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ORIGINAL ARTICLE



Psychosocial impact of human papillomavirus on women's sexual dissatisfaction and quality of life

Vânia Leite, B. Daiana Santos and M. Graça Pereira 

School of Psychology, University of Minho, Braga, Portugal

ABSTRACT

Purpose: This study assessed how psychological, socio-demographic and clinical variables were associated and moderated the relationship between sexual dissatisfaction and the psychosocial impact of the human papillomavirus (HPV) on the quality of life (QOL) of infected women.

Methods: A cross-sectional design was used with a sample of 194 women. Participants completed a sociodemographic and clinical questionnaire, and were assessed on the psychosocial impact of HPV on quality of life (HPV Impact Profile), sexual dissatisfaction (Index of Sexual Satisfaction), psychological morbidity (Hospital Anxiety and Depression Scale), emotional suppression (Courtauld Emotional Control Scale) and spirituality (Spiritual and Religious Attitudes in Dealing with Illness).

Results: Women with greater psychological morbidity and emotional suppression showed greater psychosocial impact of HPV on QOL. Greater psychological morbidity and emotional suppression, being older, having less education and not using condoms were associated with greater sexual dissatisfaction. Sexual dissatisfaction, psychological morbidity and age were associated with the impact of HPV on QOL. The variables that contributed to sexual dissatisfaction were age, emotional suppression and condom use. The use of condoms moderated the relationship between emotional suppression and sexual dissatisfaction.

Conclusion: Interventions should focus on psychological morbidity and condom use, particularly in older and less educated women.

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KEYWORDS

Cancer; HPV; oncology; sexual dissatisfaction; quality of life

Introduction

The human papillomavirus (HPV) is one of the most prevalent sexually transmitted infections, affecting both men and women [1]. In Portugal, its prevalence is approximately 19.4% in the female population [2]. According to the World Health Organization [3], the majority of sexually active women acquire this infection at some point in their lives, making this the most common sexually transmitted disease worldwide. Typically, the most likely time to contract HPV is at the onset of sexual activity.

HPV is frequently asymptomatic [4] and often disappears without any kind of intervention. However, some types of HPV, are associated with lesions, such as types 16 and 18 (high-risk) and types 6 and 11 (low-risk). High-risk types are related to cervical cancers, while the low-risk are more associated with genital warts [1,5,6].

All sexually transmitted infections, including HPV, have a negative psychological impact. Women, in particular, suffer from negative stereotyping such as

promiscuity and infidelity, which inevitably increases their psychosocial burden [7]. HPV psychological impact is highly dependent on the type of HPV i.e. women with high-risk HPV show higher levels of hopelessness and emotional distress. Women with less knowledge about HPV reported feeling more ashamed when diagnosed [7]. The uncertainty of diagnosis has been also associated with depression, fear of pain during the examination and embarrassment [8,9].

The impact of HPV on quality of life (QOL) [10] varies according to social, cultural and sexual factors [11,12]. After a positive diagnosis, there is an increase in psychological morbidity, especially anxiety [9] related to the consequences of sexual intercourse [11,13] that has a significant impact on QOL [9]. Women who reacted better to the HPV diagnosis reported greater self-esteem and ability to communicate with their sexual partner [14], being able to express their needs and desires [12]. Women with a difficult communication with the partner showed more psychological morbidity that was associated with lower sexual satisfaction [15]. Also, the stigmatization

associated with sexually transmitted diseases is linked with greater internalization of negative emotions, which in turn are related to greater psychological morbidity and sexual dissatisfaction as well [15]. However, the impact of HPV on sexuality is reduced when a condom has been used since the likelihood of HPV transmission is decreased [12], being associated with sexual satisfaction [16]. The perception of risk is lower when a condom is used since the woman may enjoy sexual activity with less worries and more satisfaction [17] with her thoughts not being centered on the consequences of unprotected sex [16].

HPV is also associated with emotional suppression [15]. The social stigma associated with sexually transmitted infections leads to embarrassment and less expression of emotions associated with psychological morbidity [18] and the internalization of negative emotions [18], that negatively impact QoL and sexual satisfaction [14,19,20]. In particular, women diagnosed with HPV showed a significant increase in depressive and anxious symptoms that were associated with increased emotional suppression [18]. Women who reported using spirituality as a coping strategy showed a better adaptation to the disease [21], better QoL and less risky sexual behaviors [22].

The present study addresses emotional suppression and spirituality regarding the psychosocial impact of HPV on QoL and sexual dissatisfaction taking into consideration, socio-demographic, clinical and psychological variables. It is expected that the psychosocial impact of HPV on QoL will be positively influenced by sexual dissatisfaction, psychological morbidity and emotional suppression and negatively by spirituality and age. Regarding sexual dissatisfaction, it is expected that spirituality, condom use and education will negatively contribute and that age, psychological morbidity, emotional suppression, psychological impact of HPV will positively contribute. Finally, it is expected that condom use to moderate the relationship between emotional suppression and sexual dissatisfaction.

Methods

Participants

The sample consisted of 194 women diagnosed with high- and low-risk HPV being followed in two major hospitals. The inclusion criteria were: having a diagnosis of HPV, receiving HPV treatment and having a sexual partner.

Procedure

This study followed a cross-sectional design. All procedures respected the principles outlined in the Declaration of Helsinki and were submitted to and approved by the Ethics Committees of both hospitals. Patients that met the inclusion criteria were identified by their physicians and invited by one of the researchers to participate in the study.

Participation was voluntary and data confidentiality was guaranteed. After signing the informed consent form, women answered the instruments on the day of their medical appointment.

Measures

Socio-demographic and clinical questionnaire [23], assessed patient's age, education level, marital status, condom use, duration of diagnosis, type of HPV, presence of cervical lesions, as well as knowledge about HPV (ways of transmission, ways of manifestation and its relationship with cervical cancer).

HPV Impact Profile (HIP) [24]. The Portuguese Version [25] includes 29 items assessing QoL in terms of the psychosocial impact of HPV diagnosis and consists of seven psychosocial domains: worries and concerns, emotional impact, sexual impact, self-image, partner and transmission, interaction with physicians and control/life impact. Scores above 70 indicate a high psychosocial impact; a score between 40 and 70 indicates a moderate psychosocial impact and a score below 40 indicates little or no impact. In its original version, the subscales showed the following alphas: 0.90 for worries and concerns, 0.77 for emotional impact, 0.64 for sexual impact, 0.82 for self-image, 0.82 for partner and transmission, 0.69 for interaction with physicians and 0.71 for control/life impact. In the present study only the total scale was used with an alpha of 0.85.

Hospital Anxiety and Depression Scale (HADS) [26,27] assesses psychological morbidity and consists of two subscales (anxiety and depression) with seven items each. Higher values indicate more depression and anxiety, i.e. more psychological morbidity. In the Portuguese version both subscales showed good internal consistency with a Cronbach's alpha of 0.76 for anxiety and 0.81 for depression. In this study only the total scale was used with an alpha of 0.93.

Courtauld Emotional Control Scale (CECS) [28,29] assesses negative affective response control, such as emotional suppression, in 21 items grouped into three subscales: expression of anger, anxiety and sadness. Higher scores indicate greater emotional suppression.

This Cronbach's alpha coefficients were 0.82 (anger and sadness subscale), 0.81 (anxiety subscale) and 0.91 for the total scale. In the present study only the total scale was used with an alpha of 0.95.

Index of Sexual Satisfaction (ISS) [30,31] consists of 25 items, assesses the degree of sexual dissatisfaction in the context of the couple's relationship. Higher scores indicate higher levels of sexual dissatisfaction. The original version showed a Cronbach alpha of 0.93, while in the present study the alpha was 0.97.

Spiritual and Religious Attitudes in Dealing with Illness (SpREUK) [32,33] assessed the impact of spirituality on how individuals deal with illness and consists of 15 items, grouped into three subscales: "search for support/access, trust in higher guidance/source and reflection: positive interpretation of the disease". Higher scores indicate greater spirituality. In the original version, Cronbach's alpha was 0.94 for the total scale, 0.91 for both "seeking spiritual support" and "trust in a higher source", and 0.86 for "reflection: positive interpretation of disease". In this study, only the total scale was used with an alpha of 0.94.

Data analysis

The Pearson correlation was used to assess the relationship between the sociodemographic, clinical and psychological variables. When variables were dichotomous, the Biserial Point correlation was employed. The Chi-Square test was used to assess the relationship between the use of condoms, HPV type and presence of cervical lesions. T tests were used to evaluate differences according to HPV type.

In order to find the variables that contributed to the psychosocial impact of HPV on QoL and sexual dissatisfaction, a hierarchical linear regression (method enter) was performed. The variables included in the regression models were those correlated with the dependent variables, (QoL/sexual dissatisfaction). Finally, a moderation analysis was performed with the PROCESS macro command [34].

Data were analyzed with the Statistical Package for Social Sciences (SPSS, Chicago, IL), version 23.

Results

Sample description

This sample comprised 194 women with a mean age of 39.8 (SD = 10.378) ranging from 20–65 years old. From the total sample, 55.78% were married or living together, 39.2% were in a dating relationship and the remaining 5.2% were single with a sexual partner. This

was a highly educated sample, with a mean of 10.43 years of education (SD = 3.942); 72.7% were employed, 62.4% were diagnosed with high-risk HPV and the remaining with low-risk HPV, with 20.1% reporting cervical lesions. The most common contraceptive method used was the contraceptive pill (51%), followed by condoms (9.3%) or other methods (5.1%) although 34.5% of women reported not using any contraceptive method, at all. The duration of diagnosis was 16.8 months (SD = 28.5 months) and 83.5% of patients were attending gynecological consultations every six months.

Differences on psychological variables according to HPV type

No significant differences were found on the psychosocial impact of HPV on QoL ($t = 0.864$, $p = .399$), psychological morbidity ($t = -0.498$, $p = .807$), emotional suppression ($t = -0.993$, $p = .433$), sexual dissatisfaction ($t = -0.690$, $p = .355$) and spirituality ($t = 1.390$, $p = .627$) in women with high-risk HPV compared to those with low risk.

Relationship between sociodemographic, clinical and psychological variables

The Pearson correlation test showed a positive association between psychosocial impact of HPV on QoL and psychological morbidity ($r = 0.563$, $p < .001$), emotional suppression ($r = 0.248$, $p < .001$) and sexual dissatisfaction ($r = 0.342$, $p < .001$). There was no association between spirituality and psychosocial impact of HPV on QoL ($r = 0.003$, $p = .963$). Thus, higher levels of psychological morbidity, greater emotional suppression and greater sexual dissatisfaction were associated with greater psychosocial impact of HPV on QoL (Table 1).

Contributors to QOL

The regression model was significant ($F = 19.049$, $p < .001$, $F^2 = 0.621$) and explained 36% of the variance. Results showed that sexual dissatisfaction ($\beta = 0.252$, $t = 3.470$, $p < .001$) and psychological morbidity ($\beta = 0.513$, $t = 7.563$, $p < .001$) were positively associated whereas age was negatively correlated ($\beta = -0.193$, $t = -2.697$, $p = .008$). Therefore, greater sexual dissatisfaction, greater psychological morbidity and being older were positively associated with greater psychosocial impact of HPV on QoL (Table 2).

Table 1. Results of Pearson’s Correlation, Point-Biserial and Chi-Square for socio-demographic, clinical and psychological variables.

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Psychosocial impact of HPV on QOL	–										
2. Sexual dissatisfaction	.342***	–									
3. Psychological morbidity	.563***	.397***	–								
4. Emotional suppression	.248***	.314***	.390***	–							
5. Spirituality	.003	<.001	–.043	–.135	–						
6. Age	–.069	.398***	.137	.060	.201**	–					
7. Education level	–.087	–.392***	–.301***	–.225**	–.175*	–.538***	–				
8. Duration of diagnosis	–.082	.124	.014	–.016	.067	.167*	–.076	–			
9. Condom use	.014	–.273***	.009	.056	–.045	–.164*	.221**	.068	–		
10. HPV type	–.063	.050	.036	.072	–.101	.123	–.074	–.074	1.051	–	
11. Presence of cervical lesions	–.080	–.095	–.036	.058	–.111	–.073	.120	–.057	1.235	3.784	–

HPV: human papillomavirus; QOL: quality of life.
 ***p <.001; **p <.01; *p <.05.

Table 2. Predictors of psychosocial impact of HPV on QOL and predictors of sexual dissatisfaction.

Predictors	Psychosocial Impact of HPV on QoL					Sexual dissatisfaction						
	R ² (Adj. R ²)	F	β	t	p	f ²	R ² (Adj. R ²)	F	β	t	p	f ²
Step 1	0.025 (0.010)	1.618			.187		0.238 (0.226)	19.481			<.001	
Age			–0.151	–1.764	.079				0.244	3.218	.002	
Education level			–0.175	–2.022	.045				–0.217	–2.825	.005	
Condom use			0.031	0.420	.675				–0.197	–3.005	.003	
Step 2	0.383 (0.363)	19.049			<.001	0.621	0.405 (0.386)	20.906			<.001	0.681
Age			–0.193	–2.697	.008				0.299	4.372	<.001	
Education level			0.050	0.678	.499				–0.081	–1.123	.263	
Condom use			0.043	0.687	.493				–0.232	–3.942	<.001	
Sexual dissatisfaction			0.252	3.470	<.001				–	–	–	
Psychosocial Impact of HPV on QOL			–	–	–				0.243	3.470	<.001	
Psychological morbidity			0.513	7.563	<.001				0.124	1.643	.102	
Emotional suppression			–0.014	–0.207	.836				0.179	2.849	.005	

HPV: human papillomavirus; QOL: quality of life.

Contributors to sexual dissatisfaction

The regression model was significant (F = 20.906, p < .001, f² = 0.681), explaining 39% of the sexual dissatisfaction variance. The final model revealed that age (β = 0.299, t = 4.372, p < .001), emotional suppression (β = 0.179, t = 2.849, p = .005) and psychosocial impact of HPV (β = 0.243, t = 3.470, p < .001) were positively associated with sexual dissatisfaction. Also, condom use (β = –0.232, t = –3.942, p < .001) was negatively associated with sexual dissatisfaction. Hence, being older, not using condoms, greater emotional suppression and greater psychosocial impact of HPV on QoL were associated with greater sexual dissatisfaction (Table 2).

Moderation analysis

Results showed that condom use moderated the relationship between emotional suppression and sexual dissatisfaction (β = –0.423, 95% CI [–0.762; –0.083], t = –2.457, p = .015). Therefore, with no condom use (β = 0.596, 95% CI [0.340; 0.852], t = 4.591, p < .001) the positive relationship between emotional suppression and sexual dissatisfaction was stronger (Figure 1).

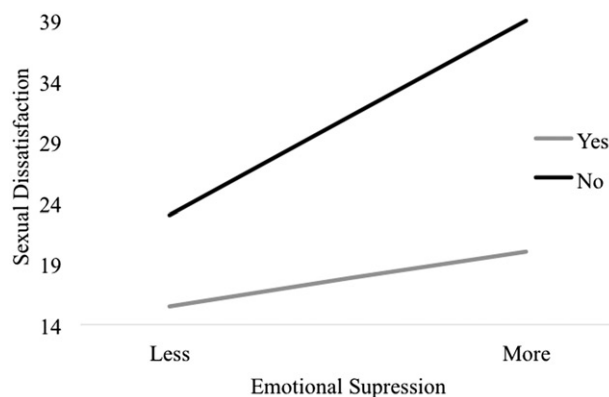


Figure 1. Condom use as a moderator between emotional suppression and sexual dissatisfaction.

Discussion

There were no differences on psychological variables according to HPV type, although studies have suggested that women with high-risk HPV have higher psychological morbidity and greater psychosocial impact of HPV on QoL [10]. This was a somewhat surprising result, which might be explained by the fact that this sample was highly educated and therefore had more access to information [35], which might

have contributed to have access and more knowledge regarding coping strategies to effectively deal with HPV, regardless of type. Future studies should focus on a more heterogeneous sample to explore this hypothesis.

Psychological morbidity, emotional suppression and sexual dissatisfaction were positively associated with the psychosocial impact of HPV on QoL. Women with greater emotional suppression, depressive and anxious symptoms and sexual dissatisfaction showed greater psychosocial impact of HPV on QoL. The diagnosis of HPV in women is typically associated with an increase in psychological morbidity, mainly anxious symptoms [8,9], with greater emotional suppression, since the diagnosis of a sexually transmitted infection is often associated with shame and internalization of emotions [18] explaining the association with sexual dissatisfaction and the negative impact on QoL [8,9].

Greater psychological morbidity and emotional suppression, as well as being older were associated with greater sexual dissatisfaction. These results are consistent with the literature, since depressive and anxious symptoms prevent women from fully enjoying their sexual lives [20] and emotional suppression has been associated with sexual dissatisfaction [14]. Younger women typically report being more satisfied with their romantic relationships and congruently, older women report greater sexual dissatisfaction [20].

Being less educated was also associated with greater sexual dissatisfaction, as well as not using condoms during sexual intercourse. In fact, more education has been associated with more intense search for information [35], regarding the benefits of condom use, which may reduce patients sexual dissatisfaction. When condoms are used risk perception is lower, which, in turn, may allow women to enjoy sexual intercourse more and to perceive it as more satisfactory [17]. Spirituality, in this study, was not associated with any variable. This result may be due to patients high level of education, since more educated individuals tend to be less spiritual and find other strategies to deal with the impact of illness [36]. Future studies should pursue this hypothesis.

Sexual dissatisfaction and psychological morbidity contributed to the psychosocial impact of HPV on QoL. Depressive and anxious symptoms were associated with poorer outcomes on the QoL of infected women [19]. Greater sexual dissatisfaction was associated with greater psychosocial impact of HPV on QoL [9]. Psychological morbidity has been found to predict greater psychosocial impact of HPV on QoL, since the psychological impact of a sexually transmitted infection on women's lives is usually higher and

compromises their QoL [10]. Being older predicted greater psychosocial impact of HPV on QoL, although these variables were not correlated.

Being older, suppressing emotions, not using condoms were associated with greater sexual dissatisfaction. In fact, being older has been associated with decreased sexual function and greater dissatisfaction with body image and consequently greater sexual dissatisfaction [19]. Emotional suppression implies a greater internalization of negative emotions [19], which predicts greater sexual dissatisfaction, given that not venting emotions is associated with less communication with the partner, which in turn has an impact on sexual satisfaction [14,18]. Not using condoms was associated with greater sexual dissatisfaction, since the use of condoms may allow the woman to feel protected and more focused on enjoying sexual intercourse with the partner [37].

Finally, the use of condoms moderated the relationship between emotional suppression and sexual dissatisfaction, so when women do not use condoms during intercourse, the positive relationship between emotional suppression and sexual dissatisfaction was stronger. The use of condoms is associated with greater communication between partners [31], since women are able not to focus their attention on the HPV [16], resulting in a decrease of the internalization of negative emotions [31]. This result is similar to Caruso et al.'s [38] findings, that showed women using a contraceptive vaginal ring had better QoL, although no association with increased sexual activity was found. In the present study, similar results were found with the use of a condom, suggesting that when women feel protected, there is an impact on their sexual satisfaction that is associated with QoL.

Conclusion

Results from this study show that psychological morbidity has a great impact on QoL and that older, less educated women showed the highest impact of HPV on both QoL and sexual dissatisfaction. Finally, condom use was found to play a moderating role between emotional suppression and sexual dissatisfaction. These results highlight the importance of assessing and intervening in HPV women helping them to express their emotions regarding their condition.

Clinical implications

Interventions should focus on contraceptive practices since the results showed a negative impact of not using condoms in the positive relationship between

emotional suppression and sexual dissatisfaction. Consequently, intervention programs should specifically target women who do not use condoms in order to promote more expression of feeling and sexual satisfaction. Therefore, the couple should be involved and referred to couple therapy, if not able to handle the HPV diagnosis and the treatment in their marital and sexual relationship, particularly if the diagnosis places sexual fidelity into question.

Limitations

This study has some limitations that should be acknowledged such as the use of only self-report instruments and the sample being highly educated. Partners were not involved in this study and should also be included in future studies. Finally, it would also be important to assess other coping strategies in addition to spirituality, such as locus of control, due to the emotional suppression involved.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

M. Graça Pereira  <http://orcid.org/0000-0001-7987-2562>

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► Current knowledge on the subject

- The Human Papillomavirus (HPV) is one of the most prevalent sexually transmitted infections and the condom use is a protective factor that reduces the likelihood of HPV infection transmission.
- HPV has a negative psychological impact and women in particular suffer from negative stereotyping such as promiscuity and infidelity.
- The social stigma associated with sexually transmitted infections leads to embarrassment and less expression of emotions that are associated with depression and anxiety and the internalization of negative emotions, with a negative impact on QoL and sexual satisfaction.

► What this study adds

- The emotional suppression and spirituality are important variables regarding the psychosocial impact of HPV on sexual dissatisfaction and quality of life taking into consideration socio-demographic, clinical and psychological variables.
- The use of condoms moderated the relationship between emotional suppression and sexual dissatisfaction.
- The results showed the need to involve the couple in intervention programs to promote sexual satisfaction and quality of life in this population.