

A Study to Assess the Effect of Dyspareunia by Ayurvedic Oil in Patients Who Have Undergone Radiation Treatment for Gynecological Cancer at A Tertiary Cancer Care Centre, Hbni, Mumbai – Phase I Study (Feasibility)

Prathepa Jagdish^{1*}, Punam Ankush Mungase¹, Prachi Mittal², Supriya Chopra², Manjusha Vagal³, Manohar Gundeti⁴ and Govind Reddy⁴

¹College of Nursing, India

²Department of Radiation Oncology

³Department of Occupational therapy, Tata Memorial Hospital, HBNI, Mumbai, India

⁴Raja Ramdeo Anandilal Podar Central Ayurveda Research Institute, Mumbai, India

*Corresponding Author

Prathepa Jagdish, College of Nursing, India.

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Abstract

Introduction: Gynecological cancers, including cervical, endometrial, vaginal and vulvar cancers, significantly affect women's sexual health and quality of life. Globally and in India, cervical cancer shows high incidence rates. Studies report that 55–67% of survivors experience dyspareunia and 60% face sexual dysfunction following treatments such as surgery, brachytherapy and external beam radiation therapy. These treatments cause vaginal dryness, fibrosis, reduced elasticity and estrogen deficiency, leading to painful intercourse. Jatyadi oil, a polyherbal Ayurvedic preparation with antimicrobial, anti-inflammatory and wound-healing properties, promotes epithelial regeneration and tissue healing. Its simple, safe application makes it an effective nursing intervention to improve sexual function and quality of life.

Objectives:

1. To assess the feasibility of ayurvedic oil (Jatyadi oil) application on patients with dyspareunia who have undergone radiation treatment for gynecological cancers - Phase I.
2. To know the association between the demographic data, clinical data and dyspareunia (lubrication and pain).

Methodology: A single-arm pre–post feasibility study was conducted among 20 gynecological cancer survivors selected through convenience sampling. Participants applied 3–4 ml of Jatyadi oil intravaginally and externally three times daily for 28 days. Dyspareunia was assessed at baseline and day 28 using the Female Sexual Function Index (FSFI). Compliance and adverse effects were monitored through logbooks and telephonic follow-up. Data were analyzed using descriptive and inferential statistics with $p < 0.05$ using SPSS version 25.

Results: All 20 participants completed the 28-day intervention. Feasibility of Jatyadi oil application was high, with 95% of participants achieving $\geq 60\%$ adherence to the prescribed regimen. Only 5% reported mild discomfort, while 95% tolerated the intervention without adverse effects, indicating good safety and acceptability. Baseline FSFI scores showed impaired sexual function (18.1 ± 4.7), particularly in lubrication and pain domains. Following the intervention, total FSFI scores improved to 30.1 ± 3.2 , with marked improvement in lubrication and pain, while desire remained stable.

Conclusion: *Jatyadi oil application was found to be a safe, feasible and well-tolerated intervention for managing radiation-induced dyspareunia among gynecological cancer survivors. High adherence and minimal adverse effects indicate good acceptability and safety of the intervention.*

Keywords: Gynecological Cancer, Dyspareunia, Radiation Therapy, Jatyadi Oil

1. Introduction

Gynecological cancer can arise from the ovary, uterus, vulva or vagina [1]. Several factors increase the risk such as HPV infection, smoking, obesity, previous history of gynecological or breast cancer, HIV, family history, high-fat diet, use of oral contraceptive pills, estrogen therapy, prior radiation to the pelvis and multiparity [2]. Abnormal vaginal discharge or bleeding also vulva pain, itching, burning are common signs of gynecological cancer [3]. Globally the incidence rate of cervical cancer ranks 8th with 3.3%, endometrium ranks 15th with 2.1%, vulva ranks 29th with 0.24% and vagina ranks 31st with 0.26%. GLOBOCON 2022 [4]. In India, the incidence rate of cervical cancer ranks 3rd GLOBOCON 2022 [5]. In TMH, according to the 2022-2023 annual report, 3780 patients were diagnosed with gynecological cancers including 1402 cervical [6,7]. Endometrial cancer is mainly treated with surgery including hysterectomy, BSO, surgical staging and selective pelvic and para-aortic lymphadenectomy. Adjuvant or neoadjuvant radiotherapy and/or chemotherapy is advised in high-risk or advanced disease with RT regimens including pelvic RT 45 Gy/1.8 Gy, pelvic extension up to 50.4 Gy, vaginal cuff BT $3 \times 6-7$ Gy, BT alone ⁶ with 5.5-6 Gy (postoperative) and intracavitary BT $3 \times 6-7$ Gy (preoperative) [8,9]. Cervical cancer treatment for Stage IA, total abdominal hysterectomy and EBRT of $5-6 \times 7$ Gy or BT alone of 65-75 Gy are provided. From Stage IB2 onwards, EBRT of 5-6 Gy and BT → High dose rate of 5×6 Gy, Low dose rate of $2 \times 15-20$ Gy and concurrent chemo RT with cisplatin-based drugs are used relatively [10]. In total the RT dose includes 45 to 50 Gy in 23 to 25 fractions delivered over 5 weeks with or without chemotherapy.

Approximately 12 million individuals experience vaginal health problems due to cancer or its treatment. Despite the high prevalence of sexual dysfunction, sexual health concerns are often not addressed with 64% of long-term gynecologic cancer survivors reporting that physicians did not initiate discussions although 74% believed routine inquiry was necessary. Therefore, developing a comprehensive care plan was essential to assess and manage sexual health issues during treatment and survivorship. Some studies have reported that BT and EBRT have a significant side effect on pelvic floor muscles due to the development of fibrosis in the striated and smooth layers of the muscle tissue, thus leading to alteration of vaginal structures such as vaginal dryness and dyspareunia decrease in elasticity, vaginal lubrication, vulvodynia, decreased libido arousal problems and relationship strain [11-21]. Dyspareunia also contributes to psychological effects such as depression, anxiety and impaired social relationships while deep dyspareunia is associated with body positioning factors and central nervous system sensitivity [22-24]. As cancer survival rates improve, greater attention is needed on psychological and sexual

health as late treatment effects appearing months or years later can significantly affect quality of life, making long-term survivorship care essential [25-28]. RT can damage vaginal tissue, blood vessels and connective tissue while estrogen deficiency contributes to inflammation, cell death, hypoxia, fibrosis, collagen accumulation and elastin loss, resulting in a thinner, drier and less elastic vagina, leading to dyspareunia, reduced lubrication and painful intercourse [29]. Many women remain sexually active in mid-life, however, those with dyspareunia often have reduced sexual frequency. Addressing dyspareunia is essential to maintain healthy sexual functioning and quality of life [30]. Cancer patients report these symptoms more frequently, but they are often overlooked, leading to depression and reduced marital quality of life [31]. Lubricants such as KY jelly and similar substitutes are considered safe for sexual activity and do not increase the risk of HIV or other STIs.

In cervical cancer patients receiving RT, hyaluronic acid may aid vaginal mucosal recovery, while α -tocopherol and vitamin E suppositories may help reduce RT related vaginal side effects and vaginal atrophy, especially in postmenopausal women who cannot use hormone therapy [32-36]. A simple, well-established remedy for dyspareunia is currently lacking. Therefore, the investigator planned to evaluate the efficacy of Jatyadi oil as a potential therapeutic option. In traditional Indian medicine, medicated herbal oils are widely used for healing. Jatyadi oil has been used in atrophic vaginitis, episiotomy wounds, perineal tears, radiation induced dermatitis, chronic wounds, ulcers, eczema, burns, fistula and non-healing ulcers with reported antibacterial and wound-healing properties and topical application 2-3 times daily, with no major adverse effects reported [37,38]. Jatyadi oil is a polyherbal formulation containing 17 therapeutic ingredients, providing antimicrobial, antibacterial, astringent, antiseptic, anti-inflammatory and antioxidant properties. It is commercially available, ISO certified and permitted by the Department of AYUSH. It is also approved by drug licensing authorities and R.A. Podar Central Ayurveda Research Institute. Jatyadi oil promotes regeneration of healthy epithelial cells, maintains pH around 5.6 has an acid value <4.0 , and helps reduce inflammation and erythema [39,40]. It improved cervical erosion and reduced dyspareunia by [41,42]. Despite these benefits, evidence on Jatyadi oil for dyspareunia in gynecological cancer survivors remains limited. Recognizing this knowledge gap, the present study aims to evaluate its effectiveness in reducing dyspareunia in this population. Primary objectives: To assess the feasibility of ayurvedic oil (Jatyadi oil) application on patients with dyspareunia who have undergone radiation treatment for gynecological cancers – Phase I. Secondary Objectives: To know the association between the demographic data, clinical data and dyspareunia (lubrication and pain) Materials and methods - quantitative research

approach The study adopted a single arm experimental design in which a single cohort of participants underwent pre intervention assessment followed by the intervention and subsequent post intervention evaluation. A total of 20 participants were recruited using a convenience sampling technique based on predefined selection criteria. The study obtained the Institutional Ethics Committee (IEC) (4735) and registration with the Clinical Trials Registry of India is CTRI/2025/08/092893

1.1. Inclusion Criteria

- Women ≥ 18 years of age with gynecological cancer (cervical, endometrium, vulvar and vaginal)
- Who have undergone surgery (hysterectomy, BSOH and RPLND) and adjuvant RT
- EBRT (up to 70 CGy) alone or BT alone or in combination.
- EBRT (up to 70 CGy) \pm BT \pm Concurrent chemo – radiation
- Post completion of 6 months of radiation treatment, till 18 months.
- Who are sexually active/desirous of.
- Who are willing to participate in the study.

- Exclusion criteria
- Patients who were hypersensitive to Jatyadi oil.
- Not interested or desirous of sexual activity.

Data collection tool - The Female Sexual Function Index (FSFI) consisted of 19 items that were distributed across six domains of sexual function. The minimum and maximum scorings were 2 and 36. Higher scores indicated better sexual function Permission obtained from the authors for the use of english and hindi version [43,44].

1.2. Baseline (1st point) Assessment was Carried out Using the FSFI tool to Assess

1.2.1. Dyspareunia

Intervention with jatyadi oil started on day 0 with explanation of Jatyadi oil application with the help of a picture Participants were instructed to apply the oil 3 – 4 ml three times daily for 28 days [45,46]. Compliance was monitored through telephonic interaction and a log book maintenance

Analysis and interpretation of data

Demographic Variables	Number of participants	Percentage
Age Group (yrs)		
18 – 30	1	5.0
31 – 40	8	40.0
41 – 50	7	35.0
51 – 60	4	20.0
61 – 70	0	0.0
Age – Mean (SD)	42.4 (8.8)	
Monthly Family Income (Rs)		
< 10000	4	20.0
10001 – 30000	7	35.0
30001 – 50000	4	20.0
50001 - 70000	3	15.0
> 70001	2	10.0
Marital Status		
Married	20	100.0
Unmarried	0	0.0
Menstrual History		
Regular	13	65.0
Irregular	7	35.0

Table 1: Distribution of Participants as per Demographic Variables n = 20

Clinical Data	Number of Participants	Percentage
Diagnosis		
Ca Cervix	16	80.0
Ca Endometrium	1	5.0
Ca Vulva	0	0.0
Ca Vagina	3	15.0
External Beam Radiation Therapy (EBRT)		
Yes	20	100.0
No	0	0.0
Dose of EBRT		
4000 – 4500 CGY	13	65.0
4600 – 5000 CGY	7	35.0
> 5001 CGY	0	0.0
Brachytherapy		
Yes	20	100.0
No	0	0.0
Type of Brachytherapy		
Intracavitary	16	80.0
Vaginal	4	20.0
Interstitial	0	0.0
Dose of Brachytherapy – Mean (SD)	14 (6.7)	
Surgery performed		
Yes	5	25.0
No	15	75.0
Name of Surgery		
Surgery not performed	15	75.0
TAH and BSO	1	5.0
Vaginal Hysterectomy	1	5.0
TAH	1	5.0
RTAH + B/L Salpingectomy + B/L ovarian transposition	1	5.0
Radical Hysterectomy, BSO, BPLND, Omentectomy	1	5.0
Vaginal Dilatation Exercise (VDE)		
Yes	16	80.0
No	4	20.0
Frequency of VDE		
Not at all	4	20.0
Twice a day	0	0.0
Daily once	6	30.0
2-3 times in a week	2	10.0
Weekly once	8	40.0
Sexually Active		
Yes	19	95.0
No	1	5.0
Frequency of Sexual Activity		

Not at all	1	5.0
2 – 3 times per week	2	10.0
Weekly once	5	25.0
Two to three a month	10	50.0
Once a month	2	10.0
Once or twice a year	0	0.0

Table 2: Distribution of Participants as per Clinical Data n = 20

Feasibility Status	No of participants	Percentage	95% CI for proportion*	p - value
Feasible (≥ 50 application)	19	95	75.1 to 99.8	0.00004005
Not feasible	1	5	0.12 to 24.8	

Table 3 : Distribution of Participants as per Application of Jatyadi Oil. n = 20

Adverse Side Effect of Jatyadi oil application	No of participants	Percentage	95% CI for proportion*	p - value
Yes	1	5	0.12 to 24.8	0.00004005
No	19	95	75.1 to 99.8	

Table 4: Table 4: Distribution of Participants as Per Adverse Side Effect of Jatyadi Oil Application. n = 20

FSFI Domains	Minimum Score	Maximum Score	Mean	SD
Desire score	2.4	6	3.8	1.2
Arousal score	0	5.1	3	1
Lubrication score	0	4.5	2.8	1
Orgasm score	0	5.2	3	1.1
Satisfaction score	0.8	4	3	0.8
Pain score	0	4	2.4	1.1
Total Score	6.2	28	18.1	4.7

Table 5: 1st Point Assessment of FSFI Domains and Standardized Scoring System (Day 0) n = 20

where higher scores indicate better sexual functioning. The 1st point assessment (Day 0) the minimum total score was 6.2 and the maximum was 28. The mean total score was 18.1 ± 4.7 suggesting overall sexual functioning among participants was impaired at baseline.

1.2.2. Domain-wise Analysis

- Desire: Scores ranged from 2.4 to 6.0 with a mean of 3.8 ± 1.2 , indicating that sexual desire was relatively better preserved compared to other domains, although not optimal.
- Arousal: Scores ranged from 0 to 5.1 with a mean of 3.0 ± 1.0 . The presence of minimum scores (0) shows that some participants experienced complete lack of arousal.
- Lubrication: Scores ranged from 0 to 4.5 with a mean of 2.8 ± 1.0 , again reflecting partial or absent lubrication function

among some participants.

- Orgasm: Scores ranged from 0 to 5.2 with a mean of 3.0 ± 1.1 , showing that some participants were unable to achieve orgasm, while others reported only moderate satisfaction.
- Satisfaction: Scores ranged from 0.8 to 4.0 with a mean of 3.0 ± 0.8 , which is below the ideal maximum (6.0), suggesting reduced sexual satisfaction among the majority of participants.
- Pain: Scores ranged from 0 to 4.0 with a mean of 2.4 ± 1.1 , indicating that pain during sexual activity was a significant concern. Some participants scored 0, reflecting severe pain or inability to engage sexually, while even the highest scores were below the maximum, showing that mild to moderate discomfort was common. Overall, pain was a major factor contributing to impaired sexual functioning at baseline.

FSFI Domains	Minimum Score	Maximum Score	Mean	SD
Desire score	1.2	5.4	3.8	0.9
Arousal score	3.3	6	4.6	0.7
Lubrication score	4.2	6	5.7	0.5
Orgasm score	4	6	5.1	0.7
Satisfaction score	2	6	5.1	0.9
Pain score	4.4	6	5.7	0.5
Total Score	21.6	35.4	30.1	3.2

Table 6: 2nd Point Assessment of FSFI Domains and Standardized Scoring System (Day 28) n=20

the minimum total score was 21.6 and the maximum was 35.4, showing that most participants experienced substantial improvement in sexual function compared to baseline. The mean total score was 30.1 ± 3.2 , which was well above the midpoint (18.0) of the standardized range, suggesting overall enhanced sexual functioning among participants at Day 28.

1.2.3. Domain-wise Analysis

- Desire: Scores ranged from 1.2 to 5.4 with a mean of 3.8 ± 0.9 , indicating that sexual desire had improved moderately compared to baseline and was relatively preserved among participants.
- Arousal: Scores ranged from 3.3 to 6.0 with a mean of 4.6 ± 0.7 , reflecting good improvement in arousal, though some participants still experienced suboptimal arousal levels.
- Lubrication: Scores ranged from 4.2 to 6.0 with a mean of

5.7 ± 0.5 , showing that lubrication function had significantly improved, with most participants approaching the maximum score.

- Orgasm: Scores ranged from 4.0 to 6.0 with a mean of 5.1 ± 0.7 , indicating marked improvement in orgasmic function; participants generally reported good satisfaction in this domain.
- Satisfaction: Scores ranged from 2.0 to 6.0 with a mean of 5.1 ± 0.9 , suggesting that participants experienced high levels of sexual satisfaction post-intervention.
- Pain: Scores ranged from 4.4 to 6.0 with a mean of 5.7 ± 0.5 , reflecting that pain during sexual activity was minimal for most participants. This improvement indicates that pain, which was a major concern at baseline, had largely resolved by Day 28.

FSFI Tool	Day 0		Day 28	
	Mean	SD	Mean	SD
Desire score	3.8	1.2	3.8	0.9
Arousal score	3	1	4.6	3.3
Lubrication score	2.8	1	5.7	0.5
Orgasm score	3	1.1	5.1	0.7
Satisfaction score	3	0.8	5.1	0.9
Pain score	2.4	1.1	5.7	0.5
Total Score	18.1	4.7	30.1	3.2

Table 7: Comparison of FSFI Domains and Standardized Scoring System between day 0 and day 28 n = 20

the mean total score increased markedly to 30.1 ± 3.2 , indicating a substantial improvement in overall sexual function following the intervention.

1.2.4. Domain-Wise Analysis

- Desire: The mean score remained at 3.8 ± 1.2 (Day 0) and 3.8 ± 0.9 (Day 28), suggesting that sexual desire was relatively stable and moderately preserved both before and after intervention.
- Arousal: Mean score improved from 3.0 ± 1.0 to 4.6 ± 3.3 , reflecting enhanced physiological readiness and increased sexual excitement after Jatyadi oil use.
- Lubrication: Mean score rose significantly from 2.8 ± 1.0 to 5.7

± 0.5 , showing a marked improvement in vaginal lubrication and moisture levels, indicating the oil's effectiveness in relieving radiation-induced vaginal dryness.

- Orgasm: Mean score increased from 3.0 ± 1.1 to 5.1 ± 0.7 , suggesting improved ability to achieve orgasm and greater sexual pleasure after the intervention.
- Satisfaction: Mean score improved from 3.0 ± 0.8 to 5.1 ± 0.9 , showing a notable rise in overall sexual satisfaction and emotional fulfillment.
- Pain: Mean score showed the most remarkable improvement from 2.4 ± 1.1 to 5.7 ± 0.5 — indicating a significant reduction in dyspareunia after 28 days of Jatyadi oil application. This improvement reflects enhanced comfort during sexual activity

and supports the efficacy of the intervention in promoting vaginal healing and reducing post-radiation discomfort

FSFI Domains	Question Number	Day 0		Day 28	
		Mean	SD	Mean	SD
Desire	1	3.2	1.1	3.25	1.02
	2	3.1	1	3.1	0.72
Arousal	3	2.7	1.1	3.7	0.8
	4	2.6	1.1	3.45	0.6
	5	2.2	0.7	4.3	0.73
	6	2.4	1	4	1.17
Lubrication	7	2.2	0.9	4.7	1.17
	8	2.4	1.1	4.7	0.67
	9	2.4	0.8	4.65	0.67
	10	2.4	1.2	4.8	0.41
Orgasm	11	2.5	1.1	4	0.92
	12	2.4	1.1	4.45	0.69
	13	2.6	1	4.25	0.97
Satisfaction	14	2.6	1	4.25	0.97
	15	2.4	0.7	4.3	0.8
	16	2.5	0.7	4.3	0.8
Pain	17	2	1.1	4.75	0.44
	18	1.9	0.9	4.85	0.37
	19	2.1	1	4.75	0.64

Table 8: Comparison of individual FSFI Questionnaire Items between day 0 and day 28 n = 20

1.2.5. Desire Domain

- **Q1** (Frequency of sexual desire/interest): Slight increase from 3.2 ± 1.1 (Day 0) to 3.25 ± 1.02 (Day 28) indicating that participants frequency of desire remained relatively stable with minor improvement.

- **Q2** (Level of sexual desire/interest): Remained 3.1 ± 1.0 (Day 0) to 3.1 ± 0.72 (Day 28) showing maintained interest in sexual activity.

Interpretation: Desire was relatively preserved at baseline and remained stable after intervention.

1.2.6. Arousal Domain

- **Q3** (Frequency of arousal): Increased from 2.7 ± 1.1 to 3.7 ± 0.8 showing participants experienced more frequent arousal during sexual activity.

- **Q4** (Level of arousal): Rose from 2.6 ± 1.1 to 3.45 ± 0.6 reflecting enhanced sexual excitement.

- **Q5** (Confidence in becoming aroused): Improved from 2.2 ± 0.7 to 4.3 ± 0.73 suggesting participants felt more confident in their sexual responsiveness.

- **Q6** (Satisfaction with arousal): Increased from 2.4 ± 1.0 to 4.0 ± 1.17 , indicating greater satisfaction with sexual excitement.

- **Interpretation:** Significant improvement in arousal suggests the

oil enhanced physiological readiness and sexual confidence.

1.2.7. Lubrication Domain

- **Q7** (Frequency of becoming lubricated): Rose from 2.2 ± 0.9 to 4.7 ± 1.17 showing better vaginal moisture during sexual activity.

- **Q8** (Difficulty in becoming lubricated): Increased from 2.4 ± 1.1 to 4.7 ± 0.67 indicating less difficulty in achieving lubrication.

- **Q9** (Frequency of maintaining lubrication): Improved from 2.4 ± 0.8 to 4.65 ± 0.67 reflecting consistent lubrication until completion.

- **Q10** (Difficulty in maintaining lubrication): Rose from 2.4 ± 1.2 to 4.8 ± 0.41 suggesting ease in sustaining lubrication during intercourse.

- **Interpretation:** Lubrication showed substantial improvement, indicating that Jatyadi oil effectively reduced vaginal dryness.

1.2.8. Orgasm Domain

- **Q11** (Frequency of orgasm): Increased from 2.5 ± 1.1 to 4.0 ± 0.9 showing participants were more able to achieve orgasm.

- **Q12** (Difficulty reaching orgasm): Rose from 2.4 ± 1.1 to 4.45 ± 0.69 indicating reduced difficulty and greater ease in climaxing.

- **Q13** (Satisfaction with orgasm): Increased from 2.6 ± 1.0 to 4.25 ± 0.97 reflecting greater orgasmic satisfaction.

- **Interpretation:** Orgasmic function improved notably, indicating

enhanced sexual pleasure post- intervention.

1.2.9. Satisfaction Domain

- **Q14** (Emotional closeness during sexual activity): Increased from 2.6 ± 1.0 to 4.25 ± 0.97 suggesting better emotional intimacy and fulfillment.
- **Q15** (Satisfaction with sexual relationship): Improved from 2.4 ± 0.7 to 4.3 ± 0.8 reflecting enhanced relationship satisfaction.
- **Q16** (Overall sexual life satisfaction): Rose from 2.5 ± 0.7 to 4.3 ± 0.8 indicating overall improved sexual contentment.
- **Interpretation:** Emotional and relational satisfaction improved alongside physical sexual function.

1.2.10. Pain Domain Findings

- **Q17** (Discomfort during vaginal penetration): The mean score increased from 2.0 ± 1.1 (Day 0) to 4.75 ± 0.44 (Day 28) indicating a substantial reduction in pain during penetration after 28 days of Jatyadi oil application.
- **Q18** (Discomfort after penetration): Scores rose from 1.9 ± 0.9 to 4.85 ± 0.37 reflecting minimal post-coital discomfort following the intervention.
- **Q19** (Overall pain intensity): Increased from 2.1 ± 1.0 to 4.75 ± 0.64 showing significant relief from dyspareunia.

• **Interpretation:** The pain domain showed the most remarkable improvement among all FSFI domains, confirming that Jatyadi oil was effective in alleviating vaginal discomfort and pain related to RT. This reduction in dyspareunia likely contributed to enhanced sexual comfort and overall function in the study population.

1.2.11. Summary of FSFI Findings

Following 28 days of Jatyadi oil application analysis of all 19 FSFI items revealed:

- Improvement across all domains with the most pronounced changes observed in pain, lubrication, arousal and orgasm.
- Desire domain remained relatively stable suggesting that while physiological and comfort factors improved significantly, sexual interest itself was maintained rather than markedly increased.
- The intervention enhanced vaginal lubrication, reduced dyspareunia, improved arousal and orgasmic ability and increased overall sexual satisfaction.
- These findings demonstrate that Jatyadi oil application is a safe and effective therapeutic measure to improve sexual function and reduce radiation-induced dyspareunia in gynecological cancer survivors.

Clinical data	n	Lubrication		p – value
		Median	IQR	
Ca Cervix	16	2.7	2.17, 3.52	0.468
Ca Endometrium	1	3.3	1	
Ca Vagina	3	2.7	3	
Ca Vulva	0	-	-	
EBRT Dose		Mean	SD	
4000 - 4500	13	2.81	1.17	0.979
4600 - 5000	7	2.83	0.85	
> 5001 CGY	0	-	-	
VDE		Mean	SD	0.302
Yes	16	2.9	0.78	
No	4	2.32	1.85	
Sexually active		Median	IQR	0.095
Yes	19	2.7	2.4, 3.3	
No	1	0	0	

Table 9: Association between the Clinical Data With Lubrication Score n = 20

Clinical data	N	Pain score		P – value
		Mean	SD	
Ca Cervix	16	2.54	1.14	0.764
Ca Endometrium	1	2.4	0	
Ca Vagina	3	2	1.06	
Ca Vulva	0	-	-	

EBRT Dose		Mean	SD	0.908
4000 - 4500	13	2.46	1.2	
4600 - 5000	7	2.4	0.9	
> 5001 CGY	0	-	-	
VDE		Mean	SD	0.937
Yes	16	2.45	0.98	
No	4	2.4	1.6	
Sexually active		Mean	SD	0.016
Yes	19	2.57	0.94	
No	1	0	0	

Table 10: Association Between the Clinical Data with Pain Score n = 20

Demographic data	N	Lubrication		p – value
Age group (yrs)		Mean	SD	
18 – 30	1	2.1	0	0.239
31 - 40	8	2.5	1.4	
41 – 50	7	2.7	0.5	
51 – 60	4	3.8	0.9	
61 – 70	0	-	-	
Monthly family income (Rs)		Median	IQR	0.891
< 10000	4	2.7	2.25, 3.37	
10001 – 30000	7	2.7	2.4, 3.3	
30001 - 50000	4	3.3	1.87, 4.5	
50001 – 70000	3	3	3	
> 70001	2	2.4	2	

Table 11 : Association Between the Demographic Data with Lubrication Score n = 20

Demographic data	N	Pain score		p – value
Age group (yrs)		Median	IQR	
18 – 30	1	1.2	0	0.235
31 - 40	8	1.6	1.2, 3.6	
41 – 50	7	2.8	2.5, 3.2	
51 – 60	4	3	2.4, 3.6	
61 – 70	0	-	-	
Monthly family income (Rs)		Mean	SD	0.627
< 10000	4	2	1.13	
10001 – 30000	7	2.74	0.78	
30001 - 50000	4	2.9	0.94	
50001 – 70000	3	2.13	2.01	
> 70001	2	1.8	0.85	

Table 12 : Association between the Demographic Data with Pain Score n = 20

2. Discussion

Dyspareunia following RT in gynecological cancers survivors emerged as a notable late effect that impacts sexual functioning and quality of life. This Phase I feasibility study aimed at assessing the application of Jatyadi oil in women with radiation induced dyspareunia. The study enrolled 20 participants who received intervention and has completed the intervention of application and follow up for 28 days without any complication and no adverse side effects were reported showing that the intervention is both safe and feasible. They found the oil simple to apply and acceptable for regular use. In this study, feasibility was checked by daily application of Jatyadi oil and monitoring for any adverse effects along with baseline assessment of sexual functioning using the FSFI tool. Thus, the present study demonstrates that Jatyadi oil application is feasible, safe and acceptable for women (95% CI for feasibility ranging from 75.1% to 99.8%) with radiation induced dyspareunia. These findings provide a strong foundation for a Phase II efficacy trial to further evaluate its effectiveness in improving sexual functioning and quality of life among gynecological cancer survivors. Datta et al. conducted a large longitudinal study among 132 endometrial cancer survivors to assess sexual health and quality of life using the FSFI and FACT-G tools. Their findings revealed that sexual dysfunction persisted in 89% of participants even one year post-therapy, indicating that long-term impairment in sexual health is a common consequence of gynecological cancer treatment. In our study too, the pain FSFI score at baseline was ranging from 6.2 to 28.0 (Mean = 18.1, SD = 4.7) which was higher at the baseline data post 6 months. This indicated that all participants were experiencing pain as a part of sexual dysfunction.

Siqueira et al. reported a very high prevalence of vaginal stenosis and sexual dysfunction among cervical 88% and endometrial 91% cancer survivors after pelvic radiation. Their study showed decreased vaginal length, altered vaginal dimensions and impaired sexual function measured by FSFI. Importantly they highlighted that sexual dysfunction was common across both cancer types with no significant differences in quality-of-life scores. In our study too the baseline FSFI scores also reflected significant dysfunction across all domains. The mean desire score 3.8 ± 1.2 , arousal score 3 ± 1 , lubrication score 2.8 ± 1.0 , orgasm score 3.0 ± 1.1 , satisfaction score 3.0 ± 0.8 and pain score 2.4 ± 1.1 were all lower than normal cut-off values with a mean total score of 18.1 ± 4.7 . These findings are consistent with Siqueira et al., as both studies demonstrate that women experience multidomain sexual dysfunction following RT irrespective of diagnosis or treatment type. Kollberg et al. found that 67% of gynecological cancer survivors experienced dyspareunia following RT with 55% reporting superficial pain 40% deep pain and 36% experiencing both. In our study, dyspareunia was reflected in the pain domain of the FSFI, where the mean score was 2.4 ± 1.1 . This score indicates a significant level of discomfort during sexual activity. Lubrication scores were also reduced mean 2.8 ± 1.0 , further supporting the association between inadequate lubrication reduced elasticity and pain. Singh S and Tiwari S evaluated Jatyadi oil's efficacy in perineal wound management, finding it safe and effective with no

adverse side effects even in surgical wounds. Their findings which included successful application three times daily for 10 days in two treatment groups implied the practical feasibility of Jatyadi oil in a clinical setting. Our study strongly supports and extends these findings. We observed 95% feasibility of Jatyadi oil application among our 20 participants with all reporting ≥ 50 applications, directly demonstrating its high practical applicability. Agreeing with Singh and Tiwari none of our participants reported any adverse side effects like itching, burning, discomfort, peeling of skin and redness from the Jatyadi oil application further strengthening the evidence base for its excellent safety profile. Jatale U. et al. conducted a case study demonstrating the effectiveness of Jatyadi oil for atrophic vaginitis, noting significant symptom improvement and importantly reporting no side effects over a six-week treatment period with twice-daily vaginal application.

While their study focused on effectiveness and safety, the successful long-term application implies a degree of patient adherence and therefore, feasibility in a different anatomical region (25). In our study too we directly quantify this aspect of feasibility in perineal wound care. We found that all 20 participants (95%) considered the application of Jatyadi oil feasible with each completing at least 50 applications out of a possible 84 application over a 28 day period (representing 60% completion). This was further supported by a 95% CI of 75.1% to 99.8%, indicating that Jatyadi oil application is highly feasible for all participants in our study. Seta F. D. et al. evaluated Meclon Idra, a newly formulated vaginal gel containing a blend of sea buckthorn oil, aloe vera and hyaluronic acid demonstrating its safety, tolerability and clinical efficacy over a 12-week application period for vulvovaginal atrophy. This study focusing on a modern pharmacological product, implicitly confirms the feasibility of consistent patient adherence to a regular topical regimen. Our study investigated Jatyadi oil an Ayurvedic product with a long history of traditional use. Despite this difference in product origin and composition, our findings strongly support the principle of high patient feasibility for intravaginal and topical applications. We found that 95% of our participants considered the application of Jatyadi oil feasible, consistently completing at least 50 out of 84 possible applications over a 28 days duration. This high feasibility supported by a 95% CI of 75.1% to 99.8%, indicates that Jatyadi oil, a traditional ayurvedic preparation is user friendly and well accepted by patients. This directly complements the use highlighting that both conventional and traditional treatments can achieve high patient adherence when they are seen as effective and easy to incorporate into daily routines.

2.1. Limitations

- A convenient sampling technique was employed. The sample size was limited to 20 participants. The study faced time constraints. There was a lack of prior research available on this topic.

2.2. Recommendations

- Good Clinical Practice Guidelines should be developed to address the care of sexual health and dyspareunia in gynecological cancer survivors undergoing.
- A standardized protocol incorporating Jatyadi oil application for

perineal care should be established to manage vaginal dryness and pain effectively.

- The daily application of Jatyadi oil combined with proper perineal hygiene education should be integrated into routine nursing care for survivors experiencing sexual dysfunction post-radiation.
- Educational booklets and training modules should be created to enhance nurses' knowledge and skills in assessing and managing dyspareunia including culturally sensitive communication techniques.
- Promotion of nurse-led interventions and regular follow-up along with use of validated tools like the FSFI should be encouraged to monitor treatment adherence and outcomes.

3. Conclusion

This study demonstrates that Jatyadi oil is a safe, feasible and effective intervention to alleviate symptoms of dyspareunia among gynecological cancer survivors following RT. The intravaginal application was highly feasible with 95% of participants completing the prescribed schedule while only 5% did not meet the feasibility criteria. In terms of safety 95% of participants reported no adverse effects such as itching, burning, redness, peeling of skin or discomfort, whereas 5% experienced discomfort. The use of FSFI provided objective evidence of significant improvement in lubrication and pain scores after intervention indicating enhanced sexual health and vaginal comfort. The high adherence rate and minimal side effects highlight Jatyadi oil as a well-tolerated, acceptable and beneficial supportive care measure for improving sexual well-being and quality of life in gynecological cancer survivors. Nurses play a pivotal role in implementing this intervention by educating patients assessing sexual dysfunction routinely and providing empathetic support which collectively contribute to improved quality of life. The findings of this study highlight the importance of integrating complementary therapies such as Jatyadi oil into conventional oncology care thereby fostering holistic survivorship care.

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