The Impact of the COVID-19 Pandemic on Burnout in Palliative Care Providers

Delivering Supportive Care to Cancer Patients

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Abstract

The COVID-19 pandemic presented a myriad of challenges for palliative care providers delivering supportive cancer care, perhaps making them more vulnerable to burnout. This study aimed to measure the prevalence of burnout among members of the Multinational Association for Supportive Care in Cancer (MASSC) Palliative Care Study Group, as well as explore contributing personal, occupational and COVID-19 related variables during the pandemic. This study utilised the Burnout Assessment Tool (BAT) to measure self-reported burnout symptoms for the first time in a similar population. Hence, this study also aimed to explore the usefulness of this newly developed instrument. A total of 71 participants from 23 countries responded to the survey. Of those, most were female (53.5%), physicians (50.7%) and worked in a public hospital (47.9%). The majority of respondents (80%) experienced an average level of burnout, and 14% a high to very high level. Correlation analysis found weak, negative correlations between total burnout scores and age, gender, professional experience and increased working hours, while quality of life was moderately, positively correlated with reduced burnout scores. Further investigation using bootstrap regression analysis revealed quality of life to be a significant predictor of burnout. Regarding psychometric properties, Cronbach's alpha ranged from 0.80–0.95, demonstrating good to excellent internal consistency of the BAT. Taken together, burnout was experienced to varying degrees among palliative care providers delivering supportive cancer care, and the impact of the COVID-19 pandemic on burnout is still unclear. This paper offers important methodological considerations for future researchers using the BAT.

Keywords: COVID-19, pandemic, professional burnout, palliative care provider, supportive cancer care, cancer patients, cross-sectional survey design, Burnout Assessment Tool (BAT).

Declaration

In writing this thesis, my supervisors and I collaborated to generate the research question of interest, develop the research aims and design the appropriate research methodology. I conducted the literature search, completed the ethics application, pre-registered the study and developed the survey using Qualtrics Core XM™. I prepared the Participant Consent document, which was disseminated among study participants by the Associate Director of the Multinational Association of Supportive Care in Cancer (MASCC). I was responsible for all aspects of the data analysis and thesis write-up.

Contribution Statement

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time.

Isobel Reid

20/09/2021

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1.1. Background

Approaching the end of 2019, a novel virus was discovered in Wuhan, China, and named severe acute respiratory syndrome coronavirus 2 (SARS CoV-2), or otherwise known as COVID-19 (Alsulimani et al., 2021). On March 11th 2020, the COVID-19 outbreak was declared a pandemic by the World Health Organisation (World Health Organisation, 2020). By definition, COVID-19 is an acute fatal virus, characterised by significant respiratory complications (Aapro et al., 2021; Paterson et al., 2020). The fast-spreading nature of the virus meant that it quickly became an international threat (Albott et al., 2020; Zerbini et al., 2020), with the latest reports confirming that global infection rates have reached 234 million, and the cumulative number of deaths surpassed 4.7 million (World Health Organisation, 2021). Responses to the COVID-19 emergency have varied between global regions, with world leaders imposing social distancing measures, extended lockdown periods and domestic or international border closures in an attempt to mitigate the spread of the virus (Duarte et al., 2020; Hlubocky et al., 2021). Healthcare systems around the world play a key role in emergency response plans by mobilising workforces to meet the increased demands for care (Hawari et al., 2021). As a consequence, healthcare providers have occupied the frontlines during the pandemic, encountering unprecedented challenges in personal safety, patient care, and psychological distress (Baptista et al., 2020; Firew et al., 2020). Of particular concern is the risk of burnout on healthcare providers working during the pandemic.

The literature suggests that burnout levels were already worryingly high among healthcare providers prior to the pandemic, with studies reporting rates of 30%–80% (Dyrbye et al,. 2014; West et al., 2016). With the outbreak of COVID-19, investigators were rightfully concerned about the impact it may have on burnout levels. It was predicted that the pandemic will exacerbate stressors in a healthcare system in which burnout is already endemic (Panagioti et al., 2017; Restauri et al., 2020). One finding from a multinational study during

the pandemic by Morgantini and colleagues (2020) found that 51% of healthcare providers reported burnout, while other researchers report higher rates of burnout symptoms (Baptista et al., 2020). While the prevalence of burnout among healthcare providers has been extensively reported on, there is little research focussing on burnout in palliative care providers delivering supportive care to cancer patients. Preliminary findings suggest that the provision of palliative and supportive care involves unique stressors which are hypothesised to contribute to burnout symptomology (Dijxhoorn et al., 2020; Dijxhoorn et al., 2021). Thus, greater research efforts on the impact of the pandemic on burnout among these individuals is warranted.

1.2. Evidence for Stressors Contributing to Burnout in Palliative Care Providers Delivering Supportive Cancer Care

Foremost, it is important to understand the principles of palliative and supportive care to comprehend the implication of stressors on the provision of care. The palliative care workforce includes personnel from numerous professional roles – including physicians, nurses and psychologists – all of whom have different responsibilities within varied clinical settings (Davies & Hayes, 2020). Palliative medicine is primarily aimed at providing the most vulnerable and terminally ill patients with premium end-of-life care and creating the circumstances for a dignified death (Albarracin et al., 2020; Gonçalves et al., 2021). This is achieved through the assessment and treatment of physical and psychosocial concerns to relieve patient suffering (Dijxhoorn et al., 2021; Gonçalves et al., 2021). Moreover, providing targeted support for the patients' family is an equally important principle of palliative care (Davies & Hayes, 2020). Previous research findings report that palliative care providers derive meaningful, rewarding life-experience from caring for terminally ill patients, which, in turn, fosters personal growth (Dijxhoorn et al., 2021). However, recent investigators have depicted a shift in the principles and practice of palliative care due to the COVID-19

pandemic, which may further compound existing burnout symptoms (). Applying the principles of palliative care during the pandemic is extremely challenging in the context of infection control measures (David & Hayes, 2020). Healthcare facilities implemented strict visitation policies which prohibit effective shared decision-making with family members, thus, requiring palliative care providers to make end-of-life decisions independently (Kates et al., 2021). As a result, patients' may spend their final moments in social isolation with no family members at the bedside (Kates et al., 2021). Despite comprehensive infection control measures, palliative care providers are still largely concerned with spreading COVID-19 to others, which also compounds concerns for the illness or death of loved ones (Kate, 2020). Furthermore, findings suggest that the demanding workload, increased complexity of care, repeated exposure to the death of patients and inadequate coping with one's own emotional response are significant stressors contributing to burnout (Dijxhoorn et al., 2021). The provision of supportive cancer care adds a further layer to increasing the risk of burnout, specifically, the complex management of symptoms and disruption to cancer treatment (Challinor et al., 2020). The threat of COVID-19 warrants alternative provisions for care delivery to cancer patients, including recommendations for treating cancer patients in outpatient care settings and postponing chemotherapy for low-risk cancers (Paterson et al., 2020). These provisions may place additional burden on the overworked palliative care workforce, as the focus shifts from an integrative care model, involving the patient and their family, to the coordination of online care with the primary aim of life-preservation (Paterson et al., 2020).

The consequences of burnout are substantial. Burnout is associated with increased symptoms of depression and anxiety among palliative care providers, while high levels of burnout has been shown to decrease quality of care, reduce levels of work satisfaction and increase absenteeism or intention to resign (Albott et al., 2020, De Kock et al., 2021).

Therefore, the wellbeing of palliative care providers delivering supportive cancer care is fundamental to ensure the best outcomes for the individual and the organisation (Banerjee et al., 2021; Franceschi & Brandes, 2021). Therefore, it is essential to develop comprehensive research studies with validated burnout instruments to better understand the burden of burnout and the contributing factors within this population.

1.3. Measurement of Burnout

Initial research on burnout, conducted by Maslach and Jackson (1981), relied heavily on observations and interviews with a variety of human service workers concerning the emotional stress of their roles. What emerged from this exploratory work was a conceptualisation of burnout as a psychological syndrome in response to chronic occupational stressors. According to this definition, the three key dimensions of the burnout experience are emotional exhaustion, depersonalisation and reduced personal accomplishment. Based on this conceptualisation of burnout, Maslach and Jackson (1981) devised an initial instrument – the Maslach Burnout Inventory (MBI) – to measure these three dimensions of burnout. The MBI has become the most extensively used instrument, accounting for over 80% of all publications on burnout (Boudreau et al., 2015). Although a number of alternative burnout instruments have been proposed, such as the Copenhagen Burnout Inventory (CBI) and Oldenburg Burnout Inventory (OLBI), the MBI remains the "gold standard" to assess burnout (Hadžibajramović et al., 2020). However, the MBI is not without its limitations. For example, the MBI has been criticised on conceptual grounds on the basis of wrongfully excluding 'reduced cognitive functioning' as a constituting element of burnout (Hadžibajramović et al., 2020). Secondly, the MBI suffers from practical shortcomings including the lack of clinically validated cut-off values, the lack of statistical norms based on national representative samples and perhaps most notably, the fact that it

yields three different subscale scores instead of a single burnout score to distinguish between burned-out and non-burned out cases (Schaufeli et al., 2020).

Arguably, to only view burnout through the lens of the MBI, is to limit the understanding of burnout. The subsequent overreliance on the MBI also impedes instrument innovation that can lead to a better understanding of burnout. Consequently, Schaufeli and colleagues (2019) embarked on an attempt to develop a viable alternative measure to the MBI – the result was the Burnout Assessment Tool (BAT). The BAT is constituted on an alternative conceptualisation of burnout, which defines burnout as a "work-related state of exhaustion among employees, characterised by extreme tiredness, reduced ability to regulate cognitive and emotional processes and mental distancing" (Schaufeli et al., 2019, p. 28). The present study utilised the BAT as the sole burnout measurement instrument.

1.4. Evidence for Contributing Variables to Burnout

In general, the literature on the impact of COVID-19 on burnout among palliative care providers delivering supportive cancer care is scarce. Most studies relied on separate validated instruments (i.e. MBI, OLBI, CBI) to measure burnout among healthcare providers. These studies helped to identify contributing personal, occupational and COVID-19 related to burnout during the pandemic (Firew et al., 2020; Pastrana et al., 2021). It is the hope that previous significant findings will be replicated within the present study population, so as to achieve a better understanding of variables that contribute to burnout symptomology. The significance of this knowledge may have the practical benefit of informing individual and organisational interventions.

1.4.1. Personal Variables

Cumulative evidence suggests that individual differences in burnout may be influenced by personal characteristics, such as gender, age and country of work. Research has demonstrated that females experience higher burnout levels, compared to their male

counterparts (Baptista et al., 2020; Çelmeçe & Menekay, 2020; Duarte et al., 2020). It is also well-established that younger healthcare providers are at higher risk of burnout, and in particular, those aged 40 years or younger (Alsulimani et al., 2021, Banerjee et al., 2021). Lastly, research suggests that healthcare providers working in high-impact areas of COVID-19 infections may be more vulnerable to burnout (Pastrana et al., 2021; Morgantini et al., 2020; Varani et al., 2021). At present, the United States of America (USA) and the United Kingdom (UK) have been classified as a high impact countries – as seen by the highest COVID-19 infection and mortality rates (John Hopkins University & Medicine, 2021). Low-impact countries, including Australia, have been less affected in by the virus (John Hopkins University & Medicine, 2021).

1.4.2. Occupational Variables

Researchers have suggested that professional role, clinical setting, work experience and employment type may be associated with burnout (Garcia & Palvo, 2020; Torrente et al., 2021; Reddy et al., 2020). In relation to professional role, physicians and nurses may be at higher risk of burnout (Çelmeçe & Menekay, 2020, Challinor et al., 2020; Ruiz-Fernández et al., 2020). It is a well-established finding that physicians and nurses with increased demands on care may face greater ethical and moral dilemmas surrounding patient care (Ruiz-Fernández et al., 2020). For instance, they may be required to prioritise patients for treatment depending on the severity of the condition, which may result in poor mental health outcomes among these personnel (Ruiz-Fernández et al., 2020). This finding may be further compounded by working in a hospital setting, due to limited or inadequate resources or overcrowding (Lasalvia et al., 2021). Research also suggests that these individuals may experience greater exposure to the virus, which has been found to contribute to increased burnout burden. Additionally, it has been reported that individuals with fewer years of work experience higher burden of burnout – specifically those within the first 10 years of their

career (Dijxhoorn et al., 2021). Lastly, Macía-Rodríguez and colleagues (2021) found that healthcare providers on casual contracts were at greater risk of burnout, due to perceived job insecurity and inability to exercise control in their working environment. There is also evidence to suggest that financial hardship contributes significantly to healthcare providers concerns and wellbeing during the pandemic (Albarracin et al., 2020; Albott et al., 2020; Hawari et al., 2021).

1.4.3. COVID-19 Variables

The conditions of the COVID-19 pandemic have contributed to burnout through increased working hours, caring for COVID-19 patients, and the availability of protective resources (training, personal protective equipment and psychological services). For example, Alsulimani and colleagues (2021) demonstrated that an increase in hours spent working per week was significantly associated with increased burnout symptoms, particularly exhaustion. Working extended hours, weekends or on scheduled days off may detract from leisure time, which is vital for healthcare providers to cope with the occupational pressure (Armant et al., 2021). Moreover, healthcare providers with increased frequency and duration of contact with COVID-19 patients have been shown to be more likely to exhibit burnout symptoms. This may be associated with an increased likelihood of infection and subsequent fear of spreading the virus (Chen et al., 2021; Firew et al., 2020; Zerbini et al., 2020). In relation to availability of resources, Morgantini and colleagues (2020) demonstrated the protective effect of COVID-19 training against burnout, so as to equip healthcare providers with up-to-date information related to the provision of care in a pandemic. Specialised training counters the likelihood of imbalance between demands and skill set, which is known to be a driver of burnout (Restauri et al., 2020). The risk of burnout may be further mitigated through the use of personal protective equipment, by minimising infection risk and engendering personal safety (Firew et al., 2020; Morgantini et al., 2020). However, ensuring adequate access to

personal protective equipment has proven challenging, especially for countries such as Australia, UK, and the USA in the early stages of the pandemic (Albarracin et al., 2020; Civantos et al., 2020; Pastrana et al., 2021). Psychological support within the workplace seems to also be associated with reduced burnout risk, by way of bolstering resilience and enabling greater control over negative emotions (Cubitt et al., 2021; Kates et al., 2021; Shah et al., 2021). Lastly, a growing body of evidence suggests a greater burden of burnout among healthcare providers reporting reduced quality of life as a result of the pandemic (Morgantini et al., 2020; Pastrana et al., 2021).

1.5. The Present Research

Given these observations, the primary aim of this study was to measure the prevalence of burnout among palliative care providers delivering supportive cancer care, and explore the contributing variables. One novelty of this study lies in the use of the BAT, which has only been used in one publication within a comparable population (Dijxhoorn et al., 2021). As such, a secondary research aim was to explore the usefulness of the BAT in delineating the core and secondary dimensions of burnout.

1.6. Research Hypotheses

1. Personal

1a. Being female will be associated with higher burnout scores.

1b. Lower age will be associated with higher burnout scores.

1c. Working in high-impact areas of COVID-19 infections will be associated with higher burnout scores.

2. Occupational

2a. Employment as a nurse or physician will be associated with higher burnout scores.

2b. Employment in a hospital will be associated with higher burnout scores.

2c. Less work experience in palliative care will be associated with higher burnout scores.

2d. Casual employment contracts will be associated with higher burnout scores.

3. **COVID-19**

   3a. Increased working hours during the pandemic will be associated with higher burnout scores.

   3b. Exposure to COVID-19 through direct contact with infected patients will be associated with higher burnout scores.

   3c. Inadequate COVID-19 workplace training will be associated with higher burnout scores.

   3d. Lack of access to personal protective equipment will be associated with higher burnout scores.

   3e. Lack of access to psychological support services will be associated with high burnout scores.

   3f. Reduced quality of life will be associated with high burnout scores.

Chapter 2: Methods

2.1. Participants

The sample was one of convenience. Participants were drawn from the Multinational Association of Supportive Care in Cancer (MASCC) Palliative Care Study Group. MASCC is an international multidisciplinary organisation, dedicated to research and education in all aspects of supportive care for people with cancer (MASCC, n.d.). This specific group was selected for three reasons. Firstly, previous investigators recommended future research be aimed at measuring burnout in specific groups (Wu et al., 2020). Secondly, the study group comprised members from many different countries, thereby enhancing the generalizability of findings – a notable limitation of previous studies conducted in a single institution or country (Lasalvia et al., 2021; Manzano-García & Ayala-Calvo, 2020; Ng et al., 2020). Lastly, study personnel were directly linked to the MASCC, which allowed for ease of dissemination of the participation invitation.

Inclusion criteria were: (1) being a member of MASCC Palliative Care Study Group, (2) over 18-years old, and (3) working or studying in the field of oncology as a physician, dentist/oral surgeon, psychologist, nurse, dental hygienist, pharmacist, social worker, trainee/student, physiotherapist or other (MASCC, n.d.).

2.2. Study Design and Procedures

The University of Adelaide School of Psychology Human Research Ethics Subcommittee approved this research (Approval Number 21/30). This research was conducted according to the NHMRC National Statement on Ethical Conduct in Human Research 2007 (Updated 2018).

Content of the survey was reviewed by one registered psychologist, two physicians and four Honours psychology students at the University of Adelaide to assess the time needed to complete the survey, as well as ensure that the questions and formatting were clear.

Feedback from the piloting process resulted in determining survey completion time (5-10 minutes, specifically) and adjustments to the flow of demographic questions (inserted a page break every 3-5 items to reduce respondent fatigue).

The survey was undertaken using a secure, online survey software, Qualtrics Core XM™, to allow for electronic access to the survey. The anonymised response feature was enabled in Qualtrics, so participant IP addresses were not viewable by study personnel in order to protect anonymity. The account linked to the survey was password protected, and only accessible by study personnel.

Data were collected from June 1st to June 18th, 2021. The survey preamble and survey link were disseminated via email to all members of the MASCC Palliative Care Study Group, with the assistance of the Associate Director of MASCC. In accordance with the follow-up procedures of Manzano-García and Ayala-Calvo (2021), a reminder email was sent on June 15th, that is, 3 days before survey closure.

Before initiating the survey, participants were presented with the survey preamble, which provided information on the study topic and aims (see Appendix A). Completion of the survey implied informed consent. Participants were advised that the survey was anonymous, and any information provided would remain anonymous in the report. No incentive was offered for survey participation. Participants were informed that the key findings would be shared with the scientific community. Participants were forewarned of the risk of discomfort or distress brought about by answering questions pertaining to the COVID-19 pandemic or burnout. Participants were instructed to consult a general practitioner (GP) or family physician if this was to occur.

2.3. Measurement Tools

The cross-sectional survey consisted of 45-items querying the burnout experiences of palliative care providers during the COVID-19 pandemic. Demographic data were captured

through responses to a 12-item self-developed survey, related to personal, work and COVID 19 variables. Variable groupings were adapted from Gonçalves and colleagues (2021). The primary outcomes and measures were palliative care providers' self-assessment of burnout, indicated by responses to the BAT.

2.3.1. Demographic Measures

Personal variables collected were gender, age and country of work. Occupational variables included professional role, years spent working in palliative care, primary clinical setting and employment type. Regarding the impact of COVID-19 on employment, palliative care providers were asked whether they experienced an increase in weekly working hours, whether they cared for COVID-19 patients, whether they had access to COVID-19 training, personal protective equipment and psychological support, and finally, how their quality of life was affected by the pandemic (see Appendix B).

2.3.2. Burnout

The 23-item Burnout Assessment Tool (BAT) - Work Related Version, developed by Schaufeli and colleagues (2020), was used to assess the presence of burnout symptoms (see Appendix C). This survey contains four core dimensions (BAT-C): exhaustion (8-items), mental distance (5-items), emotional impairment (5-items) and cognitive impairment (5-items). Exhaustion constitutes mental exhaustion (i.e. feeling drained) and physical exhaustion (i.e. feeling weak). Mental distance refers to psychologically distancing oneself from the work, which is indicative of a strong reluctance or aversion to work. Emotional impairment manifests itself in intense emotional reactions. Cognitive impairment is indicated by memory problems, concentration deficits and poor cognitive performance. The BAT also includes two secondary dimensions (BAT-S), these being psychological complaints (5-items) and psychosomatic complaints (5-items). Psychological complaints refer to the unpleasant feelings associated with high arousal, which have a negative impact on the level of

functioning and interfere with daily activities. Psychosomatic complaints refer to the physical symptoms which may be caused or exacerbated by psychological factors. These complaints are considered secondary symptoms of burnout, since they do not only occur in individuals suffering from burnout (Schaufeli et al., 2019).

Conceptually, the BAT can be understood as a unidimensional instrument that measures burnout based on a total score, as well as a four-dimensional instrument that measures scores on the four BAT-C dimensions. Moreover, the secondary score is comprised of scores on both BAT-S dimensions. All items were scored using a 5-point Likert-style frequency scale ranging from 1 (never) to 5 (always). The total and secondary scores were obtained by adding the scores on all BAT-C and BAT-S items and dividing the sum by 23 or 10, respectively. The same process was followed for scores on the four BAT-C dimensions. These scores range between 1 and 5.

The present study reports the total score in order to determine those at risk of burnout, as well as the secondary score and scores on BAT-C dimensions, so as to diversify accounts of individual burnout experiences (Schaufeli et al., 2019). Consistent with the BAT Test Manual (Schaufeli et al., 2019), the total score was interpreted using statistical norms, by which burnout can be categorised as low (1.00−1.55), median (1.56−2.79), high (2.80−3.64) and very high (3.65−5.00). It can be assumed that those who score "high" may be at risk of burnout, and those that score "very high" may already suffer from severe burnout. The statistical norms used to interpret the secondary score and individual BAT-C scores deviate slightly from the aforementioned statistical norms, however, a detailed analysis can be found in the Appendix (see Appendix E).

Lastly, evaluation studies demonstrate that the BAT is a reliable and valid measure of burnout, offering excellent internal consistency, good retest reliability, and low to moderate inter-rater reliability (Schaufeli et al., 2020).

2.3.3. Descriptive Questions

Two descriptive questions were included at the end of the survey to allow participants the opportunity to provide a wider narrative on topics that may not have been captured in the survey items. Questions included: (1) "We are interested in learning about your experience(s) of burnout as a palliative care provider during COVID-19. Are there any comments you wish to share regarding your experience(s) at an individual, organisational or systemic level?", and (2) "Do you wish to share any general comments about this survey?") (see Appendix D).

2.4. Statistical Methods

Prior to commencing analysis, the data were screened. Participant responses were excluded from the final analysis if survey entries were incomplete (i.e., did not complete all the demographic and BAT questions) or aberrant (i.e., obvious cases of survey speeding). Next, the data were evaluated to determine its appropriateness for parametric testing. Preliminary examination of the data suggested a non-normal distribution, and thus concluded that non-parametric assessment was suitable.

All statistical analyses were performed using RStudio (Version 1.4.1106). Descriptive statistics were used to present the personal, occupational and COVID-19 related data. Continuous variables were described using mean (M), standard deviation (SD), median (Mdn), and range. Categorical variables were described using total counts (N) and frequencies ($\%$). Cronbach's alpha (α) was computed to assess the internal consistency reliability of the BAT. An α value of .80−.89 demonstrates good internal consistency, while a value greater than .90 demonstrates excellent internal consistency (Gliem & Gliem, 2003). Spearman rank order correlation coefficient (r_s) was computed to assess the degree of the relationship between two rank-ordered variables. Correlation analysis produced significance values (ρ) and effect size measures *(r)* for each correlation. In general, $\rho < .05$ indicates statistical significance, and r coefficients of $\leq .30$ represent weak correlations, .31 to .69

moderate correlations, and ≥ .70 strong correlations (Schober et al., 2018). Next, a percentile

bootstrap regression model was conducted with significant zero-order correlation variables to

further understand predictors of burnout. This approach used sampling with replacement and

created 5,000 bootstrap samples. The percentile method takes the 2.5th and 97.5th percentile

for the 95% confidence interval. Statistical significance of the parameter estimates was

evaluated using p-values (ρ), z-values (z), 95% confidence intervals *(CI)* and standard error

(est, se) to test statistical significance of the parameter estimates. Lastly, R-squared (r^2) was

computed to assess the amount of variance within the model.

Chapter 3: Results

3.1. Participant Characteristics

Of the 526 palliative care providers invited to participate in the survey, 79 responded. However, 8 survey responses were excluded due to incomplete or missing data. Thus, a total of 71 participants completed the survey in its entirety (13% response rate).

As shown in Table 1, 53.5% of participants identified as female and 46.5% participants identified as male. The mean age of participants was 47.08 years (SD=12.31, Range=49). Of the participants, 23.9% were from the USA, 14.1% were from Australia, 8.5% were from India and the remainder were from countries including Brazil, Canada, Spain, Switzerland and the UK. Participants were mostly physicians (50.7%), working in public hospitals (47.9%) or university/research institutions (25.4%) and permanently employed (77.5%). The average number of years spent working in palliative care was 13.76 years (SD=10.77, Range=39), with the longest period of employment being 40 years. A majority of participants experienced increased working hours (62.0%), as well as heightened exposure to COVID-19 through caring for infected patients (71.8%). Participants reported having access to COVID-19 training (78.9%), personal protective equipment (95.8%) and psychological support (60.6%) during the pandemic. Over half of the participants reported a 'somewhat worse quality of life' (52.1%), while others experienced the 'same quality of life' (25.4%) or a 'much worse quality of life' (9.9%).

Table 1

Distribution of Study Participants by Demographic Characteristics

Characteristics	*N*(%)	*M±SD*	*Mdn*	Range
Gender				
Female	42(53.5)			
Male	36(46.5)			
Age		47.08±12.31	46	22–71
Country [a]				
Australia	10(14.1)			
Brazil	5(7.0)			
Canada	4(5.6)			
Cyprus	2(2.8)			
India	6(8.5)			
Italy	2(2.8)			
Philippines	2(2.8)			
Portugal	2(2.8)			
Spain	3(4.2)			
Switzerland	4(5.6)			
UK	5(7.0)			
USA	17(23.9)			
Professional role [b]				
Academic/Scientist	4(5.6)			
Dentist/Oral Surgeon	4(5.6)			
Nurse	10(14.1)			
Pharmacists	6(8.5)			
Physician	36(50.7)			
Trainee/Student	2(2.8)			
Dietician	2(2.8)			
Years in palliative care		13.76±10.77	10	1–40

Characteristics	N(%)	M±SD	Mdn	Range
Clinical setting [c]				
At-home care	3(4.2)			
Hospice	2(2.8)			
Public hospital	34(47.9)			
Private hospital	7(9.9)			
University/Research institution	18(25.4)			
Employment type [d]				
Casual	3(4.2)			
Contract	10(14.1)			
Permanent	55(77.5)			
Increased working hours				
Yes	44(62.0)			
No	25(35.2)			
Unsure	2(2.8)			
Caring for COVID-19 patients				
Yes	51(71.8)			
No	19(26.8)			
Access to COVID-19 training				
Yes	56(78.9)			
No	11(15.5)			
Access to personal protective equipment				
Yes	68(95.8)			
No	1(1.5)			
Access to psychological support				
Yes	43(60.6)			
No	27(38.0)			
Quality of life				
Much better quality of life	2(2.8)			

Characteristics	N(%)	M±SD	Mdn	Range
Somewhat better quality of life	7(9.9)			
Same quality of life	18(25.4)			
Somewhat worse quality of life	37(52.1)			
Much worse quality of life	7(9.9)			

Note. N = 71. Percentages may not total 100. *M* = Mean. *SD* = Standard Deviation. *Mdn* = Median.

[a] Other countries with 1(1.4) included: Albania, Denmark, Ghana, Greece, Ireland, Japan, Mexico, Paraguay, Poland and Slovenia.

[b] Other professional roles with 1(1.4) included: Administration Assistant, Chaplain, Child Life Specialist, Consultant Radiographer, Nurse Practitioner, Physiologist and Psychologist.

[c] Other clinical settings with 1(1.4) included: Assisted Living Care Facility, Charity, Clinical Trial Management, Nursing Home and Teaching Hospital.

[d] Other employment types with 1(1.4) included: Agency.

3.2. Burnout

Participants reported the highest mean score in the exhaustion dimension (M=2.90, SD=0.69, Range=5), compared with the other BAT-C dimensions (Figure 1). Following this, cognitive impairment demonstrated the second highest mean score (M=2.09, SD=0.68, Range=5) – albeit minimally compared to that of mental distance (M=2.07, SD=0.80, Range=5). Lastly, the emotional impairment dimension demonstrated the lowest mean scores (M=1.92, SD=0.67, Range=5). Overall, participants reported marginally higher mean total scores (M=2.28, SD=0.55, Range=5) than secondary scores (M=2.27, SD=0.68, Range=5).

The data for frequencies for burnout severity scores on each dimension, as calculated by the statistical norms, are shown in Figure 2. Overall, eighty percent of participants scored an average level of burnout, while aggregated total scores for high and very high levels of burnout were 14%. The majority of participants demonstrate average levels of burnout on the four main dimensions: exhaustion (36%), mental distance (55%), cognitive impairment (45%) and emotional impairment (51%). Furthermore, high levels of burnout were seen in exhaustion (32%), mental distance (9%), cognitive impairment (14%) and emotional impairment (11%). Scores on the secondary dimensions indicate average (47%) and high to very high levels of burnout (15%).

Figure 1

Box Plot Showing Score Distribution on Individual BAT-C Dimensions, Secondary Score and
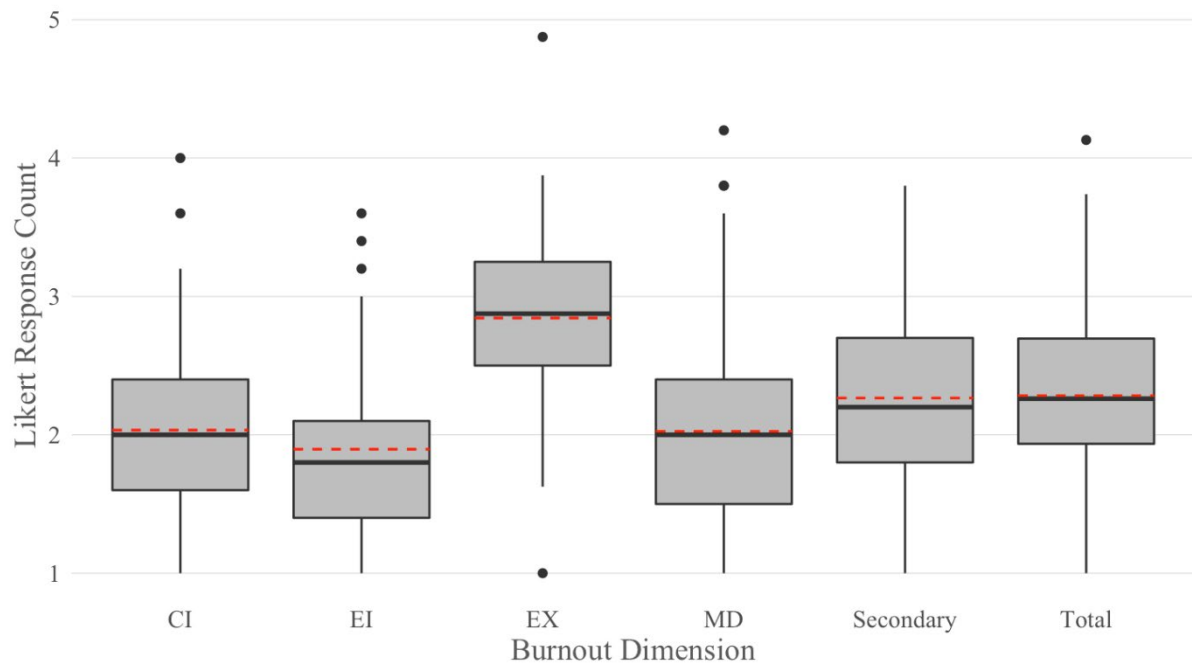
Total Score

Note. $N = 71$. CI = Cognitive Impairment. EI = Emotional Impairment. EX = Exhaustion.

MD = Mental Distance. The black midline of the box represents the median. The red dashed

line represents the mean. The upper and lower limits of the box represent the third and first

quartile (75th and 25th percentile). The 'whiskers' of the box represent the maximum and

minimum data values. Data points beyond the whiskers are 'outliers'.

Figure 2

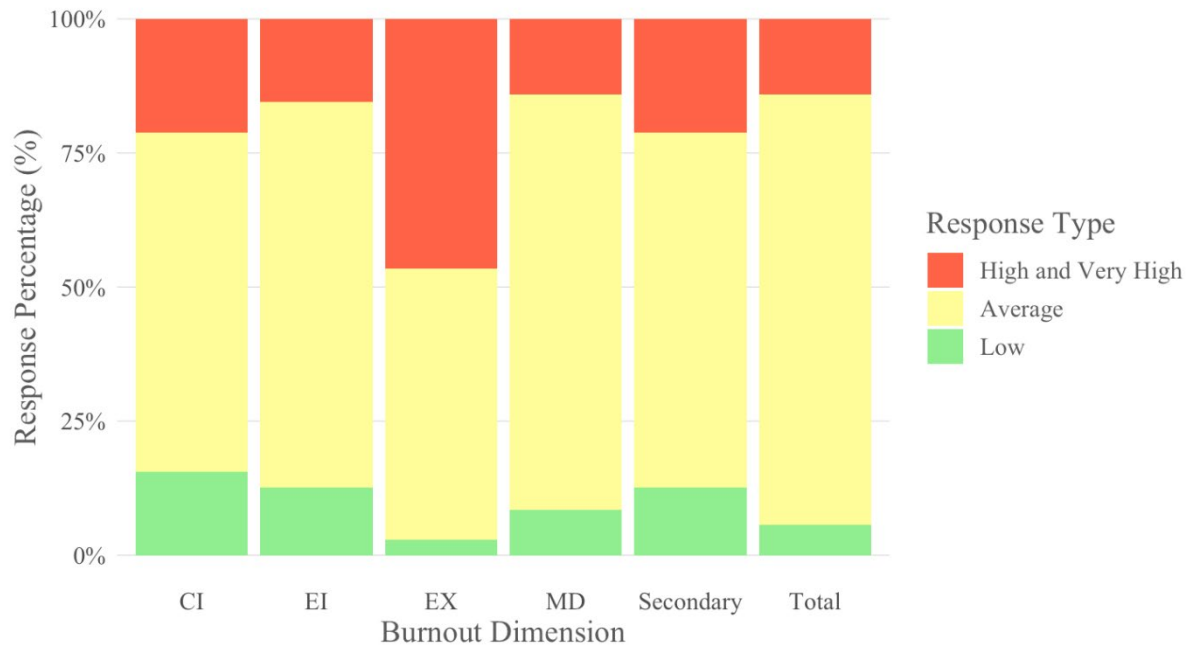*Frequency Graph of Individual BAT-C Dimensions, Secondary Score and Total Score*

Note. N = 71. CI = Cognitive Impairment. EI = Emotional Impairment. EX = Exhaustion.

MD = Mental Distance.

3.3. Internal Consistency

The Cronbach's alpha coefficients were 0.95 for the total scale, demonstrating excellent internal consistency. For the BAT-C dimensions, Cronbach's alpha coefficients were .89 for exhaustion, .85 for mental distance, .91 for cognitive impairment and .85 for emotional impairment. For the secondary dimensions of psychological and psychosomatic complaints, Cronbach's alpha coefficients were .80. All but a few items contribute to the internal consistency of the dimension to which they belong, and thus, internal consistency did not increase when one or more items were dropped. Exceptions to this included the second item in the mental distance subscale ("At work, I do not think much about what I am doing and I function on autopilot"), for which the Cronbach's alpha coefficient for the remaining four items would increase to .87 should item two be removed. In addition, the first ("I have trouble falling or staying asleep") and fifth items ("Noise and crowds disturb me") in the psychological complaints subscale, for which the Cronbach's alpha coefficient for the remaining four items would increase to .81 and .82, respectively. Taken together, the Cronbach's alpha coefficients for the BAT demonstrate good to excellent internal consistency. These findings provide psychometric support for the use of the BAT - Work Related Version for burnout assessment among palliative care providers offering supportive cancer care.

3.4. Correlation Analysis

Spearman correlation coefficients among study variables and total scores on the BAT are shown in Table 2. Consistent with the first research hypothesis – 1.6.1., gender ($r_s(69)$ = -.27, ρ =.02) and age ($r_s(69)$ = -.30, ρ =.01) were found to have a weak, negative correlation with total BAT scores. In other words, participants who identified as female reported higher burnout scores, compared to their male counterparts (see Appendix B for coding). Additionally, younger participants reported higher burnout scores.

In relation to the second research hypothesis – 1.6.2., total BAT scores were weak and negatively correlated with work experience ($r_s(69) = -.27$, $p = .02$), such that participants with less work experience reported higher burnout scores. No significant association was found between clinical setting or employment type and burnout, which may be due to the very small sample size.

In support of the third research hypothesis – 1.6.3., quality of life ($r_s(69) = -.35$, $p <$ .001) was found to have a moderate, positive correlation with total BAT scores. Quality of life was coded such that higher scores were indicative of poorer outcomes (see Appendix B for coding), which explains this positive association between higher burnout scores and reduced quality of life. Significant negative associations between increased working hours and burnout ($r_s(69) = -.30$, $p = .01$) depicts that participants working more hours each week experienced increased burnout symptoms. With exception to quality of life and increased working hours, all remaining variables pertaining to COVID-19 were non-significant.

Other meaningful relationships include strong, positive correlation between age and years in palliative care ($r_s(69) = .77$, $p = .01$). Analysis of collinearity statistics (Tolerance) for age and years in palliative care were found to be within accepted limits (.40 and .37, respectively). This indicates multicollinearity was not present.

In summary, age, gender, professional experience and increased working hours were found to have weak, negative correlations with total burnout scores, while quality of life was moderately, positively correlated with burnout. This stands in contrast with much of the previous literature which has consistently found moderate to strong correlation.

Table 2

Means, Standard Deviations, Spearman Correlations Among Contributing Variables and 95% Confidence Intervals

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	0.50	1.46														
2. Age	12.31	47.08	.20 [-.03, .42]													
3. Country	8.45	13.45	-.02 [-.26, .21]	.15 [-.09, .37]												
4. Professional Role	2.37	5.83	-.17 [-.39, .06]	-.00 [-.24, .23]	.27* [.04, .48]											
5. Years in palliative care	10.77	13.76	.32** [.09, .51]	.77** [.65, .85]	.00 [-.23, .24]	-.06 [-.28, .18]										
6. Clinical setting	1.26	3.79	-.07 [-.30, .17]	-.01 [-.24, .23]	.08 [-.16, .31]	-.04 [-.27, .19]	-.16 [-.38, .08]									

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
7. Employment type	0.64	3.76	-.05 [-.28, .19]	.15 [-.08, .37]	.06 [-.18, .29]	-.01 [-.24, .23]	.24* [.00, .44]	.01 [-.23, .24]								
8. Increased working hours	0.55	1.41	.13 [-.11, .35]	.05 [-.19, .28]	-.12 [-.34, .12]	.10 [-.14, .32]	.12 [-.11, .35]	.06 [-.17, .29]	.08 [-.16, .31]							
9. Caring for COVID-19 patients	0.49	1.30	-.04 [-.27, .19]	.12 [-.11, .35]	-.25* [-.46, -.02]	.12 [-.12, .34]	-.04 [-.27, .20]	-.04 [-.27, .20]	.00 [-.23, .23]	.08 [-.16, .30]						
10. COVID-19 training	0.56	1.27	.01 [-.23, .24]	.03 [-.20, .26]	.17 [-.06, .39]	.07 [-.17, .30]	-.14 [-.37, .09]	.02 [-.21, .25]	-.22 [-.43, .02]	-.13 [-.35, .11]	.12 [-.11, .35]					
11. Personal protective equipment	0.35	1.07	.05 [-.18, .28]	.02 [-.22, .25]	.09 [-.15, .32]	-.12 [-.35, .11]	-.21 [-.42, .03]	.23 [-.01, .44]	.01 [-.22, .25]	-.00 [-.24, .23]	.38** [.16, .56]	.27* [.03, .47]				
12. Psychological support	0.52	1.41	-.03 [-.26, .21]	-.01 [-.24, .22]	-.22 [-.43, .01]	-.08 [-.31, .15]	-.22 [-.43, .01]	-.02 [-.25, .22]	-.26* [-.46, -.03]	-.19 [-.41, .04]	.14 [-.10, .36]	.40** [.19, .58]	.23 [-.00, .44]			
13. Quality of life	0.91	3.56	-.21 [-.42, .03]	-.14 [-.36, .10]	.12 [-.12, .34]	-.00 [-.23, .23]	-.05 [-.28, .19]	.11 [-.13, .33]	.16 [-.07, .38]	-.24* [-.45, -.01]	-.25* [-.46, -.02]	-.05 [-.28, .19]	-.08 [-.31, .15]	-.07 [-.30, .17]		

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
14. Total score	0.55	2.28	-.27*	-.30*	.19	.09	-.27*	.21	.04	-.26*	-.05	.12	.01	-.03	.35**	
			[-.47, -.04]	[-.50, -.07]	[-.04, .41]	[-.14, .32]	[-.47, -.04]	[-.03, .42]	[-.19, .27]	[-.47, -.03]	[-.28, .19]	[-.11, .35]	[-.23, .24]	[-.26, .20]	[.13, .54]	

Note. N = 71. M = Mean. *SD* = Standard Deviation. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates *p* < .05. ** indicates *p* < .01.

3.5. Percentile Bootstrap Regression Analysis

Results of the regression analysis are presented in Table 3. When controlling for significant zero-order correlation variables, quality of life was the only variable with a statistically significant weight in the regression model ($p = .03$). However, the 95% CI is very close to zero ([0.02, 0.31]), and thus, with such a small sample, the results may not be valid. Furthermore, the 95% CI for quality of life is wide, which indicates a lot of variability in the model. This demonstrates that the present study was underpowered, which has implications for the representativeness and reproducibility of the results. As can be seen in Table 3, the remaining four variables did not yield statistically significant associated effects. Regarding model fit and variance explained, collectively, the five predictor variables only explained 24% of the variability in burnout ($r^2 = .24$), leaving a lot of unexplained variance not captured by the measure.

3.6. Descriptive Questions

Of the 71 participants, a total of 33 participants answered the first descriptive question, and only 18 of these participants answered the second descriptive question. However, responses were varied in length, richness, and relevance to the study topic. The data were too varied to successfully code into a meaningful set of categories that would lend themselves to further qualitative or quantitative statistical analysis. Thus, these responses were not analysed.

Table 3

Bootstrap Regression Model with Zero-Order Correlation Variables, Using Total Score as

the Criterion

Predictor	*est*	*se*	*CI*	z	p	*Fit*
(Intercept)	2.65	.51	[1.71, 3.73]	5.23	.00**	
Age	-0.01	.01	[-0.03, 0.01]	-1.03	.30	
Gender	-0.16	.14	[-0.43, 0.10]	-1.15	.25	
Years in palliative care	-0.02	.01	[-0.02, 0.02]	-0.25	.80	
Increased working hours	-0.17	.13	[-0.46, 0.05]	-1.29	.20	
Quality of life	0.15	.07	[0.02, 0.31]	2.13	.03*	
						$R^2 = .24$ 95% *CI* [0.17, 0.36]

Note. N = 71. *est* = Standard Error of the Estimate. *se* = Standard Error. *CI* = Confidence

Interval. *z* = Z-score. p = P-value. *Fit* = Goodness of Fit. * indicates p < .05. ** indicates p <

.01.

Chapter 4: Discussion

4.1. Overview of the Findings

The primary aim of this study was to measure the prevalence of burnout among palliative care providers delivering supportive care to cancer patients during the COVID-19 pandemic, as well as explore the contributing variables. The secondary aim was to explore the usefulness of the BAT to delineate the core and secondary dimensions of burnout. This project investigated several hypotheses which broadly converged on three variables: personal, occupational and COVID-19 related. The present study was designed to fill gaps in the literature pertaining to the lack of burnout research conducted using alternative instruments, as well as those examining multinational study samples, or focussing on palliative care providers delivering supportive care.

This study provides insight into the prevalence of burnout among members of the MASCC Palliative Care Study Group, for whom an average level of total burnout was reported. Some respondents reported high to very high burnout, confirming the high level of factors contributing to burnout among this study population. In brief, this study supports correlational hypotheses pertaining to gender, age, professional experience, hours spent working and quality of life, indicating that these are important variables to burnout. Further analysis found that, when combined in a multivariate model, correlation effects were negated by the significant predictive effect of quality of life on burnout. Moreover, the use of the newly developed BAT provided an opportunity to explore the usefulness of the BAT in delineating the core and secondary dimensions of burnout. The findings support the contention that the BAT is a valid and reliable research instrument, which may be utilised to measure burnout among research participants.

While it was encouraging to find that most participants did not suffer from high to very high levels of burnout, these findings stood in contrast to the majority of studies

suggesting higher burnout levels, although discordant methodologies between studies makes direct comparison difficult. For example, instead of using a validated instrument, some studies only used a single question to measure the prevalence of burnout (Morgantini et al., 2020). Conversely, these findings are in keeping with Dijxhoorn and colleagues (2021), who also discovered an average level of burnout among palliative care providers, whilst using the BAT. Yet, while 15% of participants in the present study reported experiencing high to very high levels of burnout, Dijxhoorn and colleagues (2021) reported only 2%. The present study also demonstrated weak to moderate correlations between gender, age, professional experience, hours spent working and quality of life, while other researchers found moderate to strong correlations between the same variables (Garcia & Palvo, 2020; Zerbini et al., 2020).

The present research findings corroborate that of de Beer (2021) and Pereira and colleagues (2021) who also demonstrated good to excellent Cronbach's alpha scores. In accordance with the present findings, Dijxhoorn and colleagues (2021) found that exhaustion yielded the highest mean score and the highest frequency of high to very high scores on all dimensions. This demonstrates that burnout is a syndrome with core and secondary symptoms, of which exhaustion is the principal element. Furthermore, the present findings support the four-dimensional structure of the BAT, and consequently, challenge the hypothesised three-dimensional structure of the MBI. Based on these consistent findings, the BAT is supported as a psychometrically valid and reliable tool for use in research settings.

4.2. Comparison with Existing Literature

4.2.1. Personal Variables

As expected, the present study reported a female predominance in burnout. However, it is important to consider this finding within the context of the study population, which saw a slightly higher number of responses from females. This observation supports the contention

of Baptista and colleagues (2020), who posited that the observed gender differences in burnout may be, in part, due to a larger number of female respondents (81%). Conversely, Civantos and colleagues (2020) had a greater number of male respondents (61%), yet still found a higher burden of burnout among females. While it is unclear whether these differences in gender reflect a true population effect, or are merely due to sampling error, it will be important in future studies to explore some consideration which may contribute and explain the female predominance in burnout. Another possible explanation for this phenomenon is related to stereotypical gender roles in society. It has been proposed that females have greater household and child-raising responsibilities, which may lead to higher exposure to acute stress, and eventually burnout (Çelmeçe & Menekay., 2020; Duarte et al., 2020; Gonçalves et al., 2021). These findings highlight the important role of familial responsibilities on burnout, which may be a focus of future inquiry.

Significant correlations between age and burnout were not observed among participants, for whom the average age was 46-years old. It follows that, because the hypothesis predicted age effects below 40-years old, this finding is fitting. This is consistent with the notion that older palliative care providers have greater abilities to manage stress, as they are more experienced and knowledgeable in crisis management (Restauri et al., 2020).

Contrary to the existent literature, respondents working in high-impact countries were found to be no more burnt out than those in low-impact countries. This finding may be explained by variant COVID-19 infection or mortality rates between countries at different time points. Disparities exist between regions considered to be high-impact in recent studies, compared to studies conducted at the beginning of the pandemic, which reference different countries entirely as being high-impact. For instance, early studies sought to measure burnout levels in China – whereby the highest infection rates were reported at the beginning of the pandemic (Chen et al., 2021; Wu et al., 2020). However, due to adequate COVID-19

emergency response plans, the infection and mortality rates decreased significantly, placing China in the low-impact category (Centers for Disease Control and Prevention, 2021). In a similar vein, the COVID-19 pandemic has seen an escalation of racial discrimination against certain ethnic groups, particularly against people of Asian appearance (Addo, 2020; Khan et al., 2020; Tan et al., 2020). This perspective strongly warrants attention to the contribution of sociocultural factors in explaining burnout differences between ethnic minorities.

4.2.2. *Occupational Variables*

Professional roles and clinical setting were found to be uncorrelated to burnout, which was in keeping with recent findings by Dijxhoorn and colleagues (2021). Gender may be attenuated by professional role, in that a vast majority of nurses in the healthcare system identify as female. While only a small proportion of participants identified as nurses in the present study (23%), previous studies found that nurses accounted for the majority in professional roles. Evidence to support this perspective by Ruiz-Fernández and colleagues (2020) found occupational predominance in nurses (79%) as well as a gender predominance in females (77%). In an opposite vein, Baptista and colleagues (2020) reported that burnout was more evident in females, yet their study population consisted of 81% physicians, while Duarte and colleagues (2020) also demonstrated female predominance within a study population of only 20% nurses. Secondly, it is possible that palliative care providers working in hospitals received more timely information from decisionmakers, which may have led to a greater sense of control – a known protective factor to burnout (Restauri et al., 2020). Furthermore, this finding may be due to the increasing divergent healthcare systems using different terminology. For instance, the terms 'public' and 'private' are interpreted differently between countries, which may have implicated the present findings.

Importantly, work experience in palliative care was found to be a protective factor for burnout. In the present findings, palliative care providers averaged 14 years of service, which reinforces the findings of Dijxhoorn and colleagues (2021), who reported lower burnout levels among personnel with more than 10 years of experience. This may be, in part, due to the fact that the first 10 years in one's career may coincide with taking on a new role as a parent. While some studies reported that parental status was associated with burnout (Duarte et al., 2020), other findings did not confirm this trend (Baptista et al., 2020). Thus, further exploration of the influence of parental status on burnout is warranted.

Finally, significant correlations between employment type and burnout were not detected in the present study. This may be understood in context of the study population, for whom a majority of participants were permanently employed (77%). Permanent employment may offer job security, which in turn, reduces financial uncertainty – a predicted factor of burnout (Pastrana et al., 2021). In a dissenting opinion, Armant and colleagues (2021) proposed that some employees prefer to remain on casual contracts, as it allows them to accept, or not, to work certain days. Based on these findings, we may speculate that the remaining participants on casual contracts suffered less burnout, by virtue of being afforded freedom to work fewer hours, at the expense of financial security. However, further exploration with a larger study sample is warranted.

4.2.3. COVID-19 Variables

In accordance with the present hypothesis, burnout was independently related to increased working hours during the pandemic. In some instances, palliative care providers had greater administrative responsibilities during the pandemic due to the implementation of telemedicine practices, as well as modifications to administrative staffing (Hlubocky et al., 2021). However, the present study did not distinguish between time spent on clinical tasks and administrative tasks, specifically, although this may be a consideration of future studies.

Furthermore, future researchers may consider querying the number of additional hours worked per week, compared to pre-pandemic work conditions. For instance, Alsulimani and colleagues (2021) reported that the average work week during the pandemic constituted 40 to 49 hours of client-facing work in a clinical or research setting.

Contrary to the existent literature, participants caring for COVID-19 patients did not report a greater burden of burnout. In accordance with emerging literature, it may be proposed that palliative care providers derive a deeper sense of personal achievement from caring for infected patients, contributing to lessening the burden of burnout (Wu et al., 2020). Differences in the perception of the pandemic may explain these contradicting findings. This also raises important questions concerning the impact of the global vaccine rollout on burnout. We may speculate that palliative care providers experienced a greater sense of personal safety, as well as protection against negative outcomes from COVID-19 infections, after receiving COVID-19 vaccination. However, this is an emerging area of research that warrants further exploration.

While it was previously noted that inadequate access to sufficient COVID-19 training, personal protective equipment and psychological support may lead to burnout, this finding was not detected in the present study. The absence of significant correlation effects between training and burnout may be explained by the majority of study participants (79%) reporting access to specialised COVID-19 related training. Therefore, it may be assumed that these personnel are better equipped to provide palliative care during this time (Dijxhoorn et al., 2021). In a similar vein, 96% of palliative care providers reported availability of personal protective equipment, despite the majority working in countries originally reporting insufficient access to this resource (Pastrana et al., 2021). One explanation for this unexpected trend was that the availability of personal protective equipment was less of a concern in June, 2021 than it was earlier in the pandemic (Cubitt et al., 2021). Lastly, the

majority of participants reported having access to psychological services through their workplace. From the present findings, it is unclear whether participants' engagement with these services lead to better psychological outcomes, or else, the accessibility of these services, if ever they needed, was sufficient to mitigate burnout. An alternate perspective is that of Zerbini and colleagues (2020), who demonstrated the importance of social support, by way of spending time with family and friends. Future evaluation studies may compare the utility of psychological services and social support, in order to develop effective psychosocial interventions in minimising the risk of burnout.

In corroboration with previous findings, increased quality of life was found to be a mitigating factor of burnout. Several explanations may account for this observed finding. Firstly, cumulative research suggests that quality of life may be a covariate of burnout, as opposed to being independently associated with burnout (Çelmeçe & Menekay, 2020). To extend the understanding of these connections, Pereira and colleagues (2021) reported that quality of life encompasses dimensions that overlap with variables studied in their association with burnout, such as work stress or work-family conflict. Mediation analysis found that, by improving one's quality of life, this may indirectly lead to a reduction in poor mental health outcomes, by way of a reduction in burnout levels (Pereira et al., 2021). However, despite evidence supporting the predictive value of this construct, there was still 76% of unexplained variance in the present multivariate model. In this regard, the present findings may be deemed largely inconclusive.

4.3. Methodological Strengths

The present study contributes to the filling gap in the burnout literature in its use of the BAT. The present findings provide evidence in support of using the BAT as a research tool to measure symptoms of burnout within palliative care providers working in supportive cancer care. The specificity of the study population was also advantageous, as palliative care

providers in cancer care are an understudied population in the burnout literature. Another value of this study was diversity of study participants, which adds to the scope of findings. The study sample, albeit small, included a balanced distribution of participants from different countries. This serves to provide an overview of the impact of COVID-19 on burnout at an international level, which only a few researchers have attempted to do (Banjeree et al., 2021; Morgantini et al., 2020). While it has been established that experiences of the pandemic differ between countries, it is important to understand the impacts the pandemic has had on an international level in order to develop interventions mitigating burnout. Furthermore, the aforementioned balanced gender distribution in the present study sample ensures that the results were not biased toward gender effects. Thereby, this study addresses the literature gaps that exist, and hopes to encourage future researchers to do the same.

4.4. Methodological Limitations

4.4.1. The Use of the BAT

Despite the aforementioned strengths, the use of the BAT may paradoxically be considered a limitation. Although preliminary findings suggest the BAT is a valid and reliable measure, there are possible limitations regarding this instrument that need to be addressed in future research. Currently, no clinically validated cut-off values are available for the BAT. Furthermore, the statistical norms were only validated in a Flemish population, and thus, more research using the BAT is required to determine cut-off values for different demographics. It is also likely that the BAT-Full Version is too long for palliative care providers to complete in a busy work environment, and perhaps an instrument that is briefer is more appropriate (i.e. BAT-Shortened Version). However, of the 79 participants who began the survey, 71 completed the survey in its entirety. Evidently, the survey was not too burdensome on their time otherwise, there would be a larger number of incomplete responses. To test the concurrent validity of the BAT, another cost-free instrument could have been used

in this study – namely the CBI or OLBI. However, this may have raised issues regarding the length of the survey and the time taken to complete the survey. Taken together, these shortcomings underscore the importance of the application of the BAT in future research studies to amend the continuing issues in the conceptualisation of burnout.

4.4.2. Variability of the Study Population

A limitation of the present study is the very low response rate (13%). Notably, there was a high degree of variability in the study population, which made it challenging to draw conclusions on the global impact of COVID-19 on burnout. Firstly, there were too few participants from each country to be considered representative of the collective burnout experiences of all palliative care providers working in that country. This undermines the ability to make meaningful comparisons between the present study and previous studies of palliative care providers working in a particular region. The non-representative nature of the sample also undermines our ability to conduct in-depth analyses by grouping participants according to professional role or clinical setting. While the specificity of the sample was a strength of this present study, future studies may benefit from sampling palliative care providers within specific professional roles (i.e. physicians or nurses) or clinical settings (i.e. hospitals). Future studies conducted within specific study populations may help to reach a clearer understanding about which factors contribute to burnout in palliative or supportive care work environments. Finally, and perhaps most importantly, a larger study sample is required to enhance the representativeness of the study population and the generalisability of the findings.

4.4.3. Study Design

One major concern is the cross-sectional nature of this study. It is a well-established finding that cross-sectional studies hinder the ability to establish causal relationships (Chen et al., 2021; Vinueza-Solórzano et al., 2021). While this was beyond the scope of the present

study, future researchers may consider conducting a longitudinal study in order to understand the long-term effects of COVID-19 on burnout. Similarly, there are very few studies comparing burnout levels during the COVID-19 era to those before the pandemic (Varani et al., 2021). Researchers who conducted burnout research prior to the pandemic are encouraged to compare pre-pandemic burnout levels to their most recent findings during the pandemic – provided the population samples are comparable. Additionally, when the pandemic ceases, investigators may consider conducting a follow-up study with the same study population to understand the long-term psychological consequences of the pandemic on palliative care providers (Varani et al., 2021).

The survey was only available for a two-week period, and lacks longitudinal follow-up. Torrente and colleagues (2021) propose that, as the arduous emergency situation becomes more intense each week, burnout symptoms may become more severe. Thus, these symptoms could have a long-term impact on these populations and a further investigation would be worthwhile performing. Drawing from previous studies suffering the same limitation, a longer study period may also lead to increased response rate, by virtue of there being more time for individuals to response. Considering the insurmountable workload of personnel working during the pandemic, it is likely that they may have been too busy to respond to this survey (Kates et al., 2021). Attempts to mitigate this effect involved sending one follow-up email, however, this may have not been sufficient. It may be worthwhile looking to studies with higher response rates to inform future methods. For instance, Tan and colleagues (2020) sent three rounds of emails, with a response rate of 27%.

A further limitation concerns the sampling procedure, which introduces potential biases when attempting to interpret the results. Namely, the use of a convenience sampling technique may undermine the possibility of making generalisations, if the study sample is unlikely to be representative of all palliative care providers (Baptista et al., 2020). The

potential for self-selection bias is also noteworthy. Notably, Schaufeli and colleagues (2020) avoided using the word 'burnout' in the title of their survey, as they believed it to have a negative connotation. Instead, they opted for the neutral term "work experience" in the survey title. This was not considered in the present study, which titled the survey "COVID-19 and Burnout Among Palliative Care Providers for Patients with Cancer". Therefore, we may speculate that palliative care providers who volunteered to take the survey were either not experiencing burnout symptoms and therefore likely to take the survey, as it was of no relevance to them, or experiencing burnout symptoms and were overwhelmed by the thought of discussing these. By extension, palliative care providers currently experiencing symptoms of burnout may be less likely to reply to the survey invitation, so as to avoid taking on more tasks. Thus, there is potential for selection bias due to the 'healthy worker' effect (Dijxhoorn et al., 2021). Lastly, the use of self-report measures may prompt socially desirable responding, whereby participants may moderate their survey responses to present a favourable image of themselves. Although clear instructions were given regarding confidentiality, emphasising that the information gathered will remain anonymous and could not be traced back to the individual, responses still may be subject to social desirability bias.

Lastly, the survey was written in English despite the intended study population being of differing nationality, and some which for whom English may not have been their first language. While proficiency in English was implied through membership with MASCC – as indicated by the use of written English content in the MASCC newsletters, online website and international conferences – it cannot be guaranteed that all participants adequately understood the English written content of the survey. This may lead to fewer responses from non-English speaking participants, and thus reducing the generalisability and transferability of the present findings.

4.4.4. Variable Selection and Structure

In light of the non-significant findings, questions have been raised regarding the transferability of findings from studies with discordant methodologies. As aforementioned, the hypotheses were generated from research studies using divergent instruments, with different factor structures, items, dimensions and scoring schemes. Whilst, unavoidable – considering the limited number of studies using the BAT – it is plausible that these variables may not have been relevant to the present study population or survey instrument. Collectively, this illustrates the need for prospective, well designed studies focusing on measuring burnout among large, multinational samples of palliative care providers delivering supportive cancer care utilising the BAT.

4.5. Conclusions and Practical Implications

From a practical standpoint, it can be seen that most of the stressors associated with the provision of palliative and supportive care are preventable, and may be minimised through the implementation of effective intervention strategies at an individual and organizational level (Singh et al., 2017). Individual interventions that focus on 'micro practices' – that is, strategies that are easily accessible and require only a few seconds to administer in whilst in busy, stressful environments – could be beneficial (Restauri et al., 2020). These individual strategies include coping behaviours, stress management, time management, self-care practices and mindfulness techniques (Moreno-Milan et al., 2020). While these individual approaches can have a modest effect on bolstering psychological resilience in the short-term, they become less efficacious over time (Moreno-Milan et al., 2020). Research has consistently shown that organisational interventions are more effective in mitigating burnout than those targeting individuals, although a combined approach is most effective (Cubitt et al., 2021). One way to promote mental wellbeing at an organisational level is to implement peer support programs, such as the Battle Buddies Program (Albott et

al., 2020). This program is aimed at creating pairings between employees who share similar professional perspectives and life experiences, to allow for the opportunity to share one's narrative (Albott et al., 2020). Like Battle Buddies, most organisational peer support programs aim to foster a sense of connectedness, validation, trust, and useful feedback, which may serve as an important antidote to burnout (Albott et al., 2020; Fessell & Cherniss, 2020; Restauri et al., 2020). Lastly, it would appear from the present findings that organisations seeking to improve the mental health outcomes of palliative care providers should focus on enhancing quality of life. Considering the multifaceted nature of the construct, this may require a combined approach centred on promoting resilience and cultivating psychological and physical wellbeing, while also improving working conditions through enhancing accessibility to protective resources and supporting peer connections. To extend these findings, further research of the analysis of wider systemic factors is recommended.

This study provides valuable insights on burnout within a diverse sample of palliative care providers representing various countries, professional roles and clinical settings, and within a critical time period during which global infection rates were at their highest. To my knowledge, this is the first global survey study to report the impact of the COVID-19 pandemic on burnout among palliative care providers delivering supportive cancer care. This study also serves as a pilot for the utilization of the BAT in research. It is the hope that future researchers will look to the deficiencies of this study to inform methodology, so as to improve future investigations using the BAT. Due to the continued global COVID-19 emergency, it is vital to support the wellbeing of palliative care providers and minimize the risk of burnout to ensure patient management and supportive care are not additionally compromised as a result of the pandemic. The present findings draw attention to the need for prospective, well designed studies to improve the level of evidence and the quality of recommendations available.

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Appendices

Appendix A: Participant Information & Consent Form
[Page 1]

Title: COVID-19 and Burnout in Palliative Care Providers for Patients with Cancer

Description:

You are invited to participate in a survey assessing the impact of COVID-19 on burnout amongst health professionals. This survey is being conducted by Isobel Reid, Professor Anna Chur-Hansen, Professor Ian Olver and Professor Gregory Crawford. This research will form the basis of Isobel Reid's Psychology Honours Thesis at the University of Adelaide. The information you provide may contribute to expanding knowledge on burnout among palliative care providers during COVID-19.

The survey will take between 5-10 minutes to complete. Your participation in this study is voluntary, and you may withdraw from the survey at any time. No identifiable information will be gathered, and the information you provide will remain anonymous. There is no reasonably foreseeable risk of discomfort or distress associated with your participation in this study.

This survey is only intended to be taken by members of the MASCC Palliative Care Study Group, so please do not share the survey link with anyone. The key findings will be electronically disseminated among members of the MASCC Palliative Care Study Group upon the completion of this research project. We are, however, unable to provide individual results or findings.

The University of Adelaide Human Research Ethics Committee has approved this research (Approval Number 21/30). This research will be conducted according to the NHMRC National Statement of Ethical Conduct in Human Research 2007 (Updated 2018).

Contact Details for Questions:

If you have any questions about the research, please contact any of the investigators listed below:

Isobel Reid, BPsych, Student Researcher,

Anna Chur-Hansen, PhD, School of Psychology at University of Adelaide,

Ian Olver, MD, PhD, Professorial Research Fellow, School of Psychology at University of Adelaide,

Gregory Crawford, MBBS, MD, Professor of Palliative Medicine, School of Medicine, University of Adelaide/Chair of the Palliative Care Study Group, Multinational Association of Supportive Care in Cancer (MASCC),

If you have any questions concerning the ethics of the research, please contact the Convenor of the Subcommittee for Human Research in the School of Psychology, Dr. Paul Delfabbro, (08) 8313 4936 paul.delfabbro@adelaide.edu.au

In the event that the survey items cause you considerable discomfort or distress, we recommend that you consult your General Practitioner (GP) or Family Physician.

[Page 2]

Consent:

By clicking the arrow button, you are consenting to participate in this survey.

Appendix B: Demographic Measures

Q1 **What is your gender?**

    Female (1)

    Male (2)

    Non-binary (3)

    My gender identity isn't listed. I identify as: (4) _____

    Prefer not to answer (5)

Q2 **What is your age?**

Q3 **What country is your current primary place of work?**

Q4 **Which best describes your primary professional role?**

    Academic/Scientist (1)

    Dental Hygienist (2)

    Dentist/Oral Surgeon (3)

    Nurse (4)

    Pharmacist (5)

    Physician (6)

    Physiologist (7)

    Psychologist (8)

    Social Worker (9)

    Trainee/Student (10)

    Other: (11) _____

Q5 **How long have you been working in the area of palliative care (in years)?**

Q6 **Which clinical setting do you spend most of your time?**

    At-home care (1)

    Hospice (2)

Public hospital (3)

Private hospital (4)

University/Research Institution (5)

Other (6) _____

Q7 Which best describes your current employment type?

Agency (1)

Casual (2)

Contract (3)

Permanent (4)

N/A (5)

Other (6) _____

Q8 In the past 12 months, have you experienced an increase in weekly working hours to support the pandemic response?

Yes (1)

No (2)

Unsure (3)

N/A (4)

Q9 In the past 12 months, have you cared for COVID-19 patients or suspected COVID-19 patients?

Yes (1)

No (2)

N/A (3)

Q10 In the past 12 months, has your workplace offered sufficient training related to the COVID-19 pandemic?

Yes (1)

No (2)

N/A (3)

Q11 In the past 12 months, has your workplace provided access to personal protective equipment (PPE) when required?

Yes (1)

No (2)

N/A (3)

Q12 In the past 12 months, has your workplace offered psychological support due to the COVID-19 pandemic?

Yes (1)

No (2)

N/A (3)

Q13 How have your daily professional duties impacted your quality of life, in comparison to before the pandemic?

Much better quality of life (1)

Somewhat better quality of life (2)

Same quality of life (3)

Somewhat worse quality of life (4)

Much worse quality of life (5)

Appendix C: Burnout Assessment Tool (BAT) Items

The following statements are related to your work situation, and how you experience this situation. Please state how often each statement applies to you. All items are to be rated on a 5-point scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always)

Core Symptoms

<u>Exhaustion</u>

1. At work, I feel mentally exhausted

2. Everything I do at work requires a great deal of effort

3. After a day at work, I find it hard to recover my energy

4. At work, I feel physically exhausted

5. When I get up in the morning, I lack the energy to start a new day at work

6. I want to be active at work, but somehow I am unable to manage

7. When I exert myself at work, I quickly get tired

8. At the end of my working day, I feel mentally exhausted and drained

<u>Mental Distance</u>

9. I struggle to find any enthusiasm for my work

10. At work, I do not think much about what I am doing and I function on autopilot

11. I feel a strong aversion towards my job

12. I feel indifferent about my job

13. I'm cynical about what my work means to others

<u>Cognitive Impairment</u>

14. At work, I have trouble staying focussed

15. At work, I struggle to think clearly

16. I'm forgetful and distracted at work

17. When I'm working, I have trouble concentrating

18. I make mistakes in my work because I have my mind on other things

Emotional Impairment

19. At work, I feel unable to control my emotions

20. I do not recognize myself in the way I react emotionally at work

21. During my work, I become irritable when things don't go my way

22. I get upset or sad at work without knowing why

23. At work, I may overreact unintentionally

Secondary Symptoms

Psychological Complaints

1. I have trouble falling or staying asleep

2. I tend to worry

3. I feel tense and stressed

4. I feel anxious and/or suffer from panic attacks

5. Noise and crowds disturb me

Psychosomatic Complaints

6. I suffer from palpitations or chest pain

7. I suffer from stomach and/or intestinal complaints

8. I suffer from headaches

9. I suffer from muscle pain (i.e. neck, shoulder or back)

10. I often get sick

Appendix D: Descriptive Questions

Q1 **We are interested in learning about your experience(s) of burnout as a palliative care provider during COVID-19. Are there any comments you wish to share regarding your experience(s) at an individual, organisational or systemic level?**

_____

Q2 **Do you wish to share any general comments about this survey?**

_____

Appendix E: Statistical Norms for the Core and Secondary Symptoms for the Burnout

Assessment Tool (BAT)

	Total Score	Exhaustion	Mental Distance	Cognitive Impairment	Emotional Impairment	Secondary Score
Low	≤ 1.55	≤ 1.75	≤ 1.20	≤ 1.40	≤ 1.20	≤ 1.45
Average	$1.56 - 2.79$	$1.76 - 2.99$	$1.21 - 2.99$	$1.41 - 2.60$	$1.21 - 2.79$	$1.46 - 2.79$
High	$2.80 - 3.64$	$3.00 - 3.99$	$3.00 - 3.99$	$2.61 - 3.79$	$2.80 - 3.99$	$2.80 - 3.59$
Very high	≥ 3.65	≥ 4.00	≥ 4.00	≥ 3.80	≥ 4.00	≥ 3.60