Expressive Writing Intervention Among Newly Diagnosed Prostate Cancer Patients: Effectiveness on Distress and Intrusive thoughts and Social Constraints as a Moderator

June, 2018
Name: Anna Sigriður Siemsen
ID number: 271089-2529
Supervisor/s:
Foreword and Acknowledgements

Submitted in partial fulfillment of the requirements of the BSc Psychology degree, Reykjavik University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.
Prostate cancer (PCA) diagnosis can be a stressful experience that increases general distress (e.g., depression and anxiety) and intrusive thoughts, although distress varies between individuals. The aim of this randomized control study was to determine whether expressive writing intervention (EWI) would decrease general distress and intrusive thoughts about cancer. In addition, it was tested whether patients that felt social constraints in expressing their emotions about their cancer benefitted more from the EWI than those that did not experience such constraints. A sample of 73 newly diagnosed PCA patients were randomly assigned to write for 20 minutes on 3 writing days, either about their emotions regarding the cancer (EWI group) or a neutral topic (control group). General distress, intrusive thoughts and social constraint were assessed at baseline and general distress and intrusive thoughts were assessed again three and six months following the EWI. Results from repeated-measures ANOVA revealed that the EWI did not decrease depression, anxiety or intrusive thoughts. EWI was beneficial for those high on social constrain in reducing intrusive thoughts regarding the cancer. The results indicate that those who perceive their social environment to be constraint could benefit from the EWI in reducing intrusive thoughts and therefore gain a better psychological adjustment to the cancer diagnoses.

**Keywords:** Prostate cancer, expressive writing, depression, anxiety, intrusive thoughts, social constrain
Expressive Writing Intervention among Newly Diagnosed Prostate Cancer Patients

Prostate cancer is the most common cancer in men in the Western world, including Iceland where more than 200 men are diagnosed annually (Miller et al., 2016; Icelandic Cancer Registry, 2016). Prostate cancer diagnosis can cause significant psychological distress (e.g., depression and anxiety) (Eton & Lepore, 2002; Mehnert et al., 2018; Mehnert, Lehmann, Graefen, Huland, & Koch, 2010). It has also been linked with intrusive thoughts, that is, involuntary and sudden unwelcome thoughts about the diagnosis (Thorsteinsdottir et al., 2013), which can result in failure to process the diagnosis and therefore lead to increased distress (Lepore & Revenson, 2007). In addition, the somatic side effects post-treatment, such as urinal, sexual, and bowel dysfunction can also produce psychological distress (Miller et al., 2016; Korfage et al., 2005; Miller et al., 2005). However, the psychological distress varies between prostate cancer patients and some experience far more distress than others. One important protective factor is emotional expression with those cancer patients that express their emotions reporting less distress than those who fail to do so (Lepore, Silver, Wortman, & Wayment, 1996).

Expression of Emotion

Emotional expression has received considerable attention in the literature on psychological adjustment to traumatic or stressful events, such as being diagnosed with prostate cancer (Lepore & Helgeson, 1998; Lepore et al., 1996). Disclosing emotions regarding the prostate cancer by expression can promote better psychological adjustment and therefore prevent intrusive thoughts and avoidant coping strategies that can increase psychological distress (Roesch et al., 2005; Lepore & Helgeson, 1998). A meta-analysis conducted by Roesch and colleagues found that men with prostate cancer who adapted
emotional-focused coping gained more psychological health, compared to those who used avoidance coping.

There is, however individual differences in how much prostate cancer patients are willing to express themselves about the cancer (Gray, Fitch, Phillips, Labrecque, & Fergus, 2000), and some experience a low need for support and/or feel emotionally inhibited (Zakowski et al., 2003). There is also differences in the social support prostate cancer patients receive and some experience being socially constraint, that is, they experience not being heard, feel alienated or misunderstood, or experience insufficient support (Lepore & Revenson, 2007; Lepore, 2001; Lepore & Helgeson, 1998). Lepore and Helgeson established that prostate cancer patients who felt socially constraints in discussing their cancer, were more distressed by intrusive thoughts related to the cancer, than those who felt they could disclose their emotions with others. Therefore, socially constrained prostate cancer patients might avoid talking and thinking about their cancer, which can result in psychological distress (Lepore & Helgeson, 1998). Given the importance of emotional expression as a buffer against the impact of cancer diagnosis and treatment on distress among cancer patients it is important that interventions help patients to express their emotions. One promising intervention is expressive writing (Pennebaker & Beall, 1986).

Expressive Writing Intervention

Expressive writing intervention (EWI) is brief and cost-effective intervention (Frattaroli, 2006) for individuals to disclose their feelings and thoughts about traumatic experience or stressful events (Pennebaker & Beall, 1986). In meta-analysis on EWI (Frattaroli, 2006; Frisina, Borod, & Lepore, 2004; Smyth, 1998), small to moderate effects sizes has been reported both within healthy and clinical samples. Several studies have examined the effects of expressive writing on distress among cancer patients and the findings have been inconclusive with some finding positive effects (Milbury et al., 2014; de Moor et
al., 2002) and others no effects (Jensen-Johansen et al., 2013; Mosher et al., 2012; de Moor et al., 2008; Walker, Nail, & Croyle, 1999). In a recent systematic review on EWI on cancer patients sample (Merz, Fox, & Malcarne, 2014), the effects of the EWI was null. However, previous studies have some limitations. Majority of the studies have been focusing on breast cancer patients (Merz et al., 2014), but it has been suggested that males might benefit to a greater extent from EWI than females because they are less likely to disclose their emotions to others than females (Smyth, 1998). In his meta-analysis Smyth found that research studies with higher quantity of men had higher effect sizes than studies that included mostly women. In addition, studies on EWI have mostly focused on long-term cancer survivors and not on recently diagnosed cancer patients, but there is evidence that EWI might be more beneficial in reducing psychological distress that has recently occurred (Frattaroli, 2006). For example, Low and colleagues (2010) found that more recently diagnosed breast cancer patients benefited more from the EWI than those who had lived with the cancer for a longer period.

There is also evidence that some subgroups of cancer patients and survivors benefit from EWI. For example, Stanton and colleagues (2002) found that EWI was beneficial for breast cancer patients who had low levels of cancer-related avoidance. Low et al. (2010) found that intrusive thoughts were reduced after EWI among women who had low levels of social support and Zakowski and colleagues (2004) found, in a mixed sample of cancer patients, that EWI was effective in reducing distress among those high on social constraints in expressing their emotions (Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004).

**Expressive Writing Intervention with Prostate Cancer Patients**

Prostate cancer can be a sensitive subjects for patients (Grey et al., 2000) and significantly decrease patients psychological well-being (Thorsteinsdottir et al., 2013; Zhou et al., 2010), especially among newly diagnosed prostate cancer patients who tend to avoid
discussing the cancer or those who feel constraints in expressing themselves with others (Adams, Winger, & Mosher, 2015; Gray et al., 2000).

Only few EWI studies have involved men with prostate cancer (Cepeda et al., 2008; Zakowski et al., 2004; Rosenberg et al., 2002). Rosenberg and colleagues conducted a pilot study ($N = 39$) where participants in the experiment group could write about their prostate cancer experience or some other traumatic experience in their life (Rosenberg et al., 2002). The pilot study also consisted of participants in a control group that wrote about neutral topics. The results revealed that participants in the experimental group reported fewer somatic symptoms than participants in the control group, but no differences were found between the groups in psychological symptoms nor in the immunological aspects of the disease. In a study that included both prostate and gynecological cancer patients, main effects of EWI on psychological distress were non-significant (Zakowski et al., 2004), but as mentioned above participants’ high on social constraints benefited from the EWI.

**Current Study**

To address the above limitations, this current study examined the effectiveness of EWI in reducing general distress and intrusive thoughts in a sample of newly diagnosed prostate cancer patients. In addition, social constraints was examined as a moderator of EWI. It was hypothesized that participants in the EWI would report less general distress (i.e., depression and anxiety) and fewer intrusive thoughts than participants in the control group. In addition, it was hypothesized that the EWI would buffer the effects of social constraints on depression, anxiety and intrusive thoughts.

**Method**

**Participants**

The participants in this study were newly diagnosed men with prostate cancer. The included criteria for participating in the study was to be newly diagnosed with prostate cancer
and to be able to read and write Icelandic. Of the 111 participants that agreed to participate, 27 dropped out of the study after the baseline assessment and 11 were excluded due to missing values. The final sample of 73 prostate cancer patients that completed all of the assessments was used for data analysis (EWI group, \( n = 47 \); Control group, \( n = 26 \)). The participants were not paid for their participation in the study.

**Measurement**

**Demographic/medical questionnaire.** Participants answered standard demographic questionnaire regarding age, marital status, education, and employment. They also answered questions regarding their medical status which includes treatment questions, diagnosis information etc.

**The Hospital Anxiety and Depression Scale (HADS).** The HADS is a self-administered questionnaire that measures depression and anxiety in either hospitalized patients or individuals who suffer from somatic illness (Zigmond & Snaith, 1983). The scale consists of 14 items which includes two subscales, with 7 items to measure anxiety and 7 items to measure depression. The HADS items are rated on a 4 point Likert scale that ranges from 0 to 3. Scores greater than 7 on each subscale indicating clinical depression and/or anxiety. In this study, Icelandic translation of the HADS was used (Schaaber, Smári, & Óskarsson, 1990). The Chronbach alpha in this study ranged from .75 to .79 for the depressive subscale and .76 to .84 for the anxiety subscale.

**The Impact of Event Scale – Intrusive thoughts (IES-N).** The IES is a scale that measures distress related to a specific event (Weiss & Marmar, 1997). In the present study, the intrusive thoughts subscale was used. The intrusion subscale consists of 8 items that measure intrusive thoughts about a stressor, in this case prostate cancer, over the past week. The scale is rated on a five-point Likert scale, from 0 (not at all) to 4 (often), and the score ranges from 0 to 32 where higher score represents more intrusive thoughts related to the
traumatic event. An Icelandic translation of the scale was used for this study, which has adequate psychometric properties on intrusive thoughts ($\alpha = .88$) (Agustdottir et al., 2010). The Chronbach alpha in the present study ranged from .84 to .90.

**The Social Constraints Scale (SCS).** The SCS measures how individuals perceive their social environment in time of traumatic experience, in this case being diagnosed with prostate cancer, and their attempt to talk about it (Lepore et al., 1996). The scale consists of 14 items, the first 7 items refer to expressing emotions to spouse/partner of the participants if relevant, and 7 items regarding a friend or a family member (Lepore & Ituarte, 1999). The scale ranges from 0 (never) to 4 (always), and possible range on the scale is 0 to 21 for both perceived constraints from partner and friend or a family member, with possible total score from 0 to 42. Iceland translation of the SCS was used in this study (Agustdottir et al., 2009). As in previous studies the mean of all 14 items was calculated. The Cronbach’s alpha in the present study was good ($\alpha = .84$).

**Manipulation check.** After each writing session the participants rated 5 questions about their writing regarding how much they felt they disclosed their feelings, how personal they felt their writing topic was, if they felt they were in control when they wrote, and if they felt as they wrote about something that they had not been able to talk to anyone about. The scale ranges from 5 to 25.

**Procedure**

Eligible participants referred to the study by their urological doctor, received a letter inviting them to take part in the study. The letter also included information about the study, a questionnaire package, and an informed consents. Three weeks after the mailing, the investigators contacted the participants the study was explained in detail to interested participants. The participants were asked to sign the informed consent and to complete the questionnaire to assess the baseline (BL), and mail back to the investigators when completed.
The participants were provided a phone number that they could call if they had any questions or concerns about the study.

Participants were then randomized to either the EWI group or the control group. To be able to look at moderators of the intervention 2/3 of the patients were randomizes to the EWI and 1/3 to the control group. After the BL assessment, three intervention days (writing days) were scheduled within three week time frame, with few days apart, as the intervention has been found to be most effective if the writing days are scheduled with few days apart (Smyth, 1998). On writing days scheduled with each participant, an interviewer called on designated time to give detailed standardized instructions. Participants were instructed to write for 20 minutes in an isolated room about their assigned topic (emotional disclosure about their cancer experience or non-emotional topic). After 20 minutes, the interviewer called and instructed the participants to stop writing. Participants were asked if they had been interrupted or taken a break. If the interruption or break occurred for over 5 minutes the participants were asked to continue to write until the interviewer called again, so their writing would occur for 20 minutes. After the writing session the participants filled out questionnaire regarding their writing session (manipulation check). After the third writing day the participants mailed their writings and questionnaires in a return envelope to the researchers.

Two follow-up assessments were conducted three months (FU1) and six months (FU2) following completion of the writing days. The follow-up assessments consisted of questionnaires the participants completed at BL. The interviewer called the participants following FU2 to remind them to mail the questionnaire to the researchers. The procedure is conducted over the phone and email to pose as least of a burden on the participants as possible, as well as having the participants implement the intervention at home as has been done in previous studies (Zakowski et al., 2004).
**Intervention Group.** The participants in the EWI group were told to write continuously for 20 minutes about their deepest thoughts and feelings (Pennebaker & Beall, 1986) about their prostate cancer experience and how it affects other parts of their lives (e.g., family life, relationship with their spouse, work, daily activities, social life, etc.). The participants were instructed to write freely about the aspects of their experience of the prostate cancer that they considered important to them. To encourage expression of emotions, it was emphasized that their writing would be kept completely anonymous and confidential, and they could only be identified by their participant’s number, not by their name. Also, the participants were told not to worry about grammar, style, or spelling, and that they would not receive any feedback regarding their writing, as has been done in previous studies (Zakowski et al., 2004).

**Instructions.** The writing instructions for the participants in the EWI group were comparable to those used in previous study (i.e., Zakowski et al., 2004) and were as follows:

For the next three writing days, I want you to write about your experience of being diagnosed with prostate cancer. In your writing, I want you to really let go and explore your very deepest emotions and thoughts. It is critical that you delve deeply. Ideally, I would like you to write about those parts of the experience you found hard to share with others. Perhaps this will provide an opportunity to really examine those thoughts and emotions. Remember that you have three days to write. You can write about the same cancer experience for all three days or different experiences each day. You might tie your personal experiences to other parts of your life. How is it related to your family life, relationship with your spouse, your children, your sexuality, daily activities, hobbies, your past, your childhood, your work? These are just some examples.
**Control Group.** The participants in the control group were asked to write about how they managed their daily activities. They were instructed to write factual and not in an emotional content. Apart from the writing topic, all other procedures were identical to those used in the EWI group.

**Statistical Analysis**

For the statistical analysis a 24.0.0.0 version of SPSS was used. Chi-square analysis was used to compare groups on the demographic- and medical variables and the main variables at baseline to determine whether the randomization was successful. A 2(Group: EWI vs. Control) X 3(Time: BL, FU 1 and FU 2) repeated-measures ANOVA was used to test the hypothesis that the EWI group would report lower levels of general distress and intrusive thoughts following the intervention compared to the control group. The median score for the social constraints scale was calculated and median split was used to split the participants into two groups, those who scored lower on the scale (= < 9) were considered having low levels of social constraints, and those with higher score as high on social constraints (> 9). A 2(Group: EWI vs. Control) X 2(Constraints groups: above and below the median) X 3(Time: BL, FU 1 and FU 2) was then computed to examine the hypothesis that the EWI would be beneficial for those high on social constraints.

The assumption sphericity expects that the differences between data of the variances taken from the same participants are equal (Field, 2013). The Mauchly’s test indicated that the assumption of sphericity was violated ($p < .005$) when calculating main effect and interaction for intrusive thoughts, therefore degrees of freedom were corrected using Huynh-Feldt estimates of sphericity.

When running Explore regarding the HADS scale at the three assessment points, there was one outlier assessed by inspection of a boxplot. This outlier was removed from the analysis.
Kolmogorov-Smirnov test of normality showed that the assumption of normality was violated since all of the variables at the three assessment points were significantly different from a normal distribution ($p < .05$). However, they were all positively skewed so the data for not transformed since they were all skewed towards the same direction.

Results

Manipulating Check

When comparing the participants in the EWI group with the control group, there was a significant main effect for group, $F(1, 62) = 6.816, p = .011$, and a significant group X writing day interaction, $F(2, 124) = 5.95, p = .003$, where the participants in the experimental group rated their writing to be more personal compared to the control group on BL, FU1 and FU2 (see Figure 1). There was no significant main effect over time, $F(2, 124) = 0.058, p = .944$. That indicated that the writing did not change significantly over time, however, the EWI group rated their writing more personal on the first writing day then the second writing day, and the most personal on the third writing day. The manipulation check was therefore successful in emotional disclosure.

![Figure 1. Emotional disclosure in the writing between groups over the three writing days.](image-url)
Sample Characteristics

It was tested whether there was significant differences between groups on demographic and medical variables using chi-square analysis. There was no significant differences between conditions on the demographic variables, age, marital status, education, and employment (see Table 1). There was however significant differences between groups regarding residency ($p < .05$). No significant differences was between groups on the medical variables. There was no significant differences at baseline between groups on any of the main study variables (see Table 2), except for depression ($p < .05$) where depression score among the EWI group was lower than among those in control group. Therefore, the randomization was not quite successful, but even though the groups were different regarding residency further analysis showed that different residency did not affect the statistical outcome.

Table 1

Demographic variables between groups and the total sample.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>EWI group ($N = 47$)</th>
<th>Control group ($N = 26$)</th>
<th>Total sample ($N = 73$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$%$</td>
<td>$M$</td>
</tr>
<tr>
<td>Age</td>
<td>66.37$^a$</td>
<td>67.17$^b$</td>
<td>66.37$^c$</td>
</tr>
<tr>
<td>Married/relationship</td>
<td>83.0</td>
<td>80.8</td>
<td>82.2</td>
</tr>
<tr>
<td>Education (at least college- or vocational degree)</td>
<td>76.6</td>
<td>57.7</td>
<td>69.7</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>53.2</td>
<td>45.8</td>
<td>50.7</td>
</tr>
<tr>
<td>Retired</td>
<td>36.2</td>
<td>45.8</td>
<td>39.4</td>
</tr>
<tr>
<td>Sick leave</td>
<td>2.1</td>
<td>4.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Residency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital area</td>
<td>87.0</td>
<td>61.5</td>
<td>77.8</td>
</tr>
<tr>
<td>Rural area</td>
<td>13.0</td>
<td>38.5*</td>
<td>22.2</td>
</tr>
</tbody>
</table>

* $p < .05$.

$^a SD = 8.21$. $^b SD = 7.67$. $^c SD = 8.21$. 
Descriptive Statistics

The descriptive statistics for the main measures is provided in Table 2. As can be seen depression and anxiety are not high in this sample. For example, the mean for depression at baseline for the whole sample is 1.29 (SD = 2.09), with range from 0 to 11, but the possible range for the scale is from 0 to 21. Similarly, the mean for anxiety is low, as well as the mean on intrusive thoughts. The mean level of intrusive thoughts was 4.88 (SD = 4.56), with range from 0 to 24, but the possible range on the scale is 0 to 32.

Effects of EWI on General Distress and Intrusive Thoughts

The results from repeated- measures ANOVA for depression showed that the interaction between groups and time was not significant, $F(2, 134) = 2.478, p = .088$. There was a significant main effect between groups, $F(1, 67) = 7.215, p = .009$, partial $\eta^2 = .097$, where depression score on average were lower in the EWI group at all time points, compared to the control group. There was also a significant main effect of time, $F(2, 134) = 4.438, p = .014$, partial $\eta^2 = .062$. The post-hoc test Bonferroni revealed that there was a significant differences between average scores on the depression scale between BL and FU1 ($p = .043$), BL and FU2 ($p = .034$), but no differences between FU1 and FU2 ($p > .05$).

On the average anxiety score the results showed that the interaction between groups and time was not significant, $F(2, 132) = 1.851, p = .161$, and the main effects for groups, $F(1, 66) = 0.428, p = .515$, and time, $F(2, 132) = 2.906, p = .058$, were not significant.

For intrusive thoughts the results showed that there was no statistically significant interaction between groups and, $F(1.65, 117.43) = 0.697, p = .474$. There was also no significant main effects for groups, $F(1, 71) = 1.018, p = .316$, or time, $F(1.65, 117.43) = 2.02, p = .145$. 
### Table 2

**Average score on general distress and intrusive thoughts between groups and assessments, and SCS at BL.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>EWI group $(n = 47)$</th>
<th>Control group $(n = 26)$</th>
<th>Total Sample $(N =73)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL $M$ $(SD)$</td>
<td>FU1 $M$ $(SD)$</td>
<td>FU2 $M$ $(SD)$</td>
</tr>
<tr>
<td>Depression</td>
<td>0.84* $(1.06)$</td>
<td>1.61 $(1.80)$</td>
<td>1.25 $(1.79)$</td>
</tr>
<tr>
<td>Range$^a$</td>
<td>0 - 4</td>
<td>0 - 6</td>
<td>0 - 8</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.80 $(1.99)$</td>
<td>1.48 $(1.94)$</td>
<td>1.45 $(1.72)$</td>
</tr>
<tr>
<td>Range$^b$</td>
<td>0 - 7</td>
<td>0 - 7</td>
<td>0 - 7</td>
</tr>
<tr>
<td>Intrusive thoughts</td>
<td>4.79 $(5.08)$</td>
<td>3.74 $(3.38)$</td>
<td>3.38 $(3.27)$</td>
</tr>
<tr>
<td>Range$^c$</td>
<td>0 - 24</td>
<td>0 - 11</td>
<td>0 - 13</td>
</tr>
<tr>
<td>Social constrain</td>
<td>9.09 $(2.42)$</td>
<td></td>
<td>10.37 $(3.22)$</td>
</tr>
<tr>
<td>Range$^d$</td>
<td>7 - 20</td>
<td></td>
<td>7 - 20</td>
</tr>
</tbody>
</table>

* $p < .05.$

$^a$ Possible range = 0 – 21. $^b$ Possible range = 0 – 21. $^c$ Possible range = 0 – 32. $^d$ Possible range = 0 – 42.
Social Constraints as a Moderator

To examine whether social constraints moderated the effects of the EWI on general distress and intrusive thoughts, a 2(Group: EWI vs. Control) X 2(Constraints: high vs. low) repeated measure ANOVA was conducted. For depression the results showed that the interaction between groups, constraints and time was not, $F(2, 130) = 1.009, p = .368$. For anxiety there was a significant main effect for time $F(2, 122.23) = 4.25, p = .018$, partial $\eta^2 = .049$, but no significant group by constraints by time interaction, $F(2, 128) = 0.366, p = .694$.

For intrusive thoughts there was a significant interaction between time, group and social constraints, $F(1.72, 118.58) = 3.49, p = .04$, partial $\eta^2 = .048$. To further examine this three way interaction a separate 2(Group: EWI vs. Control) X 3(Time: BL, FU1, FU2) ANOVA was computed for those high on social constraints and those low in social constraints. When constraints were low there were no main effects for group, $F(1, 44) = 0.06, p = .08$, or time, $F(2, 88) = 2.0, p = .14$ and the interaction between group and time was not significant, $F(2, 88) = 1.14, p = .32$. When social constraints was high then there were no main effects for group, $F(1, 44) = 0.08, p = .78$, or time, $F(2, 88) = 1.32, p = .27$, but the interaction between group and time was marginally significant, $F(2, 88) = 2.54, p = .07$. Figure 2 shows this interaction.

As can be seen there was no change in intrusive thoughts over time while it decreased after the EWI. Simple effects for the between subjects factor showed that those who scored high on social constraints and were in the control group had higher levels of intrusive thoughts than any other group at FU1 and FU2. On the other hand those that scored high on social constraints and were in the EWI group were not different from those that scored low
on social constraints at FU1 and FU2. These findings demonstrate that EWI can buffer the effects of social constraints on intrusive thoughts.

![Graph showing intrusive thoughts over time for EWI group and Control group](image_url)

**Figure 2.** Intrusive thoughts among the participants who perceive their social environment to be constraint.

### Discussion

The main goals for this randomized controlled trial were to determine whether home-based written emotional disclosure would decrease general distress symptoms and intrusive thoughts among newly diagnosed prostate cancer patients and to examine whether social constraints would moderate the effect of the EWI on general distress and intrusive thoughts. There were three hypothesis, first was that the expressive writing would significantly decrease general distress (e.g., depression and anxiety) for prostate cancer patients in EWI group, compared to a control group. The second hypothesis was that participants in the EWI group would report fewer intrusive thoughts, compared to participants in the control group. The third hypothesis was that EWI would moderate the effect of social constraints on general distress and intrusive thoughts.

The main findings were that the EWI was not effective in reducing general distress or intrusive thoughts and social constraints did not moderate the impact of the EWI on general
distress. However, the EWI did moderate the effects of social constraints on intrusive thoughts such that intrusive thoughts decreased after EWI among those that had high levels of social constraints. After the EWI those high on social constraints did not differ on intrusive thoughts from those with low levels of social constraints while those in the control group and high on constraints had the highest levels of intrusive thoughts.

These results consist to previous research studies that included prostate cancer patients where written emotional disclosure was not found to significantly decrease general distress (Zakowski et al., 2004; Rosenberg et al., 2002). The results are also consistent to results from previous research studies on EWI among cancer patients (Jensen-Johansen et al., 2013; Low et al., 2010; Zakowski et al., 2004), where the intervention did not significantly decrease intrusive thoughts in disclosure groups, compared to control groups.

There are possible reasons for the ineffectiveness of the EWI in reducing general distress and intrusive thoughts among newly diagnosed prostate cancer patients. First, the participants depression- and anxiety score on average were lower than previous research on newly diagnosed prostate cancer patients have shown (Korfage et al., 2005). Therefore, the participants in this study were possible well-adjusted despite the diagnosis and were not in need of emotional disclosure. Also, the scale used in this study to examine general distress might not be effective in examine depression and anxiety in men with prostate cancer.

Second, there is a possibility that a home-based intervention is not suited for all prostate cancer patients, some might lack privacy in their home and some might find it hard to express themselves in writing. Others might not be willing to express themselves about the prostate cancer, as previous study have indicated (Gray et al., 2000). However, the manipulation check revealed that the participants in the EWI group rated their writing relatively high in disclosing emotions. Also, as expressing emotions with others regarding an
traumatic experience have been found to be beneficial in reducing distress (Lepore et al., 1996), the impact of writing about cancer diagnosis might not produce the same effect.

Social constraints did not moderate the effects of EWI on depression and anxiety in the present study, which is inconsistent with results from previous research where the intervention buffered the effect of distress among socially constraints who disclosed their feelings in writing (Zakowski et al., 2004). The fact that social constraints moderated the effect of EWI on intrusive thoughts consist with previous study with women with breast cancer that perceived their social environment to be insufficient (Low et al., 2010), and also with Zakowski and colleagues’ study (2004), however the benefit from that study was in reducing avoidance symptoms and not intrusive thoughts.

Despite no significant group, time, constrain interaction in reducing depression and anxiety the results implicate that EWI may be beneficial in reducing intrusive thoughts among those prostate cancer patients who perceive their social environment to be constraint. Those results add evidence to the literature that EWI might help socially constraint cancer patients to adjust better to the traumatic experience of cancer diagnosis and therefore might benefit psychologically (Low et al., 2010; Roesch et al., 2005; Zakowski et al., 2004; Lepore & Helgeson, 1998).

Limitations in this research study should be noted. For example, the randomization was not fully successful, such as the groups differed on depression symptoms at baseline. Also, there were some missing values that led to exclusion of several participants and an outlier that was excluded. The main variables were all positively skewed which may have compromised the results.

It is not known why approximately one fourth of the participants that begin in the study dropped out after the baseline assessment. It is important for future studies to find ways to keep Future studies on the effectiveness of EWI among newly diagnosed prostate cancer
patients should include analysis on the dropouts to examine whether those who finish required assessment differ from dropouts on demographic and psychological variables at baseline. That would possible gain further evidence for whom the EWI might work for.

In summary, results from this randomized controlled study with newly diagnosed prostate cancer patients indicate that written emotional disclosure may benefit those who perceive their social environment to be constraint in reducing cancer-specific intrusive thoughts, but not in decreasing depression and anxiety. These results add to the evidence that EWI may benefit for those who experience lack of support or insufficient support. Therefore, when men are diagnosed with prostate cancer they should be screened for how they perceive their social environment as they might benefit from EWI in reducing cancer-specific distress. Further researches are needed that include newly diagnosed prostate cancer patients to examine what predicts and who benefits from this brief and cost-effective intervention.
References


EXPRESSIVE WRITING INTERVENTION


