Sumerianz Journal of Medical and Healthcare, 2021, Vol. 4, No. 1, pp. 28-34 ISSN(e): 2663-421X, ISSN(p): 2706-8404 Website: <u>https://www.sumerianz.com</u> DOI: <u>https://doi.org/10.47752/sjmh.41.28.34</u> © Sumerianz Publication

CC BY: Creative Commons Attribution License 4.0



Open Access

Original Article

Women's Sexual Distress Associated With Cervical Cancer

Hagar Masaud

Assistant lecturer of Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt

Hanan Elzeblawy Hassan^{*}

Associate professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt Email: nona_nano_1712@yahoo.com

Ragaa Mohammed

Professor of Maternity and Neonatal Nursing, Faculty of Nursing, Cairo University, Egypt

Soad Ramadan

Professor of Obstetrics and Women Health Nursing, Faculty of Nursing, Benha University, Egypt

Abstract

Background: Sexual distress impacts women's mental well-being. Anger/aggression, separation, divorce, and depression may be results of sexual distress. It harms woman's mental health, in turn, impact the relationship between spouses. Aim: The present study aimed to assess women's sexual distress associated with cervical cancer. Methods; *Design:* A descriptive design was used for the current study. *Setting:* out-patient clinic in the oncology unit at Beni-Suef University Hospital. *Subjects:* A purposive sample of 70 women. Tools: Data was collected through a structured interviewing questionnaire sheet, female sexual distress scale. *Results:* The results of the study revealed that 35.7% of women were in the 1st degree when diagnosed, 88.6% of the studied women had sexual distress. There was a statistically significant relationship between age and residence of women and their total sexual distress scores. Conclusion: Sexual distress was more prevalent among older, less educated, urban dwellers, and those whose age of marriage was less than 20 years old. Recommendations: Preparing health classes for cervical cancer women regarding sexual distress following cervical cancer.

Keywords: Cervical cancer; Sexual distress.

1. Introduction

Sexual self-concept is a psychological and cognitive construct relating to how ones experiences and understands one's sexual identity. Fulfilling sex life is important to many couples as it is an opportunity for bonding, intimacy, and quality time. Sexual difficulties following cervical cancer can be stressful for couples as it can feel like a core part of the relationship has disappeared [1].

Studies among the normal population have shown that sexual distress was related not only to physical problems, such as vaginal symptoms but also to psychological (e.g., anxiety or depression) and interpersonal problems (e.g., relationship dissatisfaction). This is in line with the biopsychosocial perspective that female sexuality is multidimensional. However, to date; very little research has considered biopsychosocial associates of sexual distress among cervical cancer survivors [2].

Sexual distress also impacts women's mental well-being. Anger/aggression, separation, divorce, and depression may be results of sexual distress. It harms woman's mental health, in turn, impact the relationship between spouses. Health care providers, however, pay more attention to the survival of the patient, controlling the signs and symptoms, and do not often address the mental and sexual health of patients [3].

Sexual distress is one of the most distressful symptoms among cervical cancer survivors. Cancer treatment including radiotherapy results in a high degree of vaginal morbidity and persistent sexual dysfunction. Vaginal symptoms reported after cervical cancer treatment; sore membranes, reduced lubrication and genital swelling severely affect the women's sexual health [4].

Sexual oncology is gaining appreciation as a major area needing attention in nursing practice and research. Oncology nurses need to possess a high level of sensibility in dealing with women's sexual health needs. However, sexual health care is still inadequately addressed due to barriers such as incorrect assumptions and beliefs toward sexual issues [5-10]. One of the main roles of oncology nurses is to assess problems in this area to be able to provide anticipatory guidance related to treatment and the resumption of sexual activity, but this is one aspect of care that has been largely ignored by health care providers [11-17]. Sexuality issues have not been adequately addressed by health care providers [18].

Article History Received: January 15, 2021 Revised: February 22, 2021 Accepted: February 24, 2021 Published: February 26, 2021

2. Aim of the Study

The current study aims to assess women's sexual distress associated with cervical cancer.

3. Subjects and Methods

3.1. Research Design

A descriptive design was used for the current study.

3.2. Setting

The oncology unit at Beni-Suef University hospital.

3.3. Subjects

The sample size was 70 women.

3.4. Tools of Data Collection

To attain the aim of this study, 2 tools were used for data collection;

3.4.1. Tool I: Structured Interviewing Questionnaire

Sheet was developed to collect socio-demographic characteristics and medical-surgical history of women.

3.4.2. Tool II: Female Sexual Distress Scale

Derogatis, *et al.* [19] This tool consists of 13 items to assess different aspects of sexual activity-related distress in women. Women were asked to choose the number that defines the frequency of discomfort of the sexual problem she has had in the last 30 days. All items are scored on a five-point Likert scale.

3.5. Validity and Reliability

Data collection tools were submitted to three experts in the field of maternity/obstetric nursing to test content validity. Cronbâch alpha, and Spearman-Brown coefficients were calculated to assess the reliability of the developed tools through their internal consistency.

3.6. Administrative and Ethical Considerations

Necessary approval from the Beni-Suef University hospital director was taken. All engaged women were informed that participation is voluntary and have the right of accepting or refusing participation in the study.

3.7. Pilot Study

A pilot study was conducted on 10% (7women) to evaluate the applicability, efficiency, clarity of the tools.

3.8. Statistical Analysis

The collected data was revised, coded, tabulated, and introduced to a PC using a statistical package for social sciences (IBM SPSS 25.0). Data was presented as:

- Mean and Standard deviation (SD) and range.
- Frequency and percentage.
- Colum chart for graphic presentation.

4. Results

Figure (1) reveals that 51.4% of the study sample their age was more than 50 years old, 48.6% had a secondary education, 35.7% were worked women, and 47.2% of women were from rural areas, respectively.

Table (1) shows that 35.7% of women were in the 1^{st} degree when diagnosed, while 4.3% were in the 4^{th} degree, 37.1% of women had received radiotherapy, chemotherapy, and surgical operation.

Table (2) shows that; 1.4% of women were nulliparous, 78.6% had menarche by the age of 12-15 years old, and 41.4% of the studied women had amenorrhea.

Figure (2) reveals that 88.6% of the studied women had sexual distress.

Table (3) illustrates that there was a statistically significant relationship between the educational level of women, marriage age, and their total sexual distress scores, while there was no relationship between age and residence of women and their total sexual distress scores.

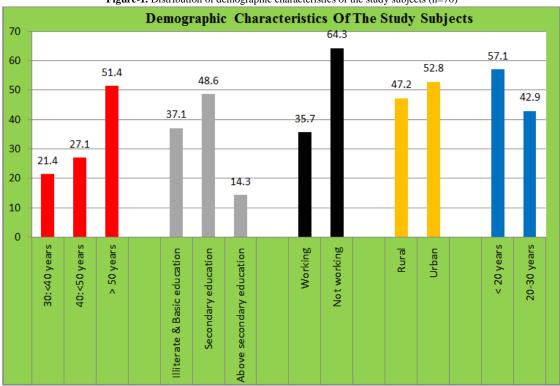


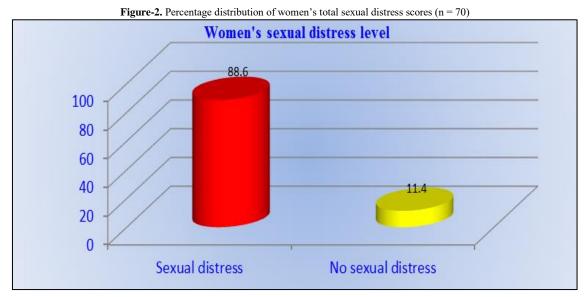
Figure-1. Distribution of demographic characteristics of the study subjects (n=70)

Table-1. Distribution of the study subjects according to their medical-surgical history (n=70)

| Medical surgical history | No | % | |
|---|----|------|--|
| Degree of disease when detected | | | |
| Zero degree | 16 | 22.9 | |
| 1 st degree | 25 | 35.7 | |
| 2 nd degree | 22 | 31.4 | |
| 3 rd degree | 4 | 5.7 | |
| 4 th degree | 3 | 4.3 | |
| Type of disease intervention | | | |
| Radiotherapy | 4 | 5.7 | |
| Surgical | 9 | 12.9 | |
| Chemotherapy and surgical | 14 | 20 | |
| Radiotherapy and surgical | 17 | 24.3 | |
| Radiotherapy, Chemotherapy and surgical | 26 | 37.1 | |
| Surgery type | | | |
| Local tumor surgery | 6 | 8.6 | |
| Partial hysterectomy | 7 | 10 | |
| Total hysterectomy | 57 | 81.4 | |

Table-2. Distribution of the study subjects according to their previous obstetric/gynecological history

| Obstetric and gynecological history | No | % | | |
|-------------------------------------|-------------|-------------|--|--|
| Menarche age | | | | |
| < 12 years | 13 | 18.6 | | |
| 12: 15 years | 55 | 78.6 | | |
| > 15 years | 2 | 2.8 | | |
| Mean ± SD | 2.45 12.4 ± | 2.45 12.4 ± | | |
| Menstrual period | | | | |
| Regular | 18 | 25.7 | | |
| Irregular | 23 | 32.9 | | |
| Amenorrhea | 29 | 41.4 | | |
| Parity number | | | | |
| No parity | 1 | 1.4 | | |
| Two | 6 | 8.6 | | |
| Three | 19 | 27.2 | | |
| More than three | 44 | 62.8 | | |



| Demographic Characteristics | N | Sexual distress | | No sexual distress | | X2 | P-value |
|--------------------------------|----|-----------------|------|--------------------|------|------|----------------|
| | | No | % | No | % | 1 | |
| Age | | | | | | | |
| 30:<40 years | 15 | 14 | 20 | 1 | 1.4 | 2.02 | 0.363 |
| 40:50 years | 19 | 18 | 25.7 | 1 | 1.4 | | |
| > 50 years | 36 | 30 | 42.9 | 6 | 8.6 | | |
| Educational level of women | | | | | | | |
| Illiterate | 2 | 1 | 1.4 | 1 | 1.4 | 4.68 | 0.042* |
| Basic education | 24 | 19 | 27.2 | 5 | 7.2 | | |
| Secondary education | 34 | 34 | 48.6 | 0 | 0 | | |
| Above secondary education | 10 | 8 | 11.4 | 2 | 2.8 | | |
| Residence | | | | | | | |
| Rural | 33 | 28 | 40 | 5 | 7.2 | 1.32 | 0.861 |
| Urban | 37 | 34 | 48.6 | 3 | 4.2 | | |
| Marriage age | | | | | | | |
| < 20 years | 40 | 31 | 44.3 | 9 | 12.9 | 7.12 | 0.027* |
| 20: 30 years | 30 | 28 | 40 | 2 | 2.8 | 1 | |

(*) statistically significant p < 0.05

5. Discussion

Sexuality is an important part of normal human functioning, but this is one aspect of care that has been largely ignored by health care providers for a number of reasons. While patients want to talk about this issue, they want the health care provider to raise the topic. In turn, health care providers are reluctant to initiate the discussion, preferring to wait for the patient to voice concerns [20]. That is why this study conducts. The current study conducted to assess women's sexual distress associated with cervical cancer.

A regard the socio-demographic data of the studied women, the present study illustrated that 51.4% of the study sample were aged more than 50 years old, 48.6% of the studied women had secondary education. In the same line to current study findings, Zhou, *et al.* [21] found that slightly less than half of women their age ranged from (46-55) years old and about half of the patients had education up to Junior high school level or less [21].

According to Female Sexual Distress Scale, 88.6% of the studied women reported sexual distress. The results of the current study in line with Vermeer, *et al.* [2] who found that 33% (n = 64) of the survivors scored above the cutoff score for sexual distress. Furthermore, the results showed that sexual pain worries partly mediated the association between vaginal sexual symptoms and sexual distresss when controlling for relationship dissatisfaction and body image concerns [2]. Additionally, Ramadan, *et al.* [22] who studied "Effect of an Educational Package on Knowledge, Practices, and Attitude of Premenopausal Women Regarding Sexuality" found that 58.8% of women hadn't Sexual performance at this age, and 87.5% of women have had sexual distress [22].

In the same line with our study findings, Ali, *et al.* [3] that conduct a study about "Sexual distress and sexual function in a sample of Iranian women with gynecologic cancers" in Iran found that the mean score for the FSFI was 19.4. This score reflects low levels of sexual function among the patients with gynecologic cancer. The mean total score for the sexual distress was 29.2 which also indicated low levels [3].

Sexual distress may be an expected result of cervical cancer. The present study highlighted that 20.0% of the studied women receive chemotherapy associated with surgical interference for treat cervical cancer. This result is in the same line with Soliman and Abd-Elsalam [23] and found that 22.0% of women treated their cervical cancer by chemo-radiotherapy, and 12.9% of women had managed their cancer surgically [23]. Chemotherapy may alter

vaginal mucosa, reduce vaginal sensation, decreased vaginal elasticity, and reduced lubrication [24-26]. Moreover, surgery and chemotherapy could lead to irritation, vaginal dryness, and vulvo-vaginal atrophy [27-29]. This finding is in line with Hassan, *et al.* [30] who mentioned that majority of their studied sample was having a hysterectomy [31]. However, 5.7% of the studied women receive radiotherapy. Radiation causes fibrosis in the vaginal connective tissue, which may, in turn, result in inelasticity and dyspareunia [32].

In Egypt, the mean age of menopause is 46.7 years, which is small relative to other countries, but this age has recently been increasing [33]. Women's sexual distress may be influenced by age, education, income level, and emotional-personality factors [34]. Results of the present study show no statistically significant differences between age and age at marriage of studied women and female Sexual Distress Scale. However, sexual distress was less prevalent among younger age (20.0% with 30-40 years old) than older women (7.2% with \geq 50 years old). This attributed that 51.4% of the studied women were in their menopausal phase and 41.4% had amenorrhea. In the same line [22] found that 55.0% of their studied women were aged more than 45 years old, and 53.7% of their study sample had a low sexual performance [22].

In the same line, however, there is no statistically significant difference between women's ages of marriage and sexual distress, the present study reveals that sexual distress was less prevalent among women their age of marriage was more than 20 years old. This might be ascribable to the fact that day by day life enhances women's experience and improves their knowledge [35]. In disagreement with the current study findings of Bakker, *et al.* [36] stated that participants' sexual distress was not significantly different over time [36].

Additionally, no statistically significant difference was found between women's residences and their sexual distress, however, women's sexual distress was less prevalent among those who live in rural (40.0%) compared to those who live in urban (48.6%). This may attribute to rural areas are healthier and less exposed to prolusion and psychological stressors which in-turn affects the quality of life and sexual life as well. Previous studies found that depression and/or anxiety were observed more in housewives than in outside employees [37-39]. Moreover, Shifren, *et al.* [40] Hayes, *et al.* [37] found that psychological disorders being more common in housewives than in working ones [41].

A statistically significant difference was found between women's sexual distress educational level of the studied sample (p=0.042). Women's sexual distress was less prevalent among highly educated women (6.0% for above secondary level) compared to the lower level of education (17.0% for secondary education, and 17.1% for illiterate and basic education). This may be attributed to that; the highly educated women will have better chances to get better sources of knowledge.

6. Conclusions

Based on the finding of the present study, it can be concluded that: All women undergoing cervical cancer treatment suffered from sexual distress according to the Female Sexual Distress Scale. Sexual distress was more prevalent among older, less educated, urban dwellers, and those whose age of marriage was less than 20 years old.

Recommendations

In the light of the findings of the study, the following are suggested:

- i. Preparing health classes for cervical cancer women regarding sexual distress followin cervical cancer.
- ii. Further research about women's perception and practices regarding sexual distress with cervical cancer.

References

- [1] Abd El Salam, S., Hassan, H., Kamal, K., and Ali, R., 2021. "Women's sexual dysfunction associated with cervical cancer." *Applied Science and Computer Mathematics*, vol. 2, pp. 17-27.
- [2] Vermeer, W., Bakker, R., Kenter, G., de Kroon, C., Stiggelbout, A., and Kuile, M., 2016. *Sexual issues among cervical cancer survivors: how can we help women seek help?* Psycho-Oncology, pp. 1-8.
- [3] Ali, M., Bahramia, N., Yaghoobzadehb, A., Parker, A., and Huak, Y., 2018. "Sexual distress and sexual function in a sample of Iranian women with gynecologic cancers." *European Journal of Oncology Nursing*, vol. 35, pp. 47-53. Available: <u>https://pubmed.ncbi.nlm.nih.gov/30057083/</u>
- [4] Shankar, A., Prasad, N., Roy, S., Chakraborty, A., Sharma, A., Patil, J., and Kisho, G., 2017. "Sexual dysfunction in females after cancer treatment: An unresolved issue." *Asian Pac. J. Cancer Prev.*, vol. 18, pp. 1177–1182.
- [5] Hassan, H., 2016. "Call for psychosocial well-being among pregnant women associated with medical disorder in Beni-Suef governorate." *IOSR Journal of Nursing and Health Science*, vol. 5, pp. 81-94.
- [6] Hassan, H. and Atwa, A., 2017. "Occupational stress, job satisfaction and cervical screening intention of maternity oncology nurses." *Medical Science and Healthcare Practice*, vol. 1, pp. 48-59.
- [7] Hassan, H., Bayoumi, M., and Atwa, A., 2016. "Emotional distress associated with gynecologic and breast cancer in beni-suef city." *International Journal of Science and Research*, vol. 5, pp. 1118-1129.
- [8] Mohammed, F., Shahin, M., Youness, E., and Hassan, H., 2018. "Survivorship in women undergoing gynecological and breast cancer treatment in upper Egypt: The impact of quality of life improvement educational program." *American Research Journal of Gynaecology*, vol. 2, pp. 1-28.
- [9] Nady, F., El-Sherbiny, M., Youness, E., and Hassan, H., 2018. "Effectiveness of quality of life planned teaching program on women undergoing gynecologic cancer treatment." *American Research Journal of Oncology*, vol. 1, pp. 1-17.

- [10] Qalawa, S., Eldeeb, A., and Hassan, H., 2015. "Young Adult Women's intention regarding breast and cervical cancer screening in Beni-Suef." *Scientific Research Journal*, vol. 3, pp. 11-24.
- [11] Atwa, A., Hassan, H., and Ahmed, S., 2019. "The impact of a hospital-based awareness program on the knowledge of patients about breast cancer and cancer cervix." *International Journal of Studies in Nursing*, vol. 4, pp. 20-29.
- [12] Hassan, H., 2019. "The impact of evidence-based nursing as the foundation for professional maternity nursing practices." *Open Acc. J. Repro and Sexual Disord*, vol. 2, pp. 195-197.
- [13] Hassan, H., 2020. "Early stage cervical cancer: Survivorship and fertility preservation." *American Research Journal of Oncology*, vol. 2, pp. 1-3.
- [14] Hassan, H., Mohamed, A., and Ibrahim, M., 2016. "Depression symptoms among diabetic pregnant women in beni-suef." *International Journal of Science and Research*, vol. 5, pp. 7-12. Available: <u>http://dx.doi.org/10.21275/v5i5.NOV163080</u>
- [15] Hassan, H., Sheha, E., and Nasr, E., 2016. "Level of stress among pregnant women with heart problems." *International Journal of Research-GRANTHAALAYAH*, vol. 4, pp. 220-230. Available: <u>http://dx.doi.org/10.5281/zenodo.58961</u>
- [16] Nasr, E., Hassan, H., and Sheha, E., 2016. "Psychological consequences of hypertensive disorders among pregnant women." *Scientific Research Journal*, vol. 4, pp. 1-8.
- [17] Said, S., Hassan, H., and Sarhan, A., 2018a. "Effect of an educational intervention on women's knowledge and attitude regarding cervical cancer." *American Journal of Nursing Research*, vol. 6, pp. 59-66.
- [18] Hassan, H., Saber, N., and Sheha, E., 2019. "Comprehension of dyspareunia and related anxiety among northern upper Egyptian women: Impact of nursing consultation context using PLISSIT Model." *Nursing and Care Open Access Journal*, vol. 6, pp. 1-19.
- [19] Derogatis, L., Clayton, A., D'Agostino, D., Wunderlich, G., and Fu, Y., 2008. "Validation of the female sexual distress scale-revised for assessing distress in women with hypoactive sexual desire disorder." *Journal of Sexual Medicine*, vol. 5, pp. 357-64.
- [20] Ali, R., Kamal, H., Hassan, H., and Abd El Salam, S., 2021. "Impact of an educational program on sexual distress associated with cervical cancer." *Further Applied Healthcare*, vol. 1, pp. 13-25.
- [21] Zhou, L., Qing, L., Shen, B., Jin, Z., Liu, H., and Chen, Y., 2017. "Patterns and predictors of healthcareseeking for sexual problems among cervical cancer survivors: An exploratory study in China." *Biomed Research Journal-India*, vol. 28, pp. 6355-6360.
- [22] Ramadan, E., Eldesokey, A., and Hassan, H., 2020. "Effect of an educational package on knowledge, practices, and attitude of premenopausal women regarding sexuality." *American Journal of Nursing Research*, vol. 8, pp. 495-505.
- [23] Soliman, E. and Abd-Elsalam, A., 2018. "Effect of standardized oncology nursing care intervention on reducing sexual dysfunction among cervical cancer survivors' women." *Menoufia Nursing Journal*, vol. 3, pp. 85-93.
- [24] Hassan, H., Mohammed, R., Ramadan, S., and Masaud, H., 2021. "Impact of an educational program on sexual issues among cervical cancer survivors' women in Northern Upper Egypt." *Journal of Obstetrics Gynecology and Reproductive Sciences*, vol. 5, pp. 1-15.
- [25] Ramadan, S., Hassan, H., Masaud, H., and Mohammed, R., 2021. "Women's body image distress associated with cervical cancer." *Journal of Obstetrics Gynecology and Reproductive Sciences*, vol. 5.
- [26] Zagloul, M., Naser, E., and Hassan, H., 2020. "Cervical cancer knowledge, attitude, and practices: Educational program management for female workers at port said university." *International Journal of Studies in Nursing*, vol. 5, pp. 1-16.
- [27] Ali, R., Abd El Salam, S., Kamal, H., and Hassan, H., 2021. "Women with cervical cancer: Impact of an educational program their knowledge." *Journal of Obstetrics Gynecology and Reproductive Sciences*, vol. 5, pp. 1-8.
- [28] Said, S., Hassan, H., and Sarhan, A., 2018b. "Effect of an educational intervention on women's knowledge and attitude regarding cervical cancer." *American Journal of Nursing Research*, vol. 6, pp. 59-66.
- [29] Zycki, D., Woźniak, K., and Iżycka, N., 2016. "Consequences of gynecological cancer in patients and their partners from the sexual and psychological perspective." *Prz Menopauzalny*, vol. 15, pp. 112-116. Available: <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4993986/</u>
- [30] Hassan, H., Kamal, H., Abd El Salam, S., and Ali, R., 2021. "Survivors from cervical cancer: Impact of an educational program on self-knowledge and body-image." *Public Health Open Access*, vol. 5.
- [31] Ahmed, S. and Hassan, S., 2016. "Application of PLISSIT counseling model for women with cervical cancer undergoing treatment on enhancing sexuality." *American Journal of Nursing Science*, vol. 5, pp. 85-95.
- [32] Hofsjö, A., Bergmark, K., Blomgren, B., Jahren, H., and Bohm, N., 2017. "Radiotherapy for cervical cancer – impact on the vaginal epithelium and sexual function." Available: <u>https://www.tandfonline.com/doi/full/10.1080/0284186X.2017.1400684</u>
- [33] Hassan, H., Masaud, H., Mohammed, R., and Ramadan, S., 2021. "Self-knowledge and body image among cervical cancer survivors' women in Northern Upper Egypt." *Further Applied Healthcare*, vol. 1, pp. 1-12.
- [34] Dennerstein, L., Guthrie, R., Hayes, D., Derogatis, R., and Lehert, P., 2008. "Sexual function, dysfunction, and sexual distress in a prospective, population-based sample of mid-aged, Australian-born women." *J. Sex Med.*, vol. 5, pp. 2291-2299.

- [35] Hassan, H., 2016. "Infertility profile, psychological ramifications and reproductive tract infection among infertile women, in northern Upper Egypt." *Journal of Nursing Education and Practice*, vol. 6, pp. 92-108. Available: <u>https://doi.org/10.5430/jnep.v6n4p92</u>
- [36] Bakker, R., Mens, J., Groot, H., Tuijnman, C., Braat, C., Hompus, W., Poelman, J., Laman, M., Velema, L., et al., 2016. "A nurse-led sexual rehabilitation intervention after radiotherapy for gynecological cancer." Available: <u>https://link.springer.com/content/pdf/10.1007/s00520-016-3453-2.pdf</u>
- [37] Hayes, D., Dennerstein, L., Bennett, M., Sidat, M., Gurrin, C., and Fairley, K., 2008. "Risk factors for female sexual dysfunction in the general population: exploring factors associated with low sexual function and sexual distress." J. Sex. Med., vol. 6, pp. 1681-1693.
- [38] Mohamed, A., Hassan, H., Gamel, W., and Arafa, A., 2019. "Awareness about breast and cervical cancers among nursing students in beni-suef university." *Journal of Nursing Education and Practice*, vol. 9, pp. 44-51.
- [39] Ramezanzadeh, F., Aghssa, M., Abedinia, N., Zayeri, F., Khanafshar, N., Shariat, M., and Jafarabadi, M. A., 2004. "Survey of relationship between anxiety, depression and duration of infertility." *BMC Women's Health*, vol. 4, p. 9. Available: <u>http://www.biomedcentral.com/1472-6874/4/9</u>
- [40] Shifren, L., Monz, U., Russo, A., Segreti, A., and Johannes, B., 2008. "Sexual problems and distress in United States women: Prevalence and correlates." *Obstet Gynecol.*, vol. 112, pp. 970-978.
- [41] Boivin, J., 2003. "A review of psychological interventions in infertility." *Soc. Sci. Med.*, vol. 57, pp. 2325-2341.