitled “Responses to Trauma”, a trauma/PTSD fact sheet for families/loved ones, a information sheet on the Psychological Trauma Program, a brochure prepared by the TTC entitled “Operator Assault: Prevention Tips” and a magnetized reminder card with contact information for the study and key topics about PTSD.

The Reponses to Trauma booklet is a 14 page educational booklet discussing traumatic events and common reactions, symptoms of PTSD, treatment of PTSD, PTSD and the family, where/when to get help and resources for further information. There is also a section called”Do’s and Don’ts”, which provides concrete suggestions such as Do connect with friends and family and Don’t numb yourself with alcohol or drugs. The information for
this booklet was taken from relevant literature, the NCPTSD and two booklets used in a previous study by Turpin, Downs and Mason (2005).

The fact sheet for families is 5 pages in length and discusses traumatic events, typical reactions, PTSD and treatment options. This fact sheet also provides information for families/friends on how to help their loved one with PTSD. For example, the family member is told to encourage contact with family and close friends, be patient, and discourage abuse of alcohol and drugs. The information also covers the types of reactions the family member himself or herself may feel. For instance, they may feel frustrated, guilty or isolated because of the situation with their loved one, and so information on what to do if these feelings arise (e.g. learn more about PTSD) are provided as well as resources for more information.

A sheet explaining the Psychological Trauma Program was also included in the package. The sheet explains what is available through the APT Study, such as the types of treatment offered and return to work coordination. The Operator Assault brochure was produced by the System Security Section/Special Constable section of the TTC and was used for this study with permission.

Finally, the reminder card is a small, laminated card with contact information for the APT study on one side and brief information about PTSD on the back. Each card is magnetized so that the individual can keep the information readily available. Reminders have been noted to be effective method of increasing knowledge and changing behaviour in physicians (Woosung et al., 2004).
10.10 Data collection

Treatment as Usual

Information regarding mental health treatment and return to work was taken from two sources: 1) WSIB forms or forms from the TTC that were filled out by a doctor or mental health professional and mentioned either referral to specialty treatment or an appointment with a specialist and 2) self-report forms regarding mental health treatment and return to work dates. In some cases, participants did not provide the research coordinator with any WSIB or TTC forms. If this was the case, the self-report forms were consulted. If both were available, the dates were verified to be the same between both sources. If neither was available, this was coded as missing data.

WSIB and TTC forms

Participants were asked to provide the research coordinator with copies of WSIB forms or forms from TTC regarding treatment. These forms were used to note any type of mental health treatment received and if so, their first appointment date. The WSIB Form 8 (Health Professional's Report) is a form completed by the participants' family doctor and has a section regarding the planned treatment for the individual. If the doctor completed this form and noted that the participant was referred to a mental health specialist, the participant was classified as having received specialty mental health treatment. The doctor is also asked to note the date of the appointment with the mental health professional and this data was used to evaluate the length of time to seek treatment. The WSIB form 26 (Health Professional's Progress Report) looks at similar information to that of the Form 8, where the doctor is asked to describe the type of treatment being received by the participant and the date of the appointment if known. Finally, the TTC Supplemental
Medical Information Form – Psychological (SMI) contains information about any specialty treatment received by the participant and the date first seen. These forms were consulted to evaluate the type and time of mental health treatment received by the participant.

*Self-report forms*

At the end of the baseline meeting, each participant was given a binder with a number of questionnaires to complete (as part of the APT study) and a set of self-report sheets which required participants to write down the last day they worked (i.e. the date of the traumatic event), the day they returned to work, any appointments with specialists, any treatment received and any medication prescribed. At the final meeting with the research coordinator, the participant was asked to return the binder with the self-report sheets. This information was then used to note down any mental health treatment received and the date of this treatment, as well as return to work dates.

`Best Practice Intervention`

Data on mental health treatment was obtained from the Administrative Supervisor of the Psychological Trauma Program (PTP). The date of the initial appointment was used as the first date of seeking mental health treatment. In cases where the participant sought treatment elsewhere, both the self-report sheets were consulted as well as asking the participant where and when they sought mental health treatment. For return to work data, the self-report sheets were once again consulted, and participants were asked if they had returned to work at any of the meetings with the research coordinator. If there was no specified date of return to work, the date of the meeting with the research coordinator was noted and was coded as a temporary comment (e.g. not returned to work as of April 1, 2010).
Knowledge of PTSD (KPTSD) Test

The KPTSD test was to be administered at the baseline appointment, (pre-test) at 1 month from the event, (post-test) and at 3 months after the event (follow-up test). These timings were to follow the protocol of the APT Study. However, this schedule was not feasible due to delays outside of our control (see section 12.7). As a result, in some cases the baseline meeting would take place after 1 month. Thus, for these participants the post-intervention test was administered at 3 months as opposed to the original plan of 1 month. The delays were generally due to difficulties reaching participants. For instance, there were unpredictable delays in the time between the traumatic event and when Occupational Health staff at the TTC was able to contact participants to gain initial verbal consent to participant in the APT Study. Moreover, there were further delays with the APT Study coordinator being able to make contact with participants after they had agreed to be contacted.

Due to these difficulties, a number of participants were not able to complete the KPTSD follow-up test and therefore only the pre-intervention and post-intervention test were evaluated using statistical analyses.
10.11 Statistical analyses

All analyses were performed using IBM SPSS 18 and results were considered significant at the 5% level (two-tailed).

(1) Groups were compared using Chi-square tests for categorical data and T-Tests for comparing age between groups. A non-parametric Mann-Whitney U Test was used to evaluate the length of time employed at TTC.

(2) The proportion of TAU and BPI participants seeking mental health treatment by 90 days after the incident was compared using a Chi-square test of independence. A logistic regression was performed to determine any associations between treatment seeking, demographic variables and PTSD status at 1 month (above or below MPSS cut-off).

(3) The length of time to seek mental health treatment was analysed using a Kaplan-Meier survival analysis. Only those who were referred for treatment were included in the analysis. Participants who did not seek treatment within 90 days were censored. A Cox regression analysis was performed to evaluate the influence of demographic variables and PTSD status at 1 month on the length of time to seek treatment.

(4) The proportion of TAU and BPI participants returning to work by 90 days after the incident was compared using a Chi-square test of independence. A logistic regression was performed to determine any associations between return to work, demographic variables and PTSD status at 1 month (above or below MPSS cut-off).

(5) The length of time for TAU and BPI participants to return to work was investigated using a Kaplan-Meier survival analysis. Participants who took longer than 90 days to return to work were censored. A Cox regression analysis was performed to evaluate the
influence of demographic variables and PTSD status at 1 month on the length of time to return to work.

(6) The change in score on the KPTSD test from pre-intervention to post-intervention was tested using a paired T –Test\(^3\) (only in BPI group).

(7) The change in MPSS score from 1 month to 3 months in both the TAU and BPI was tested using a repeated linear mixed models analysis.

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\(^3\) A linear mixed models analysis was initially considered to evaluate the change in scores between the pre-intervention KPTSD test, post-intervention KPTSD test and follow-up KPTSD test. However, it was decided that due to the loss in follow up score, only the pre-intervention and post-intervention KPTSD test scores would be analysed.
CHAPTER 11
QUALITATIVE METHODS

11.1 Purpose and research questions

The purpose of the qualitative phase was to better understand employees’ motivations for seeking mental health treatment after an acute traumatic event and to explore their perceptions of an educational intervention. The main research questions were: 1) What factors motivate traumatized employees to seek mental health care and 2) What were participants’ perceptions of the educational intervention?

11.2 Qualitative description

The overarching goal of qualitative research is to understand the ways in which people interpret their experiences and the meanings they give them (Merriam, 2009). The methods to achieve this goal differ from study to study depending on the research question and the perspective of the researcher. For instance, phenomenological qualitative studies attempt to use the data to describe the essence of an experience using a particular philosophical perspective, and grounded theory aims to verify a theory (Patton, 2002).

In this study, we used qualitative description, which is often used in health sciences research (Sandelowski, 2000) and is the most common qualitative method in education (Merriam, 2009). Qualitative description is sometimes referred to as “basic” qualitative research (Merriam, 2009) since it is less interpretive and less philosophically based in
Participants who were eligible to participate had signed consent to participate in the BPI phase of the APT Study and had sought mental health treatment at the Psychological Trauma Program anytime within the APT Study period. Participants were considered to have “sought mental health treatment” if they had attended an assessment appointment.

11.3 Recruitment

Participants who were eligible to participate had signed consent to participate in the BPI phase of the APT Study and had sought mental health treatment at the Psychological Trauma Program anytime within the APT Study period.
and at least one treatment appointment with a psychologist at the PTP. To obtain consent to participate, the administrative supervisor contacted the participants’ psychologist who would secure verbal consent to be contacted by me. However, due to lengthy delays in this process, the protocol was changed so that the APT study research coordinator was able to obtain initial verbal consent to be contacted by me (this change was amended in the protocol and approved by the St. Michael’s Hospital Research Ethics Board). If the participant agreed to be contacted, a meeting time was scheduled to have the interview.

**Inclusion Criteria**

The inclusion criteria for the qualitative interviews were:

1) Consented to participate in APT Study  
2) Fluency in English  
3) Age 18 years or older  
4) Sought mental health treatment at the PTP within the APT Study period

### 11.4 Ethics

It was determined by the St. Michael’s Hospital Research Ethics Board (REB) that the qualitative phase would require separate ethics approval. As a result, ethics was sought and approved by the St. Michael’s Hospital REB and by the Centre for Addiction and Mental Health. This was amended in March 2010 to reflect changes in obtaining initial verbal consent. The qualitative phase also required an independent consent form to be completed by the participant before the interview could begin (appendix 2.3).

### 11.5 Sample size

For this study, a purposive sampling strategy was used. The goal of purposive sampling is to select information-rich cases for in-depth study and select those specific
cases that can lead to the most information. In this way, a small sample size with abundant information can best illuminate the research question (Tashakkori & Teddlie, 2003). Morse (2000) explains that small samples are justified when the scope of the study is relatively narrow and the nature of the topic is closer to the surface, rather than abstract. In this study, the sample is relatively cohesive (e.g. all TTC employees seeking treatment after an acute trauma), and questions focused on perceptions of the educational intervention and issues surrounding treatment seeking after a traumatic event. As a result, a sample size of 15 participants was viewed as sufficient to capture the desired information. In addition, qualitative research techniques employ the concept of saturation, meaning that further data collection results in no new data (Morse, 1995) or new interviews provide redundant information (Bowen, 2008).

11.6 Interviews

The interviews took place at the Psychological Trauma Program (PTP) for the convenience of the participant. After explaining the rationale and ethical considerations of the interview, the participant was asked to sign a consent form if they wished to participate.

Before the interview began, I briefly reviewed the PowerPoint information. Since the purpose of the interview was to explore reasons for seeking treatment and participants’ perceptions of the educational intervention, it was thought that discussing the educational information would not affect the interview negatively. In addition, in some cases, a significant amount of time had elapsed between the initial educational intervention and the interview.
The interviews followed the semi-structured interview guide which was revised after the initial interviews were transcribed and reviewed (see appendix 2.1 & 2.2 for original and revised versions). The questions reflect the two main research questions, and as such, were open-ended but somewhat focused on treatment seeking and the educational intervention. After reviewing one of the first transcribed interviews, it was felt that although the questions were pertinent to the investigation at hand, the wording and order of the questions should be changed. For example, it was suggested that the interview start with the participant’s decision to seek treatment as opposed to first discussing the educational intervention. It was felt that this question would let the individual feel more comfortable with the interview, as he/she was reflecting on his/her own experience as opposed to considering the educational intervention.

As well, the language was altered on the revised interview guide. For instance, the question “What motivated you to seek specialty treatment after the event?” was changed to “What made you see someone at CAMH?” Although both versions consider the same underlying question, the second version is worded more simply and directly. It was expected that changes to make the wording more direct would facilitate discussion since the individual would need less time to interpret the question.

Reviewing the initial interviews also led to the incorporation of new questions. For example, we added the question: “For someone who has been in a situation like you, what do you think is helpful? A) Talking to people? If yes, what made you want to talk? Who did you talk to? How was their response?” The notion of “talking to someone” was expressed multiple times in the initial interviews that were reviewed. By adding this question, we
expected to better understand the importance of talking to others about a traumatic event and why it was helpful (or unhelpful) in their personal experience.

Overall, the revisions to the interview guide allowed for a more open-ended discussion and took into account the natural language of the participant while remaining focused on the major themes of the qualitative phase.

11.7 Reimbursement

Participants were compensated $10 for their time regardless of the duration of the interview.

11.8 Data analysis

The preferred type of data analysis for a qualitative descriptive study is content analysis. Content analysis is defined as “a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh & Shannon, 2005, p. 1278). Content analysis involves examining textual data (transcribed interviews) to generate overarching themes. In this study, I used “conventional content analysis”, which is used when the goal is to describe a phenomenon using information derived from the data itself (Hseih & Shannon, 2005). The initial step prior to coding is to read the interviews thoroughly and repeatedly in order to gain a sense of “immersion” with the data (Hseih & Shannon, 2005). To do this, I attempted to focus only on the comments of the participant while attempting to disregard my commentary. By doing this, I was able to gain a better sense of what the respondents were saying and focus on their comments. After this, I wrote a short reflection of each interview in order to get a better sense of the whole (Hseih & Shannon, 2005). Next,
each interview was read word for word and coded using NVivo 8, a qualitative data management software package. NVivo allows the user to highlight sections of the transcribed interview and code them based on key ideas or concepts which can easily be linked or separated from other codes. A “code” in this sense can be considered a “meaning unit” and can be attributed to a thought, event or object (Granehim & Lundman, 2004) and is the smallest unit of meaning. For example, a recurring code in several interviews was “depression”. That is, the individual referred to this key thought at least once in the interview and in also between interviews. After each interview was coded through NVivo as “free nodes”, they were sorted into a smaller number of “tree nodes”, or broader categories. In this way, the very specific codes (the free nodes) were condensed into a smaller number of broad subcategories (the tree nodes). For example, the codes “talking to co-workers and talking to people” were linked to make the subcategory “talking about it”. The interviews were also coded by hand and important quotes were highlighted to be used as exemplars for each subcategory. Finally, regularly scheduled meetings were arranged between myself and members of the APT study to gain feedback on initial coding and to reach consensus on the coding process.
RESULTS
CHAPTER 12

QUANTITATIVE RESULTS

12.1 Treatment as Usual recruitment

Recruitment for the Treatment as Usual (TAU) phase began in May of 2008 and was completed in July 2009. A total of 131 TTC employees were referred to the study. This includes referrals through the human resources department at TTC as well as self-referrals; where a traumatized TTC employee could contact the study coordinator directly. As well, trauma counsellors with the TTC’s Employee and Family Assistance Program (EFAP) were able to refer employees they had seen to the study coordinator. Of those who were referred or contacted the research coordinator, 5 did not meet study criteria since they did not complete the WSIB Form 7. Sixteen participants refused to participate when contacted by the study coordinator, while 14 were contacted but did not call back, indicating that they did not wish to participate. Twenty-seven people were unable to be contacted after a maximum of 3 messages being sent with no contact. Six participants were lost to follow up and three withdrew, leaving the final sample size to be 60 participants with a recruitment rate of 46% (Figure 1).
Figure 1. TAU recruitment

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referred</td>
<td>131</td>
</tr>
<tr>
<td>Did not meet criteria</td>
<td>5</td>
</tr>
<tr>
<td>Refused</td>
<td>16</td>
</tr>
<tr>
<td>Unable to contact</td>
<td>27</td>
</tr>
<tr>
<td>Withdrew</td>
<td>3</td>
</tr>
<tr>
<td>Will call back if interested</td>
<td>14</td>
</tr>
<tr>
<td>Lost to follow-up</td>
<td>6</td>
</tr>
<tr>
<td>Recruited</td>
<td>60</td>
</tr>
</tbody>
</table>

12.2 Treatment as Usual sample characteristics

The sample characteristics for the 60 recruited participants can be seen in Table 5. The mean age of the participants was approximately 41 years old. Forty-four (73.3%) of participants were male and 16 (26.7%) were female. Twenty-one participants (35%) had some high school or completed high school while 39 (65%) had more than a high school education. Thirty-five (58%) participants were Caucasian, 14 (23%) identified as Asian, 6 (10%) were black and 5 (8.3%) reported “other ethnicity”. Thirty-six participants (60%) were married or common-law and 24 (40%) were currently not married. In terms of
occupation at the TTC, 42 (70%) of participants were bus or streetcar drivers, 12 (20%) were train operators, 6 (10%) were collectors and 1 was a trainer (reported as ‘other’). Physical assaults were the most common type of incident with 21 (35%) reporting this incident, 18 (30%) experienced a verbal assault, 11 (18.3%) had a suicide event (also known as a Priority 1), 6 (10%) had an accident (with a pedestrian or another vehicle) and 4 (6.7%) did not fall into any of these categories. These “other” events included witnessing a collision or street violence. Since the distribution of time at TTC was skewed between the TAU and BPI, the median number of months of employment at TTC is reported. For TAU participants, the median time employed at TTC was 66 months (5.5 years).

12.3 Best Practice Intervention recruitment

Figure 2 displays the recruitment process for the BPI phase of the APT study. Recruitment for this phase began in July 2009 and for the purposes of this study, was completed in April 2010. A total of 85 TTC employees were referred to the study. To enhance recruitment in the BPI, novel recruitment strategies were initiated. For example, brochures and posters advertising the study were created and placed at various TTC divisions with contact information for the study coordinator. TTC employees were encouraged to self-refer to the study by contacting the research coordinator. As well, the TTC’s Employee and Family Assistance Program (EFAP) was asked to refer employees that had a traumatic event. The TTC union (ATU 113) was also asked to encourage participation in the APT Study. The addition of these new referral pathways increased the recruitment rate to 58.8%.
Of the 85 referred individuals, 3 did not meet criteria because they did not complete the WSIB Form 7. Eight refused to participate after being contacted by the research coordinator, 13 were unable to be contacted after leaving a maximum of 3 messages, 3 indicated that they would call back if they were interested in participating at a later time and 8 were lost to follow-up after signing consent to participate and completing the 1 month measures. The final sample size for the BPI was 50 participants.

Figure 2. BPI recruitment.

<table>
<thead>
<tr>
<th>Referral Pathways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referrals from TTC</td>
</tr>
<tr>
<td>Self-referred</td>
</tr>
<tr>
<td>EFAP</td>
</tr>
<tr>
<td>Union</td>
</tr>
<tr>
<td>Co-worker</td>
</tr>
<tr>
<td>WSIB</td>
</tr>
</tbody>
</table>

85

Recruited 50
12.4 *Best Practice Intervention sample characteristics*

The characteristics for participants in the Best Practice Intervention can be seen alongside the Treatment as Usual characteristics in Table 5. The mean age of participants was 43.9 years old. Thirty-six (72%) of participants were male and 14 (28%) were female. Nineteen (38%) of participants had less than high school or completed high school while 31 (62%) had completed education over and above high school. Thirty-two (64%) of participants were Caucasian, 7 (14%) were Asian, 3 (6%) were Black and 8 (16%) endorsed “other” (e.g. Kenyan). Thirty-four (68%) of participants were married or common law and 16 (32%) were single. For the type of occupation at the time of the incident, 26 (52%) of participants were bus or streetcar drivers, 17 (34%) were train operators, and 7 (14%) were collectors or other (e.g. maintenance or janitorial workers). Physical assaults accounted for 12 (24%) of the incidents, 10 (20%) participants experienced a verbal assault, 14 (28%) had a suicide event, 6 (12%) were involved in an accident and 8 (16%) did not fall into any of these categories (e.g. witnessed children being pushed onto subway tracks. The median length time of employment at the TTC was 120 months (about 10 years).

Comparing the two groups revealed no significant differences except for the length of time of employment at the TTC. Since the distribution of length of time at TTC was skewed, a non-parametric Mann-Whitney U Test was used to evaluate these differences and revealed a significant difference between groups (p=0.012).
Table 5. Sample Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>TAU (N=60) (^a)</th>
<th>BPI (N=50) (^b)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, mean, SD, years</strong></td>
<td>41.1 (8.8)</td>
<td>43.9 (10.1)</td>
<td>0.32*</td>
</tr>
<tr>
<td><strong>Time at TTC, median, IQR (months)</strong></td>
<td>66 (90)</td>
<td>120 (102)</td>
<td>0.012**</td>
</tr>
<tr>
<td><strong>Gender, n (%)</strong></td>
<td></td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>Male</td>
<td>44 (73.3)</td>
<td>36 (72.0)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>16 (26.7)</td>
<td>14 (28.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Education, n (%)</strong></td>
<td></td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td>≤ High school</td>
<td>21 (35.0)</td>
<td>19 (38.0)</td>
<td></td>
</tr>
<tr>
<td>&gt;High school</td>
<td>39 (65)</td>
<td>31 (62.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity, n, (%)</strong></td>
<td></td>
<td></td>
<td>0.35</td>
</tr>
<tr>
<td>Caucasian</td>
<td>35 (58.3)</td>
<td>32 (64.0)</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>14 (23.3)</td>
<td>7 (14.0)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>6 (10.0)</td>
<td>3 (6.0)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5 (8.3)</td>
<td>8 (16.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status, n (%)</strong></td>
<td></td>
<td></td>
<td>0.39</td>
</tr>
<tr>
<td>Married/common-law</td>
<td>36 (60.0)</td>
<td>34 (68.0)</td>
<td></td>
</tr>
<tr>
<td>Not married</td>
<td>24 (40.0)</td>
<td>16 (32.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Job Type, n (%)</strong></td>
<td></td>
<td></td>
<td>0.15</td>
</tr>
<tr>
<td>Bus/streetcar</td>
<td>42 (70.0)</td>
<td>26 (52.0)</td>
<td></td>
</tr>
<tr>
<td>Train</td>
<td>12 (20.0)</td>
<td>17 (34.0)</td>
<td></td>
</tr>
<tr>
<td>Collector/Other</td>
<td>6 (10.0)</td>
<td>7 (14.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Type of Event, n (%)</strong></td>
<td></td>
<td></td>
<td>0.23</td>
</tr>
<tr>
<td>Physical assault</td>
<td>21 (35.0)</td>
<td>12 (24.0)</td>
<td></td>
</tr>
<tr>
<td>Verbal assault</td>
<td>18 (30.0)</td>
<td>10 (20.0)</td>
<td></td>
</tr>
<tr>
<td>Priority 1 (suicide)</td>
<td>11 (18.3)</td>
<td>14 (28.0)</td>
<td></td>
</tr>
<tr>
<td>Accident</td>
<td>6 (10.0)</td>
<td>6 (12.0)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4 (6.7)</td>
<td>8 (16.0)</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Treatment As Usual
\(^b\) Best Practice Intervention
\(^c\) Toronto Transit Commission
12.5 Mental health treatment seeking

Proportion seeking specialty mental health treatment by 90 days

All participants were followed for 90 days beginning from the date of their traumatic event. Participants were coded ‘yes’ if they attended an appointment with a specialty mental health practitioner within 90 days and ‘no’ if they did not.

In the TAU group, 60 participants were followed for the full 90 day period. Of these, 17 people (28.3%) accessed specialty mental health care. In the BPI, 24 (48%) of 50 participants sought specialty mental health treatment (Figure 3). A chi-square test of independence revealed a significant difference between the TAU and BPI in treatment seeking by 90 days $\chi^2(1, N=110) = 4.512$, $p=0.034$, OR=2.335, 95% CI=1.060 to 5.141.
**Figure 3. Proportion seeking mental health treatment**

![Proportion seeking mental health treatment](image)

**Relationship between seeking mental health treatment, group and demographic variables**

Logistic regression analyses were performed to determine predictors of mental health treatment seeking. The variable ‘group’ (TAU or BPI) and 5 demographic variables were assessed. These demographic variables were: age (continuous), gender (male or female), education (less than high school/completed high school or more than high school), ethnicity (Caucasian or not Caucasian) marital status (married/common-law or single) and type of event (assault, suicide or other). Job type was initially considered for inclusion, however, a strong association was found between job type and event type $\chi^2(4,$
N=112)=66.509, p<0.001. As a result, only the type of event was considered in the analyses. These potential predictor variables were included since they were collected for all participants at baseline and are typically controlled for in studies of trauma and PTSD (e.g. Kessler et al., 1995).

The dependent variable in all analyses was a binary response variable (sought MH treatment: yes or no). Group was first included in the model as a single covariate to determine the relationship between group type and seeking treatment and was coded 0 for TAU and 1 for BPI. Subsequently, each of the remaining 5 variables was added one at a time as covariates in addition to the group variable. We entered the group variable first in the analyses since our primary question was to understand the effect of receiving the educational intervention.

The unadjusted and adjusted odds ratios and 95% confidence intervals were also calculated for each predictor variable. The odds ratio is the ratio of the odds that an event will occur in one group to the odds that an event will occur in the comparison group (Lang & Secic, 1997). The confidence interval associated with each odds ratio is a measure of the precision of the odds ratio (Lang & Secic, 1997).

The group variable was a significant predictor of seeking mental health treatment (p=0.035). Age was added to the model but was not a significant predictor (p=0.376), nor were gender, (p=0.572) education, (p=0.851) ethnicity, (p=0.605) or marital status (p=0.534). The type of traumatic event was a significant predictor of seeking treatment (p=0.047, p=0.014). Table 6 shows the unadjusted and adjusted odds ratios and 95% confidence intervals for the estimates. Model 1 shows the unadjusted odds ratio for the

---

4 MH=Mental health
variable group. The odds ratio of 2.335 means that the odds of seeking treatment in the BPI are 2.335 times the odds of seeking treatment in the TAU (95% CI= 1.060-5.141, p=0.035). Model 2 shows the adjusted odds ratios for the variables group and type of event. The addition of type of event into the model shows that this variable is a stronger predictor of seeking treatment than is the group variable. The odds ratio for type of event shows that seeking treatment is 3.486 times as likely to occur for those participants who experienced a suicide event compared to those experiencing an assault (95% CI=1.289-9.425, p=0.014).

Table 6. Multiple logistic regression showing predictors of seeking treatment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (β)</th>
<th>SE</th>
<th>Wald $\chi^2$</th>
<th>OR</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group$^a$</td>
<td>0.848</td>
<td>0.403</td>
<td>4.433</td>
<td>2.335</td>
<td>1.060-5.141</td>
<td>0.035*</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>0.740</td>
<td>0.421</td>
<td>3.089</td>
<td>2.095</td>
<td>0.918-4.781</td>
<td>0.079</td>
</tr>
<tr>
<td>Event Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assault$^b$</td>
<td>-</td>
<td>-</td>
<td>6.133</td>
<td>-</td>
<td>-</td>
<td>0.047*</td>
</tr>
<tr>
<td>Suicide</td>
<td>1.249</td>
<td>0.507</td>
<td>6.055</td>
<td>3.486</td>
<td>1.289-9.425</td>
<td>0.014*</td>
</tr>
<tr>
<td>Other</td>
<td>0.285</td>
<td>0.524</td>
<td>0.296</td>
<td>1.329</td>
<td>0.476-3.709</td>
<td>0.587</td>
</tr>
</tbody>
</table>

Note: dependent variable= Sought treatment: yes/no , N=110
$^a$TAU=reference category
$^b$reference category
*p<0.05

Relationship between seeking treatment and demographic variables accounting for PTSD 1 month

Since the MPSS was administered at 1 month post-event, it could not be included the preceding logistic regression analysis. To account for PTSD status at 1 month, (no=MPSS score <46, yes=MPSS score ≥46) a new variable was created to include only those participants who had sought mental health treatment after 30 days of their traumatic
event. The logistic regression included the same six variables (group, age, education, ethnicity, marital status and type of event) plus the variable ‘PTSD 1 month’.

Each analysis included the group variable as a covariate. Group alone was a significant predictor of seeking treatment (p=0.001). The following demographic variables were non-significant: age, (p=0.861) gender, (0.674) education, (p=0.323) ethnicity and (p=0.954) marital status (p=0.621).

Table 7 shows the final models. Model 1 includes only group and estimates the unadjusted odds ratio for group. The odds ratio shows that seeking treatment is 4.259 times more likely to occur in BPI participants compared to TAU participants (95% CI=1.771-10.245, p=0.001). Model 2 includes the group variable and the type of event and estimates the adjusted odds ratios for both variables. The odds ratio means that BPI participants were 3.868 times as likely as TAU participants to seek treatment within 60-90 days (95% CI=1.552-9.643, p=0.004) and participants with a suicide event were 3.853 times as likely to seek treatment versus those with an assault.

Model 3 included group and PTSD status at 1 month (no=MPSS score <46, yes=MPSS score ≥46). Both variables were strongly significant predictors of seeking treatment. The adjusted odds ratio for group shows that BPI participants were 5.740 times as likely to seek treatment as TAU participants (95% CI=2.092-15.747, p=0.001). However, this large confidence interval indicates low precision of this estimate. Participants’ PTSD status at 1 month was also a significant predictor of seeking treatment. The adjusted odds ratio of 7.46 explains that those participants with PTSD at 1 month (≥46 on MPSS) were 16.098 times as likely as those who don’t have PTSD to seek treatment (95% = 4.205-61.622, p<0.001). However, this wide interval indicates a low level of precision for the estimate.
Model 4 includes group, type of event and PTSD status at 1 month and estimates the adjusted odds ratios for each variable. Group, (TAU or BPI), PTSD status at 1 month (no or yes) and type of event (assault, suicide or other) were significant predictors of seeking mental health treatment, but PTSD status at 1 month was the strongest predictor of treatment seeking status.

Table 7. Multiple logistic regression showing predictors of seeking treatment more than 30 days after incident

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (β)</th>
<th>SE</th>
<th>Wald χ²</th>
<th>OR</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groupa</td>
<td>1.449</td>
<td>0.448</td>
<td>10.472</td>
<td>4.259</td>
<td>1.771-10.245</td>
<td>0.001*</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1.353</td>
<td>0.466</td>
<td>8.426</td>
<td>3.868</td>
<td>1.552-9.643</td>
<td>0.004*</td>
</tr>
<tr>
<td>Event Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assaultb</td>
<td>-</td>
<td>-</td>
<td>6.269</td>
<td>-</td>
<td>-</td>
<td>0.044*</td>
</tr>
<tr>
<td>Suicide</td>
<td>1.349</td>
<td>0.539</td>
<td>6.256</td>
<td>3.853</td>
<td>1.339-11.086</td>
<td>0.012*</td>
</tr>
<tr>
<td>Other</td>
<td>0.460</td>
<td>0.421</td>
<td>0.659</td>
<td>1.585</td>
<td>0.522-4.814</td>
<td>0.417</td>
</tr>
<tr>
<td><strong>Model 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1.747</td>
<td>0.515</td>
<td>11.516</td>
<td>5.740</td>
<td>2.092-15.747</td>
<td>0.001*</td>
</tr>
<tr>
<td>PTSD 1 mo.c</td>
<td>2.779</td>
<td>0.685</td>
<td>16.460</td>
<td>16.098</td>
<td>4.205-61.622</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td><strong>Model 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1.544</td>
<td>0.545</td>
<td>8.031</td>
<td>4.684</td>
<td>1.610-13.625</td>
<td>0.005*</td>
</tr>
<tr>
<td>PTSD 1 mo.</td>
<td>2.092</td>
<td>0.714</td>
<td>16.534</td>
<td>18.208</td>
<td>4.496-73.745</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Event Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assaultb</td>
<td>-</td>
<td>-</td>
<td>6.390</td>
<td>-</td>
<td>-</td>
<td>0.041*</td>
</tr>
<tr>
<td>Suicide</td>
<td>1.672</td>
<td>0.661</td>
<td>6.389</td>
<td>5.322</td>
<td>1.456-19.458</td>
<td>0.011*</td>
</tr>
<tr>
<td>Other</td>
<td>0.557</td>
<td>0.667</td>
<td>0.699</td>
<td>1.746</td>
<td>0.473-6.447</td>
<td>0.403</td>
</tr>
</tbody>
</table>

Note: dependent variable= Sought treatment 30 days after event: yes/no, N=110

*TAU = reference category
breference category,
creference category= MPSS score below 46
*p<0.05

Proportion “symptomatic” and seeking specialty mental health treatment by 90 days

In order to account for those who scored above the cut-off for PTSD on the MPSS at
1 month (≥46 on the total MPSS score) and could be considered “symptomatic”, a second set of analyses were conducted with only those who were symptomatic. Participants were coded as ‘yes’ if they scored above cut-off and attended an appointment between 30-90 days, and ‘no’ if they were above the cut-off but did not attend an appointment. Those who were not symptomatic were coded as “missing” and not included in the analysis.

In the TAU group, 26 out of 60 participants (43.3%) were not symptomatic and excluded from the analysis and 34 (56.6%) participants were symptomatic and included in the statistical analyses. Of these 34 participants who scored above the MPSS cut-off, 14 (23.3%) sought mental health treatment within 90 days of their traumatic event.

In the BPI, 18 out of 50 participants (36%) were not symptomatic and excluded from the Chi-square analysis while 32 (64%) were included. Of these 32 participants, 26 (81.3%) sought specialty mental health treatment. A Chi-square test of independence showed a significant difference between groups $\chi^2(1, N=66) = 11.088$, $p=0.001$, $OR=6.190$, 95% CI=2.020-18.973 (Figure 4).
Logistic regression analyses were conducted to predict treatment seeking in symptomatic participants. The categorical dependent variable was ‘symptomatic and sought treatment: yes/no’. As with the previous logistic regression analyses, the variables group, age, gender, ethnicity, marital status and type of event were each included as covariates in the regression. Each variable was added as a covariate in addition to the group variable.
The final model is shown in Table 8. Model 1 included group, and was a significant predictor of seeking treatment in participants who were symptomatic. The unadjusted odds ratio of 6.190 shows that BPI participants were 6.190 times as likely to seek treatment if symptomatic in comparison to TAU participants who were symptomatic (95% CI=2.020-18.973, p=0.001).

Model 2 included group and type of event. The adjusted odds ratios shows that BPI participants were 4.730 times as likely to seek treatment if symptomatic compared to TAU participants who were symptomatic (95% CI=1.435-15.591, p=0.011). Type of event was also a significant predictor of seeking treatment in symptomatic participants. The adjusted odds ratio shows that participants with an event categorized as “other” (e.g. accident; hit a pedestrian) were 5.940 times more likely to seek mental health treatment in comparison to those with an assault (95% CI=1.078-32.748, p=0.041). However, both of these variables had large confidence intervals – revealing low precision of the estimate.
Table 8. Multiple logistic regression showing predictors of seeking treatment in symptomatic participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (β)</th>
<th>SE</th>
<th>Wald χ²</th>
<th>OR</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1.823</td>
<td>0.571</td>
<td>10.177</td>
<td>6.190</td>
<td>2.020-18.973</td>
<td>0.001*</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1.554</td>
<td>0.609</td>
<td>6.519</td>
<td>4.730</td>
<td>1.435-15.591</td>
<td>0.011*</td>
</tr>
<tr>
<td>Event Type</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assault (^b)</td>
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<td>-</td>
<td>6.919</td>
<td>-</td>
<td>-</td>
<td>0.031*</td>
</tr>
<tr>
<td>Suicide</td>
<td>1.699</td>
<td>0.869</td>
<td>3.821</td>
<td>5.468</td>
<td>0.996-30.037</td>
<td>0.051</td>
</tr>
<tr>
<td>Other</td>
<td>1.782</td>
<td>0.871</td>
<td>4.185</td>
<td>5.940</td>
<td>1.078-32.748</td>
<td>0.041*</td>
</tr>
</tbody>
</table>

Note: dependent variable= Symptomatic and sought treatment: yes/no, N=66
\(^a\)TAU=reference category
\(^b\)reference category

*p<0.05

**Length of time to seek specialty mental health treatment**

Figure 5 displays results from a Kaplan-Meier survival analysis comparing the length of time to seek mental health treatment by group type (TAU or BPI). The starting time was the date of the traumatic event and the end time was the date of the first mental health appointment. Participants who did not seek treatment or took longer than 90 days to seek treatment were censored at 91 days. Participants who were not referred for treatment were excluded from the analysis. The survival plot illustrates the probability of not seeking mental health treatment.

Of the 60 TAU participants, 18 scored above the MPSS cut-off and were “referred” for treatment while the date of mental health appointment was unknown for 2 people. Of these 16, 15 attended an appointment within 90 days. The survival curve illustrates that at 36 days, 50% of TAU participants had not sought treatment (SE=7.333, 95% CI=21.627-50.373).
For the BPI, 32 participants were referred for mental health treatment. Of these, 20 attended an appointment within 90 days. The curve shows that by 74 days, 50% of BPI participants had not sought treatment (SE=7.234, 95% CI= 59.821-88.179).

The TAU and BPI differed significantly on length of time to seek mental health treatment (log-rank = 9.826, df=1, p=0.002).

Figure 5. Length of time to seek treatment


Relationship between length of time to seek treatment, group and demographic variables

Cox regression analyses were performed to assess the influence of potential explanatory variables on the length of time to seek mental health treatment (Table 8). Cox regression (or Cox proportional hazards regression analysis) procedures are used to investigate the relationship between the time to an event (in our analysis, time to seek mental health treatment) and explanatory variables (Lang & Secic, 1997). The response variable is the time between the traumatic event and the first mental health appointment in days. The explanatory variables included in the analysis were: group, age, gender, education, ethnicity, marital status and type of event. Since the length of time to seek treatment between groups is of primary interest, the group variable was added as a covariate in addition to the aforementioned variables.

A Cox regression analysis with unadjusted and adjusted hazard ratios and 95% confidence intervals was performed. As with the Kaplan-Meier survival analysis, only those participants who were symptomatic and thus would have been referred for treatment were included in the analysis.

A hazard ratio less than 1 indicates the variable was associated with a longer time to seek treatment while a hazard ratio greater than 1 indicates a shorter time to seek treatment (Seenstra et al., 2005). Group was significantly associated with length of time to seek treatment (p=0.003) as was marital status (p=0.018). Age, (p=0.770) gender, (p=0.366) education, (p=0.652) ethnicity (p=0.851) and type of event (p=0.969, p=0.818, p=0.956) did not have a significant influence on the length of time to seek mental health treatment. Table 9 displays the unadjusted and adjusted hazard ratios for the variables
group and marital status. Model 1 shows the unadjusted hazard ratio for the group variable. The hazard ratio of 0.345 shows that BPI participants took a longer time to seek mental health treatment compared to TAU participants. Model 2 shows the adjusted hazard ratio for group and marital status. Group continues be significantly associated with the length of time to seek treatment. For marital status, the hazard ratio of 0.382 shows that those who are not married took a longer time to seek mental health treatment compared to those who are married or common-law.

**Table 9. Cox regression showing variables associated with length of time to seek treatment**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (β)</th>
<th>SE</th>
<th>Wald χ²</th>
<th>Hazard ratio</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group⁰</td>
<td>-1.065</td>
<td>0.389</td>
<td>7.488</td>
<td>0.345</td>
<td>0.161-0.739</td>
<td>0.006*</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group⁰</td>
<td>-1.368</td>
<td>0.372</td>
<td>13.547</td>
<td>0.255</td>
<td>0.123-0.528</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Marital¹ status</td>
<td>-0.963</td>
<td>0.406</td>
<td>5.610</td>
<td>0.382</td>
<td>0.172-0.847</td>
<td>0.018*</td>
</tr>
</tbody>
</table>

N=110

*TAU=reference category

*Married/common-law=reference category

p<0.05

**Relationship between length of time to seek treatment and demographic variables accounting for PTSD at 1 month**

In order to assess the effect of PTSD status at 1 month on the length of time to seek treatment, a subsequent Cox regression analysis was performed with the same variables (group, age, gender, education, ethnicity, marital status and type of event). Only those participants who had sought mental health treatment at least 30 days after their incident
but within 90 days were included. Neither the group variable nor any of the demographic variables were found to significantly influence the length of time to seek treatment for participants who sought treatment after 30 days [group, p=0.056, age, p=0.933, gender, p=0.624, education, p=0.567, marital status, p=0.077, ethnicity, p=0.948, type of event, p=0.441, p=0.206, p=0.949, PTSD status at 1 month, p=0.444).
12.6 Return to work

Proportion returning to work within 90 days

Participants were considered to have returned to work if they had resumed employment at the TTC. This includes participants who returned to work at TTC but performed a different job than at the time of the incident (“modified duties”) or resumed their previous job.

Of the 60 TAU participants, return to work data is presented for 57. Forty-three (75.4%) returned to work within 90 days of their traumatic event.

For the BPI, data is available for 49 of 50 participants. Of these, 27 (55.1%) of participants returned to work within 90 days.

A Chi-square test of independence was conducted to test for differences between the TAU and BPI. There was a significant difference between groups for return work within 90 days \( \chi^2(1, N=107) = 4.859, p=0.028 \). Figure 6 graphically represents the proportion of TAU and BPI participants who returned to work within 90 days of their traumatic event.
Logistic regression analyses were performed to determine which variables most strongly predicted return to work. The response variable was categorical (return to work, yes/no) and the explanatory variables included in the model were: group, age, gender, education, ethnicity, marital status and type of event. Since the difference in return to work between groups is of primary interest, the group variable was a covariate in each analysis.

Group was a significant predictor in returning to work. The odds ratio shows that participants in the BPI were less likely to return to work in comparison to the TAU (OR=0.400, 95% CI=0.175-0.912, p=0.029). None of the remaining variables were
significant predictors of return to work [age, p=0.133, gender, p=0.672, education, p=0.672, ethnicity, p=0.624, marital status, p=0.242, type of event, p=0.088].

**Relationship between return to work and group/demographic variables accounting for PTSD 1 month**

Since the MPSS was administered at 1 month after the traumatic event, it could not be included in the logistic regression model. Therefore, a second logistic regression was calculated with an outcome variable that only included participants who returned to work 30 days after their event.

The same 5 variables were added as covariates in the analyses in addition to group. Group was a significant predictor of returning work. BPI participants were 0.178 times less likely to return to work compared to TAU participants (95% CI= 0.037-0.847, p=0.03). None of the demographic variables were significant predictors of return to work [age, p=0.133, gender, p=0.672, education, p=0.829, ethnicity, p=0.624, marital status, p=0.242, type of event, assault, p=0.088, suicide, p=0.084, other=0.058] nor was PTSD status at 1 month (p=0.684).

**Length of time to return to work**

To evaluate the length of time to return to work between groups, a Kaplan-Meier survival analysis was performed. Data on return to work was available for 57 of 60 TAU participants. Of these, 43 (75.4%) returned to work within 90 days of their traumatic event. The curve illustrates that at 14 days post event, 50% of participants had not returned to work (SE=5.931, CI=2.375-25.625).
In the BPI, data was available for 49 participants and 27 (55.1%) returned to work within 90 days. The curve shows that 25 days after the event, 50% of participants had not yet returned to work (SE+12.597, CI=0.309-49.691).

The difference in length of time to return to work was statistically significant between groups (log-rank = 4.419, df=1, p=0.036) and can be seen in Figure 7.

**Figure 7. Length of time to return to work**

*Relationship between length of time to return to work and demographic variables*

A Cox regression was conducted to test for the influence of explanatory variables on the length of time to return to work. The time to event variable was the length of time to
return to work; calculated as the number of days between the traumatic event and the first day of work at the TTC (regardless of job type). Participants who took more than 90 days to return to work or had not returned to work in the observation period were censored at 91 days. The following explanatory variables were subsequently added to the model in addition to group (TAU vs BPI): age, gender, education, ethnicity, marital status and type of event. Hazard ratios and 95% confidence intervals were calculated for each explanatory variable, with a hazard ratio less than 1 indicating delayed or a longer time to return to work and a hazard ratio greater than 1 indicating a shorter duration to return to work.

Of the explanatory variables, only group was significantly associated with the length of time to return to work [age, p=0.323, gender, p=0.621, education, p=0.640, ethnicity, p=0.936, marital status, p=0.211, incident type, p=0.062, p=0.061, p=0.068 (assaults, suicide and other event, respectively)].

Group was significantly associated with the length of time to return to work (95% CI=0.372-0.977, p=0.040). The hazard ratio of 0.603 indicates that participants in the BPI took longer to return to work in comparison to the TAU participants.

**Relationship between length of time to return to work and demographic variables accounting for PTSD 1 month**

A subsequent Cox regression was performed to account for the variable ‘PTSD 1 mo.”. Only those participants who had returned to work 30 days after their traumatic event but within 90 days were included in the analysis. Those who did not return to work within 90 days were censored at 91 days.
The variables age, gender, education, ethnicity, marital status, type of event and PTSD 1 mo. were each added in addition to covariate ‘group’. Of these, only group was significantly associated with the length of time to return to work after 30 days and before 90 days (95% CI=0.036-0.731, p=0.018). The hazard ratio of 0.200 for group once again shows that BPI participants took longer to return to work compared to TAU participants.
12.7 Knowledge of PTSD (KPTSD) Test

The KPTSD test was to be administered to BPI participants at 3 time points: pre-intervention, post-intervention and follow-up. However, due to delays in contacting participants, (see page 63) a number of participants were not administered the follow-up KPTSD Test. Specifically, 50 participants completed the pre-intervention test, 47 completed the post-intervention test and 30 completed the follow-up test. The mean score on the pre-intervention test was 11.34 (SD=1.55), the mean score on the post-intervention test was 12.13 (SD=1.45) and the mean score on the follow-up test was 12.83 (SD=1.48). Due to the small number of participants who completed all 3 tests, the follow-up test will be excluded from the statistical analyses and only the change in score from pre-intervention test to post-intervention test will be tested.

Moreover, due to the aforementioned delays, there was a large variation in the length of time between the pre-intervention KPTSD test and the post-intervention KPTSD test. The number days between the pre-intervention test and post-intervention test ranged from a minimum of 5 days to a maximum of 175 days and the mean number of days between the pre-intervention test and the post-intervention test was 66.28 (SD=33.95) days. To test for the change in scores from the pre-intervention KPTSD test to the post-intervention KPTSD test, it was first necessary to examine the time between tests to evaluate if the change in scores differed depending on when participants completed both tests. That is, if there was a longer or shorter length of time between completion of the pre-test and post-test, did this have an effect on the change in scores?

To account for this, the number of days between the pre-intervention test and post-intervention test was calculated and divided into 4 categories: 5-30 days, 31-60 days, 61-90
days and 91-175 days (Table 11). To test for differences between these groups in terms of change in score from pre-test to post-test, a non-parametric Kruskal-Wallis test was performed, and was found to be non-significant (p=0.693). To confirm this finding, a one way ANOVA was also performed with the change in score from pre-test to post-test as the dependent variable and the 4 categories of time between tests as the factor. The ANOVA test revealed that there was not a significant difference between the 4 categories of time on in the change in scores from pre-intervention to post-intervention $F(3, 43) = 0.587$, $p=0.627$.

Table 10. Descriptive statistics for change in score from pre-intervention KPTSD test to post-intervention KPTSD test by days

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-30</td>
<td>9</td>
<td>0.22</td>
<td>2.906</td>
<td>0</td>
</tr>
<tr>
<td>31-60</td>
<td>11</td>
<td>1.27</td>
<td>1.272</td>
<td>1</td>
</tr>
<tr>
<td>61-90</td>
<td>19</td>
<td>0.84</td>
<td>1.864</td>
<td>1</td>
</tr>
<tr>
<td>91-175</td>
<td>8</td>
<td>1.25</td>
<td>1.581</td>
<td>1.5</td>
</tr>
</tbody>
</table>

$^a$days

A paired T-Test was conducted to compare the overall change in score from pre-intervention to post-intervention. Of the 50 participants, 47 completed both the pre-intervention and post-intervention test and were included in the analysis. The mean score on the pre-test was 11.23 (SD=1.433) and the mean score on the post-test was 12.13 (SD=1.454). The change in mean score was found to be statistically significant $t(46) = 3.182$, $p=0.003$. 

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To evaluate the direction of change in scores by category (i.e. scores decreased from pre-intervention to post-intervention, scores did not change between tests or scores increased from pre-intervention to post-intervention), a crosstabulation was performed with category*direction_of_change (Table 12). Overall, 26 (55.3%) participant's scores increased from the pre-intervention KPTSD test to the post-intervention KPTSD test, 13 (27.7%) did not change and 8 (17%) of people’s scores decreased.

Table 11. Crosstabulation table showing direction of change by category

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Direction of Change</th>
<th>Increase in scores</th>
<th>No change</th>
<th>Decrease in scores</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-30</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>22.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within 5-30</td>
<td>22.2%</td>
<td>33.3%</td>
<td>44.4%</td>
<td></td>
</tr>
<tr>
<td>31-60</td>
<td>11</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>36.4%</td>
<td>63.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within 31-60</td>
<td>.0%</td>
<td>36.4%</td>
<td>63.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>61-90</td>
<td>19</td>
<td>5</td>
<td>4</td>
<td>10</td>
<td>21.1%</td>
<td>52.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within 61-90</td>
<td>26.3%</td>
<td>21.1%</td>
<td>52.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>91-175</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>12.5%</td>
<td>25.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within 91-175</td>
<td>12.5%</td>
<td>25.0%</td>
<td>62.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>8</td>
<td>13</td>
<td>26</td>
<td>17.0%</td>
<td>27.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within category</td>
<td>17.0%</td>
<td>27.7%</td>
<td>55.3%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*days
12.8 Modified PTSD Symptom Scale (MPSS) scores

The MPSS was administered at 1 month and 3 months post-event to both TAU and BPI participants. The total test score was calculated for each participant and the range of possible scores is from 0 to 119, with higher scores indicating greater impairment. Table 11 displays descriptive statistics for both the TAU and BPI at 1 month and 3 months.

For the TAU, 60 participants completed the 1 month MPSS with a mean of 48.74 (SD=30.53). Fifty-eight participants completed the 3 month test with a mean score of 34.26 (SD=30.00). In the BPI, 50 participants completed the 1 month test with a mean score of 55.22 (SD=34.37). At 3 months 39 participants completed the MPSS and the mean score was 36 (SE=30.74).

A repeated linear mixed models analysis was performed to evaluate the change in total MPSS scores from 1 month to 3 months (change in score due to time) and the difference in MPSS score between groups (change in score due to group). The change in mean score due to time was significant (F=45.117, df=1, 99.99, p<0.001), however, the differences in scores between groups was not significant (F=0.687, df=1, 110.64, p=0.409).

Table 12. Descriptive Statistics for MPSS

<table>
<thead>
<tr>
<th>Group</th>
<th>Test Time</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAU</td>
<td>1 month</td>
<td>60</td>
<td>48.74</td>
<td>30.531</td>
<td>0</td>
<td>110</td>
</tr>
<tr>
<td>TAU</td>
<td>3 months</td>
<td>58</td>
<td>34.26</td>
<td>30.004</td>
<td>0</td>
<td>96</td>
</tr>
<tr>
<td>BPI</td>
<td>1 month</td>
<td>50</td>
<td>55.22</td>
<td>34.374</td>
<td>0</td>
<td>112</td>
</tr>
<tr>
<td>BPI</td>
<td>3 months</td>
<td>39</td>
<td>36</td>
<td>30.746</td>
<td>0</td>
<td>103</td>
</tr>
</tbody>
</table>
Figure 8. Change in MPSS scores

- **TAU**
- **BPI**
CHAPTER 13
QUALITATIVE RESULTS

13.1 Research questions

There were two principal research questions in the qualitative phase. First, to gain a better understanding of employees’ decisions for seeking mental health treatment after a traumatic event and second, to explore their perceptions of the educational intervention they received and its role in encouraging treatment seeking.

13.2 Qualitative recruitment & sample characteristics

Table 13 shows the demographic characteristics of the eleven individuals who participated in the qualitative phase. In total, 12 participants from the BPI who received treatment at the PTP were invited to participate in a qualitative interview. Eleven were agreeable and one participant refused to participate. Of the 11 that consented to an interview, the mean age was 44.82 (±10.3) years and there were 6 (54.5%) women and 5 (45.5%) men interviewed. Eight (72.7%) of participants had completed post-secondary education while 3 (27.3%) had not. Eight (72.7%) individuals were Caucasian, 1 (9.1%) was Black, and 2 (18.2%) reported “other” ethnicity. Of the 11 respondents, 10 (90.9%) were currently married or living common-law and 1 (9.1%) individual was divorced. The median length of time as a TTC employee was 120 months (±192) or 10 years (± 16 years). Four (36.4%) of participants were bus or streetcar drivers, 4 (36.4%) were train operators and 3 (27.3%) were collectors or another occupation (e.g. maintenance worker). The most
common event was suicide events with 4 (36.4%) participants experiencing this type of incident. Two (18.2%) were verbally assaulted, 1 (9.1%) was physically assaulted, 1 (9.1%) had an accident and 3 (27.3%) did not fall into any of these categories. These “other events” included being threatened with a gun and witnessing an assault. Finally, the mean total score on the MPSS at the 1 month administration was 79.5 (±16.1) which is well above the PTSD cut-off of 46.

Table 13. Qualitative sample characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N=11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, mean, SD, years</strong></td>
<td>44.82 (10.3)</td>
</tr>
<tr>
<td><strong>Time at TTC, median, IQR (months)</strong></td>
<td>120 (192)</td>
</tr>
<tr>
<td><strong>Gender, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5 (45.5)</td>
</tr>
<tr>
<td>Female</td>
<td>6 (54.5)</td>
</tr>
<tr>
<td><strong>Education, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>≤ High school</td>
<td>8 (72.7)</td>
</tr>
<tr>
<td>&gt; High school</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td><strong>Ethnicity, n, (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>8 (72.7)</td>
</tr>
<tr>
<td>Black</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td><strong>Marital Status, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Married/common-law</td>
<td>10 (90.9)</td>
</tr>
<tr>
<td>Not married</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td><strong>Job Type, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Bus/streetcar</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>Train</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>Collector/Other</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td><strong>Type of Event, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Physical assault</td>
<td>1(9.1)</td>
</tr>
<tr>
<td>Verbal assault</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Priority 1 (suicide)</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>Accident</td>
<td>1(9.1)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (27.3)</td>
</tr>
</tbody>
</table>
13.3 Research question #1: What factors compelled traumatized employees to seek mental health treatment?

There were a number of important factors that influenced participants’ decision to seek mental health treatment. These included a desire to return to work, often due to financial constraints, noticing a profound change in their sense of well-being and the trauma/PTSD symptoms they were experiencing. As well, participants reflected on the factors that made seeking treatment more difficult, such as negative responses from TTC management and a lack of awareness of how and where to get help. Participants also discussed recommendations for future cases of workplace trauma.

Factors motivating treatment seeking

(1) The Need to Return to Work

When asked why they decided to return to work, a number of participants noted that they needed to do whatever was necessary to return to work at the TTC. That is, they would enter treatment with the goal of being healthy enough to return to work in the future. As well, some noted that getting treatment now was necessary to have the skills to handle the situation better if it happened again the future. As one person explained:

“Hmm well when my husband was in the program so I seen how he was getting better from it um in fact it, I wanted to get back into my job again...without um re-experiencing anything because if it happens again which the chances are it can, it will...um I wanted to make sure I was healthier, mentally able to handle it again”. (Participant # 11)

For a number of participants, being off of work while receiving treatment was a financial burden, especially if he or she was the primary breadwinner. In this way, a goal of
treatment was to become healthy enough to restore their financial situation. One participant explains:

“I, in that situation I see my son and I see my house...I have responsibilities so I realized at that point of time that if I wanted to get back to work this would be the only way I can do it. I had, I had to push but I needed to get back...right and I realized at that point in time that if I don’t get this help right now I probably will not be able to get back to work. Then my life will be nothing.” (Participant #5)

“...getting back to work is a big one because I need to work. I’m the biggest bread winner of the house right now, not, not right now...but even still so...I got to get that money coming back in to carry on and I mean those other things can put you down too because it’s like naa you know like you can’t afford this, do this and if I was working we could.” (Participant #10)

(2) Inability to Function/Unable to Cope

Several participants noted a change in their ability to function the way they did before the traumatic event and felt that they could not cope with the trauma-related symptoms or PTSD symptoms that they were experiencing. There was a sense of “hitting rock bottom” and/or “desperation”, where they felt that treatment was their only option. One participant said:

“I had no choice. It was either that or I was going to kill myself... I told my wife, I think I told you guys before that every night I used to go to work thinking I’m going to kill myself and I kill myself is going to get by and then it was after my girls birthday, her birthday and I’d like to watch it, if I go to work tonight I swear to God if something doesn’t come I’m going to, I’m going to wind up killing myself, I can’t take, I can’t take this anymore. She says don’t get up... and then after, actually TTC referred me to this place.” (Participant #4)

Another person said:

“Um I was really that at that point I did have built to the point where I was incapable of functioning daily...it, something was going to happen tragic, I know that. I wasn’t able to cope. I was a mess.” (Participant #10)
These comments illustrate the level of desperation these particular individuals experienced after their traumatic events. For them, treatment was the way to deal with these feelings of being out of control and having nowhere to turn.

(3) A Negative Change in the Self

For many participants, the motivation for seeking treatment was a seeing a change in themselves. These changes were for the most part changes in one’s personality, emotionality and connection with others. As well, some changes may be viewed as symptoms of PTSD.

Depression often develops in response to a traumatic event and often occurs comorbid with PTSD (Shalev, 2002). Three participants specifically mentioned that they were on medication for depression in addition to dealing with PTSD. Of the 11 participants interviewed, 8 were diagnosed with current major depression (on the SCID 1), 1 had a history of major depression and two did not meet criteria for major depression. For one participant, the depression manifested in being extremely emotional; and was a motivator in seeking treatment.

“I was feeling so depressed and I was crying at work, it was my affecting my work life, it was affecting my family life and I just didn’t want to feel like that...um I, so I wanted, I wanted to ask for help to, to get over what I needed to get over to feel good again about myself and my family.”
(Participant #6)

Another change that several participants noted was a feeling of isolation. That is, in the days and weeks after the event, some had difficulty leaving their homes and/or a sense of not wanting to interact with others.
“In the beginning and I didn’t really want to talk about it, I didn’t want to talk to anybody about it. I just wanted to keep it to myself. I was like a hermit and ah honestly when it did happen ah I didn’t want to go outside...everybody says to me oh what do you mean you don’t want to go outside. I don’t want to go outside.. I, I, I’d walk my dog when nobody was outside... I’m still in my, I’m, I’m, I’m still in my, I’m still in my pjs on the couch...I just felt withdrawn. ” (Participant #8)

“...Like it just stopped, it just, life, life came to a stop...and I couldn’t figure out why but I couldn’t get myself out the door kind of thing you know. I didn’t want to go anywhere and I think it even got worse in that month. Like at first I think I went in because I thought it was just that I’m scared and you know what happened and then as the month went on it’s like it got worse where I wanted to stay in more and more.” (Participant #10)

This isolation and withdrawal was upsetting because in many cases, they couldn’t understand their own reactions. Participants 8 and 10 were both married with children, and felt that after this event their ability to interact with their family in the ‘usual’ way had been altered. For participant #10, the anxiety she felt while driving also made her stay in her home. Feeling depressed, detached or isolated are symptoms of PTSD; specifically, the Avoidance and Numbing category of symptoms (see Chapter 3, pages 19 & 20). In addition to these symptoms, a number of participants mentioned that since the event they had experienced difficulties with sleep - a symptom in the Increased Arousal category (see Chapter 3, pages 19 & 20). There was anxiety surrounding the issue of sleep, as some felt the lack of sleep affected their ability to function, or as one person put it, the ability to think “rationally”. As well, there is anxiety in not understanding why sleeping patterns have changed so drastically. As Participant # 5 explains:

“You might sleep for day you know like I slept all night and I slept practically all day. I was only awake for a couple of hours a day, initial, a couple of weeks and that was very stressful too for me because I didn’t know why I was sleeping so much.”
She also describes what she would have preferred when talking to her Employee and Family Assistance Program (EFAP) counsellor:

“...If somebody told me that this, you can expect some of these things to happen so don’t get too upset because I was upset that I was sleeping...I’m trying to keep myself awake and the more distressed I get the more sleepy I get.”

(4) The Effects on Family

After experiencing a traumatic event, many people feel a sense of detachment from others (Davidson, 1997). Very often, this detachment is from loved ones such as the immediate family. The change in behaviour by the traumatized person is not always well understood by friends and loved ones and can lead to further stress. Some participants explained that the negative effects of the trauma on their loved ones helped them realize they needed treatment.

“It was actually um an emotional toll on my family, ah my wife never saw me depressed they always saw me happy go lucky the whole bit and they just saw a change, I felt a change in myself.” (Participant 8).

Another person explains her interaction with family as:

“Well that’s yeah because I, I hadn’t felt right since the incident. I had felt um detached from my family. My daughter noticed it too. She’d bring her daughters and she said that Mom you would, you would be sitting there talking and then all of a sudden you’d just be like staring off somewhere else and I was and, and it was again I was recalling and thinking and, and so I, it wasn’t me totally it you know...it, it’s um and she noticed it and my family certainly did notice that I was not there. I, I found I was more irritated with them. Um like when my daughter comes over she’s got four girls and I love to see them and I never you know but when she was there I, I don’t know it just ah ah I was I don’t know I just wasn’t into having company I guess...like coming in on my time or my space.” (Participant #6).
For these two participants, their loved ones noticed changes in their personality which had negative effects on their family. However, one participant had a different experience after reading written material given to him after receiving the educational intervention:

P: Ah I talked to my wife, normally I wouldn’t but I did talk to them because this is one of the things that is suggested is talk to people...and I did talk to my wife and it helps because now I knew I could talk to somebody and she understood. I think, I was surprised she understood more than I thought she would.” (Participant #3).

This person felt encouraged to accept mental health treatment after discussing it with his wife, which previously he would not have done.

What were the barriers after a traumatic event and getting treatment?

There were a number of factors that were difficult after the traumatic event and in the time afterwards. These included negative support networks (particularly management) and not being aware of what help was available.

(1) Lack of Support from Management

A number of participants expressed frustration with the lack of support they received, particularly by management. This dissatisfaction with the response from management may have impact on the development of PTSD. As Ballenger et al. (2000) explain, secondary stressors are a predictive factor for the development of PTSD. In the case of one participant, he felt unsupported by the TTC constables who did not take his situation seriously. This made him feel very vulnerable to the patron who was threatening...
him. He mentions that the constables made him feel like “the bad guy”, and felt that the management did not stand behind him. He says:

“Ah if the management would understand how to deal with the situation instead of telling you oh go back to work that would help because I don’t think, I don’t think they understand...I really don’t think they understand how it affects people... I think when they’re in the office their main goal is to get the guy back to work. We want those numbers there. You know make him look good...oh I put him back to work. Doesn’t care how it happened or what’s going to happen to them, let’s put him back to work.” (Participant #3).

Interestingly, although this participant had a negative experience with the TTC constables and his manager at the time of the incident and following, his was very pleased with his interaction with a new manager. He says:

“The new management that we have - he understood, he, he called me in the office and said can you talk to me, tell me what happened and after I explained it to him he said none of this should have happened, he said it should’ve been taken care of right there and then but because we didn’t take care of it, it went this far and that helped a lot because now I know that somebody understands what happened was not my fault.”

He again reiterates that the incident was not his fault, and the new manager validates his feelings by saying it should never have happened. Another participant had a similar situation where she felt that the TTC made the situation more difficult. After being asked the following question: “What kind of help do you think would be the most beneficial (after a traumatic event)?” She replied:

“Well I don’t know if you can do anything about the way the TTC operates. They’re not good. They don’t make you feel better. They make you feel worse. They don’t tell you anything. Yeah and wait until you come back, and then they fire you (laughing). I mean they do that with everybody, that’s like their procedure. (Participant #2)
However, when asked if she had had the support she desired, would she have handled the situation differently, she explained that she would probably still have had a difficult time handling the situation but that it would be “one less thing”.

On the contrary, Participant #9 was appreciative of the help he received from his manager, who referred him to the APT Study. He says that he “trusts her” (his boss), because she is a “good boss”. In this situation, it was the direct support of his manager who encouraged him to deal with his reactions that was the important factor in seeking help. Interestingly, participants 3 and 8 mentioned that the system is “changing” and that the newer managers are becoming increasingly sensitive to these types of events.

(2) Unaware of Where to Get Help

An added barrier to getting mental health treatment is the lack of awareness of what programs are available. Of the 11 participants interviewed, 8 were referred through the normal APT procedure (i.e. Human Resources), 1 was referred by the TTC’s Union, and 1 was referred by a manager. The final 2 participants self-referred for the study; 1 found the number of a brochure at his division whereas the other found the contact information for the APT study in the TTC’s newsletter. Although there is an effort by the APT study personnel to make TTC employees aware of the program, the vast majority still entered via Human Resources and very few contacted the study independently. This may be due to a lack of awareness where to find help. One participant explained:

“...to know that you’re not alone and to actually have somewhere to go to be able to get some help, that, that was a big thing because I didn’t know what to do. Like I had no idea so just even knowing about it and it was my girlfriend that actually found it in the paper and I was you know she’s a TTC operator as
well but I mean she had been through this as well so just to know that there’s something out there to be able to help and get you back on track.”

One participant suggested brochures about the APT Study and the PTP Program should be made available to all employees who experience a trauma. She says:

“My suggestion is um the same way EFAP put up brochures at work um CAMH should be involved in a way that the minute we experience this traumatic event. If CAMH show up just the same, be there at the start of it, and follow-up with us it would be a lot better because then we’ll get the support… because I didn’t know about it until somebody phoned me.”

**What would respondents liked to see changed?**

Participants were asked to provide suggestions on what they would have changed about their experience after the traumatic event. The responses included: more support from TTC management, improved experience with EFAP, and a shorter amount of time to enter treatment.

**1) Support Networks**

A number of respondents hoped to see changes with how the TTC managers responded to a traumatic event. Some felt that the problems they experienced with their managers made their situation increasingly stressful. One suggestion was that traumatized employees should be offered a ride home after the event as opposed to driving home alone. One individual had a panic attack on her way home and had to call a friend to help her calm down enough so that she could drive home safely. Another spoke about the “chaos” after a
Priority 1 and suggested that managers could support employees by gently taking the person away from the scene of the incident to a more calming environment.

In general, most participants were satisfied with the support of their families and close friends and only 1 participant described tension with her brother over what she and her psychologist discussed. Most participants greatly valued talking to coworkers and peers about their experiences. In fact, one participant is currently in the process of helping to establish a peer-support program for subway operators who have a Priority 1 event.

(2) Employee and Family Assistance (EFAP) Program

Seven of the 11 participants discussed their experience with the EFAP program. Of these 7, only 1 was satisfied with her interaction with the counsellor. As per TTC protocol, any TTC employee who experiences a Priority 1 event or an event that involves a fatality or serious bodily injury is automatically asked to speak with an EFAP trauma counsellor in person within 90 minutes of the event. In other cases, (e.g. assault) the employee is given a card with a hotline number to an EFAP counsellor. For these participants, their experiences were generally negative, regardless of whether they met with an EFAP counsellor in person or over the phone. As one participant said:

“Um I wasn’t getting any help from um EFAP and um a friend had called me and um I told them that I’d been trying to get EFAP and um there’s nobody. I got a hold, they said that somebody will call me...they told me that somebody will call me the Wednesday to set up, set up an appointment, nobody called, I called back um and I asked them if there’s anybody in my area so I could get to because I was afraid to drive and um they said yes they’re going to call that person and have them call me to set up an appointment, nobody called and I called back the Friday and I was upset, I was crying and um and they’re asking me if um I’m going to hurt myself and if I’m threat to anybody and I said no I just want to talk to somebody. I told my, my boss I, you know I told him I said EFAP if, if you are paying them you’re wasting your money.”

(Participant #7)
Another said:

“I thought I’m going to EAP and it’s not helping like she’s making me feel worse as a matter of fact...I mean at one point I asked her I said do you think I should you know it’s like falling off a horse you should get back on and I said should I get back in the bus. She goes well I can’t tell you not to go to work...yeah I needed answers. To me it’s just a total waste of time and money for TTC to put money out for that.” (Participant #10)

From the experiences of the respondents who met with EFAP, it seems that there were a number of issues. Not being able to contact a counsellor was very upsetting to one participant as she was experiencing post-traumatic reactions and felt that she needed someone to talk to. As well, the employees questioned how well trained the EFAP counsellors are to handle the situation. One individual was very upset that her EFAP counsellor was acknowledging her partner’s (the guard on the subway) feelings more than her own feelings. Two specifically told their managers that if another event happened in the future, they would refuse to speak to a counsellor even if one was assigned. Two participants who received the hotline number were unhappy with the method of communication (over the phone). As one person explained, this method lacks the “human contact” that he had wanted. Another felt that speaking over the phone is not ideal since the counsellor cannot comfort the person if they are emotional.

To improve the EFAP experience, one respondent suggested that EFAP counsellors give people a “heads up”; that is, to prepare them for the kinds of reactions they may experience. Since traumatic reactions are sometimes unexpected and not well understood, knowing what to expect may lessen the anxiety.

(3) Less Time to Treatment
Some participants were frustrated with the time between their incident and being referred for treatment. This was due to the fact that PTSD can only be diagnosed if the symptoms persist for at least 4 weeks. As a result of this 4 week period and the difficulties with making contact and setting up appointments with potential participants, some felt that their symptoms had worsened in that time. One participant said the following:

“I, I think it did make me feel a little bit worse waiting the whole month and it was like I want, I want to get over this like you know I thought you know get into something right away...I think someone should be coming over and talking to you and you know and um right away, I don't think it should be a month, because that month was like, like it's like I was lost.” (Participant #10)

Another participant explained that he used his vacation days because he felt he couldn’t function at work and instead reiterated the need for traumatized employees to get treatment fast.

“After 30, after one month I, I was getting worse. I knew there was something wrong. I was um one month didn’t do it and I used all my vacation time so that’s what really scared me...I would suggest coming here immediately. Thirty days later is not good because in 30 days I went through a lot. I was really, I was a mess. I mean I don’t know. I, I guess maybe try to get, intervene them quicker. I mean I wouldn’t have had to give away all my vacation time. I mean that, that kind of makes me bitter.”
13.4 Research Question #2: Perceptions of the educational intervention

Participants were asked about the educational intervention they each received. As discussed earlier, the educational intervention consisted of a short discussion of main issues surrounding trauma and PTSD such as coping strategies, potential symptoms and how to deal with them, and how and when to get help. As well, participants were given a package of written information regarding trauma and PTSD. The questions on the interview guide probed the role of the educational intervention in seeking treatment; that is, did this information affect their decision to “get help”? For example, one question asked “What information did you learn from the presentation that you didn’t know before”? Evaluating the 11 interviews, it seems that all participants had a positive response to the information. That is, none felt that it was unhelpful, detrimental, or too upsetting. Some participants said:

“... it actually showed me what um I guess what to be cautious about. Like not that I do drugs or alcohol at all but if I were to all of a sudden start thinking well gee I want a drink I would, I would certainly that would throw the (unclear) up into to me right. Um um also again knowing that um some of the things I’m experiencing and feeling was in there and that identified why I was feeling it.” (Participant #6)

“Um the education gave me a lot of information, yes actually yes, yes, it was one of the, although I knew I needed help, there was, the information that I received from that gave me ideas to things that ah to the things that I’m reading, that I’m going through and the things that are written there therefore I, I did feel that if um they knew what was happening...you see so that gave me hope.”(Participant #5)

“Ah I found a lot of good because I didn’t know a lot of stuff that I thought I knew and it did open up my eyes and what, mine I should say (laughing) yeah I did learn a lot like some of those things that you could do to get through this...like it pushes you to say you need help ‘cause if you don’t get
it you’ll go do it yourself. It does tell you to go out there and get help.”
(Participant #3)

Respondents were also asked about the written information package and whether they read it and/or gave the fact sheets to family members to read. These responses were more varied; while some wanted their family members to read the information and learn more about PTSD, others were more guarded and chose not to share the information with friends or family members. Participant #6 explains a situation in which the Family Fact Sheet came in useful:

“My boyfriend especially (laughing). I know what he said, one day he said something and it, it just I, I don’t know if I burst in tears or I, I bit his head off or something so I, so I went and I got it and I go here would you read this so yeah so I think it helped him too to understand why I was acting the way I was acting and he had the patience of you know he had a lot of patience.” (Participant #6)

Conversely, Participant #10 chose not to share the information with anyone. When asked if she gave anyone the Family Fact Sheet to read, she says:

“I kind of concealed everything myself...I really did. Even with my husband I didn’t even want him to you know, no I didn’t get them to read anything.”

Participants were also asked to discuss how the educational intervention affected their decision to seek treatment. Overall, respondents explained that while they found the information helpful, there were other significant factors (e.g. the inability to function, family effects, finances, etc.) that lead them to seek mental health treatment. The educational intervention seemed to be most important in normalizing the participant’s response to the traumatic reactions and/or PTSD symptoms. Several respondents
discussed a sense of “feeling like I was going crazy” because of their symptoms and feeling that they were “weak” for not being able to cope with them better. Some felt that learning about post-traumatic reactions and accepting that these reactions were not due to personal weakness made them feel less alone and less stigmatized. Some participants expressed this normalizing of reactions in the following ways:

“Well it makes, yeah it makes you, it made me feel better. It’s like you know things can happen... I’m not, I’m not an unusual case kind of thing, this happens to people and I’m not the only one.” (Participant #10)

“...the educating about why the mind works the way it does and why I’m feeling the things I’m feeling. I liked reading about it because I related to a lot of what I saw in there, so that put my mind at ease saying okay this is normal.” (Participant #6)

“Well that’s what I realized now that I’m not the only person who is going through that, that, like you said I’m not crazy...um yes this sort of thing does happen to people.” (Participant #3)

Overall, the interviews suggest that the educational intervention did not play a significant role in choosing to seek mental health treatment. However, the information was important in normalizing the post-traumatic reactions that most were experiencing. It was reassuring for these participants to know that they were not an “unusual case” as one person described.

The factors that compelled participants to seek help included an inability to function and cope with their symptoms, a need to return to work and to regular life, a negative shift in the self, and the toll their symptoms were having on their families. Participants also described the importance of support from their management and the lack of awareness of programs such as the Psychological Trauma Program. Finally, suggestions for future
change were made. These generally related to the EFAP program, which many participants felt was unhelpful and in some cases even detrimental, and the wait time between the event and actually entering a treatment program.
DISCUSSION
CHAPTER 14
DISCUSSION

This study evaluated an educational intervention for TTC employees who were exposed to a traumatic event at work. Our main aim was to evaluate the educational intervention’s ability to encourage treatment seeking in traumatized TTC employees. The goal of the qualitative phase was to gain insight into the factors that motivated participants to seek mental health treatment and to explore their perceptions of the educational information they received.

14.1 Quantitative discussion

Mental health treatment seeking

The primary outcome of this study was to evaluate the effectiveness of the educational intervention in encouraging traumatized TTC employees to seek mental health treatment. The results were consistent with our expectations; that is, a greater proportion of participants who received the intervention sought treatment compared to those who did not. Moreover, this finding remained when taking into account only those participants who were symptomatic for PTSD and thus would be most in need of specialty mental health treatment. Similarly, we found that after controlling for other variables, those receiving the education intervention were still more likely to seek treatment compared to those not receiving the educational intervention. In fact, those who received the educational intervention were more than twice as likely to have sought mental health treatment.
There are very few published empirical studies that evaluate educational interventions in the context of seeking treatment. However, a study by Alvidrez, Areán & Stewart (2005) explored the effectiveness of a psychoeducational program for elderly African Americans to begin psychotherapy. A sample of older African Americans who were referred for psychotherapy and received a psychoeducational intervention was compared to a control. In contrast to our study, the authors did not find a significant difference in the initiation of psychotherapy between the psychoeducation group and the control group. A finding of note was that those in the psychoeducation group attended significantly more psychotherapy sessions than the control group. This outcome was not evaluated in our study as only the first date of treatment was available.

However, an important finding emerged when the type of event was introduced into the analysis. Participants who had experienced a Priority 1/suicide event were about 3 times as likely to have sought treatment compared to those experiencing a different type of event, and this factor was more important than the educational intervention. This finding is notable, as a number of previous studies have established a link between “person-under-train” (suicide or attempted-suicide) events and the development of post-traumatic stress disorder (e.g. Tranah & Farmer, 1994; Limosin et al., 2006). It is also of note that the type of event experienced was a stronger factor in seeking treatment than was receiving or not receiving the educational intervention.

We also found that participants scoring above the cut-off on the MPSS were much more likely to seek mental health treatment compared to those who did not. The strength of this association may reveal the strength the MPSS in correctly identifying those who are suffering from PTSD symptoms.
In contrast to our expectations, we found that participants who received the educational intervention took a longer time to access mental health treatment compared to those not receiving the intervention. Whether one was married/common-law versus single influenced the length of time to seek treatment. In particular, we found that those participants who were married or living common-law sought mental health treatment faster than single participants. Previous studies have evaluated the relationship between marital status and treatment seeking and have found mixed results. Whereas some have found no relationship, (e.g. Elhai, Reeves & Frueh, 2004) others have found increased rates of treatment seeking in those who are married or cohabiting (e.g. Boscarino, Galea, Ahern, Resnick & Vlahoy, 2002). Our qualitative results also described the importance of the family in seeking mental health treatment. The support of one’s significant other in particular may be a motivator in seeking treatment.

We also considered the effect of PTSD status on the length of time to seek treatment. We surmised that participants scoring above the MPSS cut-off and meeting criteria for “probable PTSD” would seek treatment faster than those scoring below the MPSS cut-off. However, our results did not show any influence of PTSD status via MPSS on the length of time to seek treatment.

Interestingly, the minimum number of days between the trauma and the first mental health appointment was 4 days in the TAU and 28 days in the BPI. DSM-IV criteria for diagnosis of PTSD requires at least 4 weeks of impairment before a diagnosis of PTSD. Therefore, those participants in the TAU who accessed mental health care only days after their event may have been diagnosed too early. The protocol for the APT study follows the DSM-IV criteria of a minimum of 4 weeks since the incident before diagnosis of PTSD. As a
result, BPI participants were not to be referred prior to 1 month. This discrepancy may play a role in the differences in the length of time to seek treatment.

Finally, there were some delays at the Psychological Trauma Program that may have affected the length of time to seek treatment. As mentioned, there were problems with staffing and wait lists for treatment that were beyond our control and may have contributed to the delay in first time to seek treatment. These delays were discussed with members of the APT study team and resolved if possible.

Return to work

We also evaluated the differences in participants who received the educational intervention and those who did not in terms of return to work. Contrary to our expectations, a smaller proportion of our educational intervention participants returned to work within 3 months of their trauma. Moreover, we found that these participants took longer to return to work. Of those not receiving the educational intervention, half had not returned to work 14 days later, while half of the participants receiving the educational intervention had not yet returned to work 25 days after the event.

We surmised that demographic factors and/or a sicker population (i.e. more symptomatic participants) would account for this finding. However, we did not find any associations between demographic variables or PTSD status and return to work. These findings are surprising as variables such as age and education have been noted as important determinants of return to work after a traumatic event (Holtslag, Post, van der Werken & Lindeman, 2007).
The literature on return to work and post-traumatic stress is limited. However, in a retrospective descriptive study of PTSD in the workplace, MacDonald, Colotla, Flamer & Karlinsky (2003) found that only about 45% of individuals returned to work (with their previous employer). From our analyses, we remain uncertain as to why participants receiving the educational intervention took longer. Potentially, other factors that we have not accounted for may explain our findings. For instance, Eggert (2010) explored the effect of psychosocial factors to return to work after an injury, and noted 4 factors: frustration, depression, discrimination and obstacles accessing care. It is conceivable that one or more of these factors affected one group more than the other, leading to barriers in returning to work.

In addition, it is of note that the BPI had more self-referred participants compared to the TAU (8 and 2, respectively). It is conceivable that these self-referring participants entered the study with factors that may have delayed their ability to return to work. For instance, 2 of the participants in the BPI who participated in the interviews revealed legal troubles resulting from their traumatic event, which delayed their ability to return to work. As well, it is conceivable that those self-referring for the study are more in need of psychological services. If it is indeed true that these participants are “sicker” or are entering the study with comorbid disorders (such as major depression) or legal issues, the length of treatment may be extended and thus return to work delayed.

It could also be argued that some participants were better served by staying off of work longer. That is, by increasing participants’ knowledge of PTSD, they may have been “empowered” to take greater responsibility in their medical treatment and chosen to stay off work until they felt healthy enough to return.
**Knowledge of PTSD (KTPSD) Test**

The KTPSD test quantitatively evaluated the change in level of knowledge regarding PTSD due to the educational intervention. It is important to note that participants who sought treatment may have been exposed to psychoeducational information with their psychologist, thereby contaminating the effect of the educational intervention alone. Therefore, the results should be interpreted with some caution.

The scores on the pre-intervention and post-intervention tests showed that participants’ scores increased after the educational intervention. Although the change in score was statistically significant, the actual change corresponds to only about a 1 point increase on the post-intervention test.

Only 2 studies have used this instrument: Pratt et al. (2003) for which the test was created, and Mueser et al. (2008). As discussed, the study by Pratt and authors tested the effectiveness of a psychoeducational intervention for traumatized psychiatric inpatients. The results showed an increase in knowledge about trauma and PTSD from pre-test to post-test. Similarly, the study by Mueser et al. used the KTPSD to measure change in knowledge of trauma/PTSD for those with a mental illness. However, they measured the effectiveness of a CBT program (with 2 psychoeducational components). They too found an increase in knowledge about trauma and PTSD as measured by the KTPSD.

It is also of note that the pre-intervention KTPSD score was relatively high, with a mean score of approximately 11 correct answers out of 15, indicating a ceiling effect. Since the initial score was high, it may be more difficult to show a change in knowledge.

A lack of knowledge about trauma or PTSD has been noted as a barrier in seeking mental health treatment (Sayer et al., 2009) in veterans. For instance, a lack of information
about the types of events that may lead to PTSD and/or what kinds of services are available was noted as a barrier. As a result, targeting those who lack knowledge about trauma/PTSD with educational information may encourage help seeking in individuals who otherwise would not.

**Modified PTSD Symptom Scale (MPSS)**

Participants were tested for PTSD symptoms 1 month after the traumatic event and again 3 months after the traumatic event via the MPSS. We found that participants were less impaired over time, but there were no differences in MPSS scores between the group receiving the educational intervention and the group not receiving the educational intervention. These findings are consistent with other studies of educational interventions for trauma (e.g. Turpin, Downs & Mason, 2005; Scholes, Turpin & Mason, 2007). Both of these studies found that PTSD symptoms decreased over time, but the group receiving educational information did not do better in terms of reduction of PTSD symptoms compared to a control group.

### 14.2 Qualitative discussion

The second phase of this study used descriptive qualitative methodology to gain a better understanding of the factors that motivated traumatized TTC employees to seek mental health treatment. In addition, we considered the perceived usefulness and helpfulness of the educational intervention, and considered whether it had encouraged help seeking. All of the participants who were interviewed received the educational intervention and had sought treatment at the Psychological Trauma Program at CAMH.
Research Question #1: What factors compelled traumatized employees to seek mental health treatment?

The findings from the qualitative interviews suggest that treatment seeking is a complex issue which involves factors at the individual level, interpersonal level and organizational level. At a personal level, some participants sought treatment due to a desire to return to work. The outcome of this return to work often involved a feeling of getting back to “normal life”, and was also motivated by financial burdens. Some felt that they could not function normally after the event, and awareness of this was a motivator to seek treatment. Others noticed a shift for the worse in their personality. For instance, some participants developed depressive symptoms in addition to their PTSD symptoms. Snell and Tusaie (2008) noted a similar reason for seeking treatment in their study of veterans. They explained that an awareness of negative personality changes was an important reason for seeking treatment. In particular, disproportionate anger or irritability was noted as one of the strongest factors in seeking mental health care. In our study, participants also described a change in their personalities but none mentioned feelings of anger in particular. However, one participant did explain a sense of irritability with social interactions after her traumatic event.

The veterans in Snell and Tusaie’s (2008) study also reported sleep disturbances as motivating factors in seeking treatment. In our study, a number of participants reported problems sleeping after the traumatic event. Although this was upsetting and frustrating, none reported it as a particularly important factor in seeking treatment.

Interpersonally, many participants mentioned negative effects on their loved ones as being a motivating factor for initiating mental health treatment. For instance, some participants described a sense of isolation from family and friends, which may be related to
the avoidance category of PTSD (see page 21). By isolating oneself, there is less opportunity to talk about the traumatic event or recall it. As well, isolation may be due to the detachment criterion; a lack of feelings in connection with others may feed back and lead to further isolation. Sayer et al. (2009) also discuss the role of family and friends in seeking treatment for veterans with PTSD. Whereas our participants emphasized the negative consequences on the family, the participants in Sayer et al.’s study describe the key role family and friends play in seeking treatment. They describe the family’s role as “providing encouragement, helping veterans recognize PTSD, motivating veterans to seek assistance and helping them schedule and obtain appointments” (pp 248). Overall, the family response was very important for our participants, and their support (or lack thereof) played a role in them seeking treatment and continuing in the treatment process.

The interviews also shed light on barriers to seeking mental health treatment. At an organizational level, some participants felt unsupported by management and overwhelmed by the added pressures of issues with management. However, this was not equivocal as other participants were satisfied with the support and encouragement they received from their manager after the event. One person shared that they participated in the study due to the support and encouragement of their supervisor. For one participant, this support was validating; as his previous manager had been unsupportive. Overall, the interviews suggest that the role of management is very important to the employee. The response of management is important at two time points: immediately after the event and in the time where the employee is off work. As Secker and Membrey (2003) explain, management should show a genuine interest in their employee’s wellbeing since the relationship between workers and managers may be key to their success.
When participants were asked what they would like to see changed when psychologically traumatic events happen at the TTC, many discussed the Employee and Family Assistance Program (EFAP). It may be useful for the TTC to explore the role of EFAP after traumatic events since our findings suggest that a large proportion of individuals were not satisfied with the program.

Participants were also unhappy with the length of time it took for them to enter treatment. Since the DSM-IV requires the symptoms to be present for at least a month, participants could not be referred for treatment until at least 1 month after the event. Some felt this length of time was excessive and felt that they were even more distressed by the time they began treatment. These findings suggest that people exposed to a trauma should be monitored in the time between the event and treatment initiation and resources for support should be suggested when possible.

**Research question #2: What is the role of the educational intervention?**

We also asked participants to reflect on the educational intervention they received. Overall, the information was well tolerated, and no participants reported any detrimental or negative reactions. The most common response regarding the usefulness of the educational intervention was its normalizing effect. That is, participants felt comforted knowing that they “weren’t crazy” or were not the only people who suffered these types of psychological reactions. Normalization of reactions should be a central concern after an educational intervention and awareness of the symptoms one may experience should serve to reassure them (Wessely et al., 2008). The responses from participants are generally in agreement with this point; most appreciated understanding why they were having
emotional and physical reactions and some explained that they felt reassured knowing that
the reactions they experienced are shared by many and would not last forever. These
results are similar to previous studies of educational information for trauma. In Turpin,
Scholes and Mason's (2005) study, they noted that the majority of participants receiving
educational information considered it useful, and a number deemed the normalization
aspect as particularly helpful.

Nevertheless, when evaluating the ability of the educational intervention to affect
treatment seeking, most participants explained that they had already decided to seek
mental health treatment due to the factors mentioned above, and although they
appreciated the information, it did not necessarily affect their decision to seek treatment.

14.3 Limitations

The results of this study may be limited due to design limitations, selection biases,
self-report bias, the definition of "sought treatment", the short follow-up period and
generalizability of the results.

Design Limitations

As per the protocol of the APT study, the design of the quantitative phase was a pre-
post comparison of TAU vs BPI. A randomised controlled trial (RCT) would have been the
preferred methodology; however, the TTC and TTC union (ATU 113) felt it was
unacceptable to limit access to the BPI once it was available. Due to the pre-post
methodology, participants were not randomly allocated to the TAU or BPI. Rather, they
were allocated sequentially; with the first year of the APT study recruiting participants for
the TAU and the second year recruiting participants to the BPI. This design may limit the
extent to which conclusions can be drawn. However, as Morrison, Sullivan, Murray & Jolly (1999) mention, RCT’s for educational interventions are “infrequently reported” in the literature (pp 891).

**Selection Biases**

Selection biases may also limit the conclusions of this study, specifically at two time points. When first contacted by Occupational Health Staff at TTC, participants were told about the study and asked for verbal consent to be contacted by the APT study coordinator. For ethical reasons, we are not privy to any personal information of those individuals who refused to have their names referred to the research coordinator. Secondly, of the people who were referred to the coordinator, a number refused to participate. There may be differences between those individuals who consented to participate in the study and those who refused.

**Self-report Biases**

A potential bias in this study is the use of self-report questionnaires, specifically the MPSS. There may have been reporting biases in the way people chose to rate their symptoms. However, the MPSS has been shown to have strong psychometric properties (Falsetti, Resnick, Resick & Kilpatrick, 1993). The KPTSD has not been widely tested or used and therefore its psychometric properties have not been validated.

**The definition of “sought treatment”**

We used the definition “sought treatment” to indicate that the individual began a treatment program with a mental health practitioner. This would suggest more than a single meeting. However, since this data was taken from reports completed by the family doctor (providing the dates of the specialist appointment) or self-report date, the length of
the treatment program was unknown. Similarly, with the BPI, the date entered was the date of the first appointment at the Psychological Trauma Program (PTP). As a result, we may be over-estimating the number of people who continued in a treatment program with the mental health practitioner.

*Underestimation of seeking treatment and return to work due to short follow up*

Participants were followed up for 90 days from the date of their traumatic event. This follow-up period may have been too narrow to capture those would seek treatment or return to work. However, this was necessary due to time restrictions and the need to recruit the proposed sample size.

*Generalizability to other populations*

This study may have limited ability to generalize to other workplaces or other organizations. The TTC is a very large organization with approximately 12,000 employees and has one of the highest ridership rates in North America\(^5\). Demographically, the TTC is male dominated with 14.2% women and 85.8% men making up the population (V. Cosentino, personal communication, July 27, 2010). The TTC is a service oriented organization where employees (specifically drivers) work independently with limited contact with upper management. Since this is a highly specific service-oriented organization, the results may not generalize to non-public transit environments.

**14.4 Strengths**

Despite its limitations, this study had notable strengths. Firstly, to our knowledge this is the first such study to work directly with the Toronto Transit Commission (TTC) and

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focus on an entire traumatized population as opposed to only subway drivers or bus drivers.

As well, this is the only study of an educational intervention for trauma that used both quantitative and qualitative methodology to evaluate outcomes. By using both types of methodology, we were able to better understand participants’ perceptions of the information they received.

In addition, the primary outcome in this study assessed treatment seeking rates in traumatized individuals. The majority of research in the area of educational interventions for trauma measure only clinical outcomes such as PTSD severity, anxiety or depression. This study had the advantage of evaluating both of these outcomes. Moreover, this study quantitatively tested the change in knowledge due to the intervention using the Knowledge of PTSD (KPTSD) test.

Finally, this study may have real world implications as this group of people (TTC employees) are at high-risk for trauma exposure.

### 14.5 Clinical implications

This study showed that our educational intervention was successful in encouraging traumatized TTC employees to seek mental health treatment. However, further insights into the factors that motivated treatment showed that in fact, there were alternate, and possibly, more important factors that lead to help seeking. Overall, the educational intervention was found to be useful and well tolerated in our sample of individuals, and seemed to be the most useful in terms of normalization of post-traumatic reactions. If this is the case, educational information could be used less as an “intervention” and more as a
way to help people understand their reactions and provide a sense of normalcy. Moreover, this educational intervention should provide specific information on where to seek help if the reactions become unmanageable or persist.

14.6 Implications for the Toronto Transit Commission (TTC)

This study showed that an educational intervention for traumatized TTC workers was feasible. The TTC may benefit from this study by implementing its own educational/information services to employees exposed to a traumatic event. The TTC holds monthly “Health and Wellness” days in which written educational information regarding trauma and PTSD could be disseminated. As well, a number of TTC divisions have nurses on staff. It is feasible that these nurses can be taught the educational information and provide it to employees if necessary. Information regarding post-traumatic reactions may also be useful for management and supervisors by increasing their awareness of these reactions.

14.7 Future studies

Future research on this topic should address some of the limitations in this study, such as the study's design, a broader definition of "seeking treatment", and a longer follow-up period.

Since this study was embedded within the larger APT study, it was necessary to follow the specified protocol. Future studies should evaluate an educational intervention for traumatized workers using a randomised controlled trial. Here, traumatized TTC employees could be randomly assigned to either an educational intervention group or a
control group not receiving an educational intervention. With this study, we could be more confident that the results are due to the intervention alone.

In our study we considered “treatment seeking” as seeking help from mental health practitioners only. However, general practitioners (GP) very often provide counselling services to patients with psychological problems (Olfson, Weissman, Leon, Higgins, Barrett & Blacklow, 1995). Future studies should take this into account and consider participants receiving counselling services from their GP. In addition, due to limitations in the information from the TAU, we were only able to evaluate the first appointment with a mental health worker. However, future studies should take into account the number of sessions attended by an educational intervention group compared to a control group to investigate long term treatment adherence.

Future studies should also have a longer follow-up period. Due to the time restrictions of a Master’s study, we were only able to follow participants for 3 months. Future studies should look at longer follow up periods (e.g. 6 months, 1 year, etc) to gain a more accurate picture of help seeking.

In addition, future research could use a different type of educational intervention. In our study, we used a short (approximately 15 minute) presentation to discuss the information and written material specifically created for this population. Future studies could utilize different media (e.g. a video intervention or an educational website) and/or investigate the effectiveness of providing educational information in small group settings.

Finally, future studies should consider the timing of the intervention in relation to the “readiness to change” of the individual. The Prochaska model (Prochaska, DiClemente, Norcross, 1992) posits 5 stages of change: pre-contemplation, contemplation, preparation
for action, recent change and maintenance. This model has been simplified on the
“Modified Prochaska Questionnaire” (MPQ) to 3 stages: attitude, intention and action.
(Shirazi et al., 2008). Educational interventions may be more effective if directed at a
person’s stage of readiness to change (Shirazi et al., 2008).
CONCLUSIONS
CHAPTER 15

CONCLUSIONS

This study demonstrated an association between an educational intervention for traumatized TTC workers and mental health treatment seeking. Specifically, a higher proportion of those receiving an educational intervention sought mental health treatment compared to a group who did not receive an educational intervention. We also noted that the educational intervention participants took longer to seek treatment, however, this seemed to be mediated by their PTSD symptomatology. Our secondary analyses were varied; the educational intervention participants were less likely to return to work and took longer to return to work.

The increase in scores on the post-intervention KPTSD test suggested that participants did learn information from the educational intervention. Nevertheless, this finding should be interpreted with caution since they may have learned information from an outside source. Finally, we noted that participants’ level of PTSD (via the MPSS) decreased over time, but scores were not different between the educational intervention group (BPI) and the TAU.

Our qualitative results showed that seeking treatment is a multifaceted decision with many important factors such as personality changes, financial issues and negative consequences on loved ones. We also learned that the educational intervention’s strongest quality was in normalizing participants’ post-traumatic reactions.

Overall, this study showed that an educational intervention for traumatized workers was positively received and aided in normalization of post-traumatic reactions.
Educational interventions for traumatized workers should be further investigated to fully understand its role in post-trauma care.
REFERENCES


APPENDIX
Appendix 1: Knowledge of PTSD (KPTSD) Test

ID #: ______________________
Date: ______________________
Time:  Pre          Post          Follow-up

Acute Psychological Trauma (APT) Study

We would like you to answer the following questions about trauma and Post-traumatic stress disorder. We do not expect people to get all the "right" answers, just try to answer the questions as well as you can. Please circle only one answer for each question.

1. Is the following statement true or false? Most adults have had at least one traumatic event in their lives.
   A) True
   B) False

2. Which of the following can be a traumatic event?
   A) Car accident
   B) Child abuse
   C) Seeing someone else get seriously hurt
   D) Any of the above

3. What does PTSD stand for?
   A) Previous trauma symptom distress
   B) Partial trauma stress disease
   C) Preterminal substance disorder
   D) Post-traumatic stress disorder

4. What two things are needed for an experience to be considered a "traumatic event"?
   A) Upsetting event and feeling of anger
   B) Head injury and passing out
   C) Life-threatening event and feeling of fear or horror
   D) Combat and being wounded

5. Is the following statement true or false? Everyone who has experienced a traumatic event gets PTSD.
   A) True
   B) False

6. Is the following statement true or false? PTSD is the only bad effect of having experienced a traumatic event.
   A) True
   B) False

7. An example of re-experiencing an event is:
A) Nightmares
B) Flashbacks
C) Memories
D) All of the above

8. Is the following statement true or false? People who have PTSD often have other problems like using too much alcohol or drugs.
   A) True
   B) False

9. What is an example of increased arousal?
   A) Being upset all the time
   B) Sadness
   C) Irritability
   D) Weepiness

10. Is the following statement true or false? People who have PTSD often have relationship problems.
    A) True
    B) False

11. What is a symptom of avoidance?
    A) Being in a bad mood
    B) Not taking prescribed medications
    C) Staying away from things that remind you of the bad event

12. What is one way to treat PTSD?
    A) Getting away from stress
    B) Making a big change in life
    C) Exposure therapy
    D) Engaging in exhausting exercise

13. Besides PTSD, what is another problem that people often have who have experienced a traumatic event?
    A) Drug/alcohol problems
    B) Depression
    C) Anger
    D) All of the above

14. Is the following statement true or false? There are currently no treatments for PTSD.
    A) True
    B) False

15. Is the following statement true or false? The only people who get PTSD are people who have been in a war.
    A) True
    B) False


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Appendix 2.1: Original interview guide

Date: ____________________________

Participant ID#: ____________________________

Interview #: ____________________________

1. You received educational information about trauma and PTSD along with some written information. Did you learn anything new from the educational information presented to you?

2. Did you find the educational information useful to you?

3. Was the educational information relevant to you in your personal situation?

4. Are there any changes to the educational information that would make it better? Could anything have been done better? Is there information that should have been there but wasn’t?

5. Did the educational information have any effect on your decision to seek mental health treatment? Did the information encourage you to seek treatment?

6. What motivated you to seek specialty treatment after the event? What factors were important in you deciding to seek care?

7. Is there anything else about the educational intervention or your decision to seek treatment that I should know about?
Appendix 2.2: Revised interview guide

Date: _______________________
Participant ID#: _______________________
Interview#: _______________________

1. What made you seem someone at CAMH?
   a) Was there anything in particular that made you see the doctor/psychologist?
   b) How was your family’s response?
   c) How was the TTC’s response?

2. We went over some information about trauma and posttraumatic stress when we first met.
   a) How was your experience getting the information?
   b) What information did you learn from the presentation that you didn’t know before?
   c) Where you able to read the written information? If yes, did you learn anything new from it?
   d) Did you give your friends/family member the written information? If yes, did they learn anything new?

3. From the information we talked about when we first met, did you notice any of those symptoms such as sleeping problems, flashbacks or avoidance problems?

4. What information do you think people like yourself should know after experiencing a traumatic event?
   a. What information would you want to know?

5. How did the educational information affect you going to see someone at CAMH?
   a. Did it encourage you to talk to someone?

6. For someone who has been in a situation like you, what do you think is helpful?
   a. Talking to people? If yes, what made you want to talk? Who did you talk to? How was their response?

7. Explain model of factors affecting decision to seek treatment (e.g. finance issues, family issues etc.) Are these relevant to the participant? What else was important and how did they affect the decision to seek treatment?

8. Is there anything else about the educational intervention of your decision to seek treatment that I should know about?
Appendix 2.3: Qualitative consent form

St. Michael's Hospital
Consent to Participate in a Research Study

Title of Research Study
Evaluation of an Educational Intervention for Employees Exposed to Workplace Trauma

Principal Investigator
Dr. Paul S. Links
Arthur Sommer Rotenberg Chair in Suicide Studies, St. Michael’s Hospital
Telephone number (416) 864-6060 ext. 2689 (9:00 am to 5:00 pm)

Co-Investigators
Sheena Bance
Master’s student, Institute of Medical Science
University of Toronto
Suicide Studies Unit, St. Michael’s Hospital
Telephone Number: [redacted] (9:00 am to 5:00 pm)

Dr. Ash Bender
Clinic Head & Medical Director,
Psychological Trauma Program
Centre for Addiction and Mental Health
Telephone Number: [redacted] (9:00 am to 5:00 pm)

Study Coordinator
Rahel Eynan, Suicide Studies Unit, St. Michael's Hospital
Telephone number: [redacted] (9:00 am to 5:00 pm)

24 Hour Contact
Dr. Paul Links
Pager number: [redacted]

Student Statement: This study is part of a Master’s thesis being completed by Sheena Bance in the Institute of Medical Science (University of Toronto). The faculty supervisor for this project is Dr. Paul S. Links who is affiliated with St. Michael’s Hospital (Suicide Studies Unit).

Funding Sponsor
This study has been funded by the Workplace Safety and Insurance Board (WSIB) and in kind sponsorship of the Toronto Transit Commission (TTC).
Before agreeing to participate in this research study, it is important that you read and understand this research consent form. This form provides all the information we think you will need to know in order to decide whether you wish to participate in the study. If you have any questions after you read this form, please ask. You should not sign the consent form until you are sure that you understand everything on it. You may also wish to discuss your participation in this study with your family doctor, a family member, or close friend. It is important that you are as accurate as possible with the researcher about your thoughts, feelings and behaviours to prevent any unnecessary harms to you should you decide to participate in this study.

**Purpose of the Research**

This study is part of the Acute Psychological Trauma (APT) Study, for which you have consented to participate. As part of the APT Study, if an individual shows signs of psychological difficulties (as a result of the traumatic incident), he/she would enter an investigational treatment program (the “best practice intervention” or BPI). One part of the BPI is receiving educational information about trauma and PTSD.

You are being asked to consider participating in this research study which will explore the role of educational information for TTC employees who have experienced a traumatic event at work. You are being approached to take part in this study since you received educational information as part of the APT study. The purpose of the current study is to evaluate your perceptions of the educational information you received and explore your reasons for seeking help through the BPI.

There are two main goals of this study: a) to better understand the role of educational information for people who have experienced a traumatic event and b) to explore why participants (in the APT study) chose to seek help through the BPI.

Approximately 15 individuals enrolled in the BPI portion for the APT study will participate in this study.

**Description of the Research**

This interview is part of a Master’s study which looks at the role of educational information for people who have experienced a traumatic event.

For this study, you are being asked to participate in a single, one-on-one interview and will be asked to consider a number of open-ended questions. For example, you may be asked to consider the following question: “You received educational information about trauma and PTSD along with some written information. Did you learn anything new from the educational information presented to you?”
The interview will take approximately 1 hour in length and will be conducted at the Psychological Trauma Program (PTP) at CAMH. It will be tape-recorded so it can be analysed later.

**Potential Harms**

There are no known harms associated with participation in this study. However, you may be asked some questions that might make you feel somewhat uncomfortable. If you do feel uncomfortable, you may refuse to answer any question, or stop the interview at any point, without any adverse consequences to your employment at the TTC or services you receive at St. Michael’s Hospital or at the Centre for Addiction and Mental Health.

It is possible that some of the questions in the interview may cause you to feel upset. If you are uncomfortable with any of the questions and want to stop at any time during the interview, you can let the interviewer know. If you feel upset during the interviews, the interviewer can refer you to a worker who can provide support.

Additionally, if the researcher or study personnel see that there is a risk to your safety or the safety of others based upon your responses, steps will be taken to ensure your safety or the safety of others including breaching confidentiality, and enlisting appropriate medical assistance such as your family doctor, or appropriate mental healthcare staff.

**Potential Benefits**

By participating in this study, you will be able to share your views on your experiences related to seeking specialty treatment after a traumatic event and your perceptions of the educational information you received. Overall, the results from this study may help us understand the role of educational interventions for workplace trauma and help researchers better understand what compels people to seek treatment.

**Confidentiality and Privacy**

All information that identifies you will be kept confidential and stored and locked in a secure place that only the study personnel will have access to. In addition, electronic files will be stored on a secure hospital or institutional network and will be password protected. It is important to understand that despite these protections being in place, experience in similar studies indicates that there is the risk of unintentional release of information. The principal investigator will protect your records and keep all the information in your study file confidential to the greatest extent possible. The chance that this information will accidentally be given to someone else is small. Confidentiality will be respected and no information that discloses your identity will be released or published without consent, unless required by law.
The audiotapes will be sent to an external company to be transcribed (typed). Once the interview is transcribed, reviewed and verified, the tape will be destroyed. Your name will not appear of the transcribed version of the interview. However, if discussed during the interview, details of the incident will be available to parties outside of the study team (transcriber). Data from the interview that will be analysed with a computer will not include any of your personal information. The transcribed interviews and electronic data will be stored securely at St. Michael’s Hospital.

It is possible that in the past you have had clinical contact with staff at St. Michael’s Hospital. You may have clinical contact with them in the future. However, the information you provide during the interviews will not be part of your medical record nor will the information you provide impact on the health care that you receive. The information will also not become part of your employment record and will not impact your employment status. If, at any time during the study, you wish to speak with a doctor, nurse, or counselor, the researcher has a list of people you can call and/or the researcher will arrange for you to speak with someone, as soon as necessary.

Publication of Results

Results of this study will be reported in professional and scientific publications and at conferences. The information reported from this study will not reflect your identity in any way.

Costs to Participation and Reimbursement

For your time, you will be compensated $10.00. You will still receive this compensation regardless of whether you complete all or part of the interview.

Participation and Withdrawal

Participation in research is voluntary. If you choose not to participate, you will continue to have access to customary care at St. Michael’s Hospital and at the Centre for Addiction and Mental Health. If you choose to participate in this study, you can withdraw from the study at any time without any effect on the care you will receive at St. Michael’s Hospital or at the Centre for Addiction and Mental Health or your employment at the Toronto Transit Commission.

Research Ethics Board Contact

If you have questions about your rights as a research participant, please contact Dr. Julie Spence, Chair of the St. Michael’s Hospital Research Ethics Board, at (416) 864-6060, extension 2557.
I acknowledge that the research study described above has been explained to me and that any questions that I have asked have been answered to my satisfaction. I have been informed of the alternatives to participation in this study, including the right not to participate and the right to withdraw without compromising the quality of medical care at St. Michael’s Hospital or the Centre for Addiction and Mental Health for me and for other members of my family. As well, the potential risks, harms and discomforts have been explained to me and I also understand the benefits of participating in this study.

I understand that I have not waived my legal rights nor released the investigators, sponsors, or involved institutions from their legal and professional duties. I know that I may ask now, or in the future, any questions that I may have about the study or the research procedures. I have been assured that records relating to my care and to me will be kept confidential and that no information will be released or printed that would disclose my identity without my permission, unless required by law. I have been given sufficient time to read and understand the above information.

I consent to participate. I have been told I will be given a signed copy of this consent form. I consent to participate. I have been told I will be given a signed copy of this consent form.

________________________________   _________________________________
Name of Participant      Signature of Participant

________________________________
Date

________________________________
Name of Co-investigator      Signature of Co-investigator

________________________________
Date
Appendix 3: Educational Intervention PowerPoint Presentation

The Acute Psychological Trauma (APT) Study

What we’re going to cover

1. Trauma & Traumatic Events
2. Post-traumatic stress disorder
3. Treatment Options

Goals of this information

- Learn about reactions after a traumatic event and symptoms of PTSD
- Help you identify negative reactions and seek help if necessary

Trauma and Traumatic Events

What is a traumatic event?

- Life threatening event that causes someone to feel horror, helplessness and fear
- Direct/indirect

What is the chance of experiencing a traumatic event?

- Approximately 40-80% in lifetime
- 800,000 workplace injuries/year
- Some job settings may increase the risk (e.g. TTC→ late hours, exchange of money, interaction with customers)
How might I react?

- **Physical:** shortness of breath, fast heart rate
- **Mental:** memory problems, bad dreams
- **Emotional:** guilt, anger

Typical Course

- Reactions are often high soon after the event, but should go away by 1 month

Why do I have these symptoms?

**Fight or flight response**

Positive coping strategies

- Basic self care: eating well, regular exercise
- Social support (family/friends)
- Learning about trauma and PTSD

Negative coping strategies

- using too much drugs/alcohol
- continually avoiding things that remind you of the event
- social isolation
- anger

Post-traumatic stress disorder
### What is PTSD?
- not everyone develops PTSD after a traumatic event
- 3 types of symptoms

### 1. Re-experiencing Symptoms
- intrusive memories
- bad dreams
- flashbacks

### 2. Avoidance/Numbing
- avoid thoughts, feelings that remind you of the event
- avoid activities, places or people
- problems remembering things about the event
- loss of enjoyment
- feeling isolated/hopeless

### 3. Increased Arousal
- sleeping problems
- irritability
- hard to concentrate
- jumpy or “on-edge”
- startle easily

### Delayed onset PTSD
- Symptoms start some time after the event → 6 months

### Other problems after a traumatic event
- depression
- drug and alcohol problems
- family/relationship difficulties
Treatment for PTSD

- **Cognitive behavioural therapy (CBT)**
  
  education, relaxation, exposure therapy, cognitive processing

- **Medication**
  
  Antidepressants, sleep aids