

A Randomized Trial Comparing Two Low-Intensity Psychological Interventions for Distressed Patients With Cancer and Their Caregivers

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The worldwide burden of cancer is set to increase owing to the growth and aging of the population, as well as the continued uptake by individuals of lifestyle behaviors that increase cancer risk, such as smoking, physical inactivity, and dietary habits that lead to obesity (Jemal et al., 2011). Although a cancer diagnosis will bring with it a range of physical morbidities, a significant psychological cost also is registered. Many people with cancer experience heightened psychological distress, such as anxiety and depression (Andrykowski, Cordova, McGrath, Sloan, & Kenady, 2000; Sheppard, 2007; Zabora, BrintzenhofeSzoc, Curbow, Hooker, & Piantadosi, 2001), with partners or caregivers reporting high levels of distress that, in some cases, will be greater than the patient's (Chambers, Schover, et al., 2013; Northouse, 2012).

Efforts to alleviate the psychological costs of cancer have included both individual and group programs applying therapies such as cognitive behavioral, supportive expressive, and psychoeducation or coping skills training. Numerous reviews have summarized the effectiveness of these interventions (Fors et al., 2011; Graves, 2003; Northouse, Katapodi, Song, Zhang, & Mood, 2010; Osborn, Demoncada, & Feuerstein, 2006). Since the 1990s, an additional focus has emerged internationally proposing that a preceding step, screening patient populations for high psychological distress, is needed to direct scarce and expensive clinical resources to where they are most needed (Holland & Bultz, 2007; Holland, Watson, & Dunn, 2011). Consistent with this, new quality standards now provide a mandate for psychosocial care as a routine part of oncology care (Harvey, Rogak, Ford, & Holland, 2013). Nurses in cancer care have a central role to play in the identification of emotional distress in patients and in the provision of care to meet these

Purpose/Objectives: To compare the effectiveness of two low-intensity approaches for distressed patients with cancer and caregivers who had called cancer helplines seeking support. Baseline distress was hypothesized as a moderator of intervention effect.

Design: Randomized trial.

Setting: Community-based cancer helplines in Queensland and New South Wales, Australia.

Sample: 354 patients with cancer and 336 caregivers.

Methods: Participants were randomized to either a single session of nurse-led self-management intervention or a five-session psychologist cognitive behavioral intervention delivered by telephone. Assessments were undertaken at baseline (preintervention) and at 3, 6, and 12 months.

Main Research Variables: Psychological and cancer-specific distress and post-traumatic growth.

Findings: No significant moderation by baseline cancer-specific distress was noted. For low-education patients, only the psychologist intervention was associated with a significant drop in distress. For all other participants, distress decreased over time in both arms with small to large effect sizes (Cohen's d s = 0.05–0.82). Post-traumatic growth increased over time for all participants (Cohen's d s = 0.6–0.64).

Conclusions: Many distressed patients with cancer and their caregivers may benefit significantly from a single session of a nurse psychoeducation intervention that can be delivered remotely by telephone and supported by self-management materials. Research is needed to develop an algorithm that moves beyond the use of distress as the only indicator for referral to specialist psychological services. Survivors and caregivers with low education and low literacy may require more in-depth and targeted support.

Implications for Nursing: Brief nurse psychoeducation and stress management for cancer survivors and caregivers should be considered as part of a tiered approach to psychosocial care.

Key Words: cancer; psychological intervention; nursing practice; low intensity; caregivers

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needs (Mårtensson, Carlsson, & Lampic, 2010). Such care can then be situated within a stepped or tiered model of psychosocial care, where those with low distress or need are provided with a minimal level of psychosocial care or support, with the depth of support increasing when distress or needs are heightened (Hutchison, Steginga, & Dunn, 2006).

In support of this approach, Schneider et al. (2010) reported that preintervention distress moderated treatment efficacy and explained as much as 50% of between-study effect size variance (Schneider et al., 2010). Faller et al. (2013), in a meta-analysis of psycho-oncologic interventions, found significant small-to-medium effects for emotional distress for individual and group psychotherapy and psychoeducation. Those effects were sustained for more than six months (Faller et al., 2013), with studies that preselected participants according to increased distress having larger effects. Although tailoring intervention to need is widely suggested, research to date has seldom operationalized screening and stepped care approaches in psychological intervention trials with cancer populations. Therefore, how much intervention is needed, for whom, and on what basis that judgment may best be made is not yet empirically known.

Accordingly, the current study assessed the effectiveness of two different approaches to psychosocial intervention with distressed patients and caregivers. To optimize real-world relevance and translatability, the intervention was situated within a community-based setting that comprised two large and well-established state-based cancer helplines in Australia. The study applied screening for distress using the distress thermometer (DT) (National Comprehensive Cancer Network [NCCN], 2013; Roth et al., 1998) and compared a nurse-delivered single self-management session versus five sessions of a cognitive behavioral intervention delivered by a psychologist. Consistent with the helpline services in which the study was nested, both interventions were delivered via telephone. Three hypotheses were proposed.

- Participants in both study arms will experience significant improvements in psychological health compared to baseline levels, including reduced psychological (anxiety and depression) and cancer-specific distress as well as increased positive adjustment.
- Participants with less distress who receive the minimal contact self-management condition will experience significantly less psychological distress (anxiety and depression), less cancer-specific distress, and higher positive adjustment in comparison to participants with higher distress who receive the minimal contact self-management condition.
- Participants with higher distress who receive the five session telephone-based cognitive behavioral

intervention will experience significantly less psychological distress (anxiety and depression), less cancer-specific distress, and higher positive adjustment in comparison to participants with high distress who receive the minimal contact self-management condition.

Methods

Eligible participants were adult patients and caregivers who called cancer information and support cancer helplines in two Australian states (Queensland and New South Wales). Patients and caregivers were independent callers and, therefore, were not a dyad. Study inclusion criteria included: (a) having a score of 4 or greater on the DT (NCCN, 2013; Roth et al., 1998), (b) being able to read and speak English, and (c) having no previous history of head injury and/or dementia (Chambers et al., 2009). Because the study was a brief intervention, it was not designed to meet the needs of people under current psychiatric care or those who presented with grief or bereavement, and so those also were excluded.

On the basis of simulation work conducted by Raudenbush and Xiao-Feng (2001), the authors of the current article estimated that a total sample size of 560 participants with four measurement points would have power of at least 0.9 to detect a moderate longitudinal effect size. To allow for an approximate 15% attrition based on the authors' previous work, a sample size of 660 participants or greater was desired. In addition, previous work by Jo (2002) suggested that this sample size will be sufficient to examine subgroups of responders.

Procedures and Materials

Ethical approval was obtained from the Griffith University Human Research Ethics Committee. The cancer helpline operator offered callers who met selection criteria entry into the study at the time of the call. As part of this research project, helpline operators in each state received training and ongoing supervision in how to administer the DT during the contact call to assess eligibility for the trial (Hawkes, Hughes, Hutchison, & Chambers, 2010).

Detailed information and consent forms were mailed to callers who had agreed to contact from the researchers. To minimize the time between calling the helpline and study entry, verbal consent to participate was obtained by research staff and audio recorded prior to obtaining written consent. Recruitment was undertaken from September 2009 to August 2010 with follow-up completed by September 2011. A brief telephone interview assessed sociodemographic and cancer-related variables at baseline. Outcome measures were

administered at baseline and again at 3, 6, and 12 months after recruitment.

Distress Screening

The single-item DT was used to screen for global psychological distress (NCCN, 2013; Roth et al., 1998). The DT has good sensitivity (73%–87%) and specificity (68%–77%) for detecting heightened psychological distress when used with a cutoff point/score of 4 or greater

(Chambers, Zajdlewicz, Youlden, Holland, & Dunn, 2014; Jacobsen et al., 2005; Thalén-Lindström, Larsson, Hellbom, Glimelius, & Johansson, 2013). In addition, the DT has been validated in the helpline setting (sensitivity, 83%; specificity, 51%) (Hawkes et al., 2010).

Psychological Outcome Measures

The Brief Symptom Inventory-18 (BSI-18) was used to assess psychological distress using the three subscales

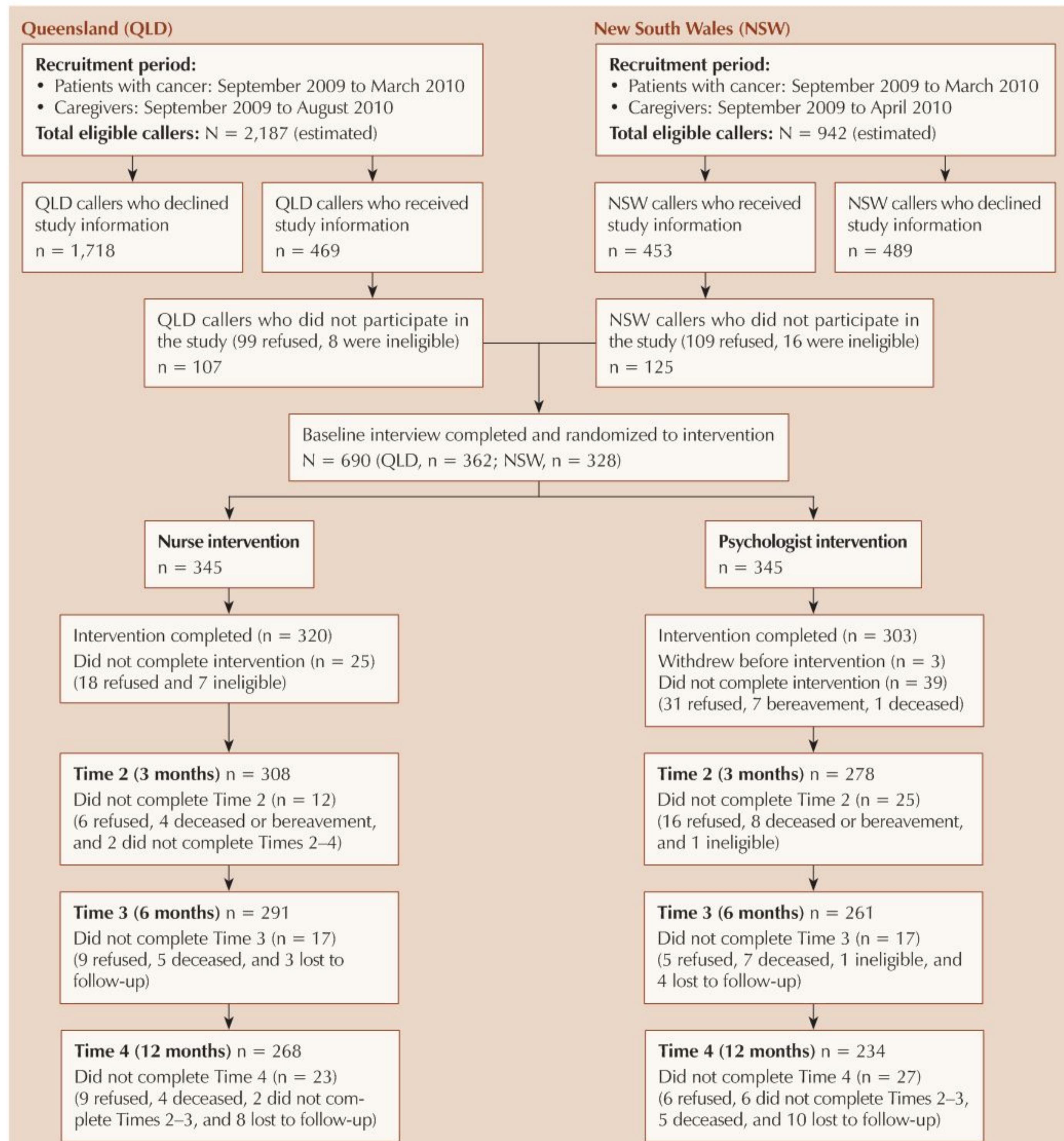


Figure 1. Flowchart of Recruitment, Participation, Data Collection, and Attrition

of anxiety, depression, and somatization (Derogatis & Lopez, 2000). Internal reliability was good for each subscale (Cronbach alpha = 0.73–0.86). Although studies have suggested various case rules to identify respondents with clinically significant symptoms (Recklitis & Rodriguez, 2007; Zabora, BrintzenhofeSzoc, Jacobsen, et al., 2001), the authors applied a total Global Severity Index (GSI) t-score of 63 or greater as per the BSI-18 scoring manual (Derogatis & Lopez, 2000).

The **Impact of Events Scale (IES)** (Horowitz, Wilner, & Alvarez, 1979) was used to assess cancer-specific distress with two subscales measuring the extent to which participants were experiencing intrusive thoughts about cancer and avoiding thinking about cancer (Epping-Jordan, Compas, & Howell, 1994). Internal reliability was very good for each subscale (Cronbach alpha = 0.79–0.84).

The **Posttraumatic Growth Inventory (PTGI)** is a 21-item scale that was used to assess perceived positive life changes that had occurred since the diagnosis of cancer (Tedeschi & Calhoun, 1996). This scale has been previously validated with patients with cancer (Stanton, 2006) and showed excellent internal reliability (Cronbach alpha = 0.9).

Intervention

Nurse Single-Session Self-Management

Participants in this arm were allocated to a single telephone support and education session with an oncology nurse who provided feedback to the participant about his or her levels of distress and brief instruction in evidence-based strategies to reduce stress. The session focused on establishing rapport and eliciting concerns, ensuring access to relevant cancer information, brief psychoeducation, orienting participants to the psychological self-management strategies provided in the accompanying resource kit, and, where relevant, discussion of specific strategies matched to participant need. The self-management resource kit mailed to the participant in advance of the session included written self-help advice about stress management skills, problem-solving approaches to cancer-related concerns, education about a healthy lifestyle to promote wellness and optimize quality of life, strategies for mobilizing personal and community support networks

to reduce isolation and seek sustainable social support, and an audio instructional CD about relaxation exercises. Based on previous research, any participants who scored 7 or higher on the DT (Hegel et al., 2008) in their session call were followed up with a check-in call by the nurse three weeks later to check for suicide risk and further referral for support as needed.

Psychologist-Delivered Five-Session Cognitive Behavioral Intervention

Participants in this arm were allocated to five sessions of telephone-based counseling from a psychologist that included, as core components, psychoeducation about the psychological impact of cancer, coping and stress management skills, problem solving, cognitive therapy, and enhancing support networks. The sessions followed principles of cognitive behavioral therapy with therapists applying flexibility in the order and depth of counseling in the core components to respond to the therapy goals of each participant. Participants were given assigned behavioral homework for each core component. Additional components for specific treatment effects were included where relevant (e.g., pain, sleep

Table 1. Descriptive Statistics for Main Outcome Variables by Participant Type and Psychologist-Based Intervention

| Variable | Patient | | | | | | | |
|------------------------------|-----------------------|-------|-----------------------|-------|-----------------------|-------|------------------------|-------|
| | Baseline (n = 178) | | 3 Months (n = 145) | | 6 Months (n = 132) | | 12 Months (n = 123) | |
| Variable | n | % | n | % | n | % | n | % |
| BSI-18 caseness ^a | 56 | 32 | 41 | 28 | 28 | 21 | 21 | 17 |
| Variable | \bar{x} | SD | \bar{x} | SD | \bar{x} | SD | \bar{x} | SD |
| BSI-18 total | 14.9 | 11.95 | 13.24 | 11.2 | 12.86 | 13.62 | 11.07 | 12.45 |
| IES total | 32.16 | 16.38 | 24.75 | 17.05 | 21.75 | 16.28 | 21.5 | 17.78 |
| PTGI total | 44.25 | 21.95 | 56.54 | 24.53 | 54.64 | 22.31 | 58.38 | 22.66 |
| Caregiver | | | | | | | | |
| Variable | Baseline (n = 167) | | 3 Months (n = 99) | | 6 Months (n = 110) | | 12 Months (n = 104) | |
| | n | % | n | % | n | % | n | % |
| BSI-18 caseness ^a | 45 | 27 | 25 | 25 | 31 | 28 | 28 | 27 |
| Variable | \bar{x} | SD | \bar{x} | SD | \bar{x} | SD | \bar{x} | SD |
| BSI-18 total | 14.74 | 11.74 | 14.76 | 12.94 | 12.98 | 11.52 | 12.39 | 11.31 |
| IES total | 38 | 15.19 | 27.99 | 16.73 | 29.05 | 16.28 | 26.26 | 17.46 |
| PTGI total | 44.6 | 18.14 | 55.96 | 22.69 | 56.17 | 22.46 | 59.43 | 19.47 |

^a Score of 63 or greater

BSI-18—Brief Symptom Inventory-18; IES—Impact of Events Scale; PTGI—Posttraumatic Growth Inventory

Note. The BSI-18 has a possible scale range of 0–72, the IES has a possible scale range of 0–75, and the PTGI has a possible scale range of 0–105.

disturbance, fatigue). As in the nurse-led intervention, a self-management resource kit also was provided.

Study Integrity

The study design was guided by the CONSORT statement (Altman et al., 2001). Randomization to each study condition occurred following the completion of baseline assessment. Other than the initial interview, assessments were by self-report pen-and-paper measures and project staff tracking assessments were blinded to treatment allocation. Randomization was stratified by patient and caregiver and state (Queensland versus New South Wales) and occurred in blocks of 10, with each condition randomly generated five times within each block to ensure an unpredictable allocation sequence with equal numbers of participants in each group at the completion of each block. This sequence was undertaken by the project manager and concealed from investigators. All analyses were conducted on the basis of intention to treat. Therapy was manualized and intervention calls were audio recorded for supervision purposes, with regular call audit for treatment fidelity as per standard guidelines (Bellg et al., 2004; Santacroce, Maccarelli, & Grey, 2004). The study nurses

were experienced oncology nurses with more than five years of experience in the provision of cancer support and information services. The psychologists had 2–10 years of experience in psycho-oncology. All received training (10 hours) in the intervention protocol.

Analysis

A series of multilevel mixed model regression analyses examined trajectories of psychological distress, cancer-specific distress, and positive adjustment across the four measurement time points (3-, 6-, and 12-month follow-up assessments). The effects of intervention type (psychologist versus nurse) and other moderators were entered as product terms to examine interactions between predictors and outcomes over time. For each analysis, time (in months) was centered at baseline. Models were run separately for patient and caregiver participant groups.

To test moderation hypotheses, initial baseline distress (as determined by the centered total score or following a median split of the BSI-18 or IES at baseline) was examined as a moderator of the effectiveness of intervention type on reducing psychological and cancer-specific distress as well as increasing positive adjustment. In addition, consistent with key predictors of psychological distress identified in previous longitudinal intervention study research (Chambers, Ferguson, Gardiner, Aitken, & Occhipinti, 2012), age, education, and income were examined in the current study as potential moderators of the trajectory of distress in patients and caregivers. Prior to analysis, education and income were dichotomized to indicate patient and caregiver groups that were highly educated and had completed some form of tertiary education versus those who had completed up to senior high school (that, in Australia, is 12 years of schooling) and those with a high annual income of \$60,000 AUD or greater (around \$56,000 U.S.) versus less than \$60,000 AUD.

Table 2. Descriptive Statistics for Main Outcome Variables by Participant Type and Nurse-Based Intervention

| Variable | Patient | | | | | | | |
|------------------------------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|------------------------|-----------|
| | Baseline (n = 176) | | 3 Months (n = 147) | | 6 Months (n = 140) | | 12 Months (n = 131) | |
| Variable | n | % | n | % | n | % | n | % |
| BSI-18 caseness ^a | 53 | 30 | 43 | 29 | 47 | 34 | 33 | 25 |
| Variable | ̄x | SD | ̄x | SD | ̄x | SD | ̄x | SD |
| BSI-18 total | 15.36 | 11.29 | 14.54 | 11.58 | 14.87 | 12.79 | 12.76 | 11.94 |
| IES total | 34.32 | 16.61 | 25.9 | 17.33 | 25.46 | 16.01 | 23.49 | 16.85 |
| PTGI total | 45.61 | 19.85 | 56.62 | 21.24 | 56.21 | 23.81 | 57.44 | 22.56 |
| Caregiver | | | | | | | | |
| Variable | Baseline (n = 169) | | 3 Months (n = 131) | | 6 Months (n = 134) | | 12 Months (n = 132) | |
| | n | % | n | % | n | % | n | % |
| BSI-18 caseness ^a | 44 | 26 | 32 | 24 | 30 | 22 | 33 | 25 |
| Variable | ̄x | SD | ̄x | SD | ̄x | SD | ̄x | SD |
| BSI-18 total | 13.25 | 11.33 | 13.42 | 11.78 | 11.58 | 11.26 | 11.08 | 12.47 |
| IES total | 35.55 | 15.14 | 28.4 | 16.84 | 26.34 | 17.54 | 24.55 | 18.66 |
| PTGI total | 41.36 | 18.85 | 54.05 | 21.46 | 51.64 | 21.24 | 54.71 | 23.04 |

^a Score of 63 or greater

BSI-18—Brief Symptom Inventory-18; IES—Impact of Events Scale; PTGI—Posttraumatic Growth Inventory

Note. The BSI-18 has a possible scale range of 0–72, the IES has a possible scale range of 0–75, and the PTGI has a possible scale range of 0–105.

Results

Participants

A total of 690 participants (354 patients and 336 caregivers) completed the baseline assessment and were randomized to

complete the nurse ($n = 345$) or psychologist ($n = 345$) intervention. Baseline characteristics of the sample have been described in detail elsewhere (Chambers, Grgis, et al., 2012); however, in brief, the majority of participants were female (293 patients [83%] and 295 caregivers [88%], $p = 0.05$), married or cohabitating (215 patients [61%] and 265 caregivers [79%], $p < 0.000$), had completed some tertiary education (201 patients [57%] and 221 caregivers [66%], $p = 0.018$), and more than a third of the sample earned \$60,000 AUD or greater per year (116 patients [33%] and 144 caregivers [43%], $p < 0.01$). For caregivers, the person to whom they provided support was reported as a spouse or partner ($n = 141$, 42%), parent (including in-laws, step, foster, and adoptive parents) ($n = 104$, 31%), child ($n = 36$, 11%), sibling ($n = 28$, 8%), or others such as friends or other family members ($n = 26$, 8%). Caregivers were younger than patients ($\bar{X} = 52.52$ years, $SD = 12.71$ versus $\bar{X} = 58.25$ years, $SD = 11.23$; $p < 0.0001$). The most frequent cancer types across the total sample were breast (31%), colorectal (9%), prostate (9%), hematologic (8%), lung (8%), and gynecologic (7%). No significant differences were noted between patients and caregivers across each intervention arm on background sociodemographic and outcome variables, with the exception of a small difference for the caregivers in the psychologist intervention who were younger than those in the nurse intervention ($\bar{X} = 50.8$ years, $SD = 12.06$, versus $\bar{X} = 54.2$ years, $SD = 13.16$; $F[1,334] = 6.14$, $p = 0.0137$).

Session Completion

Retention rates for the study overall were high, with 502 participants (73%) completing the 12-month assessments (see Figure 1). For participants in the nurse arm, 320 (93%) completed the single-intervention session. Of the participants in the psychologist arm, 157 (53%) completed five sessions ($\bar{X} = 3.85$, $SD = 1.41$), with patients and caregivers completing a median of four sessions. Caregivers completed fewer sessions than did patients, but the difference was not large. The nurse arm single-session length mean duration time was 46.51 minutes ($SD = 12.74$), with a median of 46 minutes. The psychologist arm overall mean session duration time was 46.43 minutes ($SD = 12.73$), with a median of 49 minutes. The total mean treatment intervention time was 181.83 minutes ($SD = 89.04$), with a median of 199 minutes. In all, 35% ($n = 112$) of the participants in the nurse arm received a check-in call on the basis of scoring 7 or greater on the DT. Of these, 3% ($n = 18$) were referred for additional support services because of continued high distress or at client request.

Psychological Outcomes

As displayed in Tables 1 and 2, distress outcomes decreased over the course of the trial, and positive adjust-

ment increased across participant type and intervention groups. A series of multilevel mixed model regression analyses examined trajectories of adjustment over time and the effect of distress, age, income, and education as moderators.

Patients

Initial cancer-specific distress, age, education, and income were examined as potential moderators of the effects of the intervention on trajectory of psychological distress as measured by the BSI-18. No significant moderation by baseline cancer-specific distress, age, or income was noted, and these variables were dropped from the model. A significant two-way, cross-level interaction occurred between intervention and time ($p = 0.046$), as well as a three-way, cross-level interaction between education, intervention type, and time that was marginally significant ($p = 0.053$). On the basis of empirical and practical considerations, this effect was followed-up. As shown in Figure 2, for highly educated

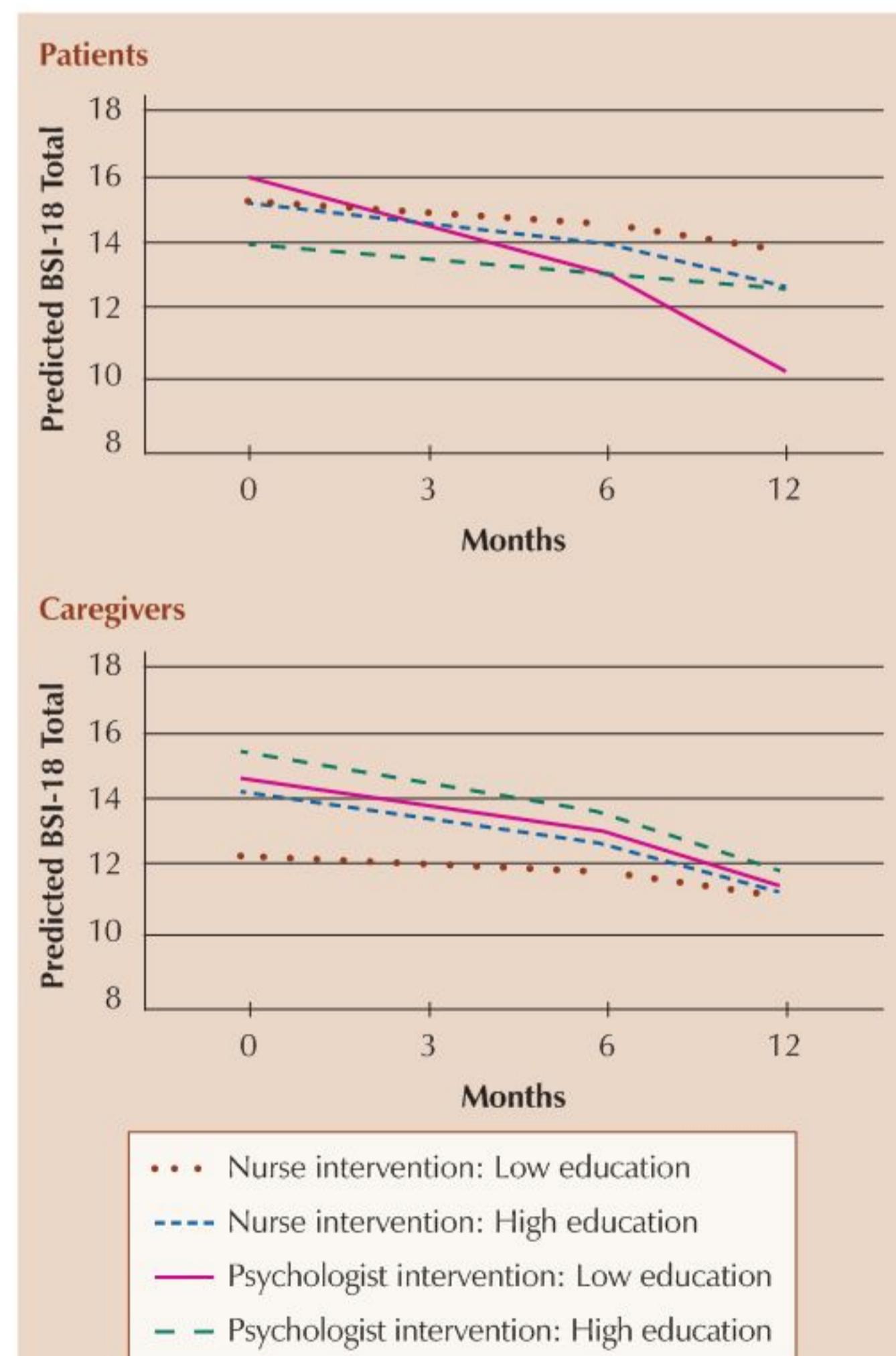


Figure 2. Predicted Brief Symptom Inventory-18 (BSI-18) Total Trajectory for Patients and Caregivers by Education and Intervention Type

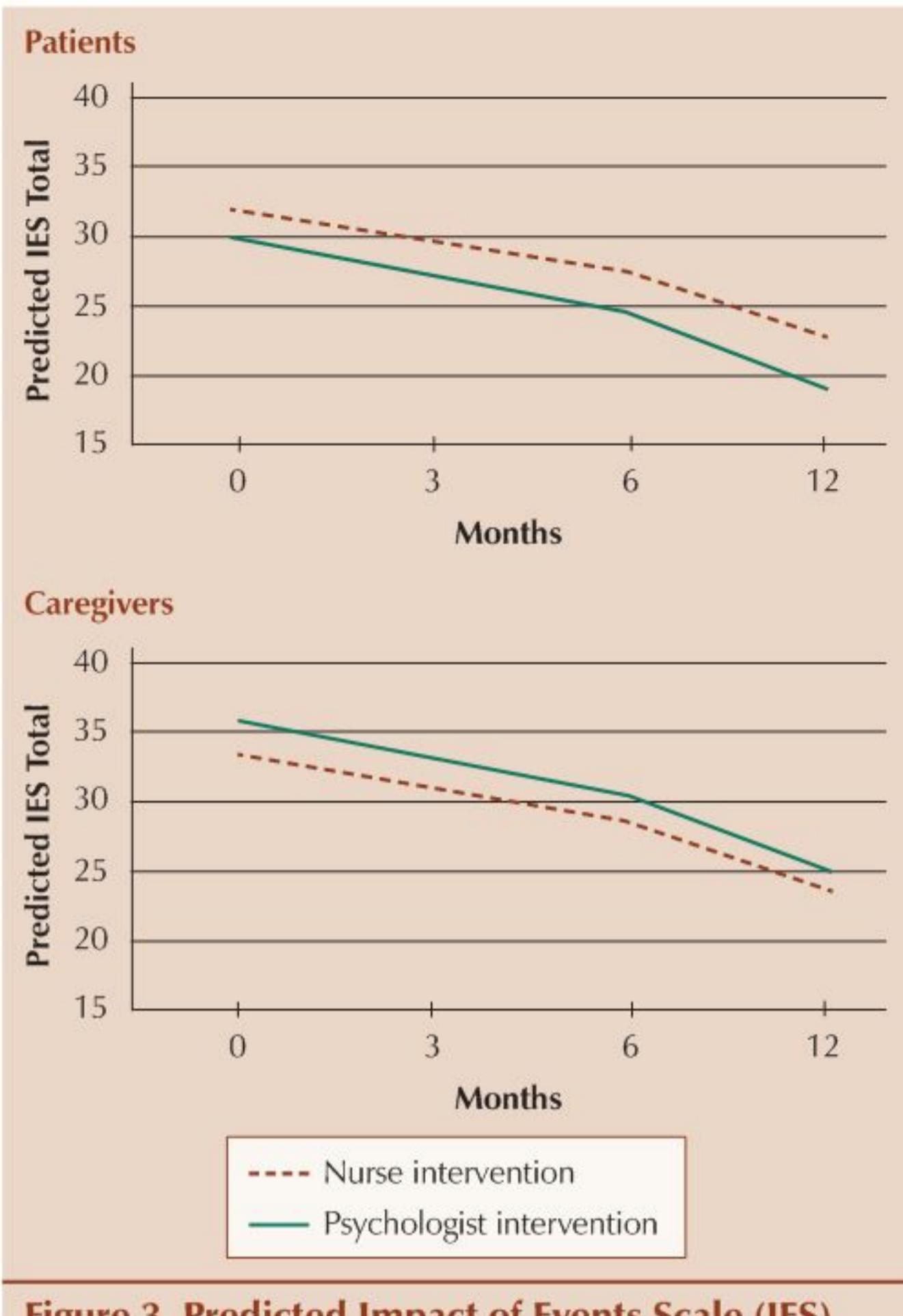


Figure 3. Predicted Impact of Events Scale (IES) Total for Patients and Caregivers by Intervention Type

participants, the nurse and psychologist interventions were associated with a significant drop in distress over the time period (Cohen's d change from baseline to 12 months = 0.29 and 0.05, respectively). For less educated participants, only the psychologist intervention was associated with a significant drop in distress (Cohen's d = 0.59); the nurse intervention trajectory of distress was flat (Cohen's d = 0.12). Cancer-specific distress decreased significantly for patients over the time period of the study ($\text{coef} = -0.81$, $p < 0.001$) and did not significantly differ according to intervention group (see Figure 3). In addition, age, education, and income did not moderate the trajectory of cancer-specific distress, and baseline psychological distress (as measured by the BSI-18) did not moderate the effect of the intervention type on cancer-specific distress. Cohen's d change from baseline to 12 months was 0.65 for the nurse and psychologist interventions.

Positive adjustment increased significantly for patients over the time period of the study ($\text{coef} = 0.97$, $p < 0.001$) (see Figure 4). Intervention type, age, education, and income did not moderate the trajectory of positive adjustment, and neither did initial psychological dis-

tress or cancer-specific distress moderate the effects of intervention type. Cohen's d change from baseline to 12 months was 0.6 for the nurse and 0.64 for the psychologist intervention.

Caregivers

Psychological distress as measured by the BSI-18 decreased significantly for caregivers over the time period of the study ($\text{coef} = -0.22$, $p < 0.001$). However, intervention type, age, education, and income did not moderate the trajectory of psychological distress and baseline cancer-specific distress did not moderate the effect of the intervention on psychological distress. Cohen's d change from baseline to 12 months was 0.19 for the nurse and 0.2 for the psychologist intervention. Cancer-specific distress decreased significantly for caregivers over the time period of the study ($\text{coef} = -0.86$, $p < 0.001$). Similar to the model for the patients, intervention type, age, education, and income did not moderate the trajectory of distress and no interaction was noted between initial psychological distress and intervention group. Cohen's d change from baseline to 12 months was 0.73 for the nurse and 0.77 for the psychologist intervention.

Positive adjustment increased significantly for caregivers over the time period of the study ($\text{coef} = 1.02$, $p < 0.001$). Similar to the model for the patients, intervention type, age, education, and income did not moderate the trajectory of positive adjustment, and neither initial psychological distress nor cancer-specific distress moderate the effects of intervention type. Cohen's d change from baseline to 12 months was 0.71 for the nurse and 0.82 for the psychologist intervention.

Discussion

As predicted in the first hypothesis, overall psychological and cancer-specific distress decreased over time for all study participants, and positive adjustment increased, with moderate-to-large effect sizes for cancer-specific distress. From this, the authors cautiously conclude that, over time, distressed patients with cancer and their caregivers, if provided with a low-intensity psychological intervention, will improve in terms of psychological adjustment to the cancer. As the study did not include a "no treatment" control arm, the authors are unable to conclusively say that these improvements were solely a result of the interventions, given a decrease in distress would be expected as a result of time alone for some people. However, the magnitude of improvements suggests that brief contact, nurse-delivered self-management approaches have much to offer in routine oncology care for distressed caregivers as well as patients. This is an important study outcome.

A systematic review and meta-analysis of self-help interventions for psychological distress in people with physical illnesses reported significant positive effects for depression with better outcomes when approaches were based on a therapeutic model (such as cognitive behavioral therapy) and stress management (Matcham et al., 2014). Those authors also suggested that self-help interventions provided by nurses may significantly improve psychological distress. Given that brief psychosocial interventions can be provided by nurses who are core members of the oncology team and who have intensive contact with patients and caregivers (Northouse, 2012), and that self-management materials are available from many community-based cancer organizations at low or no cost, the adoption of this approach has great potential for translation in cancer settings.

By contrast, and contrary to the second and third hypotheses, baseline levels of psychological distress did not moderate participants' responses to the intervention approach. The authors propose that this may relate to issues of heterogeneity in psychological adjustment over time, where characteristics such as age, gender, and education level have been found to significantly

influence trajectories of change (Chambers, Ferguson, et al., 2012; Dunn et al., 2013). Therefore, although psychological distress at baseline is a key indicator of future distress, the strategies applied in psycho-oncologic interventions may interact more closely with other client characteristics. A previous study found that a six-session, nurse-delivered, psychoeducation and decision support intervention, underpinned by a cognitive behavioral approach, was highly effective over the long term for young (younger than 65 years) well-educated men with localized prostate cancer; no benefits were reported for young men with lower education, who actually reported decrements in cognitive judgemental adjustment (Chambers, Ferguson, et al., 2012). Those researchers concluded that education level may reflect an aspect of psychological health literacy, such that patients with lower education may require metered and ongoing or specialist support to learn and apply strategies for stress management. The current data provide further support for the importance of considering education level in how psychological interventions are tailored and presents as an important area for future research.

Limitations of this study include the sampling frame: participants (patients and caregivers) already were active help seekers and, therefore, may have been more likely to use problem-solving coping strategies compared to people who did not contact such services. Specifically, a study group of distressed individuals who had not actively sought support may have responded differently to each study condition. However, on balance, a key issue in research is the failure of clinical interventions to translate out of the research setting and into practice, with ultimately little net gain for the community (Forsythe et al., 2013; Pirl, Jacobsen, & Deshields, 2013). The authors suggest that one way to address this problem is a pragmatic approach that mirrors real-world conditions as much as practical in the research design (Chambers, Hutchison, Clutton, & Dunn, 2013). Therefore, the research setting in the current study brought with it inherent limitations from a study design point of view—ecological validity is high. In addition, previous intervention research has been dominated by breast cancer samples (Faller et al., 2013), such that the mixed cancer sample is a further strength, as is the large sample size, preselection of distressed participants, inclusion of caregivers, and longer term follow-up.

In general, the greatest improvements in outcomes were seen for cancer-specific distress compared to general psychological distress. It may be that, although cancer-focused, low-intensity interventions are effective for cancer-specific distress, more long-term and in-depth psychotherapies are needed to shift expressions of anxious and depressive illnesses. This view is con-

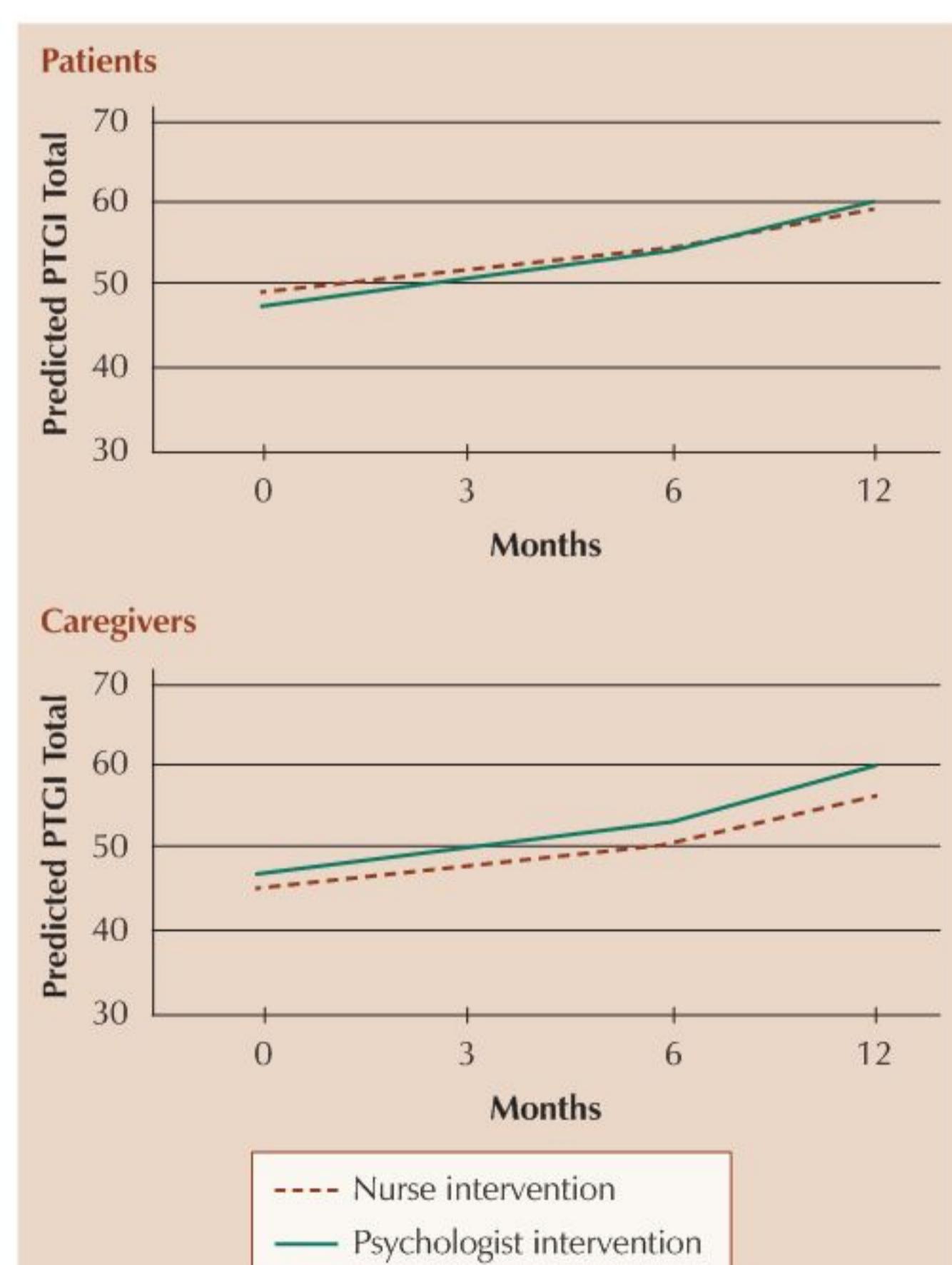


Figure 4. Predicted Posttraumatic Growth Inventory (PTGI) Total Trajectory for Patients and Caregivers by Intervention Type

Knowledge Translation

A single-session nurse self-management intervention has use as a psychosocial intervention for distressed patients with cancer and caregivers that can be readily integrated into services infrastructure.

Patients with low education attainment may require more metered and ongoing support to learn and apply stress management strategies.

Social indicators such as educational level require further consideration as key indicators of adjustment after cancer.

sistent with that of Faller et al. (2013), who suggested sustained improvements in these outcomes may require longer treatments. In the current study, post-traumatic growth increased for patients and caregivers over time with large effect sizes. Penedo et al. (2006) reported increases in benefit finding in men with prostate cancer who received a group-based cognitive behavioral stress management intervention, relative to controls, with these effects mediated by stress management skills. Deliberate rumination and cognitive processing about the cancer facilitated by supportive interactions are proposed as mechanisms by which post-traumatic growth may occur (Calhoun & Tedeschi, 1998; Martin & Tesser, 1996; Morris & Shakespeare-Finch, 2011). The current intervention may have aided growth through self-help materials prompting self-exploration in the context of supportive discussions with the nurse or psychologist.

Conclusion and Implications for Nursing Practice

Results from the current study have implications for oncology service providers. First, they suggest that many distressed patients with cancer and their caregivers may benefit significantly from a single-session nurse psychoeducation intervention that can be delivered by telephone and supported by high-quality self-

management materials. Second, a subgroup of patients, particularly those with lower education, may require more in-depth focused and long-term support from a mental health professional. Other variables (i.e., coping style or concurrent life stressors or comorbidities) also may influence the depth of psychological care that distressed patients with cancer or their caregivers will need to obtain a significant benefit. This underscores the call for oncology nurse researchers to play a prominent role in comparative research to further develop evidence-based, patient-centered care to improve quality of life outcomes (Ferrell, McCabe, & Levit, 2013). More research is needed to build a clearer understanding of the contexts in which different types of psychological care are most effective and to develop an algorithm that moves beyond distress as the only indicator for referral to specialist psychological services. The further evaluation of tiered approaches to confirm the efficacy of low-intensity care models in psycho-oncology is a nursing research priority with great potential for research translation and community benefit.

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