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To cite this article: B. D. Santos, C. S. Moreira, M. Vilaça, E. Carvalho & M. G. Pereira (2020) Dyadic Adjustment and Sexual Satisfaction in HPV Diagnosed Portuguese Women: A Longitudinal Study, *Journal of Sex & Marital Therapy*, 46:6, 564-575, DOI: [10.1080/0092623X.2020.1761495](https://doi.org/10.1080/0092623X.2020.1761495)

To link to this article: <https://doi.org/10.1080/0092623X.2020.1761495>



Published online: 13 May 2020.



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Dyadic Adjustment and Sexual Satisfaction in HPV Diagnosed Portuguese Women: A Longitudinal Study

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ABSTRACT

This study examined the relationship between dyadic adjustment and sexual satisfaction, in Portuguese women diagnosed with human papillomavirus (HPV), using a 1-year longitudinal design. Women were assessed at the beginning of the study ($N=209$), six months after ($N=178$) and twelve months later ($N=105$). A better dyadic adjustment predicted more sexual satisfaction but the inverse was not observed. Younger women (< 40 years) showed greater difficulties in dyadic adjustment, while older women (> 40 years) reported lower sexual satisfaction. Findings highlight the importance of intervening with couples, using different intervention programs according to women's age.

Introduction

The world's most common causative agent in sexually transmitted viral infections is the human papillomavirus (HPV), considered a relapsing virus, which can be eliminated in a period of one to two years in 90% of cases (Brown & Weaver, 2013; Casillas-Veja, Morfín-Otero, García, Camacho-Ortiz, & Garza-González, 2017). It is a chronic, asymptomatic and temporary infection, affecting men and women (Alizon, Murall, & Bravo, 2017; Souho, Benlemlih, & Bennani, 2015). The greater prevalence of HPV infections occurs in women under 25 years old and the highest incidence is concentrated in less developed regions (Bosch et al., 2013). In Portugal, where this study was recently conducted, 20% of women aged between 18 and 64 years old are infected with HPV (Serviço Nacional de Saúde, 2019).

There are over 200 subtypes of HPV and approximately 40 of those can affect the genital area. Types 16 and 18 are considered high-risk HPV and are mostly associated with cervical cancer (CC), while types 6 and 11 are considered low-risk HPV and are usually associated with benign and pre-malignant lesions, as well as with genital warts (Faridi, Zahra, Khan, & Idrees, 2011; Mittal et al., 2017). An HPV infection can cause several types of cancers, such as vulvar, cervical, vaginal, oropharyngeal, among others (Centers for Disease Control & Prevention, 2015). There are several factors contributing to the onset of HPV, such as the use of oral contraceptives (birth control pills), a very early sexual intercourse initiation, multiple partners, smoking habits and history of sexually transmitted infections (STI) (Faridi et al., 2011; Ramanakumar et al., 2016). However, precocious sexual behaviors are considered the main risk factor for the contraction of this infection (Faridi et al., 2011; Plummer, Peto, & Franceschi, 2012).

Due to the relapsing nature of HPV infections, there is an increased psychosexual vulnerability in women (Graziottin & Serafini, 2009). When receiving a positive diagnosis, women endure a

negative impact, experiencing negative feelings, especially anxiety and physical discomfort, as well as sexual dissatisfaction (Campaner, Vespa Júnior, Giraldo, & Passos, 2013; Ferenidou et al., 2012; Shahhosseini, Gardeshi, Pourasghar, & Salehi, 2014). Consequently, HPV has a significant impact on women's lives, causing negative social and psychological effects, influencing their sexual life, and their dyadic adjustment (Cendejas, Smith-McCune, & Khan, 2015; Sheikh, Mansor, & Haque, 2016).

In a recent study including oral cancer patients and their partners (Taberna et al., 2017), the authors evaluated the effects of HPV diagnosis and treatment on couple's relationship stress and sexual behavior, and observed that the majority of participants reported their relationships had improved although disclosing a significant decrease in the frequency of vaginal and oral sex. Another study, developed with HPV-diagnosed women (Jeng, Lin, & Wang, 2010), found that the HPV infection did not influence the couples' relationship, but had a negative impact on their sexual lifestyles. In a study developed with women with genital and breast cancers (Fahami, Mohamadirizi, & Savabi, 2017), the authors found significant negative correlations between sexual dysfunction and the quality of the couple relationship. More recently, Hsu, Wang, Fetzer, Cheng, and Hsu (2018) analyzed the psychosocial adjustment trajectory of women to HPV at one, six and 12 months after the diagnosis, and concluded that participants reported significant improvements in sexual relationships and psychological distress adjustment only in the first six months. Although to our knowledge there are no published studies focused on dyadic adjustment and sexual satisfaction in women diagnosed with HPV, the scarce literature shows that among all aspects pertaining to the dyadic adjustment, sexual satisfaction is the most directly affected domain by the HPV infection.

In a longitudinal study of individuals in long-term relationships, Byers (2005) analyzed the association between relationship satisfaction and sexual satisfaction over an 18 months' period and found that higher relationship satisfaction predicted higher sexual satisfaction 18 months later, while higher sexual satisfaction did not predict higher relationship satisfaction at the end of the study. Since analyses were based on basic statistical techniques, Byers advocated the need to develop more sophisticated longitudinal models in order to analyze the complex interplay between relationship satisfaction and sexual satisfaction over time. Furthermore, longitudinal studies focused on the relationship between relationship satisfaction or relationship adjustment and sexual satisfaction are very scarce and inconclusive (Byers, 2005). The present study aims to fill a gap in the literature by using sophisticated longitudinal models to explore the relationship between dyadic adjustment and sexual satisfaction.

In this context, considering the impact of a chronic disease/infection on the dyadic adjustment, and the lack of longitudinal studies assessing reciprocal temporal associations between dyadic adjustment and other related variables, the objectives of this study are: a) to analyze the reciprocal temporal associations between dyadic adjustment and sexual satisfaction in women diagnosed with HPV; b) to specify a longitudinal model for the dyadic adjustment; and c) to explore possible significant covariates in both models (socio-demographic and clinical).

Methods

Participants

The sample used in this study comprised Portuguese women diagnosed with HPV, with 209 women at the diagnosis consultation (T1), 178 six months after the appointment (T2), and 105 twelve months later (T3). Most participants left the study due to a medical discharge, which was expected because, as explained above, HPV is usually eliminated in a period of one to two years in 90% of cases (Brown & Weaver, 2013; Casillas-Veja et al., 2017). This fact also explains the decrease of high-risk diagnosed patients over time: 64.1% at T1, 42.1% at T2, and 14.3% at T3. Sociodemographic and clinical characterization of the initial sample is presented in Table 1.

Table 1. Participants' descriptive statistics for sociodemographic and clinical variables at the diagnosis appointment ($N = 209$).

Continuous measure	Min.	Max.	Mean	SD
Age	20	65	39.67	10.40
Sexual satisfaction (SSI)	0	83	27.94	19.01
Dyadic adjustment (RDAS)	12	67	52.97	9.78
Relationship duration (months)	1	528	140.46	134.00
Diagnosis duration (months)	1	192	17.07	27.83
Categorical measure	%			
Education level				
Elementary school	12.4			
Middle school	30.1			
High school	36.8			
College degree	20.6			
Employment status				
Employed	72.7			
Unemployed	22.5			
Retired	4.8			
Cohabiting with the partner				
Yes	95.7			
No	4.3			
Children				
No	30.1			
Yes	69.9			
Type of family				
Nuclear	86.1			
Extended	5.3			
Single-parent	5.7			
Reconstituted	2.9			
Type of HPV				
High risk	64.1			
Low risk	35.9			

Participants who left the study after T1 did not differ significantly from the remaining in terms of socio-demographic and clinical characteristics.

Procedure

The sample was collected at two hospitals in the northern region of Portugal, following the approval of the Ethics Committees from the hospitals and of the Portuguese Data Protection Authority (CNPD).

Participants were HPV-diagnosed female patients, aged 18 years or older, with a partner (spouse or boyfriend). During the medical gynecological examination, gynecologists identified the patients meeting the inclusion criteria, and then invited them to participate in the study. All patients that responded positively were taken to a separate room where they attended a meeting with a member of the research team, who carefully explained the purpose of the study and guaranteed the confidentiality of all data. At the end of the meeting, all patients who agreed to participate signed an informed consent form.

Instruments

Sociodemographic Questionnaire (Pereira & Ferreira, 2015). This questionnaire was developed for this study in order to assess socio-demographic (age, education, marital status, employment status), family (type of family, children), and clinical variables (diagnosis duration and type of HPV). Clinical information was provided by the patients' gynecologists.

Sexual Satisfaction Index (SSI; Hudson, 1998; Portuguese version by Pechorro, Diniz, Almeida, & Vieira, 2009). This is a *Likert* scale comprising 25 items, aiming to evaluate the index of sexual satisfaction, emotional expression with partners, and the quality of the sexual partnership. Items

like “Our sex life is very exciting” and “My partner does not satisfy me sexually” are included in the SSI. Higher scores indicate higher levels of sexual dissatisfaction. The Cronbach’s alpha of the Portuguese version is .95 and in this study is .96.

Revised Dyadic Adjustment Scale (RDAS; Busby, Christensen, Crane, & Larson, 1995; Portuguese version by Pereira et al., submitted). This is a *Likert* scale comprising 14 items, which are used to assess the quality of dyadic adjustment in three subscales: consensus (e.g., “How much do you and your partner agree on making major decisions?”), cohesion (e.g., “How often do you and your partner calmly discuss something?”), and satisfaction (e.g., “How often do you get angry with your partner?”). Higher scores indicate a better dyadic adjustment. The Cronbach’s alpha for the Portuguese version is .85 and in this study was .87.

Data analysis

Statistical analyzes were performed using Rstudio, R version 3.6.2 (R Core Team, 2019), through the “lavaan” (Rosseel, 2012), “semTools” (Jorgensen, Pornprasertmanit, Schoemann, & Rosseel, 2019), glmmTMB (Brooks et al., 2017), and “ggplot2” (Wickham, 2009) packages. We employed an autoregressive and cross-lagged structural equation modeling (SEM) to determine the temporal association between past moment dyadic adjustment and sexual satisfaction. SEM methodology analyzes multiple relationships simultaneously. To compare the relative strengths of the multiple relationships in such models, the standardized estimates were used.

Age was assessed in years and refers to the patients’ age at the beginning of the study. The HPV type diagnosis was coded as binary (low *versus* high risk). To simplify, sexual satisfaction was considered as a single measured variable. To assess the model fit, Hu and Bentler (1999) and Kline (2004) recommendations were used, adopting the following fit indexes criteria to establish a good model fit: (1) the ratio Chi-Square over the number of degrees of freedom (χ^2/df) smaller than 3, (2) CFI, TLI, and RNI values close to .95 (or higher), (3) RMSEA values close to .06 (or smaller), and (4) SRMS values close to .08 (or smaller).

To complement information given by the cross-lagged model, a growth model of the dyadic adjustment using mixed modeling analysis was performed, which allows to analyze effects that may vary either between subjects, within subjects, or both between and within them. This type of model is also robust to missing data (Baayen, 2008). The Conway-Maxwell-Poisson distribution was selected to perform the growth model. This probability distribution family is suitable to deal with count data, as it is a generalization of the Poisson family that allows for an additional dispersion parameter. In this mixed-effects model, the overall dyadic adjustment was the dependent variable and the participants were included as random effects. Afterward, several control variables were included in the model to test the significance of their fixed effects, including interactions.

Results

Overview

The first objective of this study was to analyze changes in the dyadic adjustment of HPV-diagnosed women during one-year follow-up. Raw data were used to depict graphs of the fluctuation of this construct over time. [Figure 1](#) shows this variation and highlights that the averaged dyadic adjustment exhibited a high stable linear pattern during the one-year follow-up.

As a result, possible moderators for this evolution over time were pursued, i.e. variables showing a significant interaction with time. However, among all considered variables, only one showed a significant effect on the dyadic adjustment, namely, the patients’ sexual satisfaction. [Figure 1](#) outlines the evolution trend of the average sexual satisfaction during the assessment period using

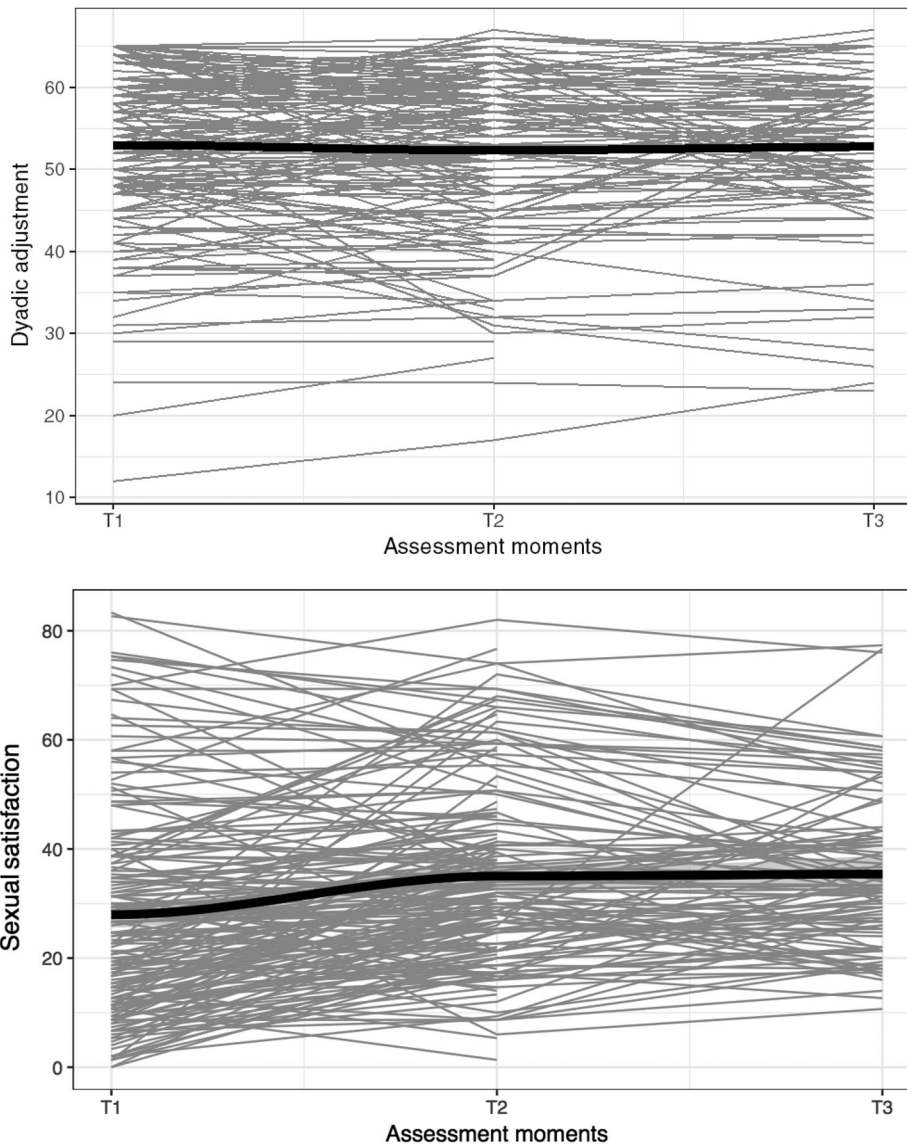


Figure 1. Individual trajectories (average score) of the overall dyadic adjustment (up) and sexual satisfaction (down), using raw data. For the dyadic adjustment, higher levels indicate better dyadic adjustment; for sexual satisfaction, higher values indicate greater sexual dissatisfaction.

raw data, showing that the averaged sexual dissatisfaction increased considerably over time, especially after the diagnosis consultation (from T1 to T2).

Cross-lagged 3-wave analysis for the relationship between the dyadic adjustment and sexual satisfaction over time

To account for attrition, the FIML method was used in the SEM analysis to deal with missing data. Since the distribution of the main target variables presented small deviations from normality, robust standard errors were computed.

Dyadic adjustment was considered a latent variable, measured by three indicators, each of them corresponding to a subscale considered in its total parceling form (sum). First, a three-

Table 2. Comparison of the configural, weak, and strong invariance models.

Model	χ^2	<i>df</i>	CFI	Δ CFI	$\Delta \chi^2$	Δ <i>df</i>	<i>p</i>
Configural	0	0	1.00	–	–	–	–
Weak	6.933	4	.995	.005	6.933	4	.1395
Strong	19.222	8	.982	.013	12.289	4	.0153

factor measurement model for the dyadic adjustment was developed, one factor per time point. Then, the equivalent indicators over time were correlated. To test for longitudinal invariance, equivalent loadings and intercepts were constrained to be equal across time. Information regarding configural, weak and strong invariance models is summarized in Table 2. The constraints on loadings equalities did not significantly affect the model fit and thus, weak invariance was clearly established. Regarding strong invariance, the nested model χ^2 test indicated that the constraints on the intercept equalities significantly decreased the model fit. However, strong invariance was supported by a difference in the CFI (.013) similar to the cutoff of .01 recommended by Cheung and Rensvold (2002), as well as by fitting measures indicating good model fit: $\chi^2(25) = 40.42$, CFI = .987, TLI = .981, RNI = .987, RMSEA = .054 with 90%CI = [.019, .084], SRMR = .054.

After confirming the adequacy of the measurement model, autoregressive relations and cross-lagged effects with sexual satisfaction were added to the model. Finally, all covariates and factors were tested for statistical significance. Only dichotomized age (< 40 or \geq 40) and HPV type (low or high) showed significant effects, being retained in the final model. Figure 2 outlines the complete and the simplified final models. The last depiction is a simplified version as it only shows significant estimates and, due to their importance, also the (non-significant) cross-lagged effects from sexual satisfaction to the dyadic adjustment.

This model exhibited good fit to the data (scaled versions): $\chi^2(83) = 138.49$, CFI = .965, TLI = .952, RNI = .965, RMSEA = .057 with 90%CI = [.039, .073], SRMR = .066.

The examination of the parameter estimates showed that the effects from dyadic adjustment at T1 and T2 on sexual satisfaction at T2 and T3 were statistically significant ($\beta = -.18$, $p = .036$ and $\beta = -.21$, $p = .038$, respectively). The analogous effects from sexual satisfaction on dyadic adjustment were non-significant ($\beta = .01$, $p = .878$ and $\beta = -.01$, $p = .888$, respectively). Thus, higher scores in patients' dyadic adjustment were associated with higher levels of sexual satisfaction at future time-points, but there was no statistical evidence that a variation in sexual satisfaction would explain a future variation in the dyadic adjustment. Therefore, this result suggests that, in HPV-diagnosed women, the longitudinal relationship between dyadic adjustment and sexual satisfaction is not a mutually influencing process.

The autoregressive coefficients showed that individual differences in both the dyadic adjustment and sexual dissatisfaction were relatively stable over the six-month lag between assessment moments, with the dyadic adjustment showing higher stability. Therefore, as expected, the individual changes on the dyadic adjustment were very small along the measurement period.

Being older than 40 was associated with higher dissatisfaction in T1 ($\beta = .54$, $p < .001$). The effect of age in sexual satisfaction at T2 was marginally significant ($\beta = .17$, $p = .095$), while at T3 was non-significant ($\beta = .14$, $p = .310$). These results indicate that the negative effect of age in women's sexual satisfaction became weaker over time. Moreover, high risk was associated with better dyadic adjustment at T2 ($\beta = .19$, $p = .023$), i.e., during the first semester women with high risk HPV enhanced their dyadic adjustment. Finally, women diagnosed with high risk HPV showed greater sexual dissatisfaction at T3 ($\beta = .53$, $p = .026$).

Growth model for the dyadic adjustment

In order to complement information given by the previous cross-lagged model with individual differences across time, a growth model for dyadic adjustment was specified. Several control variables were included in the model to test the significance of their fixed effects, including

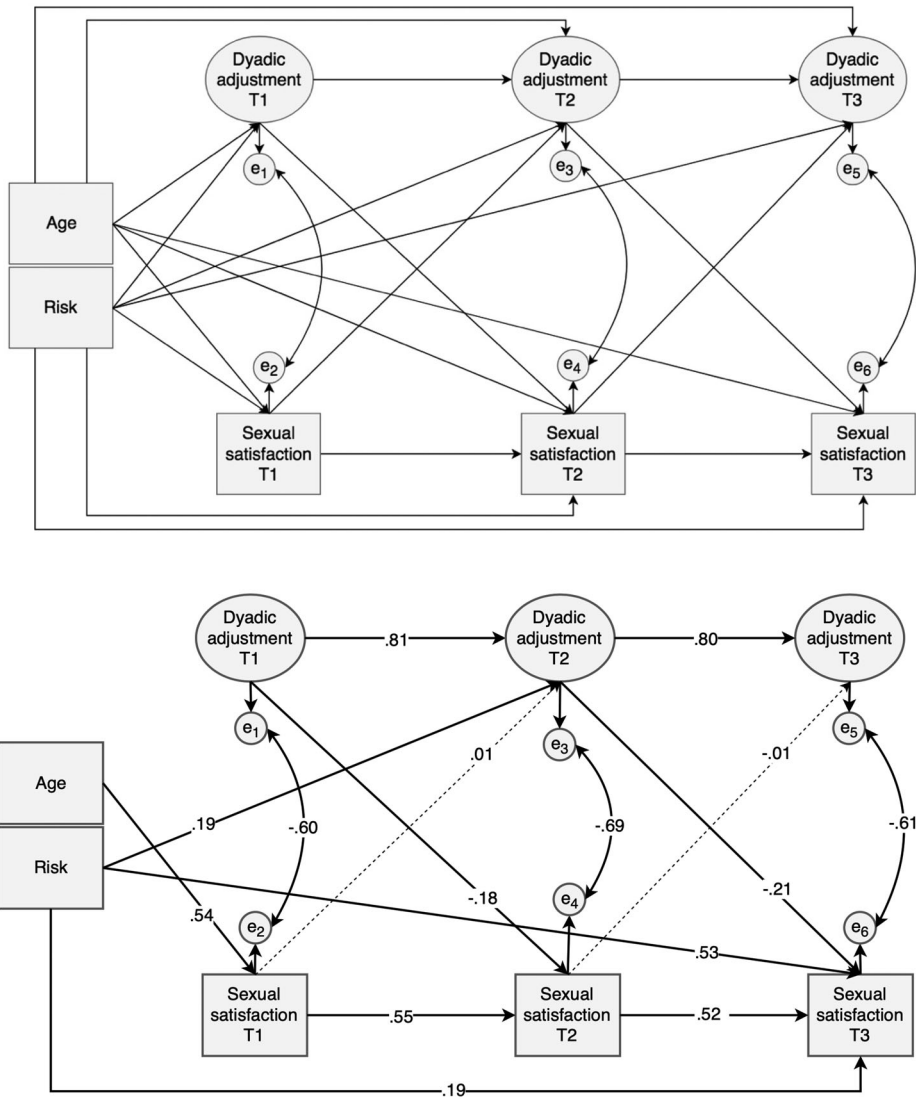


Figure 2. Three-wave structural equation model with autoregressive and cross-lagged effects for the longitudinal relationship between the dyadic adjustment and sexual satisfaction, in its complete (up) and simplified (down) versions. Bold lines represent significant relationships and dashed lines represent no significant relationships.

interactions. As referred above, only sexual satisfaction showed a significant effect in the dyadic adjustment. However, since the cross-lagged analysis showed a longitudinal dependence of sexual satisfaction on the dyadic adjustment, and not the opposite, only the baseline index of sexual satisfaction (obtained in the diagnosis consultation) was entered as covariate in the mixed-effects model. Results showed that both the baseline index of sexual satisfaction and age moderated the dyadic adjustment across time. The results, summarized in Table 3, showed that:

(a) controlling the patients' age, the baseline index of sexual satisfaction had a negative effect on dyadic adjustment ($\beta = -.008, p < .001$). Hence, if at the beginning of the study two women were the same age but presented different indexes of sexual satisfaction, the woman with higher dissatisfaction was expected to present lower dyadic adjustment scores at that time. The interaction between time and this baseline index was significantly positive ($\beta = .001, p < .001$), which means that this effect becomes weaker across time.

Table 3. Mixed-effects model for the overall dyadic adjustment over time.

Fixed effects				
Variable	Estimate	SE	z-value	Pr(> z)
β_0 = Intercept	3.9527277	0.0610263	64.77	<0.0001***
β_1 = Time	0.0177857	0.0247309	0.72	0.4720
β_2 = SSI	-0.0076724	0.0008887	-8.63	<0.0001***
β_3 = Age	0.0054287	0.0016354	3.32	0.0009***
β_4 = Time: SSI	0.0014469	0.0003410	4.24	<0.0001***
β_5 = Time: Age	-0.0015214	0.0006874	-2.21	0.0269*
Random effects				
Groups	Name	Variance	SD	
Subject	(Intercept)	0.023	0.1517	

Note. SSI – Baseline sexual satisfaction index; * $p < 0.05$, *** $p < 0.001$.

(b) controlling the effect of the baseline index of sexual satisfaction, age had a significant positive effect on dyadic adjustment ($\beta = .005$, $p < .001$), which means that, if at the beginning of the study two women of different ages reported the same sexual satisfaction, the older was expected to present higher dyadic adjustment scores. However, the interaction between age and time was significantly negative ($\beta = -.002$, $p = .027$), which means that this effect becomes weaker over time.

Discussion

The purpose of this study was to analyze the reciprocal temporal associations between dyadic adjustment and sexual satisfaction in women diagnosed with HPV, as well as to specify a dyadic adjustment longitudinal model suitable for this peculiar population taking into account significant sociodemographic and clinical covariates (Table 1).

The first exploratory analysis showed that, over time, dyadic adjustment did not show significant changes, while sexual satisfaction was negatively affected. These results are in consonance with the literature. As presented above, previous studies developed with HPV patients (Jeng et al., 2010; Taberna et al., 2017) found that the couple's relationship improved or remained the same, while their sexual activity was negatively affected. Geue and collaborators (Geue, Schmidt, Sender, Sauter, & Friedrich, 2015) developed a study with young cancer survival's couples (breast, testicle and hematologic neoplasia) and they also observed that patients' sexual activity decreased but the relationship was not directly affected, being considered of high quality. Nonetheless, literature focused on the dyadic relation and sexuality is still limited (Geue et al., 2015).

Regarding the relationship between dyadic adjustment and sexual satisfaction, it is important to notice that according to Busby and collaborators (1995), dyadic adjustment involves three dimensions: dyadic consensus, which refers to the spouses' degree of consensus or lack of on aspects regarding decision-making, values and affection; dyadic satisfaction, which refers to how spouses face difficult situations, involving aspects of stability and conflict within the relationship; and dyadic cohesion, referring to how spouses face situations mutually and in a positive manner regarding activities and common decisions. In this sense, taking into consideration that dyadic adjustment involves three dimensions, sexual satisfaction may be considered a relevant aspect for the relationship not directly involved in the dyadic adjustment process as defined by Busby and collaborators (1995), but indirectly since it may present an independent functioning.

This research also found that, over time, a better dyadic adjustment was able to reduce sexual dissatisfaction of HPV-infected women in future time moments. The converse was not observed, suggesting that for HPV-infected women, the relationship between dyadic adjustment and sexual satisfaction is not a mutually influencing process. This result may be characteristic of this specific infection that involves women carrying the stigma of having a sexually transmitted disease. Overall, this finding may be due to both physical and emotional factors. It is well-known that

HPV can reduce sexual satisfaction due to the associated relapsing infections (Graziottin & Serafini, 2009; Huffman, Hartenbach, Carter, Rash, & Kushner, 2016) and HPV diagnosis may also have a strong emotional and psychological impact that may lead woman to seek emotional comfort in her sexual partner, which may become a pleasant or disappointing experience, depending on the degree of their dyadic stability.

As previously mentioned, existing research about the temporal relationship between sexual satisfaction and dyadic adjustment is very scarce. Thus, it is interesting to note that, despite the clear differences between the samples, the results of the present study corroborates Byers' findings (2005), as both studies found a unidirectional temporal causality between the couple relationship and sexual satisfaction.

Participants' age and type of HPV showed significant effects as covariates in the cross-lagged model. Women above 40 years old presented higher sexual dissatisfaction in the first moment of the study (diagnosis consultation) and six months after (although obtaining a marginally significant effect). Overall, these results are consistent with the literature, as there is a decrease in sexual satisfaction associated with age among the general population (Shahhosseini et al., 2014). Also, according to a recent study with Portuguese women infected with HPV (Leite, Santos, & Pereira, 2019), older women presented higher sexual dissatisfaction. Women with high-risk HPV reported better dyadic adjustment six months after the diagnosis, which is in line with previous studies that stressed significant improvements in HPV-diagnosed women at the end of the first semester. For instance, Hsu and collaborators (2018) concluded that women present significant improvements regarding sexual activity and psychological distress during the first semester after the HPV diagnosis. Also, couples that face health problems jointly, as a "we-disease", tend to increase cohesion between partners and strengthen their relationship (Traa, De Vries, Bodenmann, & Den Oudsten, 2015). However, as expected, considering the physical and emotional impact of HPV on patients' sexual satisfaction, high-risk HPV women reported higher sexual dissatisfaction at T3.

After analyzing the longitudinal relationship between dyadic adjustment and sexual satisfaction, results showed that dyadic adjustment had a strong influence on sexual satisfaction while the opposite was not observed. Using multilevel modeling, the results showed that in the diagnosis consultation (T1), after controlling for age, higher levels of sexual dissatisfaction were associated with lower dyadic adjustment, and after controlling for sexual satisfaction, older women reported higher dyadic adjustment. Nevertheless, the influence of these two variables on the dyadic adjustment of HPV-diagnosed women became less evident over time. Several studies have shown a significant association between sexual dissatisfaction and variables related to the couple relationship (Byers, 2011; Fahami et al., 2017; Ziaee et al., 2014). Previous studies have shown that younger women were more vulnerable to the psychological impact of HPV due to concerns related to future fertility and cervical cancer (O'Connor et al., 2016), which naturally makes the couple adjustment more challenging and dyadic adjustment more difficult. Hence, it would be important for health institutions to implement psycho-educational intervention for couples, focused on the couple's sexuality and well-being, with the purpose of intervening in the conjugal dyad, especially on the impact of an HPV infection in the couple's relationship, in order to contribute to the promotion of dyadic adjustment in this population.

Limitations

There are limitations that must be addressed: the exclusive use of self-reporting measures; the non-inclusion of the partners' perceptions and characteristics (e.g., health issues); and the non-inclusion of contextual factors about the relationship (e.g., duration), and the HPV diagnosis (e.g., whether participants contracted HPV from the current partner, evolution of HPV symptoms). The inclusion of a qualitative assessment of both patients and partners' perspectives regarding how HPV impacted the couple's dyadic adjustment as a whole, over time, including the

fear of abandonment, would be important to deepen the present findings. Additionally, the dyadic adjustment scale used in this study is a general inventory, not specific for HPV women.

Future studies

Future studies should not forego the inclusion of the partners as participants, so as to achieve a better comprehension and intervention of the dyad, considering individual and psychological variables that can directly influence patients throughout their treatment. In addition, future studies should include more information regarding the couple relationship and partner's representation about HPV and study, as well, the reciprocal influence between sexual satisfaction and dyadic adjustment focusing on the dyad. More specifically, it is necessary to develop longitudinal studies through bidirectional/reciprocal associations regarding the impact of HPV on dyadic adjustment. Finally, future studies should also compare dyadic adjustment, over time, in women with HPV *versus* normal population.

Conclusion

This study provides insight into the relationship between dyadic adjustment and sexual satisfaction over time, in women infected with HPV. Results showed that during a one-year assessment period, the average dyadic adjustment was preserved while average sexual satisfaction decreased. A better dyadic adjustment was found to predict a better sexual satisfaction in later time moments, but the reciprocal direction was not confirmed. These results corroborate previous findings of Byers (2005), among individuals with long-time relationships. A posterior and complementary analysis indicated that age and baseline sexual satisfaction moderated the relationship between dyadic adjustment and time. Thus, when participants' sexual satisfaction was controlled, older women presented better dyadic adjustment. Analogously, when controlling patients' age, a better sexual satisfaction influenced positively the dyadic adjustment. Both effects became weaker over time.

To the best of our knowledge, this is the first study exploring the temporal relationship between dyadic adjustment and sexual satisfaction in the context of HPV infection. In this sense, the results of this study fill a gap in the literature.

Clinical implications

The main finding of this paper suggests that dyadic adjustment predicts sexual satisfaction over time, thus underlining the importance for health care professionals to develop interventions directed to couples, rather than exclusively focused on the patient. Since sexual satisfaction is one of the main factors that contribute to women's quality of life, it is extremely important to design ongoing intervention programs to improve better dyadic adjustment and, thus, contribute to a higher sexual satisfaction. According to the results, interventions should also be differentiated for younger and older women, as these two groups of women showed different main problems during the HPV diagnosis and treatment, since younger women showed greater difficulties in dyadic adjustment, and older women presented lower sexual dissatisfaction.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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