

Harnessing Benefits of Helping Others: A Randomized Controlled Trial Testing Expressive Helping to Address Survivorship Problems After Hematopoietic Stem Cell Transplant

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Objective: Prior research supports the hypothesis that cancer survivors who help others face treatment experience a range of psychosocial and health-related benefits as a result of peer helping. This study investigates an expressive helping (EH) intervention designed to harness those benefits by targeting survivorship problems among cancer survivors treated with hematopoietic stem cell transplant. EH includes two components: (a) emotionally expressive writing (EW; writing one's deepest thoughts and feelings about the transplant experience in a series of brief, structured writing sessions) followed by (b) peer helping (PH; helping other people prepare for transplant by sharing one's own transplant experiences along with advice and encouragement through a written narrative). **Method:** EH was compared with neutral writing (NW), EW (without PH), and PH (without EW) in a 4-arm randomized controlled trial in which survivors completed baseline measures, 4 structured writing exercises (with instructions depending on randomization), and postintervention measures including validated measures of general psychological distress, physical symptoms, and health-related quality of life (HRQOL). **Results:** Among survivors with moderate–severe survivorship problems, EH reduced distress (compared with NW and PH; $ps < .05$) and improved physical symptoms (compared with NW, PH, and EW; $ps < .002$) and HRQOL (compared with NW; $p = .02$). **Conclusions:** Peer helping through writing benefits transplant survivors with moderate–severe survivorship problems, but only if they have first completed expressive writing.

Keywords: peer helping, intervention, cancer survivorship, emotionally expressive writing, social support, hematopoietic stem cell transplant

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Cancer patients have many ways of learning from other patients (i.e., peers). They can connect with peers through formal and informal channels (e.g., support groups, peer mentoring programs, one-on-one communications) or learn about their experiences without interacting with them (e.g., written narratives describing peers' personal experiences). The emotional and informational resources they gain through these opportunities can teach them new ways of coping with problems; alert them to the existence of resources; help them reappraise their situation in more adaptive ways; increase their sense of hope; reduce perceived isolation; and help them anticipate and prepare for future challenges (Pistrang, Jay, Gessler, & Barker, 2012; Rini et al., 2006; Ussher, Kirsten, Butow, & Sandoval, 2006).

Although benefits of receiving peer support are increasingly recognized, it is less well recognized that the act of helping peers can also be beneficial. This view is consistent with both theory and research. Riessman's (1965) helper therapy principle posits that helping a peer is more therapeutically valuable than receiving help. Likewise, Weiss's (1974) taxonomy of the beneficial functions of social relationships included opportunities to help others. Empirical evidence comes from correlational studies on volunteerism, social support provision, and altruism suggesting that benefits of helping can at times be greater than benefits of receiving help (Konrath & Brown, 2013). Research on people suffering from various medical problems shows that benefits of volunteering or becoming a peer support provider include reduced physical symptoms and improved mood in addition to improved social and role functioning (Arnstein, Vidal, Wells-Federman, Morgan, & Caudill, 2002; Byrd, 1984; Schwartz & Sendor, 1999).

Despite theory and evidence suggesting benefits of helping peers, we know of no interventions that seek to harness these potential benefits as a therapeutic tool. This study reports findings from a randomized controlled trial evaluating an intervention with that objective. Specifically, it was developed to harness potential benefits of peer helping as a way of promoting recovery from a stressful cancer treatment associated with a broad range of persistent survivorship difficulties—hematopoietic stem cell transplant (SCT).

Hematopoietic Stem Cell Transplant

SCT is an aggressive treatment for hematological cancers and a growing list of other diseases (Copelan, 2006). The treatment's toxicity can cause persistent physical symptoms (e.g., fatigue, cognitive problems) and psychological distress that can endure for months or years (e.g., Andrykowski et al., 2005; Syrjala et al., 2004). Both diminish health-related quality of life (McQuellon & Andrykowski, 2009). Existential concerns are common, including subjective isolation and reduced life purpose (Andrykowski et al., 1995; Baker, Curbow, & Wingard, 1991; Rusiewicz et al., 2008). Despite these problems, the few psychosocial interventions that target SCT survivors focus on patients in acute treatment (e.g., Cassileth, Vickers, & Magill, 2003) or the most severely distressed (DuHamel et al., 2010). Such interventions do not address the large number of survivors beyond acute treatment who are suffering and those with subclinical levels of survivorship problems. Therefore, one of the main goals of the study was to investigate whether an intervention, expressive helping (EH), would benefit both survi-

vors with mild survivorship problems and those with more severe problems.

Components of Expressive Helping

EH includes two components. First, a *peer helping component* gives survivors a low-burden way to help to other people undergoing SCT. Specifically, after a brief description of benefits of learning about other people's experiences with transplant, they write a narrative describing their experience, adding advice and encouragement they think will be helpful, with the knowledge that their narrative will be shared with people preparing for transplant.

Second, EH includes an *expressive writing component* based on Pennebaker's expressive writing paradigm (Pennebaker & Beall, 1986), which involves writing one's deepest thoughts and feelings about a traumatic event. Expressive writing has been shown to improve physical and psychological health in healthy and clinical populations (Frattaroli, 2006; Frisina, Borod, & Lepore, 2004; Pennebaker & Chung, 2011; Smyth, 1998). Many studies involving people with cancer (although not all) show benefits of expressive writing (de Moor et al., 2002; Henry, Schlegel, Talley, Molix, & Bettencourt, 2010; Jensen-Johansen et al., 2012; Lu, Zheng, Young, Kagawa-Singer, & Loh, 2012; Rosenberg et al., 2002; Stanton et al., 2002; but see Mosher et al., 2012; Walker, Nail, & Croyle, 1999). One benefit of expressive writing is that it helps people cognitively and emotionally process their experience (Esterling, L'Abate, Murray, & Pennebaker, 1999). We propose that SCT survivors may have an easier time communicating their experience to others in writing if they have first transformed their thoughts and feelings about it into written language and processed their experience through expressive writing (Pennebaker & Chung, 2011). The expressive writing task should help survivors develop a more coherent cognitive representation of their experience—a more coherent narrative—and greater insight and meaning, all of which may facilitate creation of a peer support narrative. In addition, finding insight and meaning in their experience is important for survivors (Johnson Vickberg et al., 2001). Thus, the expressive writing component of EH could address a specific need in this population in addition to helping prepare them to share their experience and insights with peers.

Overview of This Study

We investigated EH in a four-arm randomized controlled trial in which study participants completed four weekly structured writing exercises at home. Participants were adults who had undergone SCT and who had at least mild physical or psychosocial survivorship problems. After a baseline assessment they were randomized to one of four writing groups. Each group received writing instructions with a specific combination of the two components of EH (summarized in the online supplementary materials): (a) participants in an EH group wrote their deepest thoughts and feelings about their experience on the first 3 writing days (i.e., expressive writing instructions) and then on the fourth writing day used insights they gained in those exercises to write about their experience as if sharing it with others undergoing transplant (i.e., peer helping); (b) participants in a peer helping (PH) group wrote about their experience with instructions to write as if it would be shared with others undergoing transplant (without expressive writing); (c)

participants in an expressive writing (EW) group wrote their deepest thoughts and feelings about their experience (without peer helping); and (d) a neutral writing (NW) control group wrote facts about their transplant experience (without peer helping or expressive writing). All groups completed a follow-up assessment 3 months after the last writing session.

Outcomes were selected to represent the most common survivorship problems after SCT: general distress, self-reported physical symptoms, and HRQOL. Our main goal was to evaluate whether the EH intervention, as compared with the NW group, would benefit both survivors with mild survivorship problems and those with more severe problems (i.e., by reducing their distress and physical symptoms and improving their HRQOL). In addition, we explored whether the EH group would demonstrate these benefits compared with the PH and EW groups (because they completed both peer helping and EW components vs. completing each alone) in survivors with varying degrees of survivorship problems.

Method

Participants

Participants were English-speaking adults (≥ 18 years old) who had a successful SCT (i.e., not currently relapsed) within 9 months to 3 years. They had at least mild survivorship problems in one or more of the following domains according to published cutoffs or findings in relevant populations: general distress (Brief Symptom Inventory; Derogatis, 1993); cancer-specific distress (Impact of Event Scale; Horowitz, Wilner, & Alvarez, 1979); HRQOL (Functional Assessment of Cancer Therapy-Bone Marrow Transplant; Cella, 1997; McQuellon et al., 1997); and purpose in life (Life Engagement Test; Scheier et al., 2006). Participants entered the study meeting criteria in one (26%), two (20%), three (27%), or all four (27%) domains. They were excluded for current substance use disorder (the Rapid Alcohol Problems Screen, Cherpitel, 2000); and two-item Conjoint Screener, Brown, Leonard, Saunders, & Papasouliotis, 1997); active psychosis (six items based on the Structured Clinical Interview for *DSM-IV-TR*; First, Spitzer, Gibbon, & Williams, 2002); active suicidal ideation (a question from the Brief Symptom Inventory); or significant cognitive impairment (Callahan, Unverzagt, Hui, Perkins, & Hendrie, 2002).

Procedures

Participants were recruited from 2008 to 2011 in two ways. First, potentially eligible SCT survivors identified in databases at Mount Sinai Medical Center and Hackensack University Medical Center were mailed materials describing the study followed by a recruitment phone call. Those without a phone number were mailed the materials with a postcard they could return to initiate contact. Second, we announced the study in newsletters and Internet sites for relevant patient populations and through patient advocacy groups. Interested survivors phoned a staff member to learn about the study. All potential participants were screened for eligibility. They were mailed an informed consent form, reviewed it by phone with an interviewer, provided verbal consent, and then answered screening questions. About one week after screening,

eligible survivors completed a baseline assessment (a mailed questionnaire and telephone interview).

Writing exercises began one week after baseline and were completed at home, one per week, over 4 weeks, using established procedures (Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004). At a scheduled time on writing Day 1, an interviewer called and read standardized instructions that described the survivor's randomly assigned writing task and recommended completing it in a private place where there would be no interruptions. Survivors then completed a prewriting questionnaire, got specific instructions for the day's writing, and began writing as soon as they hung up the phone. The interviewer called back after 20 min to end the writing. Survivors interrupted for more than 5 min during writing continued writing for that length of time. Finally, they completed a postwriting questionnaire and the interviewer addressed any questions or concerns. They returned their writing and questionnaires by mail each week. Procedures for writing Days 2–4 were the same except that on Day 4 survivors were given the option of writing for an extra 20 min because pilot data showed that survivors were likely to feel constrained by the need to complete the Day 4 writing task in 20 min.

The follow-up assessment (a mailed questionnaire and telephone interview) was administered by an interviewer who was unaware of study assignment (usually the same interviewer who administered the baseline interview); it occurred about 3 months after writing Day 4 and ended with debriefing. Survivors received a \$20 gift card or movie tickets for screening and a \$20 gift card after baseline, writing Day 4, and follow-up. Procedures were approved by the institutional review boards at the study sites.

Randomization and Concealment

Randomization occurred immediately prior to writing Day 1. The randomization schedule was created by someone unaffiliated with the study; it used computer-generated permuted block randomization with blocks of 16, 20, 24, and 28, varied randomly. Concealment was implemented with sequentially numbered electronic files saved on a password-protected website. A single interviewer administered a survivor's writing exercises, and a different interviewer administered that survivor's baseline and follow-up interviews (and was unaware of study assignment). Interviewers conducting writing exercises could not be unaware; however, they used scripts to deliver writing exercise instructions. Survivors did not learn study hypotheses or the nature of the other writing exercises until they were debriefed after the follow-up interview.

Writing Instructions

All groups. On writing Day 1, all writing groups received instructions describing general features of the writing tasks (e.g., their number, structure). Each writing day, all groups were asked to write for a full 20 min. They were given the option of writing for an additional 20 min on writing Day 4. Instructions for writing Days 1–3 focused on the time before SCT (i.e., after survivors learned they would need SCT), during hospitalization, and the months after hospital discharge, respectively. Day 4 instructions varied across groups as described below. Details of the writing instructions are provided in the online supplementary materials.

Expressive helping. Survivors in the EH group completed both the peer helping and EW intervention components. On writ-

ing Day 1, peer helping instructions explained why SCT recipients benefit from learning about other people's experiences and described plans to develop a collection of narratives. These instructions were designed to engage benefits of peer helping by ensuring that this intervention component was salient and clear. Writing Days 1–3 were described as exercises to help survivors think about their experience and get ready to write the story they would share. Instructions on writing Days 1–3 were identical to instructions for the EW group, except survivors were reminded that the day's writing would not be shared with others. On writing Day 4, peer helping instructions described that day as the day they would write the story they would like to share. They were asked to write as if they were speaking to someone preparing for SCT and reminded that their writing would be a resource for them.

Peer helping. Survivors in the PH group completed the peer helping component but not the EW intervention component. On writing Day 1 they received the same peer helping instructions as survivors in the EH group, except that writing Days 1–3 were not described as exercises to prepare for helping. Rather, peer helping was the primary goal of all writing days. Instructions on all writing days asked survivors to write as if they were speaking to someone preparing for SCT and included a reminder that their writing would help people preparing for SCT. On writing Days 1–3, they focused on the time before, during, and after SCT. On writing Day 4, they wrote about any aspect of their experience they wanted, "wrapping up" their writing.

Expressive writing. Survivors in the EW group completed the EW component but not the peer helping component of the intervention. They received standard EW instructions (Pennebaker & Beall, 1986). On writing Days 1–3 they were instructed to explore their deepest emotions and thoughts about the time before, during, and after transplant, respectively. On writing Day 4 they were instructed to write about any aspect of their SCT experience they wanted, wrapping up their writing. No mention was made of sharing their writing.

Neutral writing. Survivors in the NW group completed neither the peer helping nor the EW intervention components. Their instructions were based on those used in past research (Low, Stanton, Bower, & Gyllenhammer, 2010; Stanton et al., 2002). On writing Days 1–3 they wrote a detailed factual account of their experience (i.e., not describing emotions or thoughts) before, during, and after SCT. On writing Day 4 they wrote a detailed account of their past week. No mention was made of sharing their writing.

Measures

Manipulation checks. On all writing days, survivors rated how personal their writing was and how much they revealed their emotions in their writing using standard questions (Richards, Beal, Seagal, & Pennebaker, 2000), rated on a scale from 1 (*not at all*) to 5 (*a great deal*). Additional questions were developed for this study, using the same response scale, to examine differences related to instructions about sharing the writing. After writing on writing Day 4, all survivors rated the extent to which they perceived their participation in the study provided information that would be helpful for other people undergoing SCT, the extent to which they thought about how someone would react to what they were writing, and the extent to which they wrote about things they thought someone else going through SCT should know. To explore

potential adverse effects of instructions regarding sharing, two questions assessed the extent to which survivors chose not to write about certain things because they were afraid someone else might read them and the extent to which they would prefer that no one ever read their writing.

Dependent variables. General distress was assessed with the 53-item BSI-GSI (Derogatis, 1993), which measures symptoms of depression, anxiety, hostility, phobic anxiety, obsessive-compulsive behavior, somatization, interpersonal sensitivity, paranoid ideation, and psychoticism in the past month on a scale from 0 (*not at all*) to 4 (*extremely*; $\alpha = .95$). *Physical symptoms* were assessed with the Cohen and Hoberman (1983) Inventory of Physical Symptoms, which measures the extent of 33 physical symptoms (e.g., headache, nausea) in the prior 2 weeks on a scale from 0 (*not bothered*) to 4 (*extremely bothered*). Higher scores indicate greater symptoms ($\alpha = .90$). Health-related quality of life was assessed with the 37-item FACT-BMT (McQuellon et al., 1997), which measures physical, functional, social-family, and emotional well-being and SCT-specific concerns in the prior 7 days on a scale from 0 (*not at all*) to 4 (*very much*). Higher scores indicate better HRQOL ($\alpha = .90$).

Sociodemographic and medical variables. Participants' sociodemographic characteristics and medical information were gathered through self-report and medical records.

Analytic Strategy

First, descriptive analyses and analyses were conducted. Survivors entered the study with varying combinations and severity of physical and psychosocial survivorship problems. Because a main study goal was to examine whether their survivorship problems would influence their response to the EH intervention, the screening data were cluster analyzed to assess the potential to develop a meaningful empirical typology of patterns of survivorship problems in this sample. Finally, we evaluated the effects of the intervention with analyses of covariance (ANCOVA), focusing on three primary outcomes representing psychological health (general distress), physical health (physical symptoms), and HRQOL. Covariates were included in the ANCOVA models to increase their power (Lingsma, Roozenbeek, & Steyerberg, 2010) and included the baseline value of the outcome of interest along with sociodemographic and medical variables that predicted the outcome at $p < .05$. A variable indicating survivorship problems cluster membership was included to test cluster membership as a potential moderator of effects.

Results

Descriptive statistics are shown in Table 1. The sample included 178 women and 137 men. Consistent with the population receiving SCT in the United States, most were non-Hispanic White, partnered, and college educated with a moderately high income. They were treated with allogeneic or autologous SCT (using donor stem cells or their own stem cells, respectively) 20 months prior to the study, on average. One-way analyses of variance (ANOVAs) and chi-square tests indicated that randomization succeeded; the writing groups did not differ by sociodemographic or medical characteristics or by baseline general distress, physical symptoms, or HRQOL.

Table 1
Descriptive Statistics ($N = 315$)

Variable	n (%)	M (SD)
Sex: female	178 (57%)	
Age (in years)		53.70 (12.22)
Marital status: married/partnered	250 (79%)	
Race–ethnicity		
Non-Hispanic White	265 (84%)	
Hispanic–Latino	16 (5%)	
African American–Black	14 (4%)	
Other	20 (6%)	
Education		
High school or less	39 (12%)	
Partial college or trade school	70 (22%)	
4-year college degree	106 (34%)	
Graduate degree	98 (31%)	
Missing	2 (1%)	
Annual household income (Mdn)		\$80,000–\$95,000
Diagnosis		
Lymphoma	97 (31%)	
Multiple myeloma	95 (30%)	
Acute or chronic leukemia	82 (26%)	
Other	40 (13%)	
Missing	1 (<1%)	
Type of transplant		
Autologous	173 (55%)	
Allogeneic	142 (45%)	
History of graft vs. host disease (GvHD)	118 (38%)	
Number of non-GvHD SCT complications		2.55 (1.622)
Number of medical comorbidities		1.25 (1.24)

As shown in Figure 1, 315 survivors were randomized and 264 completed the follow-up assessment. Seven survivors who completed follow-up did not complete the full intervention. Most attrition was due to loss of contact ($n = 28$) or relapse–death ($n = 17$). Survivors completing the follow-up assessment were, on average, older than those who did not complete it, $p = .004$, and more likely to be non-Hispanic White ($p = .047$). No other differences reached significance.

Manipulation Checks

One-way ANOVAs were used for manipulation checks, with Tukey's test for between-groups differences. A summary of manipulation check findings is provided in the online supplementary materials. Across writing days, participants in the NW group rated their writing as significantly less personal ($M_s = 3.12$ – 3.47) than those in the EH group ($M_s = 3.95$ – 4.04), the PH group ($M_s = 3.86$ – 4.07), and the EW group ($M_s = 4.00$ – 4.23 ; $p_s < .001$ – $.043$). Likewise, on all writing days participants in the NW group reported they revealed their emotions less ($M_s = 1.95$ – 2.00) than the EH group ($M_s = 3.69$ – 3.85), the PH group ($M_s = 3.49$ – 3.98), and the EW group ($M_s = 3.84$ – 4.05 ; all $p_s < .001$); ratings in the latter three groups did not differ.

Analyses also evaluated writing group differences related to peer helping instructions specifying that the writing would be shared (given to the EH and PH groups but not to the EW and NW groups). With respect to perceiving their participation as helpful to others undergoing SCT, participants in the EH ($M = 3.90$) and PH ($M = 3.88$) groups did not differ but perceived their participation as more helpful than did those in the NW group ($M = 3.36$; $p_s =$

$.001$ – $.003$, respectively). The EW group ($M = 3.60$) did not differ from any other group. With respect to thinking about how someone would react to their writing while they were writing, participants in the PH group ($M = 3.69$) thought more about how someone would react to their writing than did any other group, including the EH ($M = 2.93$, $p = .004$), EW ($M = 2.58$, $p < .001$), and NW groups ($M = 2.29$, $p < .001$). The EH and EW groups did not differ, nor did the EW and NW groups, but the EH group thought more about how others would react than the NW group ($p = .01$). With respect to purposely writing about things they thought someone going through SCT should know, participants in the EH ($M = 4.34$) and PH ($M = 4.38$) groups were more likely than those in the EW ($M = 2.59$) and NW ($M = 2.79$) groups to do this (all $p_s < .001$). The EH and PH groups did not differ, nor did the EW and NW groups; thus, participants in the EH and PH groups responded as expected to instructions specifying their writing would be shared.

Finally, the groups did not differ in the extent to which they reported not writing about certain things because they were afraid someone might read them ($M_s = 1.12$ – 1.18) or in their preference that no one ever read their writing ($M_s = 1.12$ – 1.21). Responses revealed little concern in any group about others reading their writing (all $p_s > .10$).

Cluster Analyses

Following accepted procedures (McIntyre & Blashfield, 1980), we split the sample into two random subsamples and performed k-means clustering (Everitt, 1980) on each subsample using SAS FASTCLUS. All variables were normally distributed, and they were standardized prior to analysis. Because there are no standard procedures for determining the optimum number of clusters, solutions with two–four clusters were evaluated using these criteria: (a) the algorithm converged; (b) the clusters were interpretable; (c) the same clusters could be identified in each subsample; and (d) the clusters were of sufficient size to be used as a grouping variable for study analyses. A two-cluster solution was most appropriate in both subsamples, and it was replicable using nearest centroid evaluation (McIntyre & Blashfield, 1980). The *high survivorship problems* cluster ($n = 98$; 31%) included survivors who entered the study with high distress, little perceived purpose in life, and poor HRQOL. The *low survivorship problems* cluster ($n = 217$; 69%) included survivors with lower distress, greater perceived purpose in life, and better HRQOL. Results were used to create a dichotomous cluster membership variable (0 = low survivorship problems cluster, 1 = high survivorship problems cluster; see online supplementary materials). Cluster membership did not vary across the four writing groups (Cramer's $V = .08$, $p = .57$). Moreover, within each cluster, the writing groups did not differ significantly in their baseline levels of general distress, physical symptoms, or HRQOL (see online supplementary materials).

Evaluating Intervention Effects

ANCOVAs were conducted to evaluate intervention effects, beginning with models that included the interaction between writing condition and cluster to examine these effects for survivors with low versus high survivorship problems. Because the EH group wrote for more minutes on writing Day 4 ($M = 29$, $SD = 8$) than the EW group ($M = 24$, $SD = 6$), $F(3, 275) = 6.10$, $p = .001$ (with the PH group, $M = 27$, $SD = 8$, and the

Table 2
Analysis of Covariance Models Predicting Outcomes 3 Months Postintervention

Variable	SS	df	M	F	p	Partial η^2
General distress ^a						
Writing group (WG)	.15	3	0.05	1.04	.38	.012
Cluster (CL)	.05	1	0.05	0.97	.33	.004
WG*CL	.39	3	0.14	2.77	.04	.032
Physical symptoms ^b						
WG	1563.35	3	521.12	4.63	.004	.055
CL	42.79	1	42.79	0.38	.54	.002
WG*CL	1192.15	3	397.38	3.53	.02	.042
Health-related quality of life ^c						
WG	444.42	3	148.14	1.15	.33	.013
CL	11.63	1	11.63	0.09	.76	.000
WG*CL	867.06	3	289.02	2.25	.08	.026

Note. Outcomes are mean scores at the 3-month postintervention follow-up. Cluster scores reflect survivors' degree of distress and survivorship problems based on cluster analysis (*high survivorship problems* = 1; *low survivorship problems* = 0). SS = Sum of squares.

^a Sample size = 264. Model adjusted for baseline general distress, age, and no. of medical comorbidities. ^b Sample size = 251. Model adjusted for baseline physical symptoms and no. of SCT complications (excluding graft vs. host disease). ^c Sample size = 264. Model adjusted for baseline HRQOL, history of graft vs. host disease, and no. of medical comorbidities.

group was significant, and the main effect for cluster was not. There was a significant interaction between writing group and cluster. As shown in Figure 3 (and in the online supplementary materials), there were no significant differences by writing group in the low survivorship problems cluster ($ps = .19-.95$). In the high survivorship problems cluster, physical symptoms were significantly lower in the EH group than in the PH, EW, and NW groups ($ps < .001-.002$), which did not differ significantly ($ps = .66-.92$). The standard deviation for this measure in the full sample was 17.76, and differences between the EH group and all other groups exceeded half of a standard deviation, suggesting these findings were clinically significant.

For HRQOL, the overall model was statistically significant, $F(10, 253) = 51.67, p < .001, R^2 = .67$. Main effects for writing group and cluster were not significant, but there was a marginally significant interaction between writing group and cluster. As shown in Table 2, there were no significant differences by writing group in the low survivorship problems cluster ($ps = .39-.86$). However, in the high survivorship problems cluster, HRQOL was significantly better in the EH group than in the NW group ($p = .02$). It also tended to be better in the EW group than in the NW group ($p = .06$). No other groups differed ($ps = .33-.53$). The standard deviation for this outcome was 18.76 in the full sample; thus, these effects did not appear to be clinically significant. Moreover, they should be interpreted cautiously given the marginally significant interaction.

For all combinations of writing group and cluster membership, no group demonstrated a significant exacerbation of symptoms at follow-up compared with baseline. Thus, effects could be attributed to EH group improvements rather than worsening of outcomes in other groups.

Discussion

This study was the first to evaluate whether the theoretical and empirically supported benefits of peer helping may be harnessed in an intervention to reduce persistent survivorship problems after an aggressive cancer treatment. Findings supported hypothesized benefits of expressive helping for physical symptoms and general distress among survivors with moderate to severe survivorship problems. These benefits were clinically significant. There was also possible improvement in health-related quality of life. In contrast, standard expressive writing did not produce these benefits nor did peer helping without expressive writing produce any benefits. In sum, there appear to be unique benefits of combining expressive writing and peer helping.

Participants were screened for a broad range of common SCT survivorship problems. We enrolled survivors with problems ranging from mild to severe to evaluate whether expressive helping could improve key outcomes across this full continuum. Findings

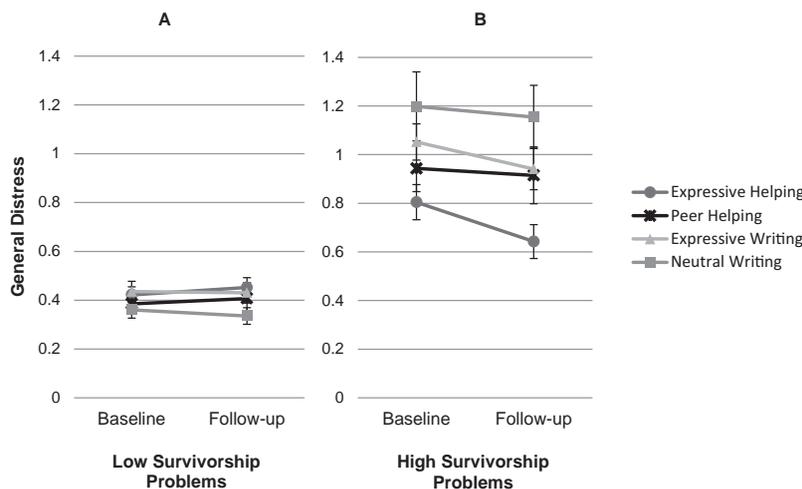


Figure 2. Changes in general distress from baseline to 3 months postintervention by randomly assigned writing group and survivorship problems cluster.

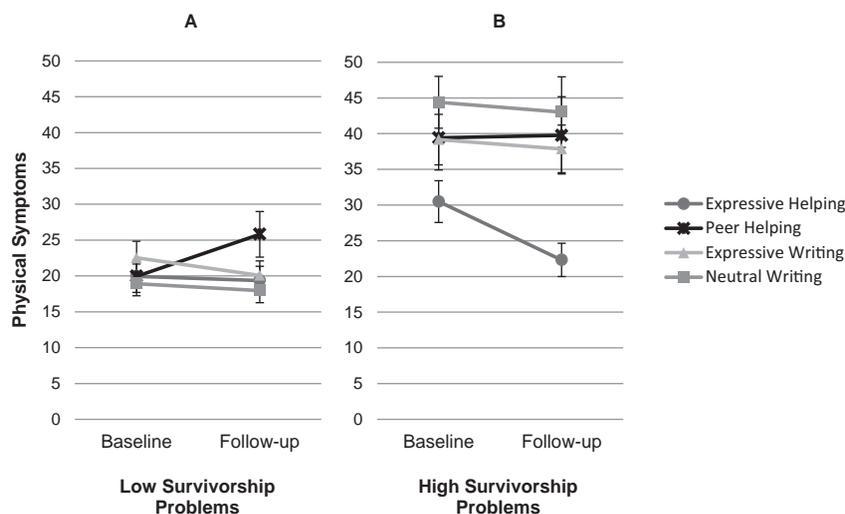


Figure 3. Changes in physical symptoms from baseline to 3 months postintervention by randomly assigned writing group and survivorship problems cluster.

revealed benefits for the nearly one third of the sample that fell into the cluster of survivors with greater survivorship problems; screening showed they entered the study suffering from multiple forms of survivorship problems—nearly all met criteria for three or four of the four potential types of survivorship problems. On average, their general distress was high (56% exceeded the clinical cutoff for significant distress according to nonpatient norms; Derogatis, 1993); their cancer-related distress was moderate to high (54% scored above a cutoff for clinically relevant distress) (Horowitz et al., 1979); their health-related quality of life was poor (similar to the 25th percentile of a normative sample of adult cancer patients; Cella, 1997); and their sense of purpose was low (similar to published norms for women with late-stage breast cancer; Scheier et al., 2006).

In contrast, expressive helping did not benefit survivors in the low survivorship problems cluster. There was probably little room for improvement in these survivors, who demonstrated normal functioning to mild impairment. However, research on volunteerism, altruism, and social support provision suggests it may be worthwhile to investigate whether they benefitted in domains such as positive mood, self-concept, perceived control, purpose in life, or connectedness (Arnstein et al., 2002; Byrd, 1984; Schwartz & Sendor, 1999; Sullivan & Sullivan, 1997).

Regardless of the severity of their problems, survivors were enthusiastic about helping others by completing expressive helping, and we found no evidence for adverse effects. To the extent that survivors enjoy the expressive helping task, we see no reason to recommend against using it among survivors with mild problems despite a lack of observed benefit. An advantage of having survivors with varying levels of functioning complete expressive helping is that doing so increases the range of experiences reported in the narratives. Ensuring narratives cover the full spectrum of real-world treatment and recovery experiences will be useful if these narratives are to be a supportive resource for people undergoing transplant.

Our finding that expressive writing alone did not yield benefit is consistent with several other studies of cancer populations

(Mosher et al., 2012; Walker et al., 1999), including some that found benefits in subgroups only (Low et al., 2010; Zakowski et al., 2004). Perhaps expressive writing is only therapeutic under certain circumstances in cancer populations. Methodological shortcomings also may contribute to mixed findings. A number of studies had very small samples, and participants have rarely been screened to ensure they are in need of intervention, possibly limiting the ability to demonstrate intervention benefits.

In contrast, it appeared that expressive writing actuated potential benefits of peer helping. Indeed, writing focused on peer helping was only beneficial when it was preceded by expressive writing; the combination appears to have been critical. Research is needed to examine which of the hypothesized mechanisms underlying expressive writing enabled survivors to benefit from the peer helping component of expressive helping. Candidate mechanisms include emotional self-regulation, cognitive restructuring, habituation, and social processes (Lepore, Greenberg, Bruno, & Smyth, 2002; Pennebaker & Chung, 2011; Stanton & Low, 2012). Our manipulation checks suggested that survivors in the peer helping group thought more about how someone would react to their writing than did survivors who completed expressive helping. This finding could suggest that an unaddressed need to emotionally or cognitively process their transplant experience before sharing it with others hindered their ability to focus on and benefit from peer helping.

It is possible that the expressive writing task was approached somewhat differently by the expressive helping group compared with the expressive writing group. Peer helping instructions given to the expressive helping group prior to writing Days 1–3 deliberately described the expressive writing exercises as preparing them to help others. Participants were also told to write for themselves on these writing days to ensure they would engage in and benefit from expressive writing. Writing for oneself is a hallmark of expressive writing. We theorized that giving these peer helping instructions prior to expressive writing might cause survivors to develop a greater narrative structure in their writing on Days 1–3 because they might begin—consciously or unconsciously—to

consider how they might communicate their story to others. Greater narrative structure could in turn enhance the benefits of expressive writing, as shown by evidence that this is one mechanism through which expressive writing confers benefits (Pennebaker & Chung, 2011). Other beneficial processes could also be engaged by the peer helping instructions. For instance, the expressive helping group could also complete expressive writing with a subtly increased focus on others, decreased focus on themselves, or both. Excessive self-focus may be deleterious to health (Konrath & Brown, 2013).

Notably, the manipulation check analyses showed only one difference between the expressive helping and expressive writing groups: The expressive helping group was more likely to report having purposely written about things someone undergoing SCT should know. Because this measure was administered after writing Day 4 (when they wrote for others), the extent to which this difference applied to writing Days 1–3 was unclear. Unreported analyses showed that the expressive helping group reported significantly higher postwriting positive emotions on writing Days 1–4, lower postwriting bodily symptoms of anxiety on writing Days 2 and 4, and lower postwriting negative emotions on writing Day 4, suggesting different responses to writing. A more thorough evaluation would compare the content of the groups' writing (e.g., narrative structure or use of cognitive words) and other potential mediators such as self- and other-focus.

Future research should explore alternative methods of implementing peer helping. Our goal was to test potential benefits of peer helping using a format that would be low burden yet meaningful to many or most survivors. Having survivors complete writing at home was well-suited to a population struggling with physical and psychosocial limitations that make actual interactions with peers difficult to manage. The expressive helping intervention did not involve a relationship between the support provider and recipient and/or an actual supportive interaction between them. Yet, some survivors in our study asked us to help them find ways to support peers through one-on-one interactions. Although providing help directly to another individual may be more powerful than writing for an anonymous audience, it is also possible that potential benefits of providing help to peers in actual interactions (more commonly known as *peer support*) could be reduced by practical burden, role confusion, overinvolvement, or other potential difficulties (Arnstein et al., 2002; Pistrang et al., 2012). Social support provision is an inherently complex human behavior that not all survivors may be well prepared to enact effectively (Rini & Dunkel Schetter, 2010).

We note limitations of the present research. First, all outcomes were self-reported. Future research would be strengthened by inclusion of objective measures of clinical outcomes or clinically relevant physiological indicators. Second, we investigated outcomes at one time point occurring 3 months after the last writing session. Longer term follow-up is needed to investigate the durability of observed benefits.

This study also had notable strengths, including a large sample screened for survivorship problems. Findings provide encouraging early evidence for a novel intervention that is easy and inexpensive to implement. Future research investigating its mechanisms and alternative implementation methods could expand on its benefits. In addition, survivors completing the expressive helping intervention produced narratives that may provide valuable informational

and emotional support that helps people undergoing transplant, potentially even preventing some of the persistent survivorship problems associated with this aggressive treatment.

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***Traumatology* Call for Papers: Special Issue on Trauma, Aging, and Well-Being**

Submission Deadline: **February 15, 2015**

Guest Editors: **Tina Maschi, Sharon Bowland and Patricia Brownell**



In response to a large gap in the literature, *Traumatology* is pleased to announce a call for papers with a forensic and interdisciplinary focus on the topics of trauma, aging, and well-being, particularly life course and cumulative trauma among older persons from diverse backgrounds and locations. Advancing research, practice, and policy in this area has important prevention, assessment, and intervention implications that will ameliorate human suffering and illuminate the issues pertaining to human rights and social justice. Further, it will advance individual, family, and community rights to safety, dignity, respect and fair treatment across the life course. Shedding light on these topics is a critical step toward improving society's response to achieving peace, freedom, justice and well-being around the globe.

We are seeking manuscripts that demonstrate courageous scholarship that examine trauma, aging, coping resilience, and well-being from a human rights and social justice perspective. These contributions should target innovation and new possibilities for theory, research, practice, program evaluation, policy, and advocacy in one of the following key areas:

- **Causes, correlates and consequences:** The etiology of trauma and well-being in later life
- **Mediating and moderating mechanisms:** Mechanisms that may be associated with cumulative health and well-being in later life and those that may foster biopsychosocial resilience in later life
- **Prevention, assessment, and intervention:** Development and testing of innovative interdisciplinary theory; intervention models or practices that target factors which influence the relationship between trauma, aging, and well-being; the examination of the effectiveness of multi-level practices in reducing risk and fostering resilience among older adults, their families, and their communities
- **Human rights, policy, and advocacy:** Analysis of existing or pending human rights guidelines and laws or evidence-based policy and advocacy efforts and alternative research methodologies that improve the response to trauma and justice

Authors should submit an APA style manuscript that is 20–25 pages long (including references) for this special issue by the deadline noted above. All submissions for this special issue will undergo the standard peer-review process, with no guarantee of acceptance. For more information about *Traumatology's* manuscript preparation and submission guidelines please visit: <http://www.apa.org/pubs/journals/trm>.

For other questions regarding this special issue please contact Dr. Tina Maschi at tmaschi@fordham.edu.