

Physical disability and suicide: recent advancements in understanding and future directions for consideration

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Recent research indicates a heightened risk of suicide in this population, a concern given that suicide may be more accepted for those with physical disabilities than for those without such disabilities. The relationship between physical disability and suicide has begun to be examined within empirically supported frameworks of suicide and indicates that interpersonal factors (e.g. perceived burdensomeness) and pain are mechanisms contributing to this heightened risk of suicide. The suicide rate after acquiring a physical disability, such as a spinal cord injury, and the greater odds of suicide after reporting having a disability further support the association between physical disability and suicide. The multifaceted nature of physical disability is reflected in its relationship with suicidal ideation and behaviors.

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Introduction

Although many differing definitions of physical disability (PD) exist, for the purposes of the current review, PD refers to ‘physical impairments, functional limitations, and social activity restrictions’ stemming from the disability [1]. As of 2015, 23.7% of Americans experience vision or hearing difficulty and 16.3% report difficulty with physical functioning [2]. The presence of a PD may lead to difficulties in activities of daily living (ADL) including cooking, cleaning, or tasks associated with employment. These individuals also report lower employment rates and are more likely to experience negative social outcomes including workplace discrimination and harassment [3], stigmatization [4] loneliness, and lower life satisfaction due to disability-related discrimination [5].

The presence of PD has been associated with other various concerning mental health-related outcomes including depression, anxiety and posttraumatic stress disorder [1], all risk factors for suicide [6]. Despite the research base surrounding PD and the aforementioned outcomes, only within the past 5 years has research closely examined the association between PD and death by suicide utilizing empirically supported frameworks of suicide risk.

This lack of research focusing on suicide risk in this population is concerning, as suicide was the 10th leading cause of death in the United States in 2015 and has accounted for an increasing amount of deaths each year [7]. Recent research indicated that adults with self-reported disabilities, including PD, were three times as likely than those without disabilities to have endorsed past-year suicidal ideation, after controlling for age, sex, and psychiatric comorbidity [8]. Compared to those without disabilities, individuals with some form of disability impacting ADL were observed as being four times more likely to have attempted suicide in the past 12 months; those with multiple disabilities were eight times as likely to have attempted suicide in the same period [9]. The association between PD and suicide has also been observed in Korean adults [10[•]], indicating that the risk of suicide in this population is not limited to those living in the United States. Attitudes toward suicide for those with PD is a cause for further concern. Lund, Nadorff, Winer, and Seader noted that individuals may believe that suicide is seen as more acceptable for those with PD than those without PD, regardless of whether the individual endorsing these beliefs had a PD or not [11^{••}]. Given the heightened risk of suicidal ideation and attempts in this population, such a permissive stance toward suicide is troubling.

Much of the research examining suicide risk in individuals with PD has focused on older adults. It should be noted that the majority of American adults with PD are aged 65 and older [2], and the majority of American deaths by suicide occur within this age bracket [7]. A recent systematic review indicated an association between functional disability and suicidal behavior in older adults [12[•]]. Furthermore, functional limitations have been associated with suicidal ideation in a sample of Korean immigrants [13]. However, less focus has been given to younger adults or the population of individuals with PD as a whole, and for these individuals, the underlying mechanisms prompting suicidal ideation and attempts remains largely unstudied.

Mechanisms with preliminary support

The social influences of PD and their relation to suicide are areas of research that have begun to receive attention. According to the Interpersonal Theory of Suicide (ITS) [14,15], individuals are most likely to experience suicidal ideation when 2 states are jointly present. The first, perceived burdensomeness, refers to individuals' beliefs of being a burden to others, and that others may benefit more from the individuals' death than if they continued living. Heightened levels of perceived burdensomeness have been observed in individuals with PD compared to those without PD [16]. Furthermore, a serial indirect effect of the number of PD and health conditions individuals endorsed on suicidal ideation was observed through the indirect effects of perceived burdensomeness and depression symptoms [17]. An association between perceived burdensomeness and suicidal ideation has also been reported in individuals with specific PD, including rheumatic disease (e.g. arthritis) [18], acute pain [18,19], and chronic pain [19,20]. This association has also been observed in individuals receiving home health care services [21]. The emerging research base supporting the presence of perceived burdensomeness and its relation to suicidal ideation in those with PD shows promise for future research.

The second ITS state contributing to the development of suicidal ideation, thwarted belongingness, refers to individuals' feelings of loneliness and isolation [14,15]. Minimal research has investigated the potential roles of loneliness or thwarted belongingness in the development of suicidal ideation in this population. For those with chronic pain conditions, their pain may prompt feelings of social isolation (as well as perceived burdensomeness) [22]. Furthermore, loneliness, one facet of thwarted belongingness, was observed in those with PD [23]. However, in another study, no differences in levels of thwarted belongingness between undergraduate students with and without PD were observed [16]. Future investigation should aim to clarify whether heightened thwarted belongingness is present and is a risk factor for suicidal ideation in this population.

Specific PD subtypes indicated as at heightened risk of suicidal ideation and attempts

The majority of research focusing on suicide risk in individuals with specific PD has mainly included individuals with conditions causing chronic pain and mobility-related PD. As such, these conditions will be discussed in greater depth.

Pain-related PD

In the United States, an estimated 25.3 million adults are living with chronic pain, with 14.4 million of these individuals reporting experiencing the highest reportable level of pain [24]. Among patients with fibromyalgia, a

chronic pain condition, the prevalence of suicidal ideation is 32.5%, and these individuals endorse greater functional limitations due to physical conditions [25]. A meta-analysis of individuals with physical pain indicated that these individuals were more likely to endorse suicidal ideation and history of suicide attempts and to die by suicide [25]. According to the ITS, individuals' capability for making a lethal suicide attempt is acquired partly through habituation to pain and developing a fearlessness about death [14,15]. For those with chronic pain conditions and suicidal ideation, their physical pain may facilitate the capability for suicide. However, as noted in a review of the research examining the relationship between pain and suicide, little is known about how chronic pain facilitates fearlessness about death [22]. Therefore, the role of pain as a mechanism contributing to the capability for suicide is an area in need of further examination, particularly for those with chronic pain conditions.

Mobility-related PD

Various PD resulting in mobility-related difficulties have been associated with suicide risk in recent research. Spinal cord injuries (SCI) are one such condition that have been linked to suicidal ideation and suicide attempts [26]. Individuals with SCI endorse higher levels of suicidal ideation than the general population, and among those with SCI who have attempted suicide, 47% of these suicide attempts occurred after the injury was acquired [27]. The results of a systematic review of studies of individuals with SCI found that suicide accounts for between 5.8 and 11% of deaths in these individuals [28*]. For those with Multiple Sclerosis, a neurological condition that often results in mobility difficulties, the relationship between physical disability and suicidal ideation was mediated by depression symptoms, and greater difficulties in mobility were observed in those with suicidal ideation [29]. For those with amputations of lower extremities, greater impairment in ADL, lower mobility, lower satisfaction with mobility, and depression symptoms were associated with 12-month suicidal ideation [30]. Although these forms of mobility-related PD are different in their presentations, their associations with suicide-related outcomes indicate the potential for a common mechanism clarifying these relationships. The emergence of recent research focusing on various PD impacting mobility is encouraging, and their results indicate the need for further investigation of the impact of such conditions on suicidal ideation and behavior.

Sensory-related PD

Individuals with PD related to vision and hearing are also indicated as being at heightened risk of suicide. However, the research base surrounding this subset of those with PD is currently scarce. Two studies of older Korean adults indicated an increased risk of suicidal ideation among those with visual impairments, and this risk increased

when visual and auditory impairments were both present [31], a finding supported by qualitative research involving Swedish individuals with deafblindness [32]. Furthermore, decreased visual acuity has been associated with an increased odds of suicide [33] a finding supported by the greater odds of death by suicide for Finnish individuals with significant visual impairments than for the general population, particularly for males [34]. Although sensory-related PD, particularly visual impairments, have recently been linked with suicidal ideation and attempts, little is known about whether auditory-related PD alone exhibit a similar influence. Future research in this area should examine this possibility and as well as further investigate the association between visual impairment and suicide-related outcomes.

Conclusions

Taken together, the recent research base surrounding suicide risk in individuals with PD provides further indication that this population is at increased risk of suicide. Only recently has research focused on understanding this association within the context of empirically supported conceptualizations of suicide risk. However, the recent research outlined above provides a foundation for future investigation of specific factors prompting the development of suicidal ideation as well as mechanisms contributing from the transition from suicidal ideation to suicide attempts in those with PD. In further empirically-supported conceptualizations of suicide risk in this population, research efforts would be well-served in examining suicide risk through other theoretical frameworks, including Klonsky and May's Three Step Theory (3ST) [35**] and O'Connor's Integrated Motivational-Volitional Model of Suicidal Behavior [36] in order to further clarify the relationship between PD and suicide.

In order to better understand the mechanisms contributing to suicide risk in this population, it is crucial that attention be given to mediating and moderating factors. Although certain factors (e.g. perceived burdensomeness, depression symptoms, pain) have been indicated as potential influences on the development of suicidal ideation and transition to suicide attempts, it is unclear how PD influence their development. The severity of PD may be one such influence, however the measurement of PD severity has largely relied on self-report instruments measuring difficulties in ADL or functional limitations alone and has not taken into account other domains of PD (e.g. social, economic). In future research, the use of validated structured interviews measuring the severity of PD by encompassing these and other domains, such as the Craig Handicap Assessment and Reporting Technique [37] and other validated measures of various domains of PD, would address this limitation in much of the current research.

Other areas of future study include examining whether the observed relationship between PD and suicide is strongest for those with specific types of PD, such as those impacting mobility or hearing. Furthermore, differences in suicide risk between those with various acquired and congenital physical disabilities have not been examined. Individuals who acquired a physical injury have reported financial and emotional difficulties [38], which are correlates of suicide [39,40]. Those with congenital or genetic conditions were less likely to report past-year suicidal ideation than those with acquired conditions; however, this research was not limited to those with physical disabilities [8]. This preliminary evidence for differences in suicide risk between those with congenital and acquired conditions provides a foundation for future investigation in this area.

The advancement of this line of research has strong clinical merit, particularly for individuals providing various health and rehabilitation services to this understudied population, including primary healthcare providers, rehabilitation psychologists, occupational therapists, physicians, and vocational rehabilitation specialists. Clarification of the mechanisms prompting suicidal ideation and the capability to attempt suicide for those with PDs would inform treatment approaches targeting such mechanisms and enhance existing empirically supporting suicide risk assessment protocols. Therefore, it is crucial that research to expand upon the extant literature, address its current limitations, and continue to examine the influence of various facets of PD on suicide.

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Conflict of interest statement

Nothing declared.

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- of special interest
- of outstanding interest

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