

Negotiating the maze: risk factors for suicidal behavior in chronic pain patients

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Abstract

Chronic pain disorders can exert major negative effects on virtually every aspect of an individual's life. It is not surprising then that many chronic pain sufferers find themselves at a point of emotional fragility where they experience thoughts of ending their life. Suicidal behaviour encompasses a spectrum of experience, from "life weariness" or passive suicidal ideation, through to more active suicidal intent and suicide completion. A range of risk factors for suicidal behaviour in the general population have been identified, and these apply equally to the chronic pain population: a family history of mental illness, a past history of suicide attempts, and the presence of co-morbid depression. With regard specifically to chronic pain patients, elevated suicide risk is also associated with severe or recurrent headache, ambiguous diagnoses (psychogenic pain, abdominal pain) and medicolegal issues related to the pain. A number of suggestions for clinicians managing chronic pain patients with regards to managing suicide risk are given.

Introduction

The issue of patient suicidality is a highly emotive one for any clinician managing their patients, but is particularly relevant for those of us in the chronic pain field. A recent editorial on this issue [1] touchingly highlighted the disparate anxieties involved here – worry about the patient's welfare, worry about whether the optimal clinical care is being recommended, and worry about the medico-legal consequences should the worst outcome take place. To add to the dilemma, the clinician's emotional response to a risk situation has been described as the greatest handicap to effective risk assessment [2]. Clinicians who work with chronic pain patients are often exposed to high levels of patient distress, and therefore the pressure to exercise good clinical judgement is all the greater. This article will firstly define the various domains of suicidality, and summarise the evidence as it relates to suicidal behaviour both in the general population and in the chronic pain population. Those risk factors known to be associated with suicidal behaviour in chronic pain patients will be outlined, and finally some recommendations as to clinician management of suicidality in chronic pain patients will be given.

Suicidality

When discussing risk factors for suicide in chronic pain patients, a distinction firstly needs to be drawn among the various forms of suicidality. Renberg [3] has suggested there is a continuum of experience from "life weariness" at the moderate end, to death wishes, to suicidal ideation to finally suicidal behaviour. Suicidal ideation, or contemplating the taking of one's life, is a phenomenologically distinct entity from a suicide attempt, which refers to the carrying through of suicidal ideation into an action. Completed suicidal behaviour or death by suicide may take place either by active or passive means (i.e. overdosing on medications or not taking medication needed to sustain life). Fishbain and colleagues [4] have drawn a further distinction in suicidal ideation between passive ideation ("I want to die") as opposed to active ideation ("I am thinking of suicide"), with more active ideation carrying a greater risk of transition into suicide attempt behaviour.

The current prevalence data on suicidality across both developed and developing countries are truly sobering. As the tenth most common cause of death in the US [5], and the third most common cause of death in the 18-24 year group [6], suicide remains a major health problem despite substantial public health efforts to address it. Data from Australia are illuminating. The national road toll has decreased significantly over recent decades as high profile public awareness campaigns regarding motor vehicle safety have been instituted. Although there have been numerous public awareness campaigns targeting mental health issues and suicide during a similar period [7], there has not been a similarly steep decline in suicide-related deaths. In fact, suicide deaths now significantly exceed motor vehicle deaths in Australia [8].

Risk factors for suicidal behaviour in the general population

Before considering the specific case of suicidality among individuals suffering from chronic pain, it is firstly important to review the evidence regarding risk factors for suicidal behaviour in the general population. Risk factors can be categorised in broad terms as either distal or proximal [9]. Distal risk factors refer to the vulnerabilities that the individual carries by virtue of ethnicity, gender, marital status, sociodemographic background or early life experiences. Proximal risk factors are those that relate closer in time to the event itself, and may act as specific precipitants or triggers to suicidal behaviour.

Perhaps the starkest of the distal risk factors across all populations are the gender disparities. Three to four times as many women attempt suicide as men [10], yet approximately 80% of all suicide completions are by males [11]. This is thought to be due at least in part to males having readier access to lethal means, such as firearms. The one notable gender exception is China, where female suicide is more common than male [9].

There are significant ethnicity differences in suicide rates, such that Hispanic and African American groups typically have lower rates compared to whites [12], whereas Indigenous peoples such as New Zealand Maoris, Australian Aborigines and Native Americans have elevated risks compared to their non-Indigenous counterparts [8,9].

Social isolation is an important risk factor for suicidal behaviour in general, both at a distal and a proximal level. Distally, at all ages and across both genders, those who are married have a significantly lower risk of suicide than the unmarried [13]. However, young males who become recently widowed (the proximal factor) show exceptionally high suicide rates [13,14]. Being unemployed also figures as a risk factor for suicidal behaviour in many studies, and is typically estimated as carrying a two to threefold elevation in risk [15]. Of course, unemployment status is confounded with a range of other variables such as sociodemographic background and the presence of mental illness. However, the lack of social contact in not having a regular workplace to attend may also be relevant here, and this fits with the interpersonal theory of suicide discussed later in this article.

The probability of experiencing suicidal urges or acting upon those urges in a suicide attempt is greatly increased among individuals who have experienced childhood adversity [16]. Sexual and physical abuse during childhood are consistently the strongest of these risk factors for both the onset and persistence of suicidal behaviour, especially during adolescence [17], but the effect persists into adult life.

Considering risk factors for suicide in the general population that are more proximal in nature, mental illness figures prominently. A family history of psychiatric illness is itself a risk factor [18], but recent psychological autopsy studies suggest up to 90% of suicide completers have some form of mental illness at their time of death [19]. Following on from this, a past history of suicide attempts also represents a major warning sign for eventual suicide completion: according to Hawton and van Heeringen [9], 40% of suicide deaths have a prior history of self harm or suicide attempts.

Alcohol misuse is also a strong risk factor for suicidal behaviour [20]. Although a correlational study, Stack's [21] early review of the epidemiological data across 17 countries showed that the greater the per capita alcohol consumption for the country, the higher the suicide rate for that country. There are multiple pathways by which the relationship between excessive use of alcohol and suicidal behaviour may be formed, including a possible common serotonergic dysfunction pathway [22]. However, over and above genetic factors, the primary psychobehavioural mechanisms by which alcohol and suicidal behaviour are interlinked are thought to be the depressogenic effect of drinking, and the effects of drinking on life events [20]. Alcohol has a biphasic effect on emotion, with low doses often ameliorating negative affect, but higher doses having a depressant effect on the central nervous system. This supports the theory that alcohol acts in a more proximal way with suicidal behaviour, lowering mood and possibly increasing impulsivity and disinhibition, rather than being a factor in a chronic abuse sense. [20]. Adverse life events such as relationship separation, loss of employment or housing, and legal stressors are known to be risk factors for suicidal

ideation [23], and problematic use of alcohol can be a predisposing factor in all of these adverse life event situations.

In summary, a comprehensive study of more than 108,000 adults in 21 countries by Borges et al. [24] showed that suicide attempters could be predicted with a 74-79% accuracy rate (as compared to non attempters) over a 12 month period by the following combination of risk factors: female sex, lower education and income, being unmarried, unemployment, younger age, parent psychopathology, childhood adversities, and presence of diverse 12-month DSM-IV mental disorders (Table 1).

Insert Table 1 about here

Risk factors for suicidal behaviour in chronic pain patients

The desperation of unrelieved pain in terminally ill patients has long been recognised as a factor in requests for physician-assisted suicide [25,26]. However the risk factors for suicidal behaviour in those suffering from persistent non-malignant pain disorders is less well understood. What is clear is that for a range of reasons, suicidal behaviour in this population is common. One early study of suicidality in 208 members of a chronic pain self-help group reported that 50% of the individuals had “seriously considered suicide” at one time or another [27]. While this was an uncontrolled study with an arguably biased sample, it highlighted the importance of developing knowledge of risk factors within the chronic pain population.

Data suggest a lifetime prevalence for suicide attempts of between 5% and 14% for chronic pain patients [26,28]; and a suicide completion rate which is two to three times greater than that of the general population [29]. The most common methods by which patients with a chronic pain condition end their lives are using firearms (68% of deaths) and poisoning (17% of deaths) [30]. The latter figure is of particular concern with our patient group, as drug overdose is also the most common form of suicide attempt in chronic pain patients [26] and access to lethal means is known to elevate the suicide completion rate [31]. In a worrying survey of chronic pain patients receiving opioid therapy from their general practitioners, 37% reported experiencing suicidal ideation and 1 in 5 had a past history of suicide attempt [32] – data which bring together several major risk factors for suicide plus ready access to the means.

Unfortunately, the chronic pain community is not immune from the factors known to increase risk of suicidality in the general population. The literature review by Tang and Crane [28] highlighted the following risk factors for suicidality in chronic pain patients that were noted in the previous section on general risk factors: a family history of suicide, a history of suicide attempts, being female (in relation to suicidal ideation at least), and the presence of co-morbid depression. The latter variable is of particular relevance given the estimated prevalence rates of major depressive disorder in chronic pain patients, which can vary between 32% [33] to as high as 75% [34].

A number of studies have set out to explore whether there are pain-specific variables associated with increased suicide risk (Table 2). Smith and colleagues’ [26] interestingly found that while having abdominal pain significantly increased the risk of both active and passive suicidal ideation, having neuropathic pain was a protective factor. The authors speculated that because neuropathic pain conditions often have an identifiable cause, the patients’ pain was validated and their distress lowered. Conversely, the frequent diagnostic uncertainties regarding abdominal pain may have led to patient catastrophising and elevated

distress. Pain severity, pain duration and depression did not have any relationship with suicidal ideation in this study. In fact, pain intensity does not routinely appear as a suicide risk factor [28], which once again underlines the biopsychosocial nature of pain experience. A longer pain duration and the presence of co-morbid insomnia were found to be risk factors for chronic pain patients in the Tang and Crane [28] review.

A review of the data from the National Comorbidity Survey Replication, a household survey of 5692 respondents in the US, identified a number of further pain variables associated with suicidality [35]. The presence of any pain condition was associated with lifetime and one year suicidal ideation, plan and attempt, but abdominal pain was again found to be a risk factor for suicide attempts. Severe or frequent headaches also emerged as a risk factor for suicide ideation and planning. A separate analysis of this large data set also revealed headache to be a risk factor [36], as was the presence of multiple pain conditions. Individuals with two or more pain conditions were almost three times as likely to have attempted suicide as those without chronic pain in this study, even after controlling for other risk factors such as depression and drug and alcohol use.

In what is possibly the largest epidemiological study of this kind to date, Ilgen and colleagues [30] accessed demographic variables and clinical pain information in over four and half million Veterans Healthcare System patients who had accessed treatment services in 2005. Their records were examined over the following three years for information as to death by suicide. Headache (or migraine in this case) again demonstrated a significant statistical association with suicide completion, as did back pain and “psychogenic pain”. The authors reflect on the possible iatrogenic effects of the latter label, with patients given that outdated and scientifically flawed diagnosis possibly receiving less active or committed treatment from clinicians who perceive the pain problem as being less deserving than “real” pain. It also highlights the point made earlier regarding the distress that can arise from living with a chronic pain condition for which there is diagnostic uncertainty.

Finally, issues related to the financial impact of chronic pain and associated disability have been identified as salient to this topic. Being in receipt of workers compensation payments, pursuing litigation, and pursuing a personal injury claim, are all risk factors for a number of suicidal behaviours including frequent suicidal ideation, having a suicide plan and a history of suicide attempts [4]. These findings lend further weight to the contention that the process of litigation can be highly stressful and emotionally charged for many chronic pain patients [4,37] and thus increases their vulnerability to suicidality.

Insert Table 2 about here

Clinician management of suicidality in chronic pain patients

The interpersonal theory of suicide was developed with the aim of providing a conceptual framework to integrate the various social and psychological risk factor data in relation to suicide [38]. The theory posits two primary factors that predispose an individual towards suicidal behaviour – thwarted belongingness and perceived burdensomeness. Thwarted belongingness refers to an unmet need for social connections with others, whereas perceived burdensomeness relates to a belief that the individual is a source of hardship to others who would be better off without them [38]. A recent test of the interpersonal theory of suicide with chronic pain patients showed that both factors were significant predictors of suicidal ideation, even after controlling for a range of pain variables including pain severity, pain duration, catastrophising and mood [39].

Hence, clinicians should be particularly mindful of the social isolation of their patients and the extent to which they report feeling themselves to be a “drain” on others. Beyond their reported pain intensity and tendency to catastrophise about pain, these are the factors that the evidence suggests are more critical in determining suicidal ideation. Further research is needed to explore the associations between these factors and the other forms of suicidal behaviour.

From a formal assessment perspectives, clinicians can routinely screen for depression using one of any number of self-report instruments [40], however there is evidence that even a two question screener of frequency of depressed mood and anhedonia in the past two weeks (“How often have you had little interest or pleasure in doing things?/How often have you felt down, depressed or hopeless?” rated from “not at all” to “nearly every day”) has adequate psychometric properties [41]. Hawton and van Heeringen [9] recommend that every patient with depression is screened for suicide risk by specifically asking about suicidal thoughts and plans. Importantly, and contrary to some clinical opinion, asking about suicidality does not increase the risk of the individual behaving suicidally [42], so clinicians should not hesitate to make the inquiry whenever depression is detected. There are also formal suicide assessment instruments available, including the Columbia-Suicide Severity Rating Scale, which is freely available for download (<http://www.cssrs.columbia.edu>). Referral to clinical psychology or liaison psychiatry services – whilst emphasizing that mental health treatment is in conjunction with their pain management rather than instead of it – is then recommended.

Data have been presented which indicate that Reasons For Living (RFL; defined as reasons not to commit suicide despite suicidal ideation) act as mediators between depressive symptoms and suicide attempts [6]. The original RFL self report questionnaire contained six categories – one’s responsibility to family, fear of suicide, fear of social disapproval, moral objections to suicide, child-related concerns and survival and coping beliefs [43]. Hence, rather than trying to determine the likelihood of suicidal behaviour being enacted, the RFL measure taps into the reasons for an individual not committing suicide, despite their current feelings of distress. A RFL measure for young adults has also been developed [44], which employs some slightly different categories to reflect the different concerns of younger persons - peer relations, family relations, future expectations, survival and coping beliefs, and self-evaluation (i.e., one’s assessment of perceived positive self-appraisal). While all categories are important, the evidence points towards the survival and coping beliefs dimension, which refers to one’s ability to cope and adjust to life’s problems, as well as the future expectations and family relations categories as having particular buffering qualities against suicidal behaviour [6,45]. While it is not yet known whether similar mediation pathways between distress levels and suicidal behaviours exist for chronic pain sufferers, it seems reasonable to presume that they do.

The value of adopting an RFL approach to suicide risk assessment is that it can be incorporated into a treatment plan, as the categories being assessed are potentially modifiable. Decreasing suicidality must address known risk factors such as depression, alcohol misuse and so on, but in addition, clinical efforts to bolster RFL are likely to offer further benefits. Here the focus would be on strengthening one’s connections to family, providing an opportunity to consider different futures and possibilities, and on enhancing self belief with regards to personal resilience and the capacity to endure.

The ACT approach to chronic pain management

While the Reasons for Living model has yet to be formally investigated as part of a suicide prevention intervention, there are many theoretical overlaps with the empirically supported Acceptance and Commitment Therapy (ACT) approach [46]. ACT is a theoretically derived therapeutic method which has been applied to a range of psychological

disorders, but in recent years its application to the problem of living with chronic pain has shown great promise [47]. Before outlining the ACT model of chronic pain, it is of value to briefly summarise the basic premises of this therapeutic approach, and how they differ from other psychological interventions.

At its philosophical core, the ACT approach “normalises” human suffering – it is inherent in the human condition, it is inescapable, it is part of universal human experience. However, ACT also posits that much of our distress comes from our thwarted efforts to avoid suffering (hence the Acceptance component of the therapy’s name), which in turn is the result of psychological inflexibility. Where psychological therapies such as Cognitive Behavioural Therapy (CBT) seek to reduce symptoms through the correction of illogical or irrational thinking, ACT seeks to observe thoughts and emotions without trying to change them. Instead, one of the techniques of the ACT approach is cognitive diffusion – the separation of the self from the content of the mind. By recognising that you are not your thoughts, and that wrestling or arguing with thoughts gives them influence (whereas acknowledging and letting them be moves towards equanimity), ACT differs from traditional CBT methods.

Ultimately, the ACT treatment approach emphasizes the identification of core values and goals, and places these “valued ways of being” at the centre of the treatment process (the Commitment component of the therapy’s name), despite the experience of suffering along the way. Mindfulness is another widely employed method within the ACT umbrella, and refers to consciously bringing awareness to the present in an open, non-judgemental, receptive manner [48]. Mindfulness sits in contrast to the source of much stress, worry and anxiety: the preoccupation with trying to pre-empt, solve or somehow avoid future, negative events. While the individual battles away in their mind, trying to work out how they will escape or minimise their bothersome future, they lose contact with their present and generate the precise negativity they are desperately trying to avoid.

In essence, the ACT approach to chronic pain suggests that while pain itself hurts, it is the efforts to escape the pain that cause the suffering. The disappointment and frustration of (many) failed treatments, the cognitive and somatic side effects of excessive pain medications, the continual limiting of one’s social life, working life and family life to try and limit pain – these attempts at “experiential avoidance” are the fundamental source of chronic pain distress. In the ACT model, chronic pain patients are encouraged to stop trying to control their pain, and redirect their energies towards living life according to the values and goals that they have identified as being meaningful to them [48]. They are taught a range of strategies aimed at increasing their psychological flexibility – including acceptance, cognitive diffusion, attention to the present, and values-based actions – that do not aim to reduce symptoms but to increase meaning and satisfaction in living.

There have now been more than 22 trials of ACT applied to chronic pain [49], producing average effect sizes across most outcome domains in the moderate to large range ($d_s = 0.85-0.89$) at post-treatment. A recent three year follow up study demonstrated an average effect size of $d = 0.57$ [50] indicating that once learned, the strategies can be applied and continue to be effective in the long term.

ACT and suicidality in the chronic pain patient

It should be apparent from this brief overview that several of the ACT themes resonate with the RFL categories presented earlier. At a fundamental level, both models share an emphasis on the recognition and nurturing of core values. Assisting patients to discover what it is that is important to them, and what their particular strengths are in those areas, is valuable in terms of finding meaning when living with pain but also in terms of finding reasons to keep living despite pain.

The RFL category of survival and coping beliefs is consonant with the central theme of acceptance within ACT. Both approaches explicitly acknowledge that human existence is painful (in both physical and emotional senses of the word); but, drawing on the strengths that have made that pain bearable in the past can be of service when living in the present is especially challenging.

And in terms of the “valued ways of being” cornerstone of therapy, the ACT model aligns with the family and peer connections categories that RFL seeks to foster. As evidence based approaches, both recognise that the pursuit of social connectedness offers an important buffer against depression and hence suicidal risk [51].

Conclusions

Not every chronic pain patient is suicidal, and indeed not every depressed chronic pain patient is suicidal [28]. Nevertheless, this review has highlighted the fact that suicidal ideation, at least in the passive form, is actually a common rather than rare event in the chronic pain population. Clinicians working with chronic pain patients need to be aware of the particular factors that elevate the risk of suicidal behaviour. A range of characteristics both proximal and distal to the suicidal event have been identified in the non-clinical population, and these apply equally to the chronic pain community. Moreover, there are several pain-specific risk factors that have been identified which add cumulatively to the potential for taking one’s life in this group. There are a number of screening measures and tools that clinicians can use in order to assist their identification of at-risk patients. Beyond the recognition of which patients are most vulnerable from a statistical probability point of view, the evidence suggests clinicians can explore the amelioration of suicidal behaviour in at least two ways. Firstly, by providing clear validation of the patient’s pain problem as a genuine, difficult health condition; and secondly by fostering and nurturing the patient’s Reasons For Living. The Acceptance and Commitment Therapy approach to chronic pain management offers a particularly useful treatment model for this clinical group, as it addresses many of the factors identified in the suicide risk literature. It is hoped that in following these suggestions, clinicians can bolster their patients against taking such devastating action.

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- Of importance

•• Of major importance

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Table 1 – Risk factors for suicide completion in the general population

- Male gender
- Younger age
- Indigenous culture
- Family history of mental illness
- Family history of suicide
- History of childhood adversity, particularly sexual or physical abuse
- Mood disorder/other severe mental illness
- History of suicide attempts
- Alcohol misuse
- Unmarried (social isolation)
- Unemployed (social isolation)
- Recent bereavement or other stressful life event
- Suicidal ideation/plans
- Access to lethal means

Table 2 – Additional specific risk factors for suicidality in the chronic pain population

- Longer pain duration
- Insomnia/sleep disturbance
- Abdominal pain
- Headache/migraine
- Presence of multiple pain conditions
- Receipt of workers compensation/pursuit of legal claim