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# Dyadic Adjustment in HPV-Infected Women One Year After Diagnosis

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# Dyadic Adjustment in HPV-Infected Women One Year After Diagnosis

B. D. Santos , E. C. Carvalho , and M. G. Pereira 

*Objective:* This study examined the contribution of age, type of human papillomavirus (HPV), attachment, sexual satisfaction, and spirituality in dyadic adjustment in women with HPV from diagnosis to one year later. *Method:* This is a longitudinal study with three assessment moments: (T1) at the diagnosis appointment, (T2) six months after, and (T3) 12 months after the diagnosis. Participants answered a sociodemographic questionnaire as well as several other measures: HPV Knowledge Questionnaire (HPVQ), Papanicolaou Exam Knowledge Questionnaire (PEK-Q), Hospital Anxiety and Depression Scale (HADS), Courtauld Emotional Control Scale (CECS), Index of Sexual Satisfaction (ISS), Experiences in Close Relationship Scale—Short Form (ECR-S), Spiritual and Religious Attitudes in Dealing With Illness (SpREUK), and the Revised Dyadic Adjustment Scale (RDAS). *Results:* Age showed a positive impact on sexual dissatisfaction at T2. Sexual dissatisfaction at T1 predicted sexual dissatisfaction at T2 and dyadic adjustment at T3. Spirituality and insecure attachment at T1 negatively predicted insecure attachment at T2, and the latter predicted dyadic adjustment at T3. *Conclusions:* The results corroborate the need to assess the dyad when women are diagnosed with HPV. Only then it will be possible to design differentiated intervention programs that take into consideration women's age, attachment style, and sexual satisfaction. Interventions should also include women's partners to promote dyadic adjustment in this population.

Human papillomavirus (HPV) is the world's most sexually transmitted viral infection (CDC, 2015). Every year, more than 290 million women around the world are diagnosed with an HPV infection (World Health Organization, 2016). According to Portugal's directorate general of health (Direção Geral de Saúde, 2017), there is a 10.8% incidence rate of cervical cancer

(CC), which corresponds to 100,000 women per year, meaning that one woman dies of CC per day in Portugal. According to the Portuguese National Health Service (SNS, 2017), HPV affects 20% of sexually active women between the ages of 18 and 64 in Portugal.

Although there are several types of HPV, the most predominant ones are types 16 and 18, considered high-risk HPV and associated

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**B. D. Santos** is a PhD student in Applied Psychology at the University of Minho, Portugal. **E. C. Carvalho**, RN, PhD, is a Senior Professor at the University of São Paulo at Ribeirão Preto College of Nursing (EERP-USP), Brazil. **M. G. Pereira**, PhD, is an Associate Professor in the School of Psychology, University of Minho, Portugal.

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Address correspondence to M. Graça Pereira, Campus de Gualtar, 4710-057 Braga, Portugal. E-mail: [gracep@psi.uminho.pt](mailto:gracep@psi.uminho.pt)

with CC, and types 6 and 11, considered low-risk HPV and associated with persistent benign or premalignant lesions (Scudellari, 2013). Women's knowledge about HPV-associated infections and prevention is still limited, which makes this lack of knowledge a barrier to women's initiative toward screening for CC (Radecki-Breitkopf et al., 2016; Silva et al., 2018).

Overall, an HPV diagnosis causes a negative impact on women's lives (Dominiak-Felden et al., 2013). Women report experiencing anxiety and depression, which negatively influences their adaptation to treatment. In addition to the psychological morbidity experienced by women, there is an increased psychosexual vulnerability, thus reducing their sexual activity (Cendejas, Smith-McCune, & Khan, 2015; Foster & Byers, 2016). The literature also suggests a negative relationship between an insecure attachment style and the level of sexual satisfaction, negatively influencing dyadic adjustment (Mohammadi, Samavi, & Ghazavi, 2016). Spirituality is another variable that has been positively associated with dyadic adjustment, i.e., a higher spiritual/religious commitment is associated with less avoidance attachment and a better dyadic relationship (Lopez, Riggs, Pollard, & Hook, 2011).

This study was based on a model by Northouse, Mood, Templin, Mellon, and George (2000) that considers dyadic adjustment to be a process of adaptation to cancer involving three factors. The first factor includes background (personal, social, and disease-related factors). Personal factors include socio-demographic characteristics, such as gender, function (patient versus spouse caregiver), and stress due to illness; social factors are those related to social support, family functioning, marital satisfaction; and factors related to the disease such as diagnosis duration and treatment. The second factor includes the mediators of the adjustment process. Variables such as hopelessness and uncertainty mediate the relationship among personal, social, and disease-related factors and dyadic adjustment in the

adaptation to cancer (Northouse et al., 2000). The third factor contemplates the final phase of the process: psychosocial adaptation of patient and spouse. The model encompasses resources, assessments, and adjustment patterns whose end result points both to the patient's psychosocial adjustment and to the dyadic adjustment (Northouse et al., 2000). Because there is a lack of studies exploring the perception of dyadic adjustment over time in HPV-infected women, this study seeks to fill this gap.

The present study adapted a model from Northouse et al. (2000) and considered two phases: the antecedent phase, which includes personal factors (age) and social factors (attachment, sexual satisfaction and spirituality); and the results phase, which includes adjustment to the disease (patient and partner), which in this study was evaluated at the level of the patient's dyadic adjustment. The mediators' phase was not taken into account as this study did not intend to evaluate the representations of the disease regarding the future (uncertainty/hopelessness) but intended only to explore the role of the antecedent variables—personal factors (age) and social factors (attachment, sexual satisfaction, and spirituality)—in dyadic adjustment over time using a trajectory analysis model (structural equation modeling). In this context, the hypotheses underlying this study were (a) age and spirituality will positively predict dyadic adjustment 12 months after diagnosis and (b) attachment and sexual satisfaction will negatively predict dyadic adjustment six and 12 months after diagnosis.

## METHOD

### Sample

The first assessment moment, at diagnosis (T1), included 209 women who were diagnosed with HPV and participated in the study. The second moment (T2), six months after diagnosis, included 178 women. The

third moment (T3), 12 months after diagnosis, included 105 women.

### Procedure

This study used a longitudinal design with three assessment moments. The study was approved by the Portuguese Data Protection Authority (CNPD) and by the Ethics Committee of the two hospitals in the Northern Region of Portugal where data collection took place. Patients were identified by their gynecologists if they met the inclusion criteria and invited to participate. All invited patients agreed to participate. Patients were assessed during an interview by a health psychologist, after signing an informed consent form and being assured of the confidentiality of the data.

Criteria for inclusion were being an adult woman; having an HPV diagnosis (high or low risk); and having a sexual partner. Exclusion criteria included illiteracy, pregnancy, and having another sexually transmitted disease besides HPV.

### Instruments

*Sociodemographic and Clinical Questionnaire* (Pereira & Ferreira, 2015). This questionnaire was developed for this study with the purpose of evaluating the sociodemographic variables (age, nationality, civil status, education, religion, type of family, and professional situation) and clinical variables specific to HPV (type of HPV, duration of diagnosis/treatment, HPV vaccine uptake, frequency of gynecological consultations).

*HPV Knowledge Questionnaire* (HPVK-Q; Pereira, Carvalho, & Santos, submitted). This instrument evaluates women's knowledge about HPV through six questions. Higher scores indicate a higher knowledge of HPV. Confirmatory Factor Analysis (CFA) confirmed the adequacy of the one-factor solution for the sample data in this study: chi-square = 10.04;  $df = 5$ ; goodness of fit index (GFI) = .97; adjusted goodness of fit index

(AGFI) = .91; comparative fit index (CFI) = .98; root mean square error of approximation (RMSEA) = .76. Regarding reliability, Cronbach's alpha was .87.

*Papanicolaou Exam Knowledge Questionnaire* (PEK-Q; Pereira, Carvalho, & Santos, submitted). This instrument evaluates women's knowledge about Pap smears through five questions. Higher scores indicate higher knowledge of a Pap smear. CFA confirmed the adequacy of the one-factor solution for the sample data in this study: chi-square = 10.04;  $df = 9$ ; GFI = .96; AGFI = .92; CFI = .99; RMSEA = .34. Regarding reliability, Cronbach's alpha was .74.

*Hospital Anxiety and Depression Scale* (HADS; Zigmond & Snaith, 1983; Pais-Ribeiro et al., 2007). HADS evaluates the levels of anxiety and depression using 14 items, with seven items in each subscale. Higher scores indicate higher levels of anxiety and depression. Cronbach's alpha was 0.91 for the anxiety subscale, 0.88 for the depression subscale, and 0.93 for the total scale. This study used only the total scale.

*Courtauld Emotional Control Scale* (CECS; Watson & Greer, 1983; Portuguese version by Patrão, 2007). The CECS evaluates emotional control (emotional suppression) in three subscales: anger, anxiety/worry, and depression, comprising 21 items in total, seven items for each subscale. Higher scores indicate a higher level of emotional control (emotional suppression). Cronbach's alpha for the anger subscale and for the anxiety/worry subscale was 0.70, while for the depression subscale and the total scale it was 0.88. This study used only the total scale.

*Index of Sexual Satisfaction* (ISS; Hudson, 1998; Portuguese version by Pechorro, 2009). The ISS assesses sexual satisfaction, with a partner, and quality of sexual partnership, comprising 25 items and a global score. Higher scores indicate higher levels of sexual dissatisfaction. Cronbach's alpha in this study was 0.96.

*Experiences in Close Relationship Scale—Short Form* (ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007; Portuguese version by Paiva & Figueiredo, 2010). The ECR-S assesses the levels of attachment in two subscales: anxiety and avoidance. This instrument was adapted to the study sample, comprising 11 items, with eight items for the anxiety attachment subscale and three items for the avoidance attachment subscale. Higher scores indicate an insecure attachment. Cronbach's alpha for the anxiety attachment subscale was 0.76, for the avoidance attachment subscale was 0.77, and for the total scale was 0.75. This study used only the total scale.

*Spiritual and Religious Attitudes in Dealing With Illness* (SpREUK; Büssing, Zhai, Peng, & Ling, 2013; Santos, Bacalhau & Pereira, research/adaptation). The Portuguese version of the SpREUK comprises 15 items divided in three subscales: search for support/access; trust in guidance; and reflection and positive interpretation of the disease. In the Portuguese version, Cronbach's alpha for the global scale was 0.85. In the subscales, it ranged between 0.81 and 0.86. In terms of reliability, Cronbach's alpha in the search for support/access subscale was 0.93, in the trust in higher guidance/source subscale was 0.85, and in the reflection and positive interpretation of the disease subscale was 0.80. This study used only the total scale. In this sample, the validated version includes of 11 items, with a Cronbach's alpha for the total scale of 0.90.

*Revised Dyadic Adjustment Scale* (RDAS; Busby, Christensen, Crane, & Larson, 1995; Portuguese version by Pereira, Bacalhau, Sousa, Machado & Ferreira, submitted). The RDAS assesses the quality of dyadic adjustment in three subscales: consensus, cohesion, and satisfaction, as the total scale comprises 14 items. Higher scores indicate a better dyadic adjustment. Cronbach's alpha for the consensus subscale was 0.82, for the cohesion subscale was 0.77, and for the satisfaction subscale was 0.74. This study used only the total scale. The total Cronbach's alpha for the full scale was 0.87.

## Data Analysis

This study used descriptive statistics to describe the sociodemographic and clinical characteristics of the sample (i.e., mean and standard deviation for continuous variables and percentages for nominal variables). To test the relationships among sociodemographic, clinical, and psychological variables (T1 and T2) and dyadic adjustment (T3), the Pearson correlation coefficient was used as the variables presented a normal distribution. Data were analyzed using SPSS software, Version 24.0. To examine relationships over time according to Northouse et al.'s model (2000), a path analysis was tested. The initial model encompassed the variables at T1, age, type of HPV, duration of diagnosis, knowledge about HPV, knowledge about the Pap smear, sexual dissatisfaction, spirituality, and insecure attachment; at T2, the psychological variables: sexual dissatisfaction, spirituality, and insecure attachment; and finally, at T3, dyadic adjustment (Figure 1). Modifications indexes were used to determine whether the model fit could be improved and deemed appropriate, using chi-square, Tucker-Lewis index (TLI), CFI, and RMSEA indexes, taking into consideration the appropriate reference values (Figure 2). The path analysis models were tested using IBM statistics package SPSS AMOS (Version 24.0).

## RESULTS

### Sample Characteristics

The sample included patients between the ages of 20 and 65, with an age average of 39 ( $SD = 10.40$ ). Of the total sample, 56.4% were married/cohabiting, 39.2% had a partner, and 4.3% were single. In terms of education, 42.5% of women attended basic education, 36.0% attended secondary education, and 20.6% attended university. Of these women, 97.2% were religious. Regarding HPV, 64.1% presented high-risk HPV, while 35.9% presented low-risk HPV. Table 1 presents the sample characterization.

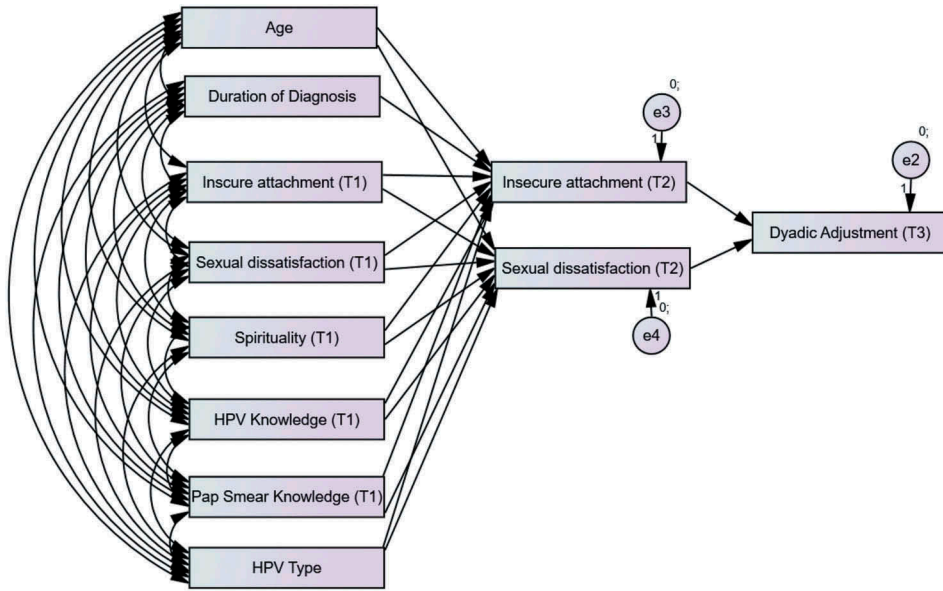


FIGURE 1. Initial model: chi-square = 28.73;  $df = 10$ ; Tucker–Lewis index = .824; comparative fit index = .973; root mean square error of approximation = .095. HPV = human papillomavirus.

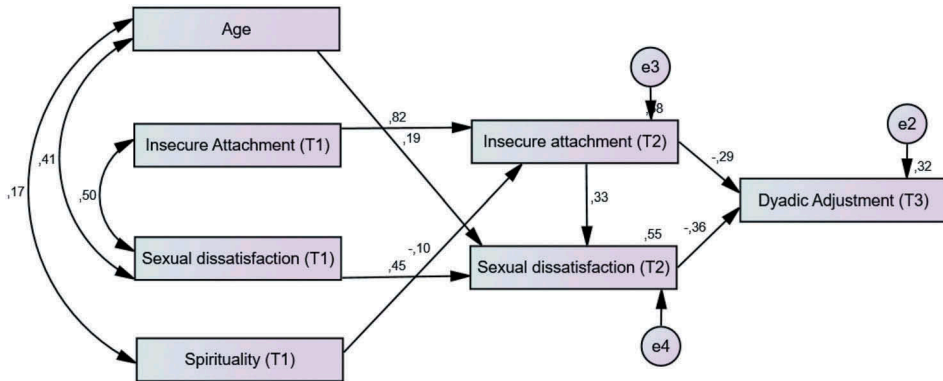


FIGURE 2. Final model (reduced model): chi-square = 7.34;  $df = 11$ ; Tucker–Lewis index = 1.019; comparative fit index = 1.000; root mean square error of approximation  $\leq .01$ .

**Relationship Between Clinical and Psychological Variables (T1 and T2) Regarding Dyadic Adjustment (T3)**

There was a negative association between sexual dissatisfaction (T1) ( $r = -.348, p < .001$ ), insecure attachment (T1) ( $r = -.475, p < .001$ ), psychological morbidity (T2)

( $r = -.392, p < .001$ ), sexual dissatisfaction (T2) ( $r = -.554, p < .001$ ), insecure attachment (T2) ( $r = -.511, p < .001$ ), and dyadic adjustment (T3) in HPV-infected women. Hence, lower sexual dissatisfaction and insecure attachment at T1 and lower psychological morbidity, sexual dissatisfaction, and insecure attachment at T2 were associated with a higher



TABLE 1. *Sociodemographic Characterization of Women With HPV (N = 209)*

Continuous Measure	Min	Max	M	SD	%
Age of patient	20	65	39.67	10.40	
Nationality					
Portuguese					97.1
Brazilian					1.4
Other					1.5
Civil status					
Single					4.3
Married/common-law union					56.4
Partner					39.2
Education					
Primary school					12.9
Middle school					10.5
Secondary school					19.1
High school					36.8
Higher education					20.6
Religion					
Yes					97.2
No					7.2
Type of family					
Nuclear					86.1
Others					13.9
Professional situation					
Maid					72.7
Unemployed					20.1
Reformed					4.8
Never worked					2.4
Type of HPV					
Type 6 or 11 (low risk)					35.9
Type 16 or 18 (high risk)					64.1
Duration of diagnosis/ treatment					
Less than one year					57.9
More than one year					42.1
Frequency of gynecological consultations					
Three in three months					9.1
Four in four months					1.0
Six in six months					88.5
Nine in nine months					1.4
When did you take the vaccine?					
Before diagnosis					10.0
After diagnosis					27.8
Never					62.2

Note. HPV = human papillomavirus.

dyadic adjustment at T3, in HPV-infected women (Table 2).

### Relationships Between Variables: Path Analysis

Path analysis generates two types of results: estimate of the model fit to data and estimate of the relationship strength between the variables in the model. Results of the final model showed good model fit: Chi-square = 7.34;  $df = 11$ ; TLI = 1.019; CFI = 1.000; RMSEA =  $<.01$ . Age predicted sexual dissatisfaction six months after diagnosis (T2), ( $b = 0.16$ ). Sexual dissatisfaction, at diagnosis (T1) predicted sexual dissatisfaction, six months later (T2) ( $b = .047$ ), that negatively predicted dyadic adjustment (T3) ( $b = -0.36$ ). Insecure attachment at diagnosis predicted insecure attachment six months later ( $b = .032$ ). The use of spirituality (T1) ( $b = -.010$ ) predicted insecure attachment (T2) ( $b = .082$ ) and the latter negatively predicted dyadic adjustment (T3) ( $b = -0.29$ ). Figures 1 and 2 show the initial and the final model, respectively.

### DISCUSSION

Given that an HPV-infection diagnosis is considered a chronic infection associated with negative psychological responses that negatively affects women's psychosexual activity (Rosen et al., 2009), as well as the dyad's marital adjustment, it is crucial to understand the perception of the dyadic adjustment process for HPV-infected women. According to the results, women with higher sexual dissatisfaction (T1 and T2) and an insecure attachment (T1 and T2) presented lower dyadic adjustment (T3), emphasizing the role of these psychological variables on dyadic adjustment, over time.

The results showed that dyadic adjustment one year after diagnosis was predicted by

TABLE 2. Correlation Between Sociodemographic, Clinical, Psychological Variables (T1 and T2) and Dyadic Adjustment (T3)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Age	1	-.563**	-.114	-.192*	.118	.045	-.333**	-.398**	-.258**	-.374**	.223**	.244**	.014	.131	.410**	.374**	-.009	.006	.183**	.153*	-.117
2. Education		1	.063	.162*	-.085	-.013	.549**	.548**	.456**	.526**	-.293**	-.240**	-.127	-.129	-.367**	-.312**	-.004	.031	-.171*	-.186*	.048
3. HPV type (T1)			1	.458**	.015	-.031	.050	.038	.155*	.188*	-.026	.008	-.064	-.063	-.051	-.024	-.120	-.120	.114	.028	.095
4. HPV type (T2)				1	-.095	-.064	-.024	.021	-.024	.020	.136	.136	.020	.006	-.028	-.004	-.027	-.060	-.028	-.058	.143
5. Duration of dx (T1)					1	.905**	.103	.122	.083	.101	.028	.174*	-.004	.106	.126	.056	.019	.063	.024	-.030	-.180
6. Duration of dx (T2)						1	.135	.113	.152*	.124	-.028	.150*	-.031	.043	.044	.024	.033	.009	-.065	-.086	-.093
7. HPVQ (T1)							1	.879**	.750**	.742**	-.229**	-.154*	-.045	-.037	-.186**	-.167*	.000	.019	-.114	-.174*	.019
8. HPVQ (T2)								1	.644**	.736**	-.167*	-.142	.069	-.048	-.172*	-.115	.063	.052	-.097	-.134	-.062
9. PEK-Q (T1)									1	.885**	-.270**	-.204**	-.107	-.092	-.156*	-.184*	-.001	-.035	-.024	-.116	.066
10. PEK-Q (T2)										1	-.235**	-.173*	-.021	-.085	-.188*	-.144	.020	.040	-.008	-.102	-.049
11. HADS (T1)											1	.666**	.374**	.373**	.377**	.348**	.388**	.401**	-.038	-.068	-.134
12. HADS (T2)												1	.328**	.292**	.368**	.532**	.334**	.469**	-.119	-.065	-.329**
13. CECS (T1)													1	.646**	.257**	.256**	.295**	.362**	-.214**	-.131	-.106
14. CECS (T2)														1	.288**	.222**	.336**	.378**	-.127	-.119	-.118
15. ISS (T1)															1	.677**	.499**	.435**	.006	-.015	-.348**
16. ISS (T2)																1	.485**	.531**	-.079	.015	-.554**
17. ECR-S (T1)																	1	.820**	-.025	-.050	-.475**
18. ECR-S (T2)																		1	-.125	-.097	-.511**
19. SpREUK (T1)																			1	.702**	.015
20. SpREUK (T2)																				1	.052
21. RDAS (T3)																					1
M	39.67	10.41	.64	.42	1.16	1.19	3.72	3.73	2.74	2.77	13.11	14.35	50.27	48.71	27.93	35.02	25.60	27.35	2.60	3.00	52.77
SD	10.40	3.81	.481	.495	5.45	5.89	2.24	2.29	1.56	1.52	8.69	7.48	10.63	10.46	19.00	16.49	8.56	7.62	.865	5.59	9.08

Note. HPVQ = HPV Knowledge Questionnaire; PEK-Q = Papanicolaou Exam Knowledge Questionnaire; HADS = Hospital Anxiety and Depression Scale; CECS = Courtauld Emotional Control Scale; ISS = Index of Sexual Satisfaction; ECR-S = Experiences in Close Relationship Scale—Short Form; SpREUK = Spiritual and Religious Attitudes in Dealing with Illness; RDAS = Revised Dyadic Adjustment Scale; dx = diagnosis; T1 = diagnostic consultation; T2 = six months after; T3 = 12 months after; M = mean; SD = standard deviation. \**p* < .01; \*\**p* < .05.



sexual dissatisfaction at diagnosis and six months later. According to a longitudinal study by Fallis, Rehman, Woody, and Purdon (2016), which followed heterosexual couples, the couple's sexual satisfaction at the first moment of evaluation was a strong predictor of dyadic satisfaction approximately two years after their first assessment. Consequently, and according to literature, sexual satisfaction has a relevant positive impact on marital satisfaction (Byers, 2011; Ziaee et al., 2014). In addition, dyadic adjustment is associated with better health, both physically and psychologically (Brandão et al., 2017). However, several factors are related to decreased sexual satisfaction upon treatment in HPV-infected women: psychological factors such as depression, anxiety, and stress, as well as the severity of the disease, mainly for older women (Aerts et al., 2012). Women's sexual satisfaction decreases because they become more sexually vulnerable due to the increase in HPV-infection recurrences (Graziottin & Serafini, 2009). High-risk HPV, in addition to the possibility of leading to CC, also influences sexual satisfaction and health in a more pressing manner, in the short and long term (Huffman, Hartenbach, Carter, Rash, & Kushner, 2016). In fact, studies found that women who have undergone treatment to vulvar intraepithelial neoplasia (often caused by HPV) were at great risk of developing psychological conditions, experiencing reduced sexual satisfaction and dissatisfaction in their marital relationship (Aerts et al., 2012). Also, after receiving the diagnosis and undergoing treatment for cervical dysplasia, women's psychosexual vulnerability increases as their sexual desire decreases (Cendejas et al., 2015; Jeng, Lin, & Wang, 2010).

In addition, women may present coping mechanisms, such as insecure attachment, which can impact dyadic adjustment (Pedro, Ribeiro, & Shelton, 2015; Romeo, Tesio, Castelnovo, & Castelli, 2017). A higher insecure attachment at diagnosis predicted a higher insecure attachment six months after, along with a lower dyadic

adjustment 12 months later. These results corroborate the literature, as women with an insecure attachment report negative perceptions, avoidance, and lack of confidence in their partners, which is associated with a worse dyadic adjustment (Hsieh, Chen, Hsiao, & Shun, 2013; Senejani, Dast, & Farhangi, 2016). Inversely, a secure attachment has been positively associated with a better marital relationship (Berlin, Cassidy, & Appleyard, 2008).

In this study, age contributed positively to sexual dissatisfaction but not to dyadic adjustment. Thus, older women report more sexual dissatisfaction six months after diagnosis. According to the literature, sexual needs and sexual desire depend on existing barriers, such as diagnosis of a sexually transmitted disease (STD), which may reduce sexual desire (Taylor et al., 2016). Moreover, sexual pleasure changes with age, and age-associated psychosocial and interpersonal changes also influence sexual behavior (Taylor et al., 2016). The fact that age did not contribute to dyadic adjustment emphasizes the distinction between couple satisfaction and sexual satisfaction, showing that an STD diagnosis may be affected by age, as it has a direct impact on sexual performance and satisfaction, but it has no significant influence in the couple dynamics that are related with the couple's satisfaction. The type of HPV did not contribute to dyadic adjustment probably because the women, in this sample, had high levels of dyadic consensus, cohesion, and satisfaction, which may have mitigated the negative impact of the HPV infection.

In this study, spirituality at diagnosis negatively predicted insecure attachment six months later; in other words, less spirituality at diagnosis predicted an insecure attachment six months later. Spirituality can be used as a coping strategy, with both positive and negative outcomes that may fluctuate over time according to Kremer and Ironson (2014). Schmidt, Blank, Bellizzi, and Park (2012) found that in the face of a chronic disease, higher secure attachment predicted more use

of religiosity (Schmidt et al., 2012). In this case, spirituality predicted attachment probably because insecurely attached women use more spirituality as a coping strategy. Because this is a highly educated sample, the use of spirituality may not be a commonly used coping strategy (Voas, 2014). Insecure attachment at T2 also predicted sexual dissatisfaction six months after, which in turn predicted lower dyadic adjustment one year later. Longitudinal studies of linkage over time are scarce in the literature. However, insecure attachment has been associated with low levels of sexual satisfaction (Aerts et al., 2012), which is negatively predicted by dyadic adjustment (Butzer & Campbell, 2008). Therefore, there is a negative relationship between insecure attachment and marital satisfaction (Mohammadi et al., 2016), which was also corroborated in this study, regarding women with HPV.

Overall, of all the aspects involved in dyadic adjustment, the literature shows that only sexual satisfaction was directly affected by HPV infection (Jeng et al., 2010). Patients with an insecure attachment to their partners eventually experience increased negative emotions (Hsieh et al., 2013), such as lack of confidence in and avoidance toward their partners, that may create difficulties in the couple (Senejani et al., 2016). Naturally, an unstable relationship with little support is associated with insecurity, psychological morbidity, and poor adaptation to the disease itself (Nicolaisen et al., 2014); whereas an adjusted and healthy relationship helps patients face HPV infection more easily (Jeng et al., 2010). Therefore, secure attachment and sexual satisfaction may be considered factors that protect from emotional problems in the dyadic relationship (Askari, Madgaonkar, & Rowell, 2012). According to results, it is important that health professionals intervene, particularly in women with an insecure attachment and sexual dissatisfaction, at diagnosis to promote a better dyadic adjustment in the first years of HPV infection. Intervention should

attempt to develop a secure attachment between partners (Ávila, Brandão, Coimbra, Lopez, & Matos, 2016), as insecure attachment contributes directly to sexual dissatisfaction and dyadic adjustment, which are key factors in a dyadic relationship when dealing with chronic disease (Mark, Vowels, & Murray, 2017). For those couples with an insecure attachment style who are struggling in their dyadic relationship with adapting to an HPV diagnosis, couple therapy may be warranted.

### LIMITATIONS

This study has some limitations, such as the size of the sample, which requires caution when generalizing results, and the exclusive use of self-reported measures. The sample in this study included only HPV-infected women and therefore assessed only the patients' perceptions. Women in this sample were also highly educated; therefore, future studies should include women with less education.

### CONCLUSION

The results of this study show a need to design psychological intervention programs for HPV-infected women that take into consideration the women's age, type of attachment, sexual satisfaction, and spirituality from HPV diagnosis until one year later regarding dyadic adjustment. It is important to assess the dyad because HPV diagnosis impacts the couple, and interventions should attempt to promote a better dyadic adjustment in this population. Future studies should consider the use of longitudinal designs to assess the impact of HPV on dyadic adjustment, including partners' perceptions, over time.

### DISCLOSURE STATEMENT

No potential conflicts of interest were reported by the authors.

## ORCID

B. D. Santos  <http://orcid.org/0000-0001-5240-5219>

E. C. Carvalho  <http://orcid.org/0000-0003-0738-0539>

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

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