Middle Black Sea Journal of Health Science August 2020; 6(2):196-200

RESEARCH ARTICLE

# The Effect of Loop Electrosurgical Excision Procedure on Female Sexual Function

Gizem Kul[1], Oya Bozkurt[2], İlkbal Temel[3], Sedat Akgol[4], Burcu Timur[5], Özgur Akbayir[6]

[1]Department of Obstetrics and Gynecology , Sebinkarahisar Public Hospital , Sebinkarahisar ,Giresun, Turkey
[2]Department of Psychiatry , Gaziosmanpasa Hospital, Yeniyuzyil University, Istanbul, Turkey
[3]Department of Gynecologic Oncology , , Kanuni Sultan Suleyman Research Hospital , Istanbul , Turkey
[4]Department of Gynecologic Oncology , Kanuni Sultan Suleyman Research Hospital , Istanbul , Turkey
[5]Department of Obstetrics and Gynecology, Ordu University Research Hospital , Ordu , Turkey
[6]Department of Gynecologic Oncology , Kanuni Sultan Suleyman Research Hospital , Istanbul , Turkey

Received: 21 March 2020, Accepted: 24 August 2020, Published online: 31 August 2020


**Abstract**

**Objective:** The aim of the study is to objectively evaluate the effects of Loop Electrosurgical Excision Procedure (LEEP) on women's sexual function using a validated questionnaire.

**Methods:** This pre-post survey design study was conducted at a tertiary referral hospital gynecological oncology clinic. 80 sexually active patients who had undergone LEEP because of abnormal cervical cytology results between October 2018 and December 2018 were included. Participating patients answered the Female Sexual Function Index (FSFI) questionnaire before undergoing LEEP and at 3 and 6 months after the procedure. The FSFI questionnaire consists of 19 multiple choice questions and it evaluates the following six aspects of female sexuality: arousal, lubrication, desire, orgasm, satisfaction, and pain. 9 patients were excluded for not coming to the follow-up appointments. Patients who had any systemic or psychological disease were excluded in order to avoid any additional variables that could affect sexual function.

**Results:** Arousal, lubrication, desire, orgasm, satisfaction, and pain were evaluated in 71 patients. There was no statistical difference in sexual desire, lubrication, sexual satisfaction, and pain in between follow-up results and the baseline scores. However, there was a significant decrease in patients' orgasm scores and degree of arousal in the follow-up results compared to the baseline scores.

**Conclusion:** Parameters such as orgasm and the degree of arousal, which are strongly connected with a patient's physical and psychological well-being, are affected by the procedure. We believe detailed information, psychological support, and even psychiatric consultation can have a beneficial effect on patients. Further studies with a larger sample and a control group and a longer follow-up interval should be performed to assess the effect of psychological precautions and to avoid sexual function disorders resulting from LEEP.

**Keywords:** Cervical dysplasia, conization, Female Sexual Function Index, Loop Electrosurgical Excision Procedure, sexual function, sexuality

**Suggested Citation:** Kul G, Bozkurt O,Temel I, Akgol S, Timur B, Akbayır O. Effect of Loop Electrosurgical Excision Procedure on Female Sexual Function. Middle Black Sea Journal of Health Science, 2020; 6(2):196-200

**Address for correspondence/reprints:**

Gizem Kul

**Telephone number:** +090 507 749 12 37

**ORCID-ID** 0000-0001-6392-0355

**E-mail** : drgizemkul@gmail.com

**DOI:** 10.19127/mbsjohs.707245

## Introduction

World Health Organisation (WHO) defines sexual health as " a state of physical, mental and social well-being in relation to sexuality. It requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence.("WHO | Sexual Health," 2016)" . It is shown that the prevalence of sexual dysfunction in women varies between 25% and 63% of the population(Hatzichristou et al., 2004). Although there has been many studies conducted to understand and treat male sexual function disorders, there is a lack of abundancy when it comes to studies regarding female sexual function problems, thus Sexual dysfunction among women is still a largely incomprehensible phenomenon. A Consensus Statement from the Fourth International Consultation on Sexual Medicine 2015 has shown that perceived poor health, mood and anxiety disorders can cause dyspareunia, lack of desire, orgasm and arousal. (McCabe et al., 2016)

HPV is a very common sexually transmitted virus and %20 of the infected women has cervical intraepithelian neoplasia (CIN) (Frederiksen et al., 2015)Because of effective screening programs worldwide, there is a significant increase in women who are diagnosed and treated for cervical dysplasia. Loop electrosurgical excision procedure (LEEP) is the preferred treatment for these patients because it is simple and effective (Inna et al., 2010a). Thus, it is important to determine whether it affects women's sexual health.

It is shown that even the diagnosis of CIN can have many psychological effects among patients (Frederiksen et al., 2015) ,so it is presumable that treatment with LEEP can cause patients anxiety and because of the location of the lesion, the treatment may have a significant effect on the patient's sexual function and desire. The few studies that investigated the procedure's effect on sexual well-being had a limited number of patients and most of these studies used non-validated evaluation techniques (Cendejas et al., 2015)

In this study, we aimed to document the impact of LEEP on female sexual function using validated modalities that can lead to identification, precautions, and treatment of the physiological and sexual effects of the procedure on women's sexual function.

## Methods

This study was conducted at a tertiary referral center, the Research Hospital Gynecologic Oncology Clinic, and 80 patients who had undergone LEEP because of abnormal cervical cytology results between October 2018 and December 2018 were included. 9 patients were excluded for not coming to the follow-up appointments.A prospective pre-post survey study design was used and questionnaires were administered before the procedure (baseline) and at 3-month and 6-month follow-up appointments. We used the Female Sexual Function Index (FSFI), a widely used questionnaire that has been validated in many languages, including Turkish (Aygin & Eti Aslan, 2005). The questionnaire consists of 19 multiple choice questions and it evaluates the following six aspects of female sexuality: arousal, lubrication, desire, orgasm, satisfaction, and pain.

Patients who were sexually active were asked to participate in our study. We excluded patients who had any systemic or psychological disease to avoid any additional variables that could affect sexual function. The study was approved by the ethics review committee and informed consent was obtained from each patient before participating in the study. The patients were interviewed and the study was explained to them by a gynecologist in an isolated quiet room. Each of the patients' questions were answered. At the 3-month and 6-month follow-ups, the patients were asked to complete the questionnaire again regardless of their previous answers. Demographic information such as age, parity, and education were also recorded for each patient.

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS) Mac version 24 (SPSS Inc., Chicago, IL, USA). Continuous variables are presented as the mean ± standard deviation (SD). Categorical variables are presented as the frequency and percentage. Levene's test was used to evaluate equality of the variance homogeneity and $p > 0.05$ was considered to be homogeneous. The Kolmogorov–Smirnov test was used to analyze homogeneity of the data distribution. In cases of abnormal distribution in binary dependent group comparisons for numerical variables, the Wilcoxon test was used. A p value of $<0.05$ was considered to be statistically significant.

## Results

All of the patients completed the questionnaire before the procedure, and at 3 months and 6 months after the procedure. Participants' demographic characteristics are presented in Table 1. The mean patient age (SD) was 40.59 years, and the age range

was 24 to 63 years. Gravida, parity, and abortus status of the patients ranged from zero to seven with a mean (SD) of 3.18, zero to six with a mean (SD) of 2.51, and one to five with a mean (SD) of 1.76, respectively. Two of the patients could barely read and write while 91% of the participants had graduated from primary school and only four of the patients (5.6%) had graduated from high school. All of our patients were housewives.

**Table 1.** Demographic characteristics of women participated in the study

| | **Mean±sd** | **Min/max** |
|---|---|---|
| Age | 40,59±7,95 | 24/63 |
| Gravidity | 3,18±1,65 | 0/7 |
| Parity | 2,51±1,26 | 0/6 |
| Abortus | 1,76±1,16 | 1/5 |
| **Education** | **n** | **%** |
| Literate | 2 | 2.8 |
| Primary school | 65 | 91.5 |
| High school | 4 | 5.6 |

As shown in Table 2, for desire, patients' baseline, and 3-month and 6-month follow-up scores ranged from 2 to 8, with a mean (SD) score of 5.47, 5.42, and 5.48 respectively. We found no statistical difference in sexual desire during our study (p>0.05).

Regarding the lubrication degree of the patients, the mean score before surgery was 12.3. At the 3-month follow-up, the mean score was 12.1 (4), and at the 6-month follow-up, the mean score was 12.2. Thus, there was no statistical difference in the patients' degree of lubrication during intercourse (p>0.05).

Sexual satisfaction was also assessed and the mean scores before surgery and at 3 and 6 months after the procedure were 10.5, 10.4, and 10.4, respectively. We found no statistically significant difference in sexual satisfaction (p>0.05).

When patients' sense of pain was evaluated, the mean values were 6.2 before the procedure, 6.0 at the 3-month follow-up, and 6.0 at 6-month follow-up. Thus, there was no statistically significant difference in pain during intercourse (p>0.05).

Another evaluation criterion was orgasm. The mean score was 9.6 before the surgery, and the mean score decreased to 9.32 after 3 months and 9.38 after 6 months (p<0.05).

The degree of arousal was also evaluated, and while the mean score was 11.3 before the procedure, the 3-month follow-up degree of arousal mean score was 11.1 and that of the 6-month follow-up was 11.1 (p<0.05).

**Table 2.** FSFI scores before, three months and six months after LEEP procedures

| **Sexual function** | **Baseline Mean±sd** | **3-month follow-up mean ±sd** | **6-month follow-up mean ±sd** | **P** |
|---|---|---|---|---|
| **Sexual desire** | 5,478±1,842 | 5,422±1,909 | 5,480±1,890 | ***P1,P2,P3=0,234*** |
| **Sexual arousal** | 11,352±4,908 | 11,140±5,066 | 11,145±5,023 | ***P1=0,010****<br>***P2=0,012****<br>***P3=0,342*** |
| **Lubrication** | 12,338±3,660 | 12,197±4,023 | 12,253±3,905 | ***P1,P2,P3=0,422*** |
| **Orgasm** | 9,605±4,047 | 9,323±4,073 | 9,382±4,062 | ***P1,=0,002*****<br>***P2=0,004*****<br>***P3=0,312*** |
| **Sexual satisfaction** | 10,563±3,812 | 10,408±3,893 | 10,452±3,890 | ***P1,P2,P3=0,102*** |
| **Pain** | 6,253±3,276 | 6,028±3,229 | 6,092±3,232 | ***P1,P2,P3=0,141*** |

***Anova *P<0,05 **P<0,01***
**P1:** significance of difference between baseline and 3-month follow-up values
**P2:** significance of difference between baseline and 6- month follow-up values
**P3:** significance of difference between 3-month and 6-month follow-up values

## Discussion

Although there are few studies on the effect of LEEP on women's sexual function, our study and most of the other similar studies showed that LEEP can jeopardize the patient's sexual health status.

Sadaun et al. (2016) claimed that among 69 women who underwent LEEP, there was a significant improvement regarding sexual life. They believe psychological impact of HPV infection was higher than the anatomical effects of LEEP.But they used a self-made questionnaire and perform it before and after 3 months of the procedure. Rahman et al. (2016) suggests that LEEP does not affect the sexual function of 46 women at reproductive age whose mean age was 32.32 ±4.44 years at the time of the study. They used a self-made questionnaire which was not validated and they perform the questionnaire only after 6 months after the procedure.

On the other hand, Sparić et al. (2019) also conducted a study regarding women at reproductive age whose mean age was 35.2 ± 5.4 years. Participants underwent excisional cervical treatment, either LEEP or cold knife conization and asked to answer a non-validated questionnaire only after 2 years of the procedure. 1/3 of the women claimed to have lesser sexual interest and higher anxiety and depression scores.

Howells et al. (1999) used a modified psychosexual questionnaire that was also used by Campion et al. to evaluate 210 women who were treated with colposcopy (77 of whom also underwent LEEP). They found a reduction in the spontaneous interest in sex. Hellsten et al.( 2008) used the questionnaire that was modified by Howells et al. ( 1999), and they found that among 45 women who had undergone LEEP, there was an increase in the negative feelings toward sex and a decrease in spontaneous interest, sexual arousal, and the frequency of intercourse.

Inna et al. (2010b) also used a self-designed questionnaire to evaluate 89 patients who had undergone LEEP 3 months before the procedure and after a median interval of 29.3 (12.1–70.9) weeks after the procedure. There were no significant differences in "general sexual function and related symptoms such as frequency of sexual intercourse, dysmenorrhea, dyspareunia, and postcoital bleeding". However, they found that vaginal elasticity, overall satisfaction, and orgasmic satisfaction were decreased slightly, but the results were statistically significant.

Serati et al. (2010) were the first to use a validated questionnaire, the FSFI, to determine the effects of LEEP on sexual function. Fifty-eight patients answered the questionnaire before the procedure and 6 months thereafter. They concluded that undergoing LEEP did not affect sexual function, but that sexual desire was decreased.

Moreover, Campion et al. used a self designed questionnaire to assess the psychosexual impact of a cervical dysplasia diagnosis and subsequent laser treatment of cervical intraepithelial neoplasia (CIN), and they found an increase in negative feelings towards sexuality and dyspareunia as well as a decrease of spontaneous sexual interest, vaginal lubrication, frequency of orgasm, sexual arousal, and frequency of intercourse.

In a systematic review by O'Conner et al.(2015) about the adverse psychological outcomes following colposcopy and related procedures, 23 papers were assessed and they found that a wide spectrum from anxiety, distress-related sexual function problems, and fears about future fertility to depression can occur after those procedures. Thus, LEEP and alternative treatments seem to have an effect on female sexual function and well-being.

Our study group comprised 71 patients who completed a well-known validated questionnaire, unlike most of the other studies, before the procedure and at 3 months and 6 months after the procedure. We found that there was a statistical difference in orgasm and the degree of arousal in patients after the procedure, while lubrication, satisfaction, sexual desire, and pain remained unchanged. Although it was not randomized, the patients' socioeconomic and educational statuses were homogenous. All the procedures were performed at the same hospital and the questionnaires were answered with the assistance of the same gynecologist. However, the colposcopy results differed between patients and this may have caused some changes in the anxiety and pyschological status of the patient.

## Conclusion

Healthy sexuality is an important part of a person's well-being, and the treatments that are performed for a patient's physical health deeply affect the patient. Our study showed that parameters such as orgasm and the degree of arousal, which are both strongly connected with a patient's physical and psychological well-being, are affected by the procedure. We believe that anxiety and the inability to fully understand the treatment and risks play crucial roles in this situation. Detailed information, psychological support, and psychiatric consultation, if necessary, can help to overcome this situation. Further studies with a larger and homogenous sample and a control group should be performed to assess the effect of psychological precautions and to avoid sexual function disorders resulting from LEEP.

**Ethics committee approval:** Bakırköy Sadi Konuk Research Hospital ethics Committee (Decision No: 2017/240)
**Peer-review:** Externally peer-reviewed.
**Author Contributions: Author Contributions:** Concept- G.K, O.K.; Design-G.K., O.A, O.B.; Materials- S.A, I.T, O.B.; Data Collection and Processing- G.K., B.T, I.T.; Literature Review- G.K, O.B, I.T, B.T., I.T.; Writing- G.K.; Critical Review- O.A, O.B.
**Conflict of Interest:** The authors declare that there is no conflict of interest
**Financial support:** The authors received no specific funding for this study

## References

Aygin D, & Eti Aslan F. The Turkish adaptation of the female sexual function index. Turkiye Klinikleri Journal of Medical Sciences. 2005

Cendejas BR, Smith-Mccune KK, & Khan MJ.. Does treatment for cervical and vulvar dysplasia impact women's sexual health? American Journal of Obstetrics and Gynecology, 2015;212(3):291–297. https://doi.org/10.1016/j.ajog.2014.05.039

Connor MO, Gallagher P, Waller J, Martin CM, Leary J J O, & Sharp, L.. Adverse psychological outcomes following colposcopy and related procedures : a systematic review. 2015;24–38. https://doi.org/10.1111/1471-0528.13462

Frederiksen M E, Njor S, Lynge E, & Rebolj M. Psychological effects of diagnosis and treatment of cervical intraepithelial neoplasia: A systematic review. Sexually Transmitted Infections, 2015;91(4):248–256. https://doi.org/10.1136/sextrans-2014-051754

Hatzichristou D, Rosen RC, Broderick G, Clayton A, Cuzin B, Derogatis L, et al. Dysfunction in Men and Women. Journal Of Sexual Medicine. 2004

Hellsten C, Lindqvist PG, & Sjöström K. A longitudinal study of sexual functioning in women referred for colposcopy: A 2-year follow up. BJOG: An International Journal of Obstetrics and Gynaecology, 2008;115(2):205–211. https://doi.org/10.1111/j.1471-0528.2007.01503.x

Howells REJ, Dunn PDJ, Isasi T, Chenoy R, Calvert E, JonesPW, et al. Is the provision of information leaflets before colposcopy beneficial? A prospective randomised study. BJOG: An International Journal of Obstetrics and Gynaecology, 1999;106(6):528–534. https://doi.org/10.1111/j.1471-0528.1999.tb08319.x

Inna N, Phianmongkhol Y, & Charoenkwan K.. Sexual function after loop electrosurgical excision procedure for cervical dysplasia. Journal of Sexual Medicine, 2010a;7(3):1291–1297. https://doi.org/10.1111/j.1743-6109.2009.01633.x

Inna N, Phianmongkhol Y, & Charoenkwan K.. Sexual function after loop electrosurgical excision procedure for cervical dysplasia. Journal of Sexual Medicine, 2010b;7(3):1291–1297. https://doi.org/10.1111/j.1743-6109.2009.01633.x

McCabe MP, Sharlip ID, Lewis R, Atalla E, Balon R, Fisher AD, et al.Risk Factors for Sexual Dysfunction Among Women and Men: A Consensus Statement From the Fourth International Consultation on Sexual Medicine 2015. The Journal of Sexual Medicine, 2016;13(2):153–167. https://doi.org/10.1016/j.jsxm.2015.12.015

Rahman MM, Jahan R, Ferdous J, Islam F, & Lipi LB.. The impact of loop electrosurgical excision procedure for cervical intraepithelial neoplasia on female sexual function. Bangladesh Journal of Obstetrics and Gynecology, 2016;31(2):81–85. https://doi.org/10.3329/bjog.v31i2.34215

Sadoun C, Ohannessian A, Carcopino X, Mauviel F, Boubli L, & Agostini A.. Impact de la conisation cervicale à l'anse diathermique sur la qualité de vie sexuelle. Journal de Gynecologie Obstetrique et Biologie de La Reproduction, 2016;45(2):120–123. https://doi.org/10.1016/j.jgyn.2015.11.004

Serati M, Salvatore S, Cattoni E, Zanirato M, Mauri S, Siesto G, et al. The Impact of the Loop Electrosurgical Excisional Procedure for Cervical Intraepithelial Lesions on Female Sexual Function. The Journal of Sexual Medicine, 2010;7(6):2267–2272. https://doi.org/10.1111/j.1743-6109.2010.01819.x

Sparić R, Papoutsis D, Kadija S, Stefanović R, Antonakou A, Nejković L, et al. Psychosexual outcomes in women of reproductive age at more than two-years from excisional cervical treatment–a cross-sectional study. Journal of Psychosomatic Obstetrics and Gynecology, 2019;40(2):128–137. https://doi.org/10.1080/0167482X.2018.1445220

WHO | Sexual health. 2016. WHO. https://www.who.int/topics/sexual_health/en/