

Are there specific health-related factors that can accentuate the risk of suicide among men with prostate cancer?

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Abstract

Purpose The aim of this study was to explore if there were some specific factors pertinent to health-related quality of life (HRQoL) that could affect self-experienced suicide ideation in men with prostate cancer (PCa).

Methods Questionnaires containing 45 items were distributed to members of the Swedish Prostate Cancer Federation in May 2012. Out of 6,400 distributed questionnaires, 3,165 members (50 %) with PCa completed the questionnaires. Those members expressed their experienced HRQoL and experienced suicide ideation using VAS-like scales as well as multiple-choice questions. Both descriptive and analytical statistical methods were employed. A regression model was used to explore the relationship between experienced health-related quality of life and experienced suicide ideation.

Results Generally, the respondents rated their self-experienced health-related quality of life as good. About 40 % of the participants had experienced problem with incontinence, and 23 % had obstructions during miction. About 7 % of the respondents experienced suicidal ideation, at least sometime. The regression model showed statistically significant relationships between suicide ideation, on the one hand, and lower self-rated health-related quality of life ($P<0.001$), physical pain ($P=0.04$), pain during miction ($P=0.03$), and low-rated mental/physical energy ($P=0.03$), on the other.

Conclusion It is quite necessary to know which specific disease and treatment-related problems can trigger suicide ideations in men with prostate cancer and to try to direct treatment, care, and psychosocial resources to alleviate these problems in time.

Keywords Suicide · Prostate cancer · Health-related quality of life · Suicide ideation

Introduction

In Sweden, prostate cancer (PCa) is the most common form of cancer, accounting for 36 % of all disease incidents and 32 % of all male cancers in 2011 [1, 2]. Approximately 10,000 men get the diagnosis every year, and PCa has had an annual increasing rate of 2 % for the past 20 years [3]. Treatment options offered to patients depend on factors such as age and disease progress. The first-line treatment strategy for patients with a remaining life expectancy of 10–20 years has been active surveillance that involves frequent PSA level tests and occasional biopsies. Prostatectomy or radiotherapy is recommended for those with a remaining life expectancy of more than 20 years [1]. Curative treatment, which involves one of the various prostatectomy or radiotherapy techniques, is recommended only if the tumor is localized [1]. These Swedish therapy recommendations are in line with the European Association of Urology (EAU) guidelines for PCa treatment [2].

Suicidal ideation is a multifaceted and multicausal phenomenon. It can be triggered by causes that may have genetically, psychological, and/or neurobiological factors [4, 5]. For example, concordance rate for death by suicide was found to be higher in monozygotic than dizygotic twins [5]. A family history of suicide can increase the risk of committing suicide by twofold [5]. The probability of developing suicidal ideation was found to be higher in people with psychopathological problems such as major depression and substance abuse [5]. It has been long known that stressors can lead to a higher production of stress hormones that can negatively affect mineralocorticoid and glucocorticoid receptors in the brain, in general, the hypothalamic-pituitary-adrenal (HPA) axis in particular [4, 5]. The latter is a neuroendocrine system that

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regulates the body's response to stress and an imbalance in this system can cause mood disorders including suicidal ideation [4, 5]. Cancer patients can be affected, among others, by the mental and physical demands of having the diagnosis as well as stressors that have to do with disease progress and treatment [6].

Although the degree of disease progress is central to symptom-giving and disease-related health problems, PCa can cause hematuria, urinary obstruction, and edema from regional lymphatic obstruction, pain from bone metastasis, sexual dysfunction, and impaired bowel function. It can also cause general physical impairments and impairment in playing social roles [7, 8]. Not only the disease but also its treatment can cause health problems. Treatments such as androgen deprivation, radical prostatectomy, and radiotherapy caused urinary, bowel, or sexual dysfunction [9, 10]. Although the frequency, duration, and severity of these treatment-related health problems can vary from one treatment option to the other, no conclusive evidence has been found that could make one treatment option better than the other [10, 11].

The diagnosis as well as disease- and treatment-related health problems can affect the health-related quality of life (HRQoL) of men with PCa. HRQoL in PCa can also be influenced by factors such as tumor level, time elapsed since diagnosis, individual factors such as educational level and social background, age at diagnosis, and treatment type [8, 12, 13]. For example, patients with stage I tumor exhibited higher HRQoL scores compared to those with tumor stage IV [12]. Men with advanced PCa face severe and several health- and treatment-related problems compared with men with localized PCa [14]. Research has shown that after baseline similarities with controls (i.e., men without PCa diagnosis), men with PCa experienced significant deteriorations in physical, mental, and social aspects of their lives, especially 6 months following diagnosis. However, men who were surveyed beyond 1 year after diagnosis had similar scores of HRQoL to those of controls [15, 16]. Increased risk for major depressive disorder was observed among men who received either conservative management or external beam radiation [15].

Several studies have shown that suicide ideation and incidents of suicide are higher in cancer patients in general and in patients with PCa in particular. Although suicidal ideation does not necessarily result in completed suicide, its prevalence in cancer patients was found to be higher compared to that in the general population [17]. The risk and incidence of suicide in people with a cancer diagnosis is approximately double the incidence of suicide in the general population [18]. The risk and incidence of suicide among men with PCa has been also found to be high [19, 20]. Men with newly diagnosed PCa as well as metastatic disease were found to be higher risk groups [20–23]. Poorly controlled pain management, advanced stage of cancer, being foreign-born, recent diagnosis, increased

physical impairment, and certain chemotherapeutic treatments have been found to be related to an increased risk of suicide [20, 21, 24]. Even though depression has been singled out as a major risk factor for suicide, other factors such as family discord and lack of social support have been implicated with suicide in patients with PCa [25]. Some studies suggest that getting the diagnosis following a PSA screening made patients more susceptible to suicide, while others suggest that it was the disease progress itself that could make patients more susceptible to suicide [25, 26].

Men with PCa belong to patient groups that need continuous support. Patient associations that provide opportunities for patients to support each other and get support from without have become increasingly common in Western Europe [27]. The Swedish Prostate Cancer Federation (SPCF) has been instrumental not only in mobilizing and utilizing patients' own resources but also in providing information about PCa and treatment options, etc. It augments its achievements by encouraging relatives, the Swedish public, as well as interested individuals to join its efforts [28].

As indicated earlier, research literature has shown the effects of health- and disease-related problems on HRQoL. However, there is scantiness in research regarding specific health-related factors that can affect suicide ideation in men with PCa. The aim of this study was, therefore, to explore the relationships between self-experienced HRQoL and self-experienced suicide ideation in men with PCa diagnosis.

Methods

Method of data collection

The SPCF is a national patient federation currently consisting of over 7,500 members comprising people with PCa diagnosis, family members/relatives to those who have the diagnosis, and individuals who join the federation to contribute to better support and care for patients with PCa. In May 2012, questionnaires were distributed to all members of the SPCF—6,389 at the time—for the data collection.

Instrument

HRQoL and suicide ideation were evaluated with a self-reported questionnaire. This questionnaire was developed in cooperation with the authors and SPCF. The questionnaire was based on some items from a previously reported validated self-reported questionnaire [16].

The distributed questionnaires contained a total of 45 items that were intended to collect information such as HRQoL as experienced and rated by the participants themselves. Some items were using VAS scales with scores ranging from 0 to 10 (lowest to highest); some items were using four graded verbal

scales: “none,” “sometimes,” “often,” and “always;” and some items were using “Yes” or “No” answers.

The evaluation of suicide ideation was based on the question “Have you since diagnosis had suicidal thoughts?” with the answer alternatives none, sometimes, often, and always. Moreover, multiple-choice questions were used in order to map out how frequently participants faced health-related mental and physical problems. The questionnaires also contained specific questions about how members felt about their membership in the association (i.e., the SPCF). These questions and their answers were not analyzed and included in this study.

Data analysis

Collected data was analyzed using both descriptive and analytical statistical methods. Descriptive statistical methods were used to describe participant characteristics as well as to present the way participants express and rate their situations of health and illness. A regression model was used to explore the relationship between suicide ideation on the one hand and factors that could have affected HRQoL on the other. IBM SPSS statistics, version 21 (IBM, Armonk, NY, USA) was used for all statistical analyses.

Ethical considerations

Permission to perform the study was given by the Ethics Committee of the Faculty of Medicine at the Umeå University, Sweden, registered as Issue No. (*Dnr*) 2012-150-31M.

Members of the Swedish Prostate Cancer Federation participated in this study with consent.

Results

The median age of the participants was 73 years (41–95 years). Most of them (87 %) lived in some form of partnership. The majority of the participants had completed elementary school, and most of them had received their PCa diagnosis during and after the year 2000. Most of them had localized PCa at diagnosis (Table 1).

Out of the 6,389 distributed questionnaires, 3,512 were returned (55 %). Of these 6,389 distributed questionnaires, 3,165 members reported that they had had a PCa diagnosis (49.5 %), and these are included in the actual analysis. Descriptive analyses of collected data (Table 2) had shown that most of the respondents rated the level of their physical and mental energy as higher and their self-experienced quality of life as well as their general health situation as good (8 and above on the VAS scale). They rated their experiences of pain due to cancer as lower, but the majority of them rated their

Table 1 Participant characteristics

	Participants (<i>n</i> =3,165)
Age (years)	
Median	73
Range	41–95
Marital status, no. (%)	
Married/have relation	2,525 (80)
Unmarried/ no relation/widow	501 (16)
Missing	139 (4)
Education (%)	
Elementary school	1,213 (38)
High school	886 (28)
Higher education	937 (30)
Missing	129 (4)
Years since diagnose (years)	
Median	6.0
Range	0–50
Disease status ^a (%)	
Local disease	2,563 (81)
Locally advanced	392 (12)
Spread disease	95 (3)
Missing/not known	51 (4)

^aData not verified from medical records

level of sexual activity as well as non-medicated erectile function as lower.

Participants generally experienced the frequencies of their disease-induced physical symptoms as lower (Table 3). About 40 % of the participants had sometimes experienced problem with urinary incontinence, and about 23 % had experienced obstruction during miction.

The frequency of symptoms of anxiety and depression was mixed. The number of respondents who sometimes or often experienced such mental symptoms was higher than the number of those who did not. About 7 % of the respondents reported that they had sometimes experienced suicidal

Table 2 Self-rated physical and psychic condition

	No.	Median (SD)
Energy level ^a	3,115	7.0 (2.2)
Health status ^a	3,052	8.0 (3.4)
Quality of life ^a	3,118	7.0 (2.1)
Pain caused by PCa ^b	3,105	0.0 (1.9)
Sexual desire ^a	3,098	4.0 (3.3)
Sexual activity ^a	3,105	0.0 (2.9)
Erection function	3,100	0.0 (2.8)

^aHigher value represents higher function/better condition on the scale graded from 0 to 10

^bHigher value represents more pain

Table 3 Frequency of self-rated somatic and psychic symptoms

Symptom	Frequency				
	<i>n</i>	Never (%)	Sometimes (%)	Often (%)	Always (%)
Urinary incontinence	2,923	37	41	8	7
Urinary obstruction	2,596	47	23	7	5
Hematuria	2,463	71	5	1	1
Pain during miction	2,470	69	7	1	1
Stool leakage	2,601	64	15	2	1
Anxiety/depression	3,120	46	46	5	1
Suicide ideation	3,113	93	7	0.3	0.1

ideation on the item “Have you since diagnosis had suicidal thoughts?”

Being consistent with the way they rated using the VAS scale, the majority of the participants indicated that they had little or no pain during miction.

Analytical statistics done by using a regression model indicated that there were statistically significant relations ($P \leq 0.05$) between suicide ideation on the one hand and lower self-rated quality of life ($P < 0.001$), the experience of physical pain ($P \leq 0.04$) and pain during miction ($P = 0.03$), and low-rated mental and physical energy ($P = 0.03$). Low-rated sexual function had no statistically significant relationship with suicide ideation. However, the analysis shows that there was a nearly significant relationship ($P = 0.06$) between them.

Psychosocial and demographic factors were also found to have statistically significant relationships with suicide ideation. The younger the age, the higher is the degree of suicide ideation ($P < 0.001$). Being unmarried/not living in some kind of partnership was also found to have a statistically significant relationship with suicide ideation (Table 4).

Discussion

The aim this study was to explore the relationships between self-experienced HRQoL and self-experienced suicide ideation in persons with a PCa diagnosis. As indicated above, respondents generally experienced the severity and frequency of their disease-induced somatic symptoms as lower. The results of this study are in line with an earlier Swedish study

Table 4 Factors associated with suicide ideation

Factor	Std. coefficient ($R^2 = 0.364$)	<i>P</i> value
Marital status	0.046	0.026
Anxiety/depression	0.266	<0.001
Pain caused by PCa	0.053	0.020
Quality of life	-0.117	0.001

that showed similar results with regard to how men with PCa saw their HRQoL [27].

Our study has shown that problems associated with incontinence were related to lower rates of HRQoL. This confirms earlier studies that indicated an association between problems with urinary continence and low-rated quality of life. According to a recent study, elderly PCa survivors had a two- to fivefold greater prevalence of incontinence that worsened with time, compared to their peers in the general population [29]. Some treatment options, such as brachytherapy, have been associated with urinary, bowel, and sexual symptoms [30]. Problems associated with urinary function of the male partner have been implicated in affecting the sexual life of female partners [31].

Another problem that was experienced by respondents was depression and anxiety. The findings of this study are in line with earlier studies that found a higher rate of depression and anxiety in persons with a PCa diagnosis [30]. The prevalence of psychological distress among cancer patients is said to be higher, and the degree increases with advances in disease progress and poor prognosis [32–34]. Since anxiety and depression can occur before (during the process of screening) and at any point after the diagnosis, early detection and treatment of these psychological stressors is highly recommended [32, 35, 36]. A recent Swedish study has shown that men with PCa had an increased risk of requiring psychiatric treatment for depression or posttraumatic stress disorder, compared to age-matched controls. Severe anxiety disorders were associated with advanced stage PCa [37].

Even if it is difficult to reach a general conclusion without at least knowing the level of disease progress, the types of treatment that the majority of the participants went through, etc., the fact that participants had lesser complaints regarding the most common PCa-related symptoms can be indicative of the quality and effectiveness of Swedish oncological care and treatment in alleviating somatic problems. The results could also be indicators of the one sidedness of oncological care, namely, the emphasis on physical rather than mental problems. Historically, psychosocial care for cancer patients has seldom been seen as an aspect of quality of care [34, 38]. The focus on somatic care as paramount can entail the risk of prolonging life without bothering about whether there is some quality in that life or not [39].

The results of this study show that there were statistically significant relations between suicide ideation on the one hand and lower self-rated quality of life, the experience of physical pain and pain during miction, and low-rated mental and physical energy. In other words, participants who had suicide ideation might have had those physical and mental problems. Even if low-rated sexual function did not have a statistically significant relationship to suicide ideation, the near-significant relationship is indicative of the fact that those who had suicide ideation might have had problems in their sexual life. In fact,

research had indicated that PCa patients worry about their sexual lives more than their partners do [40]. Suicide ideation was found to be about 7 % and varied in frequency (i.e., ranging from experiencing suicide ideation sometimes to having the experience often). Despite the relatively low rate of suicide ideation and nuances in the recurrence of suicide ideation, the results of this study are indicative of the existence of the risk of losing one's life. Among the respondents, over 200 men had had suicide ideation at least sometimes.

These figures were results of the self-experience in suicide ideation as expressed by the respondents and estimated only by using a VAS scale. These authors believe that further studies that use more objective means and valid and reliable measuring instruments of suicide ideation can show larger figures than those revealed by this study.

This study has some limitations, for the first, we do not know if suicide attempts were made among the responders. Since this is a study of members from a prostate cancer association, we did not collect individual information regarding this type of information. We did neither collect any information from medical journals confirming this type of information nor information about the disease or treatment. Secondly, the questionnaire has not been validated. The authors in cooperation developed it with the members in the prostate cancer association (SPCF). However, these items were included in the questionnaire since both the patients (members) and researchers thought that these are very important items and there is a lack of this type of information among this group of men with prostate cancer. The aim of the study and development of the questionnaire was not to add a new questionnaire for screening for a risk group of suicide attempt, but to give information of the frequency of suicide ideation in a population of prostate cancer survivors.

To our knowledge, this is the first study in which men with a PCa diagnosis expressed their feelings concerning suicide and the first of its kind to pinpoint specific health problems that could have contributed to or exacerbated suicidal ideation.

Research on suicide shows that suicidal ideation can range from transient thoughts about committing suicide to more severe, ruminative thoughts about it [24]. The more recurring the ideation, the more likely the act of suicide will take place. Here again, depression and anxiety play greater roles in driving patients towards suicide ideation [24].

Early detection of this problem is quite necessary to prevent the loss of life that could well have sociopsychological resonances far and beyond the individuals who have lost their lives [41]. Some of the contributing factors for suicide in the elderly include a lack of social support (i.e., social isolation, being divorced, widowed, or single), psychiatric problems (among others, anxiety and depression), as well as a lack of a sense of coherence to cope with a malignant disease and all its consequences [41, 42]. The relationship between sociodemographic factors and suicide ideation has been

implied by this study. The results of this study imply that a relatively younger age and having no partner have a statistically significant relationship with suicide ideation. Oncological care, especially oncologic nursing, needs to include assessing, identifying, and providing the necessary help for patients with suicidal ideation [42, 43]. Although research in the area of psychosocial interventions has been far from conclusive, cognitive behavioral and psycho-educational interventions appear to have been helpful in promoting better psychological adjustment and quality of life for men with prostate cancer. Coping skills training for both patients and spouses is also said to improve the quality of life for both partners [42].

Conclusions

The significant relationship between specific aspects of HRQoL and suicide ideation implies the need to target and address such aspects of health problems so as to reduce the risk of suicide. Relatively younger patients living without some kind of partnership seem to be the most vulnerable and as such in need of special focus from care providers. Early detection of suicidal tendencies is advisable as much as putting emphasis on detecting and treating depression in men with PCa diagnosis.

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Conflict of interest The authors have no other relationships/conditions/circumstances that present potential conflict of interest.

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