A review of stress management interventions for the oncology nursing workforce: What do we know and what should we be doing differently?

Oncology nurses are at risk of chronic stress. In this narrative review we provide an overview of stress management intervention studies for oncology nurses, and suggest that Acceptance and Commitment Therapy/Training (ACT) provides a better intervention framework due to the relevance of underpinning therapeutic processes (e.g. acceptance, mindfulness, values clarification) to the role and stress-related experiences of this workforce population. Current evidence for the effectiveness of stress management intervention varies, with few studies describing how theory informs intervention content, or justifying why they should benefit this population specifically. ACT lends itself to data-driven intervention development, thus potentially addressing some methodological limitations in this field. Only one trial has tested ACT in this population, reporting only partial effects. Further empirical research is required given (a) the applicability of ACT for this population and context, and (b) the associated advantages of brief and/or group delivery to address known barriers to participating in stress management interventions.

KEY WORDS
oncology nurses; stress management; intervention; ACT
BACKGROUND

The oncology setting is a stressful environment for patients, their families, and healthcare professionals (Jones, Wells, Gao, Cassidy, & Davie, 2013). Oncology care staff include (but are not limited to): oncologists, radiotherapists, social workers, clinical psychologists, and registered nurses with advanced practice in oncology (oncology nurses). Although each of these groups is at risk of work-related stress (Jones et al., 2013), this review focuses specifically on oncology nurses. The day-to-day role of oncology nurses varies significantly, from prevention to symptom management, acute care to palliative care, and treatment to rehabilitation (Wyatt & Hulbert-Williams, 2015). Given the diversity of this role, challenging and unpredictable situations occur frequently, often leading to the experience of occupational stress (Jones et al., 2013).

IMPORTANT CONCEPTS IN OCCUPATIONAL WELLBEING

‘Occupational stress’ encapsulates various psychological concepts such as burnout, secondary post-traumatic stress, vicarious traumatization, and compassion fatigue. Burnout and compassion fatigue are most commonly reported in this population and at high prevalence levels (Domagała & Gaworska-Krzemińska, 2018; Gomez-Urquiza, Aneas-López, Albedín-García, & Díaz-Rodríguez, 2016; De la Fuente-Solana et al., 2020). Burnout results from consistent exposure to elevated work-related stress, and is described as consisting of three factors: (i) emotional exhaustion (i.e. a state of being psychologically drained due to exposure to consistent stress), (ii) depersonalisation (i.e. a cynical approach towards the caring role) and (iii) reduced personal accomplishment (i.e. feeling less effective when caring for patients) (Maslach, 1982). Compassion fatigue, or the ‘cost of caring’ (Figley, 1995), refers to the reduction of compassion (i.e. sympathy towards the suffering of others, creating a desire to help) over time, and an increase in hopelessness with regards to carrying out a caring role. This is mainly due to caring for and constantly witnessing patients go through life-limiting illnesses and trauma (Joinson, 1992).

High levels of burnout and compassion fatigue have been reported globally in this population (Cheng, Meng, & Jin, 2015; Hooper, Craig, Janvrin, Wetsel, & Reimels, 2010; Potter et al., 2010; Sherman, Edwards, Simonton, & Mehta, 2006). Out of 153 oncology nurses in Potter et al.’s study (2010), 37% of inpatient staff reported experiences of compassion fatigue, and 44% reported high levels of burnout. Emotional exhaustion was high in Kutluturkan et al.’s (2016) sample of 140 oncology nurses, and, similarly, in a third of Guveli et al.’s (2015) Turkish sample (n = 159). A study of 216 American hospice nurses reported that around 80% of the sample were at high risk of compassion fatigue (Abendroth & Flannery, 2006). Oncology nurses have reported higher levels of burnout and compassion fatigue compared to other specialties such as emergency, intensive care, and nephrology nurses (Hooper et al., 2010; Ortega-Campos et al., 2020).

WHAT ARE THE CAUSES AND CONSEQUENCES OF BURNOUT AND COMPASSION FATIGUE FOR THIS WORKFORCE?

Barnard and colleagues (2006) list 50 stressors specific to the oncology setting, with a prevalence rate of over 50% within their sample of 101 oncology nurses. Significant positive correlations were found between those stressors and both emotional exhaustion and depersonalisation scores. High workload/caseload (Sherman et al., 2006; Wazqar, 2019), low job autonomy (Escot, Artero, Gandubert, Boullenger, & Ritchie, 2001), emotional demands of patients and their families (Isikhan, Gomez-Urquiza, & Danis, 2004; Wazqar, 2019), constantly dealing with illness and death (Ekedahl & Wengström, 2007; Florio, Donnelly, & Zevon, 1998), and difficult communication with patients (Corner, 2002) all serve to increase oncology nurse stress. These are further exacerbated by the pressures stemming from the current coronavirus pandemic (Abratt, 2020). Recurrent experiences of these stressors further increase risks of burnout and/or compassion fatigue (Alacacioglu, Yavuzsen, Diriroz, Oztop, & Yilmaz, 2009; Barnard et al., 2006; Corso, 2012).

Aware of these issues, oncology nurses have devised various coping strategies such as peer support, relaxation methods, personal/group reflection sessions, and positive personal/professional relationships (Florio et al., 1998; Huock, 2014; Wenzel, Shaha, Klimmek, & Krumm, 2011). As with many groups of highly stressed people, certain coping methods can be more damaging to health. The use of alcohol and other substances to reduce stress has been reported in this population (Wallace, Lemaire, & Ghali, 2009), which have negative implications for work productivity and the individual’s physical and psychological health. Other problematic consequences can include increased absenteeism (van Mol, Kompanje, Benoit, Bakker, & Nijkamp, 2015), and in many cases, highly stressed staff leaving their job prematurely (Bourdeau, Zhou, De Samper, Pericak, & Pericak, 2020; Wells-English, Giese, & Price, 2019), further increasing the problematic nurse shortage (Barrett & Yates, 2002). Consequently, staff shortages have a knock-on effect on job satisfaction and burnout in oncology nurses (Toh, Devi, & Ang, 2011).
Support packages and interventions to reduce stress are essential to good organisational functioning, but previous work suggests that oncology nurses are not provided with sufficient opportunities to participate in these, especially for compassion fatigue (Aycock & Boyle, 2009). Occupational health settings are increasingly emphasising preventative initiatives in the workplace. In the UK context, for example, there has been promotion of psychological health in National Health Service (NHS) staff in recent years (Boorman, 2009). Efforts to better understand predictors and experiences of chronic stress in oncology nurses are vital to this effort, as they can negatively impact on the standard and safety of patient care (Kumar & Bhalla, 2019; Zadeh, Gamba, Hudson, & Wiener, 2012).

Within the occupational stress literature, intervention packages can be categorised based on whether they are person-specific or organisational in nature (Reynolds, 2000). Person-specific interventions address those stressors specific to the individual, and the coping strategies used to combat these. Organisational packages target different aspects of work structure, such as teamwork, managerial responsibilities, caseload distribution, health and safety, and promotion of work-life balance.

A previous review of stress management interventions for general nursing samples (Mimura & Griffiths, 2003) identified that few intervention programmes are based on theoretically derived models or developed in response to specific stressors faced by nurses. They emphasise that future research should provide conceptual clarity about how and why interventions are developed. This is an important context in considering our review of the interventions which follow. To our knowledge, there is currently no detailed review of oncology nurse stress management interventions: we propose that such a review is especially important if we are to develop effective, theoretically driven interventions for this population. In undertaking such a review, we aim particularly to explore how Acceptance and Commitment Therapy/Training (ACT) may be a viable theoretical framework – as an alternative to the existing evidence base – given its conceptual fit and broader evidence base.

**REVIEW METHODS**

We undertook a narrative review of stress management intervention research in oncology nurses published over the past 15 years. Criteria for article inclusion stipulated that the work had to be: (i) empirically based (i.e. testing the effectiveness of an intervention), (ii) inclusive of a target sample of oncology nurses, and (iii) in the context specifically of occupational stress management outcomes. Nine empirical studies were thus identified. These studies were organised and discussed according to the type of intervention (i.e. educational or psychotherapeutic). Despite the prevalence of stress, surprisingly, few intervention studies have been recently published.

The second half of this paper offers a narrative review of the ACT framework and its potential utility for oncology nurse stress management. Additional literature on the use of ACT in different populations is provided to supplement this work.

## INTERVENTIONS TARGETED AT IMPROVING ONCOLOGY NURSE STRESS MANAGEMENT

Using Reynold’s (2000) dichotomy, published studies in the oncology nursing setting appear to use person-specific approaches (e.g. educational workshops, team-based development programmes, and psychotherapeutic approaches), typically in group-format delivery. This is likely due to the feasibility and cost efficiency of person-specific packages over organisational approaches, of which the latter generally require more resources and changes to infrastructure (Reynolds, 2000).

### INTERVENTION EFFECTIVENESS: WHAT DOES THE CURRENT EVIDENCE DEMONSTRATE?

Table 1 provides the key details from the studies investigating stress management interventions for oncology nurses. Onan, Isil, and Barlas (2013) and Udo, Danielson, Henoch, and Melin-Johansson (2013) both tested group-based educational interventions, reporting improvements in work-related stress levels, with Onan et al.’s (2013) participants also reporting significantly improved levels of emotional exhaustion after training. Only the effects on work-related stress were maintained to one-month follow-up, but unfortunately no control condition was included for comparison in Onan et al.’s (2013) study design. For Udo et al.’s (2013) findings, the decreased stress levels were related to workload and less feeling of disappointment at work, but the effects were not statistically significant. Le Blanc, Hox, Schaufeli, Taris, and Peeters (2007) and Kravits, McAllister-Black, Grant, and Kirk (2010) also used education-based interventions to target reduction in emotional exhaustion and depersonalisation. Both studies reported significant improvements in both outcomes, but only Le Blanc et al.’s (2007) study reports medium to high effects on emotional exhaustion being maintained at 6-month follow-up. Further, out of the education-based interventions in this review, only Le Blanc and colleagues (2007) include a wait-list control condition, allowing for their findings to account for regression to the mean and potential confounding variables. Kravits et al. (2010) do not
Table 1
Intervention studies investigating stress management for oncology nurses

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Country</th>
<th>Design</th>
<th>Participants; sample size (n)</th>
<th>Intervention information</th>
<th>Control group (YES/NO)</th>
<th>Assessment information (including time frames)</th>
<th>Effect size interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onan et al. (2013)</td>
<td>Turkey</td>
<td>Quasi-experiment</td>
<td>Oncology nurses; n = 30</td>
<td>Coping skills intervention; nine 90-minute sessions</td>
<td>NO</td>
<td>Outcomes: stress, ways of coping, and burnout. (Pre- and post-intervention, 1-month follow-up)</td>
<td>Not reported</td>
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<tr>
<td>Udo et al. (2013)</td>
<td>Sweden</td>
<td>Mixed-methods quasi-experiment</td>
<td>Oncology nurses; n = 42</td>
<td>Educational intervention on existential issues; five 90-minute sessions</td>
<td>YES – non-educational group</td>
<td>Outcomes: Attitudes towards caring for patients feeling meaningless scale, sense of coherence scale. (Post-intervention and 6-month follow-up)</td>
<td>Not reported</td>
</tr>
<tr>
<td>Le Blanc et al. (2007)</td>
<td>Netherlands</td>
<td>Longitudinal quasi-experiment</td>
<td>Physicians, oncology nurses, radiotherapy assistants; n = 664</td>
<td>Team-based burnout programme targeting various concepts (e.g. decision making, social support, problem solving); six monthly 3-hour sessions</td>
<td>YES – received no intervention at all</td>
<td>Outcomes: Burnout (emotional exhaustion and depersonalization), social support, decision making participation, job control, job demands. (Pre- and post-intervention, 6-month follow-up)</td>
<td>Small negative relationships ($B = -0.06$ to $-0.18$) between all outcomes, apart from a medium to strong positive association between workload and emotional exhaustion</td>
</tr>
<tr>
<td>Kravits et al. (2010)</td>
<td>USA</td>
<td>Mixed-methods</td>
<td>Oncology nurses; n = 248</td>
<td>One 6-hour psycho-educational programme on self-care strategies</td>
<td>NO</td>
<td>Outcomes: burnout, Draw-a-Person-in-the-Rain Art Assessment (PIR) to measure interaction between stressors and coping resources to augment burnout scores. (Pre- and post-intervention)</td>
<td>Not reported</td>
</tr>
<tr>
<td>Potter et al. (2013)</td>
<td>USA</td>
<td>Descriptive pilot study</td>
<td>Oncology nurses; n = 14</td>
<td>Compassion fatigue resiliency programme; four 90-minute sessions</td>
<td>NO</td>
<td>Outcomes: Burnout, compassion fatigue, impact of events, nursing job satisfaction. (Pre- and post-intervention, 3 and 6-month follow-ups)</td>
<td>Not reported</td>
</tr>
</tbody>
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(Table 1 continues)
### Table 1 (Table 1 continued)

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Country</th>
<th>Design</th>
<th>Participants; sample size ((n))</th>
<th>Intervention information</th>
<th>Control group ((YES/NO))</th>
<th>Assessment information (\text{including time frames})</th>
<th>Effect size interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohen-Katz et al. (2005)</td>
<td>USA</td>
<td>Randomised-controlled trial</td>
<td>Oncology nurses; (n = 27)</td>
<td>Mindfulness Based Stress Reduction; eight weekly 2.5-hour sessions</td>
<td>YES – waitlist condition</td>
<td>Outcomes: Burnout, emotional exhaustion, psychological distress. Process measure: Mindfulness Attention Awareness Scale. (Pre- and post-intervention, 3-month follow-up)</td>
<td>Not reported</td>
</tr>
<tr>
<td>Duarte and Pinto-Gouveia (2016)</td>
<td>Portugal</td>
<td>Non-randomised controlled study</td>
<td>Oncology nurses; (n = 48)</td>
<td>Mindfulness Based Stress Reduction; six weekly 2-hour group sessions</td>
<td>YES – waitlist condition</td>
<td>Outcomes: Professional quality of life; depression, anxiety and stress; self-compassion. Process measures: psychological inflexibility and mindfulness. (Pre- and post-intervention, no follow-up)</td>
<td>Medium to large effects ((d \text{ values not presented in the paper})) on stress, burnout and compassion fatigue</td>
</tr>
<tr>
<td>Villani et al. (2013)</td>
<td>Italy</td>
<td>Randomised-controlled trial</td>
<td>Oncology nurses; (n = 30)</td>
<td>Stress Inoculation Training (SIT) through mobile phone application; 8 sessions over 4 weeks</td>
<td>YES – neutral video clips, presenting natural landscapes, without any narrative</td>
<td>Outcomes: stress, anxiety, coping and job content. (Pre- and post measures after each session)</td>
<td>Not reported</td>
</tr>
<tr>
<td>Poulsen et al. (2015)</td>
<td>USA</td>
<td>Randomised-controlled trial</td>
<td>Radiation therapists and oncology nurses; (n = 70)</td>
<td>One-day educational workshop on recovery-related self-care practices</td>
<td>YES – written educational information only</td>
<td>Outcomes: recovery, satisfaction with self-care practices, perceived sleep quality. (Pre-intervention, then every week for a 6-week period)</td>
<td>Medium significant effects ((d = .72 \text{ to } .77)) observed for all outcomes at six-week follow-up</td>
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provide an interpretation of the strength of the effect sizes, and neither study includes process measures to examine whether their chosen intervention content is responsible for the reported changes in outcome scores. There were also post-intervention reports of reduced personal accomplishment in Kravits et al.'s (2010) study, which is surprising given that they improved scores of emotional exhaustion and depersonalisation. The authors note that this may be due to participants feeling more comfortable reporting their true feelings of personal accomplishment after the intervention, leading to the observation of lower scores, though no supporting data (e.g. qualitative feedback) are presented to corroborate this claim. Compassion fatigue and burnout were the focus of Potter et al.'s (2013) research. Although scores in these outcomes improved after the intervention, and were further reduced at six-month follow-up, only compassion fatigue scores showed a significant improvement from baseline to six-month follow-up. No effect on burnout was observed at any time-point.

Taking a more psychotherapeutic stance, Cohen-Katz, Wiley, Capuano, Baker, and Shapiro (2005) tested mindfulness-based stress-reduction intervention (MBSR), reporting significantly improved emotional exhaustion which was maintained at the three-month follow-up. However, no significant improvement in depersonalisation was reported, implying that MBSR has limited effects on this sub-construct within burnout. The clinical utility of the findings is also limited due to no effect sizes being reported in the study. Duarte and Pinto-Gouveia (2016) also tested MBSR and reported post-intervention effects on stress, burnout and compassion fatigue; the effects were medium to large, but no longer-term follow-up was included in the study design. This can make one question the applied relevance of these findings (e.g. providing an arguably lengthy intervention to time-limited nurses) due to the lack of indication for maintenance. Interestingly, however, Duarte and Pinto-Gouveia (2017) did later report that improvements in stress, burnout and compassion fatigue were statistically mediated by changes in psychological inflexibility; we will come to the relevance of this finding shortly.

Villani et al. (2013) successfully improved anxiety levels and coping skills through a mobile phone delivered Stress-Inoculation Training intervention. Scores were not assessed at follow-up, but pre-to-post intervention scores were statistically significantly improved compared to control participants. This study did not, however, include an explicit outcome measure of stress, which seems a curious design choice given the focus of this work. Poulsen, Sharpley, Baumann, Henderson, and Poulsen's (2015) study also lacks an explicit stress outcome measure(s); however, significant improvements were observed in recovery experiences (relating to relaxation, self-control, psychological detachment and mastery), satisfaction with general self-care practices (presumably physical and psychological self-care, though this is not clear), and perceived sleep quality. Medium effect sizes across all outcomes were maintained at six-week follow-up. The applied relevance of these findings to oncology nurse stress management specifically is, however, limited due to the selection of proxy outcomes.

In summary, the intervention studies described above and in Table 1 have reported varied findings across a range of outcomes, but the overall picture is not an entirely clear or conclusive one. Three out of the nine studies did not include measures that target important stress-related concepts (e.g. burnout and compassion fatigue), and so their applied relevance to stress management remains somewhat ambiguous. From this sample of studies, psychotherapeutic interventions seem to produce the most promising results, and they are also methodologically stronger given that: (i) all of them include control groups in their design; (ii) interpretation of effect sizes is more frequently reported (2 out of the 4 studies presented effect sizes); (iii) none of the studies testing psychotherapeutic interventions report negative effects (e.g. the reduced personal accomplishment scores observed in Kravits et al.'s (2010) educational intervention); and (iv) they generally include process measures to determine whether the intervention is performed as intended, allowing us to probe for the mechanisms leading to change in primary outcomes. This final point is particularly important in intervention research, especially in the current zeitgeist of process-based interventions (Hofmann & Hayes, 2018). However, even in those cases where improvements are observed, the lack of follow-up in three out of nine studies (e.g. Duarte & Pinto-Gouveia, 2016; Villani et al., 2013) often renders us unable to conclude whether the reported salutary effects last beyond the intervention sessions.

**WHY ACT MIGHT BE A HELPFUL ALTERNATIVE**

We were not surprised to find a small number of mindfulness-based intervention studies given that these have also been widely used for stress management in non-oncology nursing populations (Craigie et al., 2016; Delaney, 2018; Foureur, Besley, Burton, Yu, & Crisp, 2013; Lomas, Medina, Iv tzan, Rupprecht, & Eiroa-Orosa, 2018; Mackenzie, Poulin, & Seidman-Carlson, 2006; Watanabe et al., 2019). However, previous research has shown that mindfulness-based interventions may have limited long-term effectiveness for stress management in general populations, and in some instances are equally as effective as other approaches such as relaxation programmes (Chiesa & Serretti, 2009). An approach which builds on this limited effectiveness base, with the addition of other therapeutic processes as part of a broader interven-
tion framework, might, therefore, be a wise starting point. For example, creating a drive to want to manage stress via the appetitive function of values-based processes (e.g. clarifying the importance of self-care as a motivator to engage in stress management behaviours), as seen in ACT (Hayes, Strosahl, & Wilson, 2011), may function to promote longevity of the intervention effect by increasing engagement in stress management skills (such as mindfulness) in the long term. Mindfulness-based skills may produce short-term benefits, but commitment to values could make participants feel more inclined to engage with the skills beyond the training – a hallmark of long-term behavioural change. The appetitive nature of values selected by clients makes them intrinsically rewarding; thus engaging in values-congruent behaviours (e.g. self-care) would be reinforced and, over time, become more fluent (Luoma & Platt, 2015). Values-based processes are not targeted in traditional MBSR, thus justifying the use of more complex, theoretically grounded, intervention approaches.

ACT, being one such framework, is informed by Relational Frame Theory (Hayes, Barnes-Holmes, & Roche, 2001), thus having a strong evidence base for including specific intervention components. ACT explores how verbal (thought) content and cognitions can maintain an individual’s negative behaviour and thoughts. ACT has been investigated across many different contexts, including (but not limited to) therapy for psychopathology (Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009; Ruiz, 2010), interventions for health behaviour change (Forman, Butryn, Hoffman, & Herbert, 2009; Heffner, Eifert, Parker, Hernandez, & Sperry, 2003; Hernández-López, Luciano, Bricker, Roales-Nieto, & Montesinos, 2009; Lillis, Hayes, Bunting, & Masuda, 2009) and, specific to this review, for stress in the workplace setting (Dahl, Wilson, & Nilsson, 2004; Flaxman & Bond, 2010b). Although ACT has been promoted as suitable for use in the cancer setting (Hulbert-Williams, Storey, & Wilson, 2015), its application typically focuses on patients rather than care staff.

ACT aims to promote psychological flexibility, i.e. the ability to fully contact the present moment, and the thoughts, feelings and emotions it contains in a non-judgemental manner, and to continue or alter behaviour in pursuit of values-based living (Hayes et al., 2011). Psychological flexibility is widely identified as crucial in the maintenance of healthy psychological wellbeing, especially within a work context (Lloyd, Bond, & Flaxman, 2013; Puolakanhoh, Toivanen, Kinnunen, & Lappalainen, 2020). It is a means to overcome the detrimental effects of experiential avoidance – the attempt to avoid negative private events (e.g. feelings, emotions, thoughts etc.), even when doing so can lead to behavioural complications in the long run (Hayes et al., 2011). Experiential avoidance is argued to both increase and maintain psychological distress, and negatively influence effective behavioural activation (i.e. engagement in activities which improve mood) (Kashdan, Barrios, Forsyth, & Steger, 2006).

Experiential avoidance is identified as a risk factor within the workplace and should be targeted in preventive interventions (Bond & Donaldso-Feilder, 2004). Significant medium positive correlations have been found between experiential avoidance and de-personalisation and emotional exhaustion in Spanish critical care nurses (Iglesias, de Bengoa Vallejo, & Fuentes, 2010), and post-traumatic stress symptoms in palliative care staff (O’Mahony, Gerhart, Grosse, Abrams, & Levy, 2015). The Experiential Avoidance in Caregiving Questionnaire (Losada, Márquez-González, Romero-Moreno, & López, 2014) illustrates the awareness of this concept in the healthcare field. ACT is, therefore, recommended as a promising preventive strategy (Biglan, Hayes, & Pistorello, 2008), since the promotion of psychological flexibility is the key outcome. Nonetheless, ACT is not currently being widely used as a stress management approach in oncology caregiving populations. In our scoping searches, we identified only one intervention study that tested ACT for oncology nurses. Habibian, Sadri, and Nazmiyeh (2018) delivered a group-based ACT intervention (four 1.5-hour sessions) to 60 paediatric oncology nurses and special disease nurses (intervention condition, n = 30; control group, n = 30) using a randomised controlled trial (RCT) design. The control group received ‘communication skills’ that were unrelated to ACT, but no further details on this content were provided. Significant improvements were found in job stress scores compared to controls, with these large effects being maintained at three-month follow-up. However, no significant improvements in burnout were found for either condition after the intervention. Surprisingly, no process measure was included, making it impossible to determine whether the theorised intervention processes had a causal effect on the observed improvements in stress.

ACT can be presented visually using the ‘Hexaflex’ model (Figure 1). To briefly summarise, six core processes are theoretically linked to one another with the aim of promoting psychological flexibility (Hayes et al., 2011). It is important to note that each core process is considered a positive psychological skill – a technique aimed at helping participants engage with both positive and negative internal content to promote mental wellbeing – and not merely a method to avoid or reduce symptoms of psychopathology.

Cognitive defusion is defined as a process which allows an individual to create a context in which their present thoughts and feelings do not excessively regulate their actions or behaviour (Hayes et al., 2011). In a ‘defused’ state, goals and values can exert more control over behaviour, compared to a ‘fused’ state where emotional content exerts control over...
behavioural activation. For example, a nurse could narrate the different thoughts that flow through their mind after a difficult patient experience in order to create some ‘psychological distance’ between themselves and the thoughts. *Self-as-context* is an awareness of one’s own experiences (past and present) without attachment to them – in a way, defusion applied to self-concept. This allows an individual to understand their role as an observer to thoughts and emotions, rather than allowing these experiences to contain them and define their self-concept (Hayes et al., 2011). One might use the ‘Classroom metaphor’ (Stoddard & Afari, 2014) to illustrate this, whereby the school classroom is the container of our different positive and negative internal content (depicted as pleasant and ill-disciplined students), as well as the critical or praising approach we have towards that content (i.e. the ‘teacher’ role). The classroom is the perspective we can take in self-as-context, whereby we are simply the vessel in which those experiences occur, allowing one to observe experiences without judgment.

*Contact with the present moment* through mindfulness training is central to ACT. Mindfulness is a process of purposely paying attention to the present moment (e.g. what a person can see, hear, touch, etc.), including to those aspects of the human experience – thoughts, emotions and so forth. Often when we are feeling stressed, our cognitive attention is focused more on future worries or rumination over past experiences; our emotional state is tied to that worry in a subjectively appraised way that might bring distressing feelings of guilt or self-blame. Mindfulness training offers the ability to know when their conscious attention is not focused on present-moment experiences, and tools to then return it to that state of being in a non-judgmental manner (Kabat-Zinn, 1990). In ACT, mindfulness is a crucial skill to then allow for the training of an *Accepting mindset*. Often defined as the opposite of experiential avoidance, this state of being is where we train clients to be fully accepting of present moment experiences, even when these might not be desirable. Mindfulness can often feel very easy when the content of the present moment is pleasant and desirable, but when internal content is more personally challenging, there is an increased drive towards experiential avoidance. Acceptance training offers techniques to appreciate that distressing psychological content is just as important to the human experience and should equally be approached and experienced in this non-judgemental manner (Hayes et al., 2011). In oncology nursing, this might involve being open to and exploring not just the patient’s distress regarding illness or death, but also noticing the distress that they themselves can experience.

*Figure 1. Acceptance and Commitment Therapy, illustrated using the Hexaflex model (adapted from Hulbert-Williams et al., 2015).*
Values are defined as “ongoing patterns of activity that are actively constructed, dynamic, and evolving” (Wilson, Sandoz, Kitchens, & Roberts, 2010, p. 252) that individuals can work towards, and which may facilitate goal setting. A common shared value for oncology nurses might be ‘compassion’, which provides an overarching purpose to the patient care they provide. At the technical level, values are verbally constructed ‘rules’ that motivate an individual to act in a way that is meaningful to them and are especially important in supporting continued action (rather than avoidance) in the state of psychological suffering. In a related psychological process, where an individual makes choices (day-to-day or larger life goals) in a way that is congruent with their personal values, they are more likely to recognise that their lives have ‘meaning’ (Plumb, Stewart, Dahl, & Lundgren, 2009).

After an individual clarifies values for different areas of their life, the final component of ACT is to train individuals to make choices (day-to-day or larger life goals) in a way that is meaningful to them and are especially important in supporting continued action (rather than avoidance) in the state of psychological suffering. In a related psychological process, where an individual makes choices (day-to-day or larger life goals) in a way that is congruent with their personal values, they are more likely to recognise that their lives have ‘meaning’ (Plumb, Stewart, Dahl, & Lundgren, 2009).

After an individual clarifies values for different areas of their life, the final component of ACT is to train skills which encourage a client to pursue or ‘commit’ to specific actions (e.g. clearly communicating empathy in the presence of a distressed patient) that will help bring those values to life – a process called committed action.

**PSYCHOLOGICAL FLEXIBILITY AND ITS RELEVANCE TO THE ONCOLOGY NURSING SETTING**

Richardson, Hug, Jesse, Connors, and Schwartz (2015) demonstrated the empirical link between cognitive fusion and self-compassion in USA-based medical students (n = 52): a significant medium negative correlation was reported between cognitive fusion and self-compassion. By promoting cognitive defusion, therefore, ACT interventions have the potential to increase self-compassion, which is known to improve psychological health (Neff, Kirkpatrick, & Rude, 2007), and has relevance to healthcare settings by improving standards of patient care (Wiklund Gustin & Wagner, 2013). In a similar, UK-based cross-sectional study, cognitive defusion negatively correlated with perceived stress, burnout and compassion fatigue, with moderate-to-strong effects, in a sample of 142 National Health Service-based nurses (Kent, Hochard, & Hulbert-Williams, 2019). Furthermore, all of the ACT processes together accounted for large proportions of variance in perceived stress, burnout, compassion fatigue and compassion satisfaction ($R^2$ range = .36-.61), above and beyond what explained by demographic or work-related variables (e.g. relationship status or years or experience). Acceptance, mindfulness and values-based processes were frequent independent contributors to the variance explained in these chronic stress outcomes, highlighting their importance in nurse-focused stress management interventions. Self-as-context was also significantly predictive of lower perceived stress, but was not a significant predictor for burnout or compassion fatigue. Despite this, self-as-context may still be an important stress management component; for example, nurses who are fused with a self-as-content narrative that they should be able to cope with stress because they are caring and compassionate people (for others) may be more at risk of suffering the negative effects of stress. Fusion with this self-content may consequently lead to minimisation of the stress experience or a reluctance to seek help, which, in the long term, may elevate risks for chronic stress. Cognitive defusion techniques may help by providing separation between this self-as-nurse narrative, and the experiencing self in the present moment (i.e. noticing thoughts and feelings as a conscious stream of events and being guided by one’s values). It is worth noting that relationships between therapeutic process predictors and these various outcomes likely have a temporal element: addressing levels of perceived stress first may in turn help to reduce risks of developing burnout and compassion fatigue, though this requires longitudinal investigation.

Acceptance has been reviewed in relation to coping strengths in informal caregivers of patients with terminal illness and dealing with bereavement (Davis, Deane, & Lyons, 2015): two issues relevant to the oncology setting. Davis and colleagues (2015) proposed an ACT-based model for volunteer caregivers specifically aimed at acceptance of unwanted thoughts/feelings associated with grief and fear of death, and addressing communication difficulties. Volunteer caregivers have been found to report similar stressors to employed oncology nurses (Hulbert & Morrison, 2006); thus these ideas have applications to this population. Acceptance skills could help oncology nurses to engage in effective care and communication, even in the presence of their own and patients’ suffering (da Fonte Sousa Gomes, dos Santos, & da Mata Almeida Carolino, 2013). Where acceptance is lacking, nurses may instead avoid present-moment experiences of the more distressing parts of their job in the misguided assumption that this will reduce its vicarious effects. Given that this is a known risk factor for compassion fatigue development (Figley, 1995), intervention strategies that overcome this kind of experiential avoidance are hugely important.

Various research supports mindfulness as an effective component in nurse stress management (Bazarko, Cate, Azocar, & Kreitzer, 2013; Mackenzie et al., 2006). Cohen-Katz et al.’s (2005) and Duarte and Pinto-Gouveia’s (2016) studies reviewed previously demonstrate the utility of mindfulness for oncology nurses. Comparatively, a mindfulness-based intervention incorporating values-clarification exercises has been investigated for burnout, depression and post-traumatic stress in USA-based palliative care professionals (n = 17; Gerhart et al., 2016). Significant...
reductions were found for depressive symptoms and
depersonalisation, demonstrating large effect sizes,
but no control group was included for comparison,
and no follow-up was implemented to explore the
maintenance of effect. Importantly, however, signifi-
cant reductions in cognitive fusion and experiential
avoidance were also present, providing tentative evi-
dence for these processes as potential mechanisms
of change. The importance of compassion identity
in oncology nurses (i.e. evaluating internal coping
resources for the stress of caring for the chronically
ill and dying; Corso, 2012) has been examined with
regards to mindfulness. From an ACT perspective,
we might define this as using mindfulness skills to
defuse from both fixed coping methods and a fused
identifies mindfulness as crucial to oncology nurses’
role, as they require constant self-awareness and
monitoring of their compassion identity. By freeing
up an oncology nurse from ‘fusion’ and allowing de-
velopment of this compassion identity, not only may
stress be reduced, but it may also allow an oncology
nurse to attend to each patient’s unique needs more
effectively, improving the standard of care provided
(Raab, 2014).

Cross-sectional research with Chinese oncol-
yogy nurses indicated that perceptions of a nurses’
role being important and valuable is related to im-
proved job satisfaction and lower scores of burnout
(Cheng et al., 2015). This observation may be ampli-
ﬁed through deliberate use of values clariﬁcation in
intervention studies. Raingruber and Wolf (2015) as-
essed the unique role of oncology nursing, identiﬁ-
ing three main themes involved in sustaining these
health carers: (i) importance of vulnerability and
thankfulness in patients, (ii) feeling of being spiritu-
ality associated with oncology nursing practice, and
(iii) the value of being in the moment and recognising
priorities as meaningful aspects of oncology nursing.
These themes naturally align with an ACT-informed
definition of values. A similar ﬁnding was reported
nurses and their patient(s) were found to develop
a special connectedness, requiring them to approach
both death and illness directly. Doing this effectively
requires the nurses to engage with this psychologi-
cally challenging content, and in doing so, might
require reﬂection on their own values, meaning and
purpose. Although often done for patient beneﬁt, this
psychological work might also beneﬁt the oncology
nurse by providing an additional stress management
coping mechanism (Van Rooyen et al., 2008).

ACT may, therefore, be even more suited to ad-
dressing chronic stress in oncology nurses com-
pared to other purely mindfulness-based approaches
(e.g. MBSR or Mindfulness-Based Cognitive Therapy)
because of its added emphasis on values-driven be-
behaviour. Values enable an individual to endure stress
and other sources of psychological suffering (Bond,
Hayes, & Barnes-Holmes, 2006), and so present a per-
tinent intervention target. In preventing compassion
fatigue in oncology nurses, Corso (2012) suggests
that interventions should train participants to "pay
attention to the people and activities that nurture
your mind, body and spirit. Commit to making time
to increase those interactions or activities" (Corso,
2012, p. 449). Corso is not writing from a pro-ACT
perspective, but the links between this quote and the
committed action component within ACT are clear.

Based on this literature, we suggest that the core
features of the ACT model make it highly relevant
to the context and nature of the oncology nursing
environment. Burnout prevention approaches which
focus on the relationship between the individual and
the situational stressor have long been considered as
most effective (Maslach & Goldberg, 1998). ACT does
so by modifying how an individual relates to their
environment and experiences, rather than attempt-
ing to change or reduce the stressor. This is an im-
portant outcome goal given that the frequent stressors
reported by this group are often not changeable; it
thus makes sense to instead intervene on how one
responds to (a) the presence and (b) the non-change-
ability of those stimuli (Blakedge & Hayes, 2001).
This reconceptualization of stress appraisal offers
a more workable approach compared to an ‘avoid-
ant’ stance to dealing with stressful situations (Butts
& Gutierrez, 2018), which are, in most cases, un-
avoidable as part of the job.

ACT implements a ‘uniﬁed model’ (Hayes et al.,
2011), in that all of the components theoretically
interact to increase psychological ﬂexibility. Conse-
quentially, ACT protocols are likely more participant-
friendly as each exercise or session naturally leads on
to the other (e.g. the importance of ﬁrstly adopting
an open and accepting approach to internal content
in order to more effectively focus on the present
moment; Flaxman, Bond, & Livheim, 2013). This allows
for a more comprehensive understanding of the dif-
ferent stress management skills which may help to
avoid participant attrition (Richardson & Rothstein,
2008). Encouragingly, and perhaps consequently,
a meta-analysis published last year reported that
dropout rates were lower for ACT interventions
(17.35%) compared to comparison conditions (18.62%)
(Karekla, Konstantinou, Ioannou, Kareklas, & Glo-
stier, 2019). ACT has been widely developed in group
and/or brief format (Strosahl, Robinson, & Gustav-
son, 2012), for example, web-based interventions, and
1-2 hour workshops. This could be a suitable solution
for oncology nurses who regularly face barriers to
research participation, such as workload (Roxburgh,
2006). ACT is amenable to delivery through coach-
ing (e.g. skills training rather than ‘therapy’; Hulbert-
Williams et al., 2016), which may make participation
in interventions more acceptable and less stigmatis-

William Kent, Nicholas J. Hulbert-Williams, Kevin D. Hochard
ing. Furthermore, there is now an abundance of process measures that allow for evaluation of the different components within intervention studies; of all available theoretical frameworks for psychological interventions, this model thus lends itself to a greater extent to high quality designs incorporating mediation and process modelling of intervention components. Examples include the work-related Acceptance and Action Questionnaire (Bond, Lloyd, & Guenole, 2013) to measure psychological flexibility in a work context, or the Valued-Living Questionnaire (Wilson et al., 2010) to measure the values component.

**ACT INTERVENTIONS FOR EMPLOYEE WELLBEING IN NON-ONCOLOGY HEALTHCARE SETTINGS**

That there was only one study on ACT for oncology nurses surprised us. However, a further rationale for the use of this framework can be found in the evidence in other organisational contexts (Bond & Bunce, 2000; Flaxman & Bond, 2010a, 2010b). Research in the healthcare professional setting is still limited, though there are relevant studies testing benefits for various groups in the caring professions. For example, using an observational design, Pakenham (2015) investigated cross-sectional correlations between ACT processes (values, acceptance, mindfulness, thought suppression) and adjustment outcomes (e.g. stress and psychological distress) in clinical psychology trainees ($n = 116$): higher scores on acceptance and values measures, and lower scores on thought suppression, were each related to lower work-related stress (small effects) and psychological distress (small effects).

Two RCTs of ACT with qualified (O’Brien et al., 2019) and student nursing samples (Frögéli, Djordjevic, Rudman, Livheim, & Gustavsson, 2015) reported significant reductions in mental health symptoms (medium effects), perceived stress (large effects), and burnout (large effects) when compared to both waitlist and treatment-as-usual controls. The lengthy follow-up in Frögéli et al.’s study (2015) allowed them to further demonstrate that improvements in perceived stress at one-year follow-up were significantly mediated by change in experiential avoidance during the intervention (i.e. from baseline to the end of the sixth session), indicating that the effects lasted well beyond the training sessions (Frögéli, Rudman, & Gustavsson, 2019). O’Brien et al. (2019) found that their nurses reported significantly fewer days (medium effect size) missed due to injury (e.g. musculoskeletal complaints), implying that ACT has potential positive implications for both the psychological and physical health of nurses.

Brinkborg, Michanek, Hesser, and Berglund’s (2011) ACT RCT with 106 Swedish social workers found that, compared with wait-list controls, a significant difference was found in those participants who presented high stress at baseline (> 25 on the Perceived Stress Scale), with 42% of the intervention condition showing clinically significant post-treatment change (i.e. classified as ‘recovered’ and defined using a cut-off point supplemented by Swedish norm data on stress levels), compared to only 11.5% of the control group. This was coupled with statistically significant improvements in burnout and general mental health. Similarly, McConachie, McKenzie, Morris, and Walley’s (2014) study with intellectual disability support staff found significantly reduced distress (medium-to-large effects) and thought suppression (medium effects) in their ACT intervention participants compared to wait-list controls, with more pronounced effects being observed in those participants presenting higher psychological distress at baseline (i.e. six weeks before post-intervention measures). These findings concur with Reeve, Tickle, and Moghaddam’s (2018) meta-analysis of ACT for burnout in mental health professionals, which concluded that ACT is particularly useful for those staff members who present high levels of distress at baseline. This means that, even for those participants at greater risk of chronic stress and other related variables (e.g. distress), ACT is likely to produce salutary effects of clinical significance.

Importantly, the use of ACT process measures allowed the researchers to examine whether intervention effects were mediated by changes in the underlying theoretical components being targeted. For example, Frögéli et al.’s (2015) study demonstrated that increases in psychological flexibility and mindfulness were distinctly predictive of decreases in perceived stress and burnout scores in their student nurse participants. McConachie et al. (2014) reported a significant reduction in thought suppression between post-intervention and follow-up observations in their intervention group, leading to decreased reduction in psychological distress. This latter finding is especially important as thought suppression is actively encouraged in some other intervention frameworks (e.g. traditional CBT approaches), suggesting that these may actually increase the risk of work-related distress.

**IMPLICATIONS FOR FUTURE RESEARCH**

The stress management interventions for oncology nurses discussed herein offer varied results, with the overall picture not being entirely clear or conclusive. Psychotherapeutic interventions appear to provide the most promising results compared to educational approaches, in terms of efficacy and methodological robustness. A comprehensive review of this literature
would not be complete without a critical review of the methodology. Word space precludes us spending too much time on this; however, there are some important limitations in previous work that are worth highlighting and considering for future study design.

LESSONS TO BE LEARNED: METHODOLOGICAL LIMITATIONS OF CURRENT INTERVENTION STUDIES

Firstly, the general under-reporting of effect sizes across the literature considerably hinders both the interpretation and applicability of intervention findings. Stress management interventions aim to be both preventative and reactive. Thus, to effectively demonstrate these qualities, studies must report long-lasting intervention effects (i.e. robust effect sizes of clinical significance at follow-up). Such effects would imply that participants learn to use self-care skills and incorporate them beyond the duration of the study: a hallmark of lasting behaviour change. However, we recognise that the interpretation of these effect sizes may be confusing due in part to the variability in reporting effect sizes, and the different (or lack of, e.g. Duarte & Pinto-Gouveia, 2016) follow-up periods and outcome measures which are incorporated across studies.

Control groups are an important quality indicator for intervention research (Street & Luoma, 2002). They can be used to (i) examine if an intervention affects a desired outcome beyond what would naturally occur over the course of the study; and (ii) to establish that changes in the outcome are not caused by extraneous variables associated with the participant (e.g. capability to deal with the problem, or readiness to change) (Street & Luoma, 2002). Whilst some studies on stress management for oncology nurses use control conditions, many tend to be either wait-list groups (Cohen-Katz et al., 2005; Duarte & Pinto-Gouveia, 2016) or control groups which received no ‘intervention’ at all (e.g. Le Blanc et al., 2007). Some studies report greater effects in their intervention than the mere passage of time (i.e. a wait-list group), but it is often difficult to measure what specifically is happening for the control group, making comparisons between the conditions difficult. Only a small handful of studies reviewed here (e.g. Habibian et al., 2018; Poulsen et al., 2015; Udo et al., 2013; Villani et al., 2013) used active control groups – conditions which received ‘neutral’ exercises/sessions, often referred to as ‘psychosocial placebos’ – and it is these studies which are able to demonstrate greater control over non-specific factors (e.g. therapist competence), thus concluding with more confidence that differences in observed outcomes between the groups are more likely due to the intervention effects (Street & Luoma, 2002).

Intervention length is an important consideration too; attrition rates are typically higher in longer intervention studies, which can lead to potential bias, and have detrimental effects on the internal/external validity of results (Barry, 2005). In the current literature, many of the studies report attrition rates (though Villani et al., 2013 did not), and most of these are relatively low (e.g. \( n = 4 \) in Cohen-Katz et al., 2005), even when their intervention could be considered lengthy in this setting (eight 2.5-hour weekly sessions in Cohen-Katz et al.’s, 2005 case). Some studies, however, do report higher attrition rates, which becomes especially problematic where baseline sample sizes are also small (e.g. Onan et al., 2013; Poulsen et al., 2015; Udo et al., 2013). Whilst explanations for their attrition rates are often provided, some of which cannot be controlled for (e.g. maternity leave; Onan et al., 2013), the majority are due to incomplete data sets and/or participants not completing all of the intervention sessions. This is likely due to busy work schedules (Walczak, McGuire, Haisfield, & Beezley, 1994), which, although reasonable, leaves little room for statistical control of these potentially confounding effects. This further emphasises a need for briefer intervention packages in the future. ACT is useful in this context due to its versatility (e.g. group-based delivery; Walser & Pistorello, 2004) and ability to produce promising effects with intervention packages as brief as 1-2 hours (see Strosahl et al., 2012 for a detailed overview).

Many published interventions do not use (or clearly justify and explain) empirically validated principles or frameworks which inform intervention components. This is especially the case with educational interventions (e.g. Le Blanc et al., 2007; Poulsen et al., 2015; Udo et al., 2013), compared with psychological interventions (e.g. Cohen-Katz et al., 2005; Habibian et al., 2018). The former generally lack a detailed rationale for how that intervention package has been constructed (i.e. justification for why the different components and exercises are included in the protocols), an issue raised almost two decades ago that seems not to have since been improved (Mimura & Griffiths, 2003). Comparatively, Cohen-Katz et al. (2005) and Duarte and Pinto-Gouveia’s (2016) use of MBSR is well described and justified through presentation of the MBSR model, and previous evidence in similar populations. Of course, it is difficult to know whether this is a problem of the study design per se, or of word limitation imposed in journal reporting. As mentioned previously, ACT is an empirically validated framework (Hayes, 2016), with individually defined components which can be applied to numerous contexts and needs (i.e. a transdiagnostic approach; McHugh, 2011). This makes ACT a suitable method to address the issues previously raised by Mimura and Griffiths (2003). We recommend that future studies in this context appropriately describe how their ACT...
The information provided, allowing one to apply the techniques outside of the training environment more effectively (Ryan & Lauver, 2002). Nonetheless, the lack of intervention tailoring continues to permeate the literature. Habibian et al. (2018), for example, did not implement a tailored manual in their study but instead used an ACT intervention (Bach & Hayes, 2002) originally designed for hospitalisation prevention for patients diagnosed with psychosis to guide their content. This might have made it difficult for participants to understand how the ACT-based skills could be applied to their specific setting and experiences, which may, in part, explain the lack of effect on burnout scores observed in their study. Understanding the mechanisms of effect within an intervention allows one to develop tailored, data-driven interventions, and is a pertinent step in avoiding the issues raised above by Richardson and Rothstein (2008).

In the context of nurse stress management, our recent empirical research (Kent et al., 2019) recommends that ACT interventions prioritise acceptance, mindfulness and values-based processes, as these appear to have the most potential in demonstrating beneficial effects for this population.

Whilst research investigates ACT interventions in this context, in the meantime we recommend that employers and health services use current psychotherapeutic stress management interventions which are based on evidence stemming from methodologically robust research (e.g. those that include mediation analyses). In this context, mindfulness-based approaches are growing ever more popular, given the abundance of evidence in the MBSR literature, and are a viable starting point which can be further developed and optimised in the future (e.g. using ACT principles such as values-based living).

CONCLUSIONS

Given the prevalence of chronic stress in oncology nurse populations, there is a clear need for further research testing effective and acceptable interventions. The existing literature reports only a handful of studies which used validated psychotherapeutic models for effective stress management, though it is these kinds of interventions that may produce more reliable, longer-lasting effects. It is plausible to assume that longer-term reduction of stress will act as a preventive strategy for decreasing future risks of burnout and compassion fatigue. Although ACT has only been tested once in an oncology nursing sample (Habibian et al., 2018), there is a conceptual overlap with findings reported in the non-interventional, observational, theoretical modelling work undertaken in oncology nursing samples (e.g. Cheng et al., 2015; Corso, 2012; da Fonte Sousa Gomes et al., 2013). We present a case in this paper that we believe sup-
ports the need for further intervention research using this framework, and we have highlighted important methodological limitations in the extant literature that should be considered in the design and implementation of these future studies.

References


Based on the information provided, it seems like the document is discussing various studies related to stress, burnout, and resilience among nurses and caregivers. Here are some key points:


The text also mentions several other studies and interventions aimed at reducing stress and burnout among nurses, focusing on mindfulness, acceptance, and resilience. It highlights the importance of these interventions in improving the well-being and performance of healthcare professionals.


A review of interventions for oncology nurse stress management


