

Physiotherapy Theory and Practice

An International Journal of Physical Therapy

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/iptp20

Physiotherapists often encounter clients disclosing suicidal thoughts and behaviors: a cross-sectional survey of Australian physiotherapists

Ryan L. McGrath, Tracey Parnell, Sophie Shephard, Sarah Verdon & Rodney Pope

To cite this article: Ryan L. McGrath, Tracey Parnell, Sophie Shephard, Sarah Verdon & Rodney Pope (10 Mar 2024): Physiotherapists often encounter clients disclosing suicidal thoughts and behaviors: a cross-sectional survey of Australian physiotherapists, *Physiotherapy Theory and Practice*, DOI: [10.1080/09593985.2024.2327516](https://doi.org/10.1080/09593985.2024.2327516)

To link to this article: <https://doi.org/10.1080/09593985.2024.2327516>



© 2024 The Author(s). Published with license by Taylor & Francis Group, LLC.



[View supplementary material](#)



Published online: 10 Mar 2024.



[Submit your article to this journal](#)



Article views: 1235



[View related articles](#)








[View Crossmark data](#)

RESEARCH REPORT



Physiotherapists often encounter clients disclosing suicidal thoughts and behaviors: a cross-sectional survey of Australian physiotherapists

Ryan L. McGrath BPhysio(Hons), PT ^{a,b,c}, Tracey Parnell PhD, OT ^b, Sophie Shephard MScMed(PainMgmt), PT ^b, Sarah Verdon PhD, SLP ^b, and Rodney Pope PhD, PT ^b

^aDepartment of Rural Health, The University of Melbourne, Shepparton, Victoria, Australia; ^bSchool of Allied Health, Exercise and Sports Sciences, Charles Sturt University, Albury, New South Wales, Australia; ^cAllied Health Education and Research Unit, Goulburn Valley Health, Shepparton, Victoria, Australia

ABSTRACT

Background: All health professionals have a role in suicide prevention, although little is known about physiotherapists' contact with clients experiencing suicidal thoughts and behaviors.

Objective: The aims of this study were to investigate physiotherapists' self-reported frequency of contact with clients who disclose suicidal thoughts and behaviors and to identify potential factors associated with frequency of contact.

Methods: Three-hundred and thirty-eight Australian physiotherapists were surveyed using an online questionnaire, with an estimated response rate of 6.1%. Data were analyzed using descriptive analysis and logistic regression.

Results: Over half the respondents (52.1%) reported encountering clients at least once a year who disclosed suicidal thoughts, and nearly half (49.4%) reported having received at least one disclosure of a suicide plan at some point in their career. Among those working in the public sector, 67.5% of respondents reported having received a disclosure of a suicide plan, and almost all physiotherapists working in pain management reported having received such a disclosure (93.8%). The binary logistic regression model explained approximately 39.7% of the variance in whether a physiotherapist had a client disclose a plan for suicide at some point in their career or not.

Conclusion: The results highlight that all physiotherapists should receive training in suicide prevention.

ARTICLE HISTORY

Received 19 December 2023

Revised 2 March 2024

Accepted 3 March 2024



KEYWORDS


Physiotherapy; psychological distress; mental illness; trauma; suicide

Introduction

Governments around the world recognize suicide as a public health crisis and consider suicide prevention to be a priority area (Centers for Disease Control and Prevention, 2022; National Mental Health Commission, 2023; Public Health Agency of Canada, 2023). Suicide is one of the primary causes of premature death and has significant personal, social and economic consequences (Australian Bureau of Statistics, 2023; Kennelly, 2007). The World Health Organization (2021) estimates that approximately 700,000 people die by suicide each year, although this is likely an underestimate given the reluctance of coroners and medical examiners to list the cause of death as suicide unless it is unambiguous (Tatz and Tatz, 2019). In Australia, the economic cost of suicide is estimated to be more than \$1.6 billion annually (Mental Health Australia, 2024).

The act of suicide is a multifaceted issue that has attracted the attention of researchers from various fields. While not a definitive list, Tatz and Tatz (2019) described 36 categories of suicide. The medical conceptualization of suicide views suicidal thoughts and behaviors as a symptom of mental illness (Bowl, 2016; Holton, 2003; Rodríguez-Otero et al, 2021; Tatz and Tatz, 2019). However, other conceptualizations, such as those from the sociological literature, are increasingly recognized. Reynolds (2016) argued that from a sociological lens, "suicide is not something that happens to one person, and it is not something that one person does." Rather, suicides are contextually bound events, meaning that multiple conditions in society play an active role in the emergence and persistence of suicidal thoughts and behaviors (Reynolds, 2016). More recently, intersectionality theory has provided a new lens to understanding how multiple marginalized identities may have a compounding effect in regard to

CONTACT Ryan L. McGrath  ryan.mcgrath@unimelb.edu.au  Department of Rural Health, The University of Melbourne, 49 Graham Street, Shepparton VIC 3630, Australia

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/09593985.2024.2327516>

© 2024 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

suicidality (Standley, 2022). Consequently, suicide is a complex phenomenon, and one that is highly unpredictable (Soper, Ocejo, and Large, 2022)

Despite suicide prevention organizations, such as Suicide Prevention Australia (2023), arguing that everyone has a role in suicide prevention, suicide prevention has largely remained an activity performed by clinicians employed by, or closely affiliated with, mental health services (Bowl, 2016). Previous research has largely focused on the primary mental health professions (e.g. psychiatrists, psychologists, & nurses) in preventing suicide (Dabkowski and Porter, 2021). However, recently, there has been a growing interest across many of the allied health disciplines regarding their role in suicide prevention (Albright and Tower, 2022; Anderson, 2016; Cupler et al, 2021; Kashiwa, Sweetman, and Helgeson, 2017; Maple, Pearce, Sanford, and Cerel, 2017; McGrath et al, 2023; Murphy et al, 2020).

Several factors have contributed to this growing attention to suicide prevention among the allied health professions. One notable reason is that the allied health workforce now represents approximately one quarter of the entire Australian health workforce (Australian Health Practitioner Regulation Agency, 2022; Australian Institute of Health Welfare, 2022). Nearly half of the people who die by suicide visit their primary care provider in the month preceding their death (Hauge et al, 2018; Stene-Larsen and Reneflot, 2017); the primary care provider often refers to medical practitioners (family physicians/general practitioners). Data relating to contact between people experiencing suicidal thoughts and behaviors and allied health professionals are limited. Taylor et al. (2007) conducted a study on a random sample of South Australians and found that, among individuals who had consulted an allied health professional (optometrist, physiotherapist, chiropractor, occupational therapist, or audiologist) in the past 4 weeks, almost one in ten were experiencing thoughts of suicide.

As the second largest allied health profession in Australia, the potential contribution of the physiotherapy workforce to reducing suicide is worthy of attention. Despite data suggesting that physiotherapists encounter people experience suicidal thoughts (Taylor et al, 2007), relatively few studies have investigated encounters between physiotherapists and clients experiencing suicidal thoughts and behaviors (McGrath et al., 2021). To date, two qualitative studies have specifically focused on investigating such encounters (Lundin and Bergenheim, 2020; McGrath et al., 2020). These studies found that physiotherapists are motivated to play a role in preventing suicide though they often lack confidence in supporting people experiencing suicidal thoughts

and behaviors (Lundin and Bergenheim, 2020; McGrath et al, 2020; McGrath, Parnell, Verdon, and Pope, 2022). When physiotherapists are unable to recognize signs of suicidal thoughts and behaviors or lack competence and confidence to provide appropriate support (such as brief assessment and referral), there is the possibility for poor client outcomes (including preventable death by suicide) and psychological trauma for the clinician.

While the qualitative studies by Lundin and Bergenheim (2020) and McGrath et al. (2020) provide insight into the experiences of physiotherapists with clients experiencing suicidal thoughts and behaviors, they do not provide data related to physiotherapists' frequency of contact with clients disclosing suicidal thoughts and behaviors. As previously mentioned, the study by Taylor et al. (2007) found the prevalence of suicidal thoughts and behaviors among people who had attended physiotherapy services to be 5.4%. However, the sample of clients who had consulted physiotherapists in the study by Taylor et al. (2007) was small ($n = 249$). Similarly, Herdman, Sharma, Simpson, and Murdin (2020) reported the prevalence of suicidal thoughts and behaviors among people who had attended a neuro-otology clinic staff by physiotherapists to be 5.4%; however, this finding was specific to a single neuro-otology clinic.

Based on the data from the studies conducted by Taylor et al. (2007) and Herdman, Sharma, Simpson, and Murdin (2020), McGrath et al. (2021) estimated that physiotherapists may encounter between two to five clients each week who are actively experiencing suicidal thoughts and behaviors. However, contact between physiotherapists and clients with suicidal thoughts and behaviors may be higher in specific areas of practice such as chronic pain. Chronic pain is a distressing experience that can have severe effects on the person's mental health (IsHak et al, 2018; Stilwell et al, 2022). The prevalence of current suicidal ideation among people with chronic pain is reported to vary from 8% to 41% (Racine, 2018). It may be argued that suicidal thoughts and behaviors that emerge in context of pain may serve as a maladaptive coping mechanism, with the person viewing death as an escape from pain (Soper, 2018; Sun, 2011). One of the 36 categories of suicide described by Tatz and Tatz (2019) is the "logical suicide," which refers to the situation in which a "person concludes that their situation is irremediable, and with intellectual clarity concludes that the best way to end the pain is by death." However, the expression of suicidal thoughts and behaviors may also be a help-seeking behavior, and there are many circumstances other than chronic pain, such as oppression, unemployment,

isolation, and loss, that may lead to these thoughts (Tatz and Tatz, 2019).

There are many barriers that may prevent the disclosure of suicidal thoughts and behaviors to a health-care professional. A qualitative study of 26 people who did not report suicidal ideation at a health-care visit prior to a suicide attempt found that they were “*either not experiencing suicidal ideation at the time of screening or feared the outcome of disclosure, including stigma, overreaction, and loss of autonomy*” (Richards et al., 2018). Physiotherapists are predominantly viewed as physical health professionals, and this could be a barrier to disclosure, as clients may not feel that disclosure of suicidal thoughts and behaviors is appropriate in this setting. However, McGrath et al. (2023) suggested that this perception may contribute to physiotherapists having contact with people at risk of suicide who may otherwise be difficult to reach due to the stigma associated with seeking mental health support. Hom, Stanley, Podlogar, and Joiner (2017) found that people experiencing suicidal thoughts and behaviors seek emotional support and understanding. Physiotherapists participating in the qualitative study by McGrath et al. (2020) reported that their relatively long appointment times in comparison to general practitioners meant they were able to develop trust with their clients, which is a facilitator for disclosure of suicidal thoughts and behaviors (Ganzini et al., 2013). Furthermore, in recent decades, the advent of psychologically informed physiotherapy has seen an increasing focus on identifying and assessing psychological factors, using tools such as the OSPRO-YF (Lentz et al., 2016) and Örebro Musculoskeletal Pain Question (Linton, Nicholas, and MacDonald, 2011). Physiotherapists who integrate psychosocial elements may create an environment in which people are invited to express their emotions (Dillon et al., 2023); however, previous research has shown many physiotherapists feel inadequate to engage in psychologically informed practice, particularly asking about suicidal thoughts and behaviors (Driver, Lovell, and Oprescu, 2021; McGrath et al., 2020).

In addition to the barriers that may prevent a person overtly disclosing suicidal thoughts and behaviors, expressions of suicidal thoughts and behaviors by clients may be subtle (Bradley and Toole, 2022; Knapp, 2022; Picard and Rosenfeld, 2021). For example, expressions of worthlessness, perceived burdensomeness, self-loathing, and hopelessness, are signs that suicidal thoughts may be present and an invitation by the person to explore these further (Bradley and Toole, 2022; Knapp, 2022). Health professionals who are sensitive to distress in others (which is an aspect of compassion),

may be more likely to recognize these signs (Cole-King, Parker, Williams, and Platt, 2013). While all health professionals are expected to care for clients, physiotherapists’ level of compassion and empathy is known to vary among individual practitioners, and to change overtime (McCombie, O’Connor, and Schumacher, 2015; Valgento et al., 2019). Although a health professional’s sensitivity to distress in others and suicide prevention training may potentially influence their ability to recognize signs of suicidal thoughts and behaviors, systemic factors such as time pressures and back-to-back clinical encounters, as well as personal factors like stress at home, may also impact their capacity to become emotionally attuned with their clients (Ashton-James et al., 2021; Dillon et al., 2023).

Overall, little is known about how frequently physiotherapists encounter clients who disclose suicidal thoughts and behaviors, and what factors may influence frequency of contact. Recently, the authors conducted a survey of Australian physiotherapists to investigate their perceived frequency of encounters with clients experiencing psychological distress (McGrath, Verdon, Parnell, and Pope, 2023). Building on that work and drawing on additional data from the survey, the aims of this study were to investigate physiotherapists’ self-reported frequency of contact with clients who disclose suicidal thoughts and behaviors and to identify potential factors that predict perceived contact. Based on a review of the literature, the authors hypothesized that the number of clients seen per week, sector of employment, clinical area of practice, length of initial client assessment (Hutton and Gunn, 2007), clinician’s compassion for others (Robbins et al., 1994), clinician’s psychosocial orientation (Sinnema et al., 2018), and mental health/suicide prevention training (Diamond et al., 2011) would be associated with self-reported frequency of contact.

Method

The study received ethics approval from the Human Research Ethics Committee of Charles Sturt University (Protocol Reference H22213) and findings from the survey relating to physiotherapists’ contact with clients they perceived to be experiencing psychological distress have been previously reported (McGrath, Verdon, Parnell, and Pope, 2023). In contrast, this report is focused on data from the survey that pertains to physiotherapists’ contact with clients specifically disclosing suicidal thoughts and behaviors. Relevant methodological details have been reported below. For further information regarding the survey methods, please see the companion paper (McGrath, Verdon, Parnell, and Pope, 2023).

Participants and setting

Between July 2022 and October 2022, an online questionnaire was advertised to currently registered and clinically practicing Australian physiotherapists. To participate, physiotherapists must have been practicing clinically at least part-time. The sampling method was non-probabilistic, utilizing purposive and snowball sampling approaches. The study was advertised using social media, and the Australian Physiotherapy Association (APA) monthly electronic newsletter. Participation was incentivized by offering participants who completed the survey the opportunity to enter a draw for an AUD 500 APA professional development voucher.

Sample size

Statistical power analysis using G*Power (Faul, Erdfelder, Lang, and Buchner, 2009) indicated that to detect an odds ratio of 1.50, assuming a statistical power of 0.80 and a significance level of 0.05, a sample size of 307 would be required, and this was exceeded by the number of responses available in the survey data set ($N = 338$). While the calculation of precision of population estimates is problematic for nonrandom samples, given a confidence level of 95%, population size of 37,414 (Physiotherapy Board of Australia, 2022), and the final sample of 338 participants, the margin of error for frequencies estimated from the survey was calculated to be 5.31% if the sample was assumed to be representative of the underlying population.

Materials

The survey consisted of 32 questions and was hosted on the SurveyMonkey platform. The survey included questions related to participant demographics, perceived

frequency of contact, and attitudes and beliefs of the participating physiotherapists regarding psychosocial orientation and practice (Table 1).

Attitudes and beliefs related to psychosocial orientation and practice were measured using the modified Physician Belief Scale (mPBS) (McLennan et al, 1999) and the Compassion for Others Scale (Gilbert et al, 2017). The mPBS (McLennan et al, 1999) is a 14-item measure of psychosocial orientation adapted from the Physician Belief Scale (Ashworth, Williamson, and Montano, 1984). The scale has two sub-scales. The first sub-scale measures the “beliefs and feelings” of health-care providers toward psychosocial practice, and the second sub-scale measures self-reported “burden” of providing psychosocial care. The Compassion for Others Scale (Gilbert et al, 2017) is a 10-item measure of self-rated compassion for others, providing insight into a person’s sensitivity to distress in others. Two sub-scales, “engagement” and “action” are contained within the scale. Higher scores on the Compassion for Others Scale reflect higher levels of compassion for others. The mPBS and the Compassion for Others Scale have been shown to demonstrate good reliability (Gilbert et al, 2017; McLennan et al, 1999).

Data analysis

The response rate of the survey was estimated using data from the LinkedIn paid “sponsored content” advertisements as per the method described in the companion paper (McGrath, Verdon, Parnell, and Pope, 2023). To investigate relationships between the hypothesized predictor variables and the frequency of physiotherapist contact with clients experiencing suicidal thoughts and behaviors, a series of ordinal and logistic regression analyses were conducted. Prior to conducting these analyses, an outlier was removed from the analyses

Table 1. Criterion and predictor variables used for regression analyses.

Variable	Type	Reference category
Criterion		
FOC with clients suspected to be experiencing suicidal thoughts	Multi-level categorical variable	Never
FOC with clients who disclosed suicidal thoughts	Dichotomous categorical variable	Less often than yearly (including never)
FOC with clients who disclosed a suicide plan	Dichotomous categorical variable	Never
Predictor		
Number of clients seen per week	Continuous variable	N/A
Clinical sector	Multi-level categorical variable	Private sector
Clinical area of practice	Multi-level categorical variable	Musculoskeletal
Typical length of initial client assessment	Continuous variable	N/A
Total score on the Compassion for Others Scale	Continuous variable	N/A
Total score on the mPBS	Continuous variable	N/A
MHFA or similar course	Dichotomous categorical variable	No MHFA
Crisis intervention training	Dichotomous categorical variable	No crisis intervention training

Mental Health First Aid® (MHFA) is a common psychological first aid training program in Australia. mPBS = modified Physician Belief Scale. FOC = Frequency of contact. N/A = not applicable.

based on visual inspection of the frequency table. The assumption of proportional odds was violated for ordinal logistic regression analyses for physiotherapists' frequency of contact with clients who (i) they suspected were having thoughts of suicide, (ii) disclosed thoughts of suicide, and (iii) disclosed a plan for suicide. Subsequently, binary logistic regression analysis was conducted to investigate the associations between the hypothesized predictors and the frequencies of contact with clients who disclosed thoughts of suicide (dichotomized as "yearly or more often" or "less often than yearly [including never]") and with clients who disclosed a plan for suicide (dichotomized as "have received a disclosure" or "never"). Predictor variables with 10 or less cases were collapsed into an "other" category. Linearity of the continuous variables with respect to the logit of the dependent variable was assessed via the Box-Tidwell procedure. All continuous independent variables were found to be linearly related to the logit of the dependent variable.

Based on observation of the bimodal distributions of physiotherapists frequencies of contact with clients suspected to be experiencing suicidal thoughts by the private sector physiotherapist subsample and the musculoskeletal physiotherapist subsample (see results), a cumulative odds ordinal logistic regression analysis with proportional odds was conducted to further investigate this finding. Unlike for the entire sample, the assumption of proportional odds was not violated when analyzing the subsample of private sector physiotherapists. Variables with 10 or less cases were again collapsed into the "other" category.

Results

Descriptive statistics relevant to the aims of the current study are reported below. Descriptive statistics for all survey items are reported in supplemental online material 2 of the companion article (McGrath, Verdon, Parnell, and Pope, 2023).

Demographics

Four hundred and forty-one physiotherapists completed the survey; however, only 338 responded to the questions related to the dependent variable of interest: clients disclosing suicidal thoughts and behaviors. Based on the total number of LinkedIn sponsored messaging advert views (1,564) and survey link visits (95), the survey response rate was estimated to be approximately 6.1%. The sample consisted of 273 women (80.8%), 62 men (18.3%), and one non-binary person (0.3%), with another two respondents not disclosing their gender

(0.6%). The sample over-represented females when compared to national physiotherapy registrant data for 2022, which indicates that women comprised 64.3% and men comprised 35.7% of registered physiotherapists in Australia (Physiotherapy Board of Australia, 2022). The ages of respondents ranged from 22 to 73 years ($M = 40.6$ years, $SD = 11.2$) and years of clinical experience ranged from 1 to 52 years ($M = 16.3$ years, $SD = 11.6$), with the mean years of experience slightly higher for respondents in this study than that for the overall Australian physiotherapist population (Australian Government Department of Health, 2019). In terms of current employment, 193 (57.1%) respondents worked in the private sector, 83 (24.6%) respondents worked in the public sector, 27 (8.0%) respondents worked in the charity or not-for-profit sector, and 35 (10.4%) worked across multiple sectors. Direct comparison of these figures to those for the overall Australian physiotherapist population was not possible as the Australian Government Department of Health (2019) reports principal employment as private sector (72.0%) or public sector (28.0%); no further breakdown is available. Table 2 provides a comparison of participants' areas of practice with of the overall Australian physiotherapist population (Australian Government Department of Health, 2019).

Perceived frequency of contact with clients disclosing suicidal thoughts and behaviors

Physiotherapists' perceived frequencies of contact with clients experiencing suicidal thoughts and behaviors are reported in Table 3 by sector, and Table 4 by primary area of practice. The majority of physiotherapists working in the public sector (68.3%, $n = 56/82$) and not-for-profit sector (66.7%, $n = 18/27$) reported disclosures of suicidal thoughts at least once a year. In contrast, the majority of physiotherapists working in the private sector (56.3%, $n = 108/192$) reported receiving disclosures less often than yearly or never. Over two-thirds (67.5%, $n = 56/83$) of public sector physiotherapists and approximately half (55.6%, $n = 15/27$) in the not-for-profit sector had, at some point in their career, encountered clients who disclosed a plan for suicide to them. In contrast, less than half of physiotherapists (39.3%, $n = 75/191$) working in the private sector had received disclosure of a suicide plan. Visual inspection of the histograms organized by sector revealed that while public, and mixed sectors demonstrated a unimodal distribution for frequencies of contact with clients suspected of having suicidal thoughts, those working in the private sector exhibited a bimodal distribution, with the

Table 2. Participants' areas of practice verses Australian physiotherapist population.

Characteristic	Survey participants		National data (Australian physiotherapists)	
	n	%	n	%
Principal scope of practice				
Musculoskeletal/Orthopaedic/Pain	122	36.1	15,610	52.9
Musculoskeletal	96	28.4	N/A	N/A
Orthopaedic	10	3.0	N/A	N/A
Pain	16	4.7	N/A	N/A
WMPH	40	11.8	815	2.8
Gerontology	32	9.5	4,508	15.3
Neurological	32	9.5	2,118	7.2
Pediatrics	31	9.2	1,511	5.1
Disability	20	5.9	N/A	N/A
Cardiorespiratory	13	3.8	1,757	6.0
Sports and Exercise	12	3.6	796	2.7
Cancer, Palliative Care and Lymphedema	7	2.1	N/A	N/A
Emergency Department	5	1.5	N/A	N/A
Mental Health	2	0.6	N/A	N/A
Other	22	6.5	1,640	5.6
Missing	0	0.0	753	2.6
Total	338	100.0	29,508	100.0

N/A = not available.

Table 3. Physiotherapists' frequencies of contact with clients experiencing suicidal thoughts and behaviors by sector.

	Daily		Weekly		Monthly		A few times a year		About once a year		Less often than yearly		Never		
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Clients suspected to be experiencing suicidal thoughts															
Public	83	2	2.4%	7	8.4%	18	21.7%	29	34.9%	15	18.1%	10	12.0%	2	2.4%
Private	191	1	0.5%	20	10.5%	19	9.9%	58	30.4%	21	11.0%	51	26.7%	21	11.0%
Not-for-profit	27	0	0.0%	5	18.5%	4	14.8%	7	25.9%	3	11.1%	4	14.8%	4	14.8%
Mixed	35	1	2.9%	2	5.7%	5	14.3%	11	31.4%	8	22.9%	6	17.1%	2	5.7%
Total	336	4	1.2%	34	10.1%	46	13.7%	105	31.3%	47	14.0%	71	21.1%	29	8.6%
Clients who disclosed suicidal thoughts															
Public	82	2	2.4%	5	6.1%	7	8.5%	21	25.6%	21	25.6%	17	20.7%	9	11.0%
Private	192	0	0.0%	3	1.6%	16	8.3%	32	16.7%	33	17.2%	55	28.6%	53	27.6%
Not-for-profit	27	0	0.0%	1	3.7%	3	11.1%	6	22.2%	8	29.6%	3	11.1%	6	22.2%
Mixed	35	1	2.9%	1	2.9%	3	8.6%	1	2.9%	11	31.4%	11	31.4%	7	20.0%
Total	336	3	0.9%	10	3.0%	29	8.6%	60	17.9%	73	21.7%	86	25.6%	75	22.3%
Clients who disclosed a plan for suicide															
Public	83	0	0.0%	0	0.0%	4	4.8%	10	12.0%	17	20.5%	25	30.1%	27	32.5%
Private	191	0	0.0%	0	0.0%	4	2.1%	5	2.6%	17	8.9%	49	25.7%	116	60.7%
Not-for-profit	27	0	0.0%	0	0.0%	0	0.0%	2	7.4%	8	29.6%	5	18.5%	12	44.4%
Mixed	35	1	2.9%	0	0.0%	0	0.0%	1	2.9%	6	17.1%	12	34.3%	15	42.9%
Total	336	1	0.3%	0	0.0%	8	2.4%	18	5.4%	48	14.3%	91	27.1%	170	50.6%

The modal response for each reported thought/behavior is bolded. The "totals" also appear in the companion article by McGrath, Verdon, Parnell, and Pope (2023).

major mode of "a few times a year" ($n = 58$), a minor mode of "less often than yearly" ($n = 51$), and an antimode of "about once a year" ($n = 21$).

Regarding primary area of practice, half or more of physiotherapists working in pain management (81.3%, $n = 13/16$) and neurological physiotherapy (50.0%, $n = 16/32$) reported encountering clients who had disclosed thoughts of suicide at least a few times a year, compared with 16.1% ($n = 5/31$) of pediatric physiotherapists and 17.7% ($n = 17/96$) of musculoskeletal physiotherapists. Regarding clients who disclosed a suicide plan, 56.3% (9/16) of physiotherapists working in pain management reported having clients disclose a plan for suicide about once a year or more frequently, compared with 11.6% ($n = 11/95$) of musculoskeletal

physiotherapists. Meaningful visual inspection of the histograms of some areas of practice was limited by the small numbers of respondents. However, musculoskeletal care, representing the largest practice area ($n = 95$), displayed a bimodal distribution for frequency of contact with clients suspected of having suicidal thoughts, with modes of "a few times a year" ($n = 29$) and "less often than yearly" ($n = 29$) separated by an antimode of "about once a year" ($n = 14$).

Training in mental health first aid and suicide/crisis intervention

Regarding mental health first aid and suicide/crisis intervention training (see Table 5 for frequency of

Table 4. Physiotherapists' frequencies of contact with clients experiencing suicidal thoughts and behaviors by area of practice.

	Daily			Weekly		Monthly		A few times a year		About once a year		Less often than yearly		Never	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Clients suspected to be experiencing suicidal thoughts															
Musculoskeletal	95	0	0.0%	3	3.2%	10	10.5%	29	30.5%	14	14.7%	29	30.5%	10	10.5%
Gerontology	32	0	0.0%	3	9.4%	7	21.9%	11	34.4%	2	6.3%	6	18.8%	3	9.4%
Neurological	32	1	3.1%	5	15.6%	3	9.4%	14	43.8%	3	9.4%	4	12.5%	2	6.3%
Cardiorespiratory	13	0	0.0%	3	23.1%	1	7.7%	5	38.5%	2	15.4%	2	15.4%	0	0.0%
Paediatrics	31	0	0.0%	3	9.7%	0	0.0%	6	19.4%	9	29.0%	8	25.8%	5	16.1%
WMPH	40	0	0.0%	2	5.0%	7	17.5%	11	27.5%	7	17.5%	12	30.0%	1	2.5%
Sports and Exercise	12	0	0.0%	1	8.3%	3	25.0%	2	16.7%	1	8.3%	2	16.7%	3	25.0%
Pain	16	0	0.0%	5	31.3%	4	25.0%	6	37.5%	0	0.0%	0	0.0%	1	6.3%
Disability	20	0	0.0%	6	30.0%	4	20.0%	4	20.0%	3	15.0%	1	5.0%	2	10.0%
Total	336	4	1.2%	34	10.1%	46	13.7%	105	31.3%	47	14.0%	71	21.1%	29	8.6%
Clients who disclosed suicidal thoughts															
Musculoskeletal	96	0	0.0%	1	1.0%	2	2.1%	14	14.6%	21	21.9%	33	34.4%	25	26.0%
Gerontology	32	0	0.0%	1	3.1%	3	9.4%	5	15.6%	9	28.1%	8	25.0%	6	18.8%
Neurological	32	1	3.1%	1	3.1%	2	6.3%	12	37.5%	5	15.6%	10	31.3%	1	3.1%
Cardiorespiratory	13	1	7.7%	1	7.7%	1	7.7%	3	23.1%	3	23.1%	1	7.7%	3	23.1%
Paediatrics	31	0	0.0%	1	3.2%	2	6.5%	2	6.5%	4	12.9%	7	22.6%	15	48.4%
WMPH	38	0	0.0%	0	0.0%	4	10.5%	7	18.4%	7	18.4%	12	31.6%	8	21.1%
Sports and Exercise	12	0	0.0%	0	0.0%	0	0.0%	1	8.3%	4	33.3%	4	33.3%	3	25.0%
Pain	16	0	0.0%	1	6.3%	6	37.5%	6	37.5%	2	12.5%	0	0.0%	1	6.3%
Disability	20	0	0.0%	1	5.0%	6	30.0%	2	10.0%	4	20.0%	1	5.0%	6	30.0%
Total	336	3	0.9%	10	3.0%	29	8.6%	60	17.9%	73	21.7%	86	25.6%	75	22.3%
Clients who disclosed a plan for suicide															
Musculoskeletal	95	0	0.0%	0	0.0%	0	0.0%	3	3.2%	8	8.4%	26	27.4%	58	61.1%
Gerontology	32	0	0.0%	0	0.0%	0	0.0%	1	3.1%	7	21.9%	12	37.5%	12	37.5%
Neurological	32	1	3.1%	0	0.0%	0	0.0%	3	9.4%	8	25.0%	8	25.0%	12	37.5%
Cardiorespiratory	13	0	0.0%	0	0.0%	2	15.4%	1	7.7%	2	15.4%	2	15.4%	6	46.2%
Paediatrics	31	0	0.0%	0	0.0%	0	0.0%	1	3.2%	3	9.7%	3	9.7%	24	77.4%
WMPH	39	0	0.0%	0	0.0%	1	2.6%	3	7.7%	4	10.3%	8	20.5%	23	59.0%
Sports and Exercise	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	8.3%	4	33.3%	7	58.3%
Pain	16	0	0.0%	0	0.0%	0	0.0%	3	18.8%	6	37.5%	6	37.5%	1	6.3%
Disability	20	0	0.0%	0	0.0%	1	5.0%	1	5.0%	4	20.0%	3	15.0%	11	55.0%
Total	336	1	0.3%	0	0.0%	8	2.4%	18	5.4%	48	14.3%	91	27.1%	170	50.6%

The modal response for each reported thought/behavior is bolded. WMPH = Women's, Men's and Pelvic Health. To improve clarity, areas of practice with 10 or less respondents (cancer, palliative care and lymphedema; orthopedics; mental health; and emergency department) and "other area of practice" are omitted from this table and reported in supplemental online material 2. The "totals" also appear in the companion article by McGrath, Verdon, Parnell, and Pope (2023).

Table 5. Physiotherapists' frequencies of contact with clients experiencing suicidal thoughts and behaviors by training status.

	Daily			Weekly		Monthly		A few times a year		About once a year		Less often than yearly		Never	
	N	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Clients suspected to be experiencing suicidal thoughts															
No Training	222	3	1.4%	20	9.0%	27	12.2%	62	27.9%	29	13.1%	52	23.4%	29	13.1%
MHFA	90	1	1.1%	12	13.3%	13	14.4%	35	38.9%	13	14.4%	16	17.8%	0	0.0%
Suicide Intervention	38	1	2.6%	4	10.5%	9	23.7%	13	34.2%	7	18.4%	4	10.5%	0	0.0%
Total	334	4	1.2%	34	10.2%	46	13.8%	104	31.1%	47	14.1%	70	21.0%	29	8.7%
Clients who disclosed suicidal thoughts															
No Training	221	2	0.9%	7	3.2%	16	7%	32	14.5%	45	20.4%	57	25.8%	62	28.1%
MHFA	91	1	1.1%	3	3.3%	7	8%	24	26.4%	19	20.9%	25	27.5%	12	13.2%
Suicide Intervention	38	0	0.0%	2	5.3%	8	21%	7	18.4%	12	31.6%	9	23.7%	0	0.0%
Total	334	3	0.9%	10	3.0%	29	9%	60	18.0%	72	21.6%	86	25.7%	74	22.2%
Clients who disclosed a plan for suicide															
No Training	221	1	0.5%	0	0.0%	3	1.4%	10	4.5%	27	12.2%	49	22.2%	131	59.3%
MHFA	91	0	0.0%	0	0.0%	4	4.4%	8	8.8%	14	15.4%	30	33.0%	35	38.5%
Suicide Intervention	38	0	0.0%	0	0.0%	4	10.5%	2	5.3%	11	28.9%	15	39.5%	6	15.8%
Total	334	1	0.3%	0	0.0%	8	2.4%	18	5.4%	48	14.4%	90	26.9%	169	50.6%

Note. The modal response for each reported thought/behavior is bolded. Some participants had completed both MHFA and Suicide/Crisis Intervention training, therefore, the sum of no training, MHFA and Suicide/Crisis Intervention training exceeds the reported total.

contact by training level), 27.2% ($n = 91/334$) of participants had received training in mental health first aid (or similar training) and 11.4% ($n = 38/334$) of participants had received training in suicide/crisis support. Of the

physiotherapists who had received a disclosure of thoughts of suicide at some point in their career, 61.2% ($n = 159/260$) had not received training in mental health first aid or suicide/crisis support. Similarly, of the

physiotherapists who reported receiving disclosures of suicidal ideation a few times a year or more frequently, 55.9% ($n = 57/102$) had not received training in mental health first aid or suicide/crisis support. Of the participants who reported having had a client disclose a plan for suicide, 54.5% (90/165) had not completed mental health first aid or a similar course or suicide/crisis support training, 33.9% (56/165) had received training in mental health first aid, and 19.4% ($n = 32/165$) had received training in suicide/crisis support.

Predictors of contact with clients disclosing suicidal thoughts and behaviors

Table 6 reports the full results of the binary logistic regression models. The binary logistic regression model included the following variables as predictors for (not) having had a patient disclose a plan for suicide: number of clients seen each week, sector, primary area of practice, typical length of initial client assessment, Compassion for Others Scale score, modified Physician Belief Scale score, mental health first aid training status, and crisis training status. This model was statistically significant, $\chi^2(18) = 108.62$, $p < .001$, explaining 39.7% of the variance (Nagelkerke R^2) in disclosure status. The model was able to correctly predict disclosure status for 72.3% of physiotherapists, with a sensitivity of 72.0%, a specificity of 72.7%, a positive predictive value of

73.4% and a negative predictive value of 71.2%. The level of discrimination of the model was excellent according to the criteria specified by Hosmer et al. (2013), with the area under the ROC curve being .821, [95% CI .775–.867].

Physiotherapists in pain management and neurological physiotherapists had higher odds of reporting a client disclosing a plan for suicide than musculoskeletal physiotherapists, with associated odds ratios of 13.2 ($p = .019$) and 4.0 ($p = .014$), respectively. Those in the public sector had 5.8 times the odds of reporting a client disclosing a plan for suicide as those observed among physiotherapists in the private sector ($p < .001$), while those working across multiple sectors had 3.0 times the odds ($p = .025$). Regarding training, those with mental health first aid and crisis intervention training had higher odds of reporting a client disclosing a suicide plan than those without such training, with odds ratios of 2.5 ($p = .008$) and 4.1, respectively ($p = .008$). Psychosocial orientation, compassion for others, and the number of clients seen per week were also statistically significant predictors of having had a client disclose a plan for suicide.

The binary logistic regression model for predicting frequency of contact of physiotherapists with clients who had disclosed suicidal thoughts (dichotomized as “yearly or more often” or “less often than yearly [including never]”), with the same variables entered as predictors, explained 28.0% of the variance (Nagelkerke R^2)

Table 6. Binary logistic regression analyses of predictors of encounters with clients disclosing suicidal ideation, and plans.

Predictors	Disclosed suicidal ideation			Disclosed a plan for suicide		
	β	OR	95% CI	β	OR	95% CI
Number clients seen each week	0.01	1.01	0.99, 1.02	0.02**	1.02	1.01, 1.04
Sector (Reference = Private sector)						
Public sector	1.25**	3.49	1.67, 7.30	1.76***	5.80	2.59, 12.95
Not-for-profit and charity	0.95	2.57	0.87, 7.62	0.69	2.00	0.68, 5.89
Multiple sectors	0.23	1.26	0.52, 3.01	1.10*	3.00	1.15, 7.84
Primary area of practice (Reference = Musculoskeletal)						
Gerontology	0.74	2.10	0.76, 5.84	1.06	2.88	0.97, 8.56
Neurological	1.01	2.74	0.99, 7.56	1.37*	3.95	1.32, 11.88
Cardiorespiratory	1.15	3.17	0.78, 12.87	0.24	1.27	0.31, 5.14
Pediatrics	−0.45	0.64	0.21, 1.90	−0.53	0.59	0.17, 1.97
Women's, Men's, and Pelvic Health	0.17	1.18	0.48, 2.93	−0.13	0.87	0.32, 2.36
Sports and Exercise	0.60	1.82	0.49, 6.77	0.84	2.32	0.58, 9.29
Pain	2.39*	10.88	1.30, 91.02	2.58*	13.22	1.53, 114.49
Disability	1.07	2.92	0.84, 10.18	0.50	1.65	0.46, 5.86
Other	0.64	1.90	0.77, 4.65	1.01*	2.76	1.04, 7.30
Typical length of initial client assessment	0.01	1.01	0.99, 1.03	0.01	1.01	0.99, 1.03
Compassion for Other Scale score	0.02	1.02	0.99, 1.05	0.04**	1.05	1.01, 1.08
Modified Physician Belief Scale score	−0.06***	0.94	0.91, 0.97	−0.06**	0.94	0.91, 0.98
Mental Health First Aid® training status	0.25	1.29	0.70, 2.37	0.91**	2.48	1.27, 4.83
Crisis intervention training status	0.65	1.92	0.79, 4.68	1.41**	4.08	1.46, 11.43
Model Summary						
χ^2	72.29			108.62		
Df	18, 307			18, 307		
Nagelkerke R^2	0.28			0.40		
P	< .001			< .001		

* $p < .05$. ** $p < .01$. *** $p < .001$. OR = Odds Ratio. OR = 1 indicates the predictor is not associated with the odds of the outcome, OR > 1 indicates the predictor is positively associated with the odds of the outcome, and OR < 1 indicates the predictor is negatively associated with odds of the outcome.

in disclosure status and was statistically significant, $\chi^2(18) = 72.29, p < .001$. The model was able to correctly predict disclosure status for 68.7% of physiotherapists, with a sensitivity of 73.5%, a specificity of 63.1%, a positive predictive value of 70.1% and a negative predictive value of 66.9%. The area under the ROC curve was .767, [95% CI .715–.819], which according to Hosmer et al. (2013) is an acceptable level of discrimination of the model. Physiotherapists working in pain management had 10.9 times the odds of encountering clients disclosing thoughts of suicide yearly or more often as those observed among musculoskeletal physiotherapists ($p = .028$). Those in the public sector had 3.49 times the odds of reporting a disclosure of suicide yearly or more often than those observed in the private sector ($p < .001$). Psychosocial orientation was a statistically significant predictor of reporting having had a client disclose thoughts of suicide ($p < .001$).

Table 7 reports the results of the cumulative odds ordinal logistic regression with proportional odds, in which number of clients seen each week, sector, primary area of practice, typical length of initial client assessment, Compassion for Others Scale score, modified Physician Belief Scale score, mental health first aid training status, and crisis training status were entered as predictors of private sector physiotherapists' frequency of contact with clients they suspected to be having suicidal thoughts. The ordinal logistic regression model was statistically significant, explaining 22.4% of the variance in frequency of contact of private sector physiotherapists with clients they suspected to be having suicidal thoughts (Nagelkerke R^2), $\chi^2(13) = 42.85, p < .001$. The odds ratio for being in a higher category

of frequency of contact, comparing physiotherapists whose primary area of practice was disability to physiotherapists whose primary area of practice was musculoskeletal, was 5.88 ($p = .007$). The odds ratio for being in a higher category of frequency of contact, comparing physiotherapists whose primary area of practice was "other" to physiotherapists whose primary area of practice was musculoskeletal, was 2.78 ($p = .028$). Increases in length of initial client assessment and compassion for others were statistically significant predictors of being in a higher category of frequency of contact. Regarding training, those with mental health first aid training had greater odds of being in a higher category of frequency of contact than those without such training, with an odds ratio of 2.19 ($p = .016$).

Discussion

This study is the first to investigate predictors of Australian physiotherapists' frequency of contact with clients who disclosed suicidal thoughts and behaviors. The binary logistic regression model, which included six statistically significant variables - *number of clients seen per week, clinical sector, clinical area of practice, clinician's compassion for others, clinician's psychosocial orientation, and mental health/suicide prevention training* - explained approximately 39.7% of the variance in whether a physiotherapist had a client *disclose a plan for suicide* at some point in their career or not. The binary logistic model predicting physiotherapists' frequency of contact with clients who *disclosed suicidal thoughts* was able to account for approximately 28.0% of the variance. Descriptive statistics revealed that over half of

Table 7. Ordinal logistic regression analyses of predictors of encounters with clients suspected to be experiencing suicidal ideation by private sector physiotherapists.

Predictors	Suspected of suicidal ideation		
	β	OR	95% CI
Number clients seen each week	0.01	1.01	1.00, 1.02
Primary area of practice (Reference = Musculoskeletal)			
Gerontology	0.27	1.30	0.37, 4.56
Neurological	0.63	1.88	0.55, 6.41
Pediatrics	-0.10	0.90	0.27, 3.04
Women's, Men's, and Pelvic Health	0.00	1.00	0.41, 2.41
Sports and Exercise	0.39	1.47	0.39, 5.58
Disability	1.77**	5.88	1.64, 21.12
Other	1.02*	2.78	1.12, 6.93
Typical length of initial client assessment	0.03*	1.03	1.01, 1.06
Compassion for Other Scale score	0.04*	1.04	1.00, 1.07
Modified Physician Belief Scale	-0.01	0.99	0.96, 1.03
Mental Health First Aid®	0.78*	2.19	1.16, 4.13
Crisis intervention training	0.56	1.76	0.68, 4.56
Model Summary			
χ^2	42.850		
Df	13		
Nagelkerke R^2	0.224		
P	< .001		

* $p < .05$. ** $p < .01$. *** $p < .001$. See Footnote of Table 6 for interpretation of OR.

participants (52.1%) reported encountering at least one client who disclosed thoughts of suicide yearly or more frequently, and almost half of participants (49.4%) reported that at some point in their career at least one client disclosed a plan for suicide to them. Over two-thirds of physiotherapists working in the public sector (67.5%) reported having had a client disclose a plan to suicide to them at least once, and all but one of the sixteen physiotherapists working in pain management (93.8%) reported having received a disclosure of a plan for suicide.

The finding that physiotherapists encounter clients experiencing suicidal thoughts and behaviors is expected given that recent qualitative research has found that physiotherapists report receiving these disclosures (Lundin and Bergenheim, 2020; McGrath et al, 2020; McGrath, Parnell, Verdon, and Pope, 2022). However, the paucity of scholarly literature on the topic (McGrath et al, 2021) is of concern considering how common encounters with clients disclosing suicidal thoughts and behaviors were among participants. Although physiotherapists are being increasingly encouraged to screen, assess, and manage psychosocial factors as part of psychologically informed practice, there is relatively little published guidance available for physiotherapists to enable them to screen, assess, and respond to disclosures of suicidal thoughts and behaviors (McGrath et al, 2023). The paucity of research in the topic area may, at least in part, be due to the physiotherapy profession's tendency to view clients as "clinical entities" rather than humans who may be experiencing significant distress (Caston, Greenfield, Piemonte, and Jensen, 2023; Dillon et al, 2023). Although providing targeted psychological interventions to treat suicidal ideation is beyond the skillset of most physiotherapists, asking about suicidal thoughts and behaviors and supporting someone to seek further mental health care is well within the scope of physiotherapy (McGrath et al, 2023).

The frequent contact with clients who disclosed suicidal thoughts and behaviors reported by public sector physiotherapists and physiotherapists working in pain management may reflect a high prevalence of suicidal thoughts and behaviors among the populations that these physiotherapists support. In Australia, the health-care system is a hybrid system which consists of two largely unintegrated sectors (Collyer, Willis, and Keleher, 2019). People living in the lowest socioeconomic areas are more likely to be admitted to a public, rather than private hospital, and are less likely to have private health insurance (Australian Bureau of Statistics, 2017; Australian Institute of Health and Welfare, 2023a). Furthermore, most physiotherapists in the

private sector work as primary-contact practitioners, with their clients commonly subjected to out-of-pocket costs (Pearce-Brown et al, 2011). Of relevance to this study, lower socioeconomic status is associated with higher psychological distress and the presence of suicidal thoughts and behaviors (Isaacs, Enticott, Meadows, and Inder, 2018; Pirkis et al, 2017). Suicidal thoughts and behaviors among people experiencing pain are also common, with Stubbs (2016) reporting that 14% of people experiencing pain (of any type) have current thoughts of suicide, and 2% have a plan for suicide.

In addition to the sector and area in which physiotherapists work, psychosocial orientation of the physiotherapists was found to be associated with both frequency of contact with clients who disclosed thoughts of suicide and those who disclosed plans for suicide. Dillon et al. (2023) found that most physiotherapists adopted a predominantly biomedical approach to practice, which can constrain "opportunities for compassion, empathic dialogue, and trusting therapeutic relationships" As a result, this approach often leaves clients' feelings of distress unacknowledged during appointments (Dillon et al, 2023). Lundin and Bergenheim (2020) similarly reported that physiotherapists who orient their practice primarily around the assessment and treatment of physical issues can inadvertently reduce emotional engagement with their clients. Given the importance of developing a strong therapeutic alliance and trust with clients to create an environment where suicidal thoughts and behaviors can be disclosed (Ganzini et al, 2013), it is unsurprising that physiotherapists who integrate psychosocial elements into their practice are more likely to report having encountered clients who disclose suicidal thoughts and behaviors to them than those who do not.

While psychosocial orientation was found to be associated with physiotherapists' frequency of contact with clients who disclose both thoughts and plans of suicide, rather unexpectedly, compassion for others, mental health first aid training and crisis intervention training were only associated with reported frequency of contact with clients who disclose *plans* for suicide. Several potential explanations for this observation exist. Physiotherapists report receiving disclosures of suicidal ideation from clients, often unprompted, which they attribute to their ability to develop a close and trusting relationship with clients (McGrath et al, 2020; McGrath, Parnell, Verdon, and Pope, 2022). Engaging in conversations about suicide may be anxiety inducing for some health professionals, and this anxiety needs be recognized and managed to allow a conversation about suicide to occur (Høifødt and Talseth, 2006; Quinnett, 2018). Lundin and Bergenheim (2020) found that

physiotherapists report experiencing fear associated with asking their patients about suicidal behavior because they are not prepared to respond to a disclosure. Physiotherapists with relatively high compassion for others and those with mental health first aid training and/or crisis intervention training, may be more prepared and willing to overcome discomfort to engage with clients in discussions about suicide. Mental health first aid and crisis intervention training go beyond teaching people to simply ask about suicide and also include guidance on how to ask clients if they have specific plans for suicide and how to keep clients safe in that moment (Elston, 2018; Kelly, Jorm, Kitchener, and Langlands, 2008). However, it is also possible that physiotherapists who have had a client disclose a plan for suicide to them are more likely to seek further training in mental health first aid and crisis intervention than those who have not.

Notably, physiotherapists in this study reported a markedly higher frequency of encounters with clients suspected to be experiencing suicidal thoughts and behaviors, than with clients who actually disclosed thoughts of suicide. For example, one in four respondents (84/336) reported encountering at least one person monthly who they suspected were having thoughts of suicide compared with just of one in ten (42/336) physiotherapists who reported they received a disclosure of thoughts of suicide from a client monthly or more frequently. This discrepancy suggests that physiotherapists may not be responding to their suspicions of someone experiencing suicidal distress by deliberately asking questions about thoughts of suicide. Responding to suspicions of suicidal distress by asking relevant questions may represent an important opportunity for suicide prevention efforts.

Due to statistical limitations, an ordinal regression model could only be conducted for private practice physiotherapists' frequency of encounters with clients suspected to be experiencing suicidal thoughts and behaviors. Analysis revealed that for private practice physiotherapists, area of practice, typical length of initial client assessment, compassion for others, and mental health first aid training status were predictors of frequency of encounters with clients suspected to be experiencing suicidal thoughts and behaviors. The

relationships between frequencies of encounters and area of practice, compassion for others, and mental health first aid training status have been discussed previously. However, of significance, longer appointments were associated with more frequent contact between private practice physiotherapists and clients suspected to be experiencing suicidal thoughts and behaviors. Appointment length is an important consideration when determining the profitability of a private physiotherapy clinic, as longer appointments mean less clients can be seen per hour. However, shorter appointments have the potential to "constrain opportunities for compassion, empathic dialogue, and trusting therapeutic relationships" (Dillon et al, 2023), and in turn physiotherapists may not notice signs of suicide thought and behaviors, or if they do notice them, they may not respond.

Implications and future directions for physiotherapy practice

The findings of this study contribute to the small but expanding body of literature on the topic of encounters between physiotherapists and clients with suicidal thoughts and behaviors (Lundin and Bergenheim, 2020; McGrath et al, 2020, 2021; McGrath, Parnell, Verdon, and Pope, 2022) and highlight that there is considerable scope for physiotherapists to be involved in suicide prevention efforts (see Table 8). However, the important question of exactly what suicide prevention should look like in physiotherapy practice remains unanswered, and it is unclear how best to increase suicide-related discourse in this context. For instance, physiotherapists are encouraged to use validated questionnaires like the Patient Health Questionnaire – 9, which includes items related to suicidality (McGrath et al, 2023). To date, no research has explored the perspective of people accessing physiotherapy care regarding the appropriateness and experience of screening for suicide in this manner. Furthermore, effective suicide prevention requires more than merely screening for suicidal thoughts and behaviors (Hawgood, Woodward, Quinnett, and De Leo, 2021).

According Hawgood, Woodward, Quinnett, and De Leo (2021), health professionals who may encounter

Table 8. Future directions.

- There is significant potential for all physiotherapists to contribute to suicide prevention, given their reported contact with clients disclosing suicidal thoughts and behaviors.
- Future research is needed to investigate the meaningful contribution physiotherapy can make to suicide prevention, and how this can be integrated into current practice.
- Physiotherapists working in pain management may benefit from advanced training in suicide prevention given their frequent contact with clients disclosing suicidal thoughts and behaviors.
- Future studies should incorporate insights from people with lived experience of suicidal thoughts and behaviors.

people experiencing suicidal thoughts and behaviors should be able to recognize warning signs, engage and connect with these individuals, respond appropriately to disclosures, and be capable of accessing resources and referring to appropriate support services. It is likely that effective approaches to suicide prevention in physiotherapy practice will be similar to existing evidence-based approaches adopted by other professions, such as medicine and nursing (Yonemoto, Kawashima, Endo, and Yamada, 2019). Suicide prevention training, including “gatekeeper” training for health professionals and community members, has been shown to be effective in reducing suicide deaths (Krysinska et al, 2015). However, it is reasonable to expect that any suicide prevention training will need to be tailored to maximize relevance and appropriateness for physiotherapists. For example, given the profession’s historical focus on physical aspects of care, physiotherapists may benefit from drawing on the concept of emotionally reflexive labor as a tool to understand and manage emotions related to working with clients experiencing suicidal distress (see Dillon et al, 2023; Olson et al, 2021 for further discussion of the concept of emotionally reflexive labor).

Two specific contexts highlight the need for tailored suicide prevention training in physiotherapy, private practice physiotherapy and physiotherapists working in pain management. Private practice physiotherapists, who often practice as primary-contact practitioners, generally work in settings without mental health professionals and are unable to make direct referrals to mental health professionals under Medicare. This scenario potentially places private practice physiotherapists and their clients in a vulnerable position. Regarding physiotherapists working in pain management, McGrath et al (2020) previously recommended that physiotherapists working in advanced and extended areas of practice that involve psychologically informed care should have advanced competencies in suicide prevention appropriate to their scope of practice. The finding that nearly all respondents in this study who work in pain management (15/16) reported having received a disclosure of a plan for suicide at least once in their career supports this recommendation. Future research is needed to explore how suicide prevention training for physiotherapists working in pain management is best integrated into current practice. Such research could benefit from being informed by people with lived experience of suicidal thoughts and behaviors and persistent pain.

Limitations

A major limitation of this study was the sampling method used. The sampling method was non-

probability convenience sampling, which is potentially problematic as the significance testing of the model assumes that the sample is representative of the underlying population. Therefore, the results of this study should be considered exploratory and interpreted with caution. Any discussion regarding potential causal relationships between variables should be considered speculative and investigated further. The recruitment method also produced a low response rate. This was expected given the increasing difficulty regarding recruitment of participants in surveys across the social sciences (Luiten, Hox, and de Leeuw, 2020; Miller, 2017). It is also important to emphasize that the results reflect physiotherapists’ self-reported frequency of contact with clients experiencing suicidal thoughts and behaviors. Based on the prevalence of suicidal thoughts and behaviors among the general population and populations that physiotherapists work with (Australian Institute of Health and Welfare, 2023b; McGrath et al, 2021), it is likely that physiotherapists encounter many more clients experiencing suicidal thoughts and behaviors than they are aware they have encountered.

Conclusion

The findings of this study offer insight into physiotherapists’ frequency of contact with clients experiencing suicidal thoughts and behaviors. Physiotherapists working in the public sector and those in pain management often encounter clients disclosing suicidal thoughts and, at times, plans for suicide. Physiotherapist’s compassion for others, their psychosocial orientation, and their mental health/suicide prevention training status were highlighted as variables associated with frequency of contact with clients who disclose suicide plans, thus are potential areas requiring further research. The results of this study highlight a clear and urgent need for suicide prevention training in physiotherapy.

Acknowledgments

The authors would like to thank Gail Fuller and Deanna Duffy from the Charles Sturt University’s Spatial Data Analysis Network for their assistance in developing and administering the survey, and the physiotherapists who volunteered to participate.


Disclosure statement

The authors report there are no relevant financial or non-financial competing interests to declare.


Funding

The first and third authors were supported by Australian Government Research Training Program scholarships through Charles Sturt University. The first author was also supported by the Australian Government Department of Health Rural Health Multidisciplinary Training (RHMT) program. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

ORCID

Ryan L. McGrath BPhysio(Hons), PT  <http://orcid.org/0000-0002-6779-7486>

Tracey Parnell PhD, OT  <http://orcid.org/0000-0002-7434-1268>

Sophie Shephard MScMed(PainMgmt), PT  <http://orcid.org/0000-0002-5810-9784>

Sarah Verdon PhD, SLP  <http://orcid.org/0000-0002-7503-5860>

Rodney Pope PhD, PT  <http://orcid.org/0000-0002-1320-5801>

Data availability statement

The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

References

- Albright R, Tower D 2022 Suicide prevention in podiatry. *Journal of the American Podiatric Medical Association* 112: 1–2.
- Anderson M 2016 Suicide prevention: The professional and moral responsibilities of the speech-language pathologist. Honors thesis, The University of Akron, Akron, Ohio, United States.
- Ashton-James CE, McNeillage AG, Avery NS, Robson LHE, Costa D 2021 Prevalence and predictors of burnout symptoms in multidisciplinary pain clinics: A mixed-methods study. *Pain* 162: 503–513.
- Ashworth CD, Williamson P, Montano D 1984 A scale to measure physician beliefs about psychosocial aspects of patient care. *Social Science & Medicine* 19: 1235–1238.
- Australian Bureau of Statistics 2017 Health service usage and health related actions. <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.002~2014-15~Main%20Features~Private%20health%20insurance~5>. Accessed 26 January 2024.
- Australian Bureau of Statistics 2023 Causes of death, Australia, 2022. <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/latest-release>. Accessed 26 January 2024.
- Australian Government Department of Health 2019 National health workforce data set: Physiotherapy. <https://hwd.health.gov.au/resources/publications/factsheet-all-physiotherapists-2019.pdf>. Accessed 26 January 2024.
- Australian Health Practitioner Regulation Agency 2022 Annual report 2021/22. <https://www.ahpra.gov.au/documents/default.aspx?record=WD22/32356&dbid=AP&chksum=BiteGtVC4AajgvWOzYiyFA%3d%3d>. Accessed 26 January 2024.
- Australian Institute of Health and Welfare 2023a Access to hospitals. <https://www.aihw.gov.au/reports-data/myhospitals/themes/hospital-access>. Accessed 26 January 2024.
- Australian Institute of Health and Welfare 2023b Suicide & self-harm monitoring. <https://www.aihw.gov.au/suicide-self-harm-monitoring/data/suicide-self-harm-monitoring-data>. Accessed 26 January 2024.
- Australian Institute of Health Welfare 2022 Health workforce. <https://www.aihw.gov.au/reports/workforce/health-workforce>. Accessed 26 January 2024.
- Bowl R 2016 Using discourse analysis to develop understanding of suicide risk assessment. In: O'Reilly, M, Lester J, (Ed) *The Palgrave Handbook of Adult Mental Health*, pp. 597–612. Basingstoke, UK: Palgrave Macmillan.
- Bradley J, Toole KP 2022 Adolescent suicide: Are there warning signs? *Pediatric Nursing* 48: 231–237.
- Caston S, Greenfield B, Piemonte N, Jensen G 2023 Turning toward suffering: Rethinking the patient-clinician relationship in physical therapy practice. *Physiotherapy Theory and Practice* [In Press] 10.1080/09593985.2023.2272844.
- Centers for Disease Control and Prevention 2022 Suicide prevention resource for action: A compilation of the best available evidence. <https://www.cdc.gov/suicide/pdf/preventionresource.pdf>. Accessed 26 January 2024.
- Cole-King A, Parker V, Williams H, Platt S 2013 Suicide prevention: Are we doing enough? *Advances in Psychiatric Treatment* 19: 284–291.
- Collyer F, Willis K, Keleher H 2019 The private health sector and private health insurance. In: Willis E, Rudge T Reynolds L, (Eds) *Understanding the Australian health care system* (4th), pp. 37–52. Chatswood, NSW: Elsevier.
- Cupler ZA, Daniels CJ, Anderson DR, Anderson MT, Napuli JG, Tritt ME 2021 Tritt ME 2021 suicide prevention, public health, and the chiropractic profession: A call to action. *Chiropractic & 29: Manual Therapies* 29. 10.1186/s12998-021-00372-7.
- Dabkowski E, Porter JE 2021 An exploration into suicide prevention initiatives for mental health nurses: A systematic literature review. *International Journal of Mental Health Nursing* 30: 610–623.
- Diamond GS, O'Malley A, Wintersteen MB, Peters S, Yunghans S, Biddle V, O'Brien C, Schrand S 2011 Attitudes, practices, and barriers to adolescent suicide and mental health screening: A survey of Pennsylvania primary care providers. *Journal of Primary Care & Community Health* 3: 29–35.
- Dillon M, Olson R, Mescouto K, Costa N, Setchell J 2023 How physiotherapists attend to the human aspects of care when working with people with low back pain: A thematic analysis. *Health Sociology Review* 32: 277–293.
- Dillon M, Olson RE, Plage S, Window P, Miciak M, Stewart M, Christophersen A, Kilner S, Barthel N, Setchell J 2023 Distress in the care of people with chronic low back pain: Insights from an ethnographic study. *Frontiers in Sociology* 8. 10.3389/fsoc.2023.1281912.
- Driver C, Lovell GP, Oprescu F 2021 Physiotherapists' views, perceived knowledge, and reported use of psychosocial

- strategies in practice. *Physiotherapy Theory and Practice* 37: 135–148.
- Elston N **2018** Evaluating Applied Suicide Intervention Skills training with counselors-in-training: Enhancing sensitivity, awareness, and intervention skills with suicidal and non-suicidal clients. Doctoral dissertation, Georgia State University.
- Faul F, Erdfelder E, Lang A-L, Buchner A **2009** Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods* 41: 1149–1160.
- Ganzini L, Denneson LM, Press N, Bair MJ, Helmer DA, Poat J, Dobscha SK **2013** Trust is the basis for effective suicide risk screening and assessment in veterans. *Journal of General Internal Medicine* 28: 1215–1221.
- Gilbert P, Catarino F, Duarte C, Matos M, Kolts R, Stubbs J, Ceresatto L, Duarte J, Pinto-Gouveia J, Basran J **2017** The development of compassionate engagement and action scales for self and others. *Journal of Compassionate Health Care* 4 [10.1186/s40639-017-0033-3](https://doi.org/10.1186/s40639-017-0033-3).
- Hauge L, Stene-Larsen K, Grimholt T, Øien-Ødegaard C, Reneflot A **2018**. Use of primary health care services prior to suicide in the Norwegian population 2006–2015. *BMC Health Serv Res* *BMC Health Services Research* 18 [10.1186/s12913-018-3419-9](https://doi.org/10.1186/s12913-018-3419-9).
- Hawgood J, Woodward A, Quinnett P, De Leo D **2021** Gatekeeper training and minimum standards of competency. *Crisis* 43: 516–522.
- Herdman D, Sharma H, Simpson A, Murdin L **2020** Integrating mental and physical health assessment in a neuro-otology clinic: Feasibility, acceptability, associations and prevalence of common mental health disorders. *Clinical Medicine* 20: 61–66.
- Høifødt TS, Talseth A-G **2006** Dealing with suicidal patients – a challenging task: A qualitative study of young physicians’ experiences. *BMC Medical Education* 6 [10.1186/1472-6920-6-44](https://doi.org/10.1186/1472-6920-6-44).
- Holton TL **2003** Suicidology and the ‘other’: A discursive analysis of literature and discourses. Doctoral dissertation, University of Calgary.
- Hom MA, Stanley IH, Podlogar MC, Joiner TE Jr **2017** “Are you having thoughts of suicide?” examining experiences with disclosing and denying suicidal ideation. *Journal of Clinical Psychology* 73: 1382–1392.
- Hosmer DW, Lemeshow S, Sturdivant RX **2013**. *Applied logistic regression*. Hoboken: Wiley.
- Hutton C, Gunn J **2007** Do longer consultations improve the management of psychological problems in general practice? A systematic literature review. *BMC Health Services Research* 7. [10.1186/1472-6963-7-71](https://doi.org/10.1186/1472-6963-7-71).
- Isaacs AN, Enticott J, Meadows G, Inder B **2018** Lower income levels in Australia are strongly associated with elevated psychological distress: Implications for healthcare and other policy areas. *Frontiers in Psychiatry* 9: 536–536.
- IsHak WW, Wen RY, Naghdechi L, Vanle B, Dang J, Knosp M, Dascal J, Marcia L, Gohar Y, Eskander L et al. **2018** Pain and depression: A systematic review. *Harvard Review of Psychiatry* 26: 352–363.
- Kashiwa A, Sweetman MM, Helgeson L **2017** Occupational therapy and veteran suicide: A call to action. *The American Journal of Occupational Therapy* 71: 1–6.
- Kelly CM, Jorm AF, Kitchener BA, Langlands RL **2008** Development of mental health first aid guidelines for suicidal ideation and behaviour: A delphi study. *BMC Psychiatry* 8 [10.1186/1471-244X-8-17](https://doi.org/10.1186/1471-244X-8-17)
- Kennelly B **2007** The economic cost of suicide in Ireland. *The Crisis* 28: 89–94.
- Knapp S **2022** Six strategies to help reluctant patients to disclose their suicidal thoughts. *Practice Innovations* 7: 293–302.
- Krysinska K, Batterham PJ, Tye M, Shand F, Calear AL, Cockayne N, Christensen H **2015** Best strategies for reducing the suicide rate in Australia. *Australian & New Zealand Journal of Psychiatry* 50: 115–118.
- Lentz TA, Beneciuk JM, Bialosky JE, Zeppieri G, Dai Y, Wu SS, George SZ **2016** George SZ 2016 development of a yellow flag assessment tool for orthopaedic physical therapists: Results from the optimal screening for prediction of referral and outcome (OSPRO) cohort. *Journal of Orthopaedic & Sports Physical Therapy* 46: 327–343
- Linton SJ, Nicholas M, MacDonald S **2011** Development of a short form of the örebro musculoskeletal pain screening questionnaire. *Spine* 36: 1891–1895.
- Luiten A, Hox J, de Leeuw E **2020** Survey nonresponse trends and fieldwork effort in the 21st century: Results of an international study across countries and surveys. *Journal of Official Statistics* 36: 469–487.
- Lundin Å, Bergenheim A **2020** Encountering suicide in primary healthcare rehabilitation: The experiences of physiotherapists. *BMC Psychiatry* 20. [10.1186/s12888-020-03004-1](https://doi.org/10.1186/s12888-020-03004-1).
- Maple M, Pearce T, Sanford RL, Cerel J **2017** The role of social work in suicide prevention, intervention, and postvention: A scoping review. *Australian Social Work* 70: 289–301.
- McCombie RP, O’Connor SS, Schumacher SD **2015** A comparative investigation of personality traits between two allied health professions: Occupational therapy and physiotherapy. *International Journal of Therapy and Rehabilitation* 22: 377–384.
- McGrath RL, MacDonald JB, Verdon S, Parnell T, Smith M **2021** Encounters between physiotherapists and clients with suicidal thoughts and behaviours: A narrative literature review. *New Zealand Journal of Physiotherapy* 49: 70–81.
- McGrath RL, Parnell T, Verdon S, MacDonald JB, Smith M, English C **2020** Trust, conversations and the ‘middle space’: A qualitative exploration of the experiences of physiotherapists with clients with suicidal thoughts and behaviours. *PLOS One* 15: e0238884.
- McGrath RL, Parnell T, Verdon S, Pope R **2022** “People suffer and we see this”: A qualitative study of the forms of patient psychological distress encountered by physiotherapists. *Physiotherapy Theory and Practice* In Press 1–17. [10.1080/09593985.2022.2141085](https://doi.org/10.1080/09593985.2022.2141085).
- McGrath RL, Shephard S, Hemmings L, Verdon S, Parnell T **2023** Preventing suicide: Time to mobilize the physical therapy workforce. *Physical Therapy* 103. [10.1093/ptj/pzad116](https://doi.org/10.1093/ptj/pzad116).
- McGrath RL, Shephard S, Parnell T, Verdon S, Pope R **2023** Recommended approaches to assessing and managing physiotherapy clients experiencing psychological distress: A systematic mapping review. *Physiotherapy Theory and Practice* [In Press] 1–31. [10.1080/09593985.2023.2284823](https://doi.org/10.1080/09593985.2023.2284823).
- McGrath RL, Verdon S, Parnell T, Pope R **2023** Australian physiotherapists’ perceived frequency of contact with

- clients experiencing distress: A cross-sectional survey. *Physiotherapy Theory and Practice* In Press 1–18 [10.1080/09593985.2023.2204962](https://doi.org/10.1080/09593985.2023.2204962).
- McLennan JD, Jansen-McWilliams L, Comer DM, Gardner WP, Kelleher KJ, KELLEHER KJ 1999 The physician belief scale and psychosocial problems in children: A report from the pediatric research in office settings and the ambulatory sentinel practice network. *Journal of Developmental & Behavioral Pediatrics* 20: 24–30.
- Mental Health Australia, Klynveld Peat Marwick Goerdeler 2018. Investing to save: The economic benefits for Australia of investment in mental health reform. https://www.pc.gov.au/_data/assets/pdf_file/0005/242429/sub523-mental-health.pdf. Accessed 26 January 2024.
- Miller PV 2017 Is there a future for surveys? *Public Opinion Quarterly* 81: 205–212.
- Murphy AL, O'Reilly CL, Ataya R, Doucette SP, Burge FI, Salvador-Carulla L, Chen TF, Himmelman D, Kutcher S, Martin-Misener R et al. 2020 Survey of Australian and Canadian community pharmacists' experiences with patients at risk of suicide. *Psychiatric Services* 71: 293–296.
- National Mental Health Commission 2023. Monitoring mental health and suicide prevention reform, fifth national mental health and suicide prevention plan. https://www.mentalhealthcommission.gov.au/getmedia/d3688adf-4cf7-4f0a-93e1-a3fa79743956/NMHC_Fifth_Plan_2021_Progress_Report_Accessible.PDF. Accessed 26 January 2024.
- Olson RE, Smith A, Good P, Neate E, Hughes C, Hardy J 2021 Emotionally reflexive labour in end-of-life communication. *Social Science & Medicine* 291: 112928.
- Pearce-Brown CL, Grealish L, McRae IS, Douglas KA, Yen LE, Wells RW, Wareham S 2011 A local study of costs for private allied health in Australian primary health care: Variability and policy implications. *Australian Journal of Primary Health* 17: 131–134.
- Physiotherapy Board of Australia 2022. Registrant data table - June 2022. <https://www.ahpra.gov.au/documents/default.aspx?record=WD22%2f32045&dbid=AP&chksum=mUxqvr4fsbRqyJjDThaEEg%3d%3d>. Accessed 26 January 2024.
- Picard EH, Rosenfeld B 2021 How clinicians incorporate suicide risk factors into suicide risk assessment. *The Crisis* 42: 100–106.
- Pirkis J, Currier D, Butterworth P, Milner A, Kavanagh A, Tibble H, Robinson J, Spittal MJ 2017 Socio-economic position and suicidal ideation in men. *International Journal of Environmental Research and Public Health* 14: 365.
- Public Health Agency of Canada 2023 The federal framework for suicide prevention. <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/2022-progress-report-federal-framework-suicide-prevention.html>. Accessed 26 January 2024.
- Quinnett P 2018 The role of clinician fear in interviewing suicidal patients. *The Crisis* 40: 355–359.
- Racine M 2018 Chronic pain and suicide risk: A comprehensive review. *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 87: 269–280.
- Reynolds V 2016 Hate kills. In: White J, March I, Kral M, and Morris J, Eds *Critical suicidology*, pp. 169–187. Vancouver, Canada: UBC Press.
- Richards JE, Whiteside U, Ludman EJ, Pabiniak C, Kirilin B, Hidalgo R, Simon G 2018 Understanding why patients may not report suicidal ideation at a health care visit prior to a suicide attempt: A qualitative study. *Psychiatric Services* 70: 40–45.
- Robbins JM, Kirmaver LJ, Cathébras P, Yaffe MJ, Dworkind M 1994 Physician characteristics and the recognition of depression and anxiety in primary care. *Medical Care* 32: 795–812.
- Rodríguez-Otero JE, Campos-Mouriño X, Meilán-Fernández D, Pintos-Bailón S, Cabo-Escribano G 2021 Where is the social in the biopsychosocial model of suicide prevention? *International Journal of Social Psychiatry* 68: 1403–1410.
- Sinnema H, Terluin B, Volker D, Wensing M, van Balkom A 2018 Factors contributing to the recognition of anxiety and depression in general practice. *BMC Family Practice* 19, [10.1186/s12875-018-0784-8](https://doi.org/10.1186/s12875-018-0784-8).
- Soper CA 2018 The evolution of suicide. Cham, Switzerland: Springer.
- Soper CA, Ocejó PM, Large MM 2022 On the randomness of suicide: An evolutionary, clinical call to transcend suicide risk assessment. In: John-Smith P, Abed R, Eds *Evolutionary psychiatry*, pp. 134–152. Cambridge, United Kingdom: Cambridge University Press.
- Standley CJ 2022 Expanding our paradigms: Intersectional and socioecological approaches to suicide prevention. *Death Studies* 46: 224–232.
- Stene-Larsen K, Reneflot A 2017 Contact with primary and mental health care prior to suicide: A systematic review of the literature from 2000 to 2017. *Scandinavian Journal of Public Health* 47: 9–17.
- Stilwell P, Hudon A, Meldrum K, Pagé MG, Wideman TH 2022 What is pain-related suffering? Conceptual critiques, key attributes, and outstanding questions. *The Journal of Pain* 23: 729–738.
- Stubbs B 2016 The prevalence and odds of suicidal thoughts, behaviours and deaths among people with painful comorbidities: An updated meta-analysis accounting for publication bias. *Journal of Psychiatric Research* 72: 72–73.
- Suicide Prevention Australia 2023. Suicide prevention: A competency framework for the health sector. https://www.suicidepreventionaustralia.org/wp-content/uploads/2023/08/SPA_Competency-Framework-Healthcare_v2.pdf. Accessed 26 January 2024.
- Sun FK 2011 A concept analysis of suicidal behavior. *Public Health Nursing* 28: 458–468.
- Tatz C, Tatz S 2019 The sealed box of suicide. Cham, Switzerland: Springer.
- Taylor A, Dal Grande E, Gill T, Fisher L, Goldney R 2007 Detecting determinants of suicidal ideation. *South Australian Surveillance System Results: International Journal of Public Health* 52: 142–152.
- Valgento J, Mueller K, Williams P, Finch A, Denney L 2019 Self-compassion and compassion for others in physical therapy students, faculty and clinical instructors. *Health Professions Education* 5: 313–320.
- World Health Organization 2021. Suicide worldwide in 2019: Global health estimates. <https://www.who.int/publications/i/item/9789240026643>. Accessed 26 January 2024.
- Yonemoto N, Kawashima Y, Endo K, Yamada M 2019 Gatekeeper training for suicidal behaviors: A systematic review. *Journal of Affective Disorders* 246: 506–514.