



# **Evaluation of the Effect of Mode of Delivery on Female Sexual Function**

*Thesis*

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*By*

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## **ABSTRACT**

**Introduction.** Exploring the hypothesis that “sexual function” is associated with mode of delivery is important, because sexual health is an integral part of general health.

**Aim.** The aim of this study was to evaluate the relationship between mode of delivery and subsequent incidence of sexual dysfunction and impairment of sexual quality of life (SQoL) in women.

**Main Outcome Measures.** Sexual function as well as sexual quality of life of females were assessed using Female Sexual Function Index (FSFI) and sexual quality of life – female (SQoL-F).

**Methods.** A total of 100 women (mean age  $29.1 \pm 3.11$  years, range 25–35 years) were recruited in this cross sectional study. Females were divided into two groups according to their mode of delivery, including: group A, normal labour (NL) (group NVD, N = 45); group B, cesarean section (C/S) (group C/S, N = 55).

**Results.** The mean period for resumption of sexual intercourse 1<sup>st</sup> intercourse after the 1<sup>st</sup> labour was  $6.1 \pm 1.92$  weeks. There was significant difference in mean score of FSFI before and after C/S ( $P = 0.04$ ), while no

difference was observed in NL ( $P = 0.07$ ). Desire domain score showed significant difference between pre and post 1st labour for both NL ( $P = 0.001$ ) and C/S ( $P = 0.01$ ) while orgasm, satisfaction and pain domains showed no significant difference. Arousal and lubrication domains scores showed significant difference between pre and post 1st labour in NL where  $P$  equals 0.01 and 0.03 respectively, while they showed no significant difference in C/S. The research showed no significant difference in standardized score of SQoL-F between NL and C/S groups. The most important significant factor for prediction of SQoL-F score was assistance in house work.

**Conclusions.** NL is associated with the higher rate sexual dysfunction in comparison with C/S in contrast to SQoL-F which is not similarly affected.

**Key Words.** Post-partum; Sexual Dysfunction; Mode of Delivery; NL; C/S; FSFI; SQoL-F.

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## **Abbreviations**

<b>AFUD</b>	American Foundation of Urological Diseases
<b>C/S</b>	Cesarean Section
<b>COPD</b>	Chronic Obstructive Pulmonary Disease
<b>DEOR</b>	Desire, Excitement, Orgasm and Resolution
<b>DHS</b>	Demographic and Health Survey
<b>DM</b>	Diabetes Mellitus
<b>DSM-IV TR</b>	Diagnostic and Statistical Manual of Mental Disorders
<b>ED</b>	Erectile Dysfunction
<b>EPOR</b>	Excitement, Plateau, Orgasm and Resolution
<b>FGM</b>	Female Genital Mutilation
<b>FGM/C</b>	Female Genital mutilation /Cutting
<b>FOD</b>	Female Orgasmic Disorder
	Fourth Edition, Text Revision
<b>FSAD</b>	Female Sexual Arousal disorder
<b>FSD</b>	Female Sexual Dysfunction
<b>FSFI</b>	Female Sexual Function Index
<b>GAD</b>	Generalized Anxiety Disorder
<b>HbA1c</b>	Glycated Hemoglobin
<b>HSDD</b>	Hypoactive Sexual Desire Disorder
<b>ICD-10</b>	International Classification of Diseases, Tenth Revision
<b>IUD</b>	Intrauterine Device
<b>MPOA</b>	Medial Preoptic Area

## *List of Abbreviations*

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<b>ND</b>	Normal Delivery
<b>NL</b>	Normal Labour
<b>NO</b>	Nitric Oxide
<b>NPT</b>	Nocturnal Penile Tumescence
<b>NRC</b>	National Research Center
<b>NVD</b>	Normal Vaginal Delivery
<b>OCD</b>	Obsessive Compulsive Disorder
<b>OCPs</b>	Oral Contraceptive Pills
<b>PAHO</b>	Pan American Health Organization
<b>PDE</b>	Phosphodiesterase Enzyme
<b>PFE</b>	Pelvic Floor Exercise
<b>PND</b>	Postnatal Depression
<b>PPFSD</b>	Postpartum Female Sexual Dysfunction
<b>PVN</b>	Paraventricular Nucleus
<b>QoL</b>	Quality of Life
<b>SD</b>	Sexual Dysfunction
<b>SQoL</b>	Sexual Quality of Life
<b>SQoL- F</b>	Sexual Quality of Life-Female
<b>SSRIs</b>	Selective Serotonin Reuptake Inhibitors
<b>STAH</b>	Subtotal Abdominal Hysterectomy
<b>SUI</b>	Stress Urinary Incontinence
<b>SWAN</b>	Study of Women's Health across the Nation
<b>TAH</b>	Total Abdominal Hysterectomy
<b>VD</b>	Vaginal Delivery

*List of Abbreviations*

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**VIP**            Vasoactive Intestinal Polypeptide

**WHO**           World Health Organization

## **Introduction**

Sexual health is an important and crucial part of general health as it affects quality of life (QoL). Sexual dysfunction (SD) is a fairly common problem in both women & men (*Safarinejad, 2006*). Female sexual dysfunction (FSD) is a prevalent problem affecting approximately 40% of women with higher prevalence among less educated women (*Singh et al., 2009*).

A study was carried in Upper Egypt found that the prevalence FSD was 76.9%. Low sexual desire was the most common sexual problem with a prevalence of 66.4% (*Hassanin et al., 2010*). In another study the prevalence of FSD in Lower Egypt was 68.9% (*Elnashar et al., 2007*).

Sexual dysfunction is a possible complication of child birth to the extent that it attracts significant attention nowadays. Sexual function has to be considered during planning mode of delivery. Both pregnancy & delivery may cause anatomical & functional changes in pelvic floor muscles & intrapelvic organs. We may assume that, most probably, the mode of delivery is responsible for any change in sexual function (*Safarinejad et al., 2009*).

## *Introduction*

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Vaginal delivery (VD) may cause injury of the pudendal nerve which is responsible of transmission of sensory & motor impulses to & from female external genitalia through dorsal nerve of the clitoris & perineal nerve (*Pollack et al., 2004*). Vaginal delivery may also cause anal sphincter injury & dysparunia (*Nicholas et al., 2004*). Primiparae who delivered vaginally reported decreased sexual sensations & worsened sexual satisfaction in the 1<sup>st</sup> 6 weeks to 6 months after delivery (*Klien et al., 2009*)

Despite that obstetric practice guidelines aim at reducing number of cesarean sections, There has been increasing number of women demanding cesarean sections in addition of change of attitudes of obstetricians & midwives toward cesarean section (*Impey & Boylan, 1999*).

Sexual dysfunction is a potential risk for child birth. Female sexual dysfunction is an annoying problem as it has great impact on patient self-esteem, quality of life & interpersonal relationships (*Singh et al., 2009*).

## **Aim of work**

### **❖ Goal:**

This study aims at detecting the prevalence of female sexual dysfunction in both normal labour and cesarean section

### **❖ Objectives:**

- 1) To assess females' sociodemographic background, medical history, obstetric and gynecological history and life style.
- 2) To assess the female sexual quality of life.
- 3) To assess the female sexual function.
- 4) To evaluate the female sexual quality of life and function according to mode of delivery.

## **Anatomy of female genital organs**

Female genital organ is formed of two parts the external genitala - which is known as the vulva- and the internal genitalia. Female external genitalia includes the mons pubis, labia majora and minora, clitoris, hymen, vestibule, urethral opening, and various glandular and vascular structures. These structures are localized under the urogenital diaphragm and behind the symphysis pubis (*Masters & Johnson, 1966*).

### **Anatomy of female external genitalia**

#### **A) Mons pubis.**

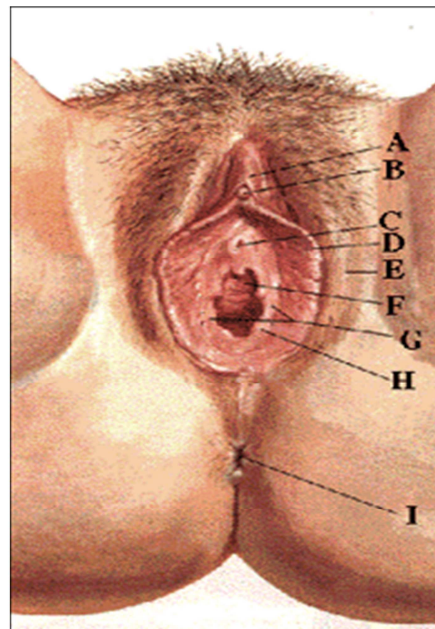
It is a fat-filled cushion lying over symphysis pubis. The skin of the mons pubis is covered by curly hair with triangular in shape where its base is formed by the upper margin of the symphysis pubis (*Cunningham et al., 1993*).

#### **B) Labia majora**

Labia majora are two skin folds 7-8cm in length, 2-3 cm in width, 1-1.5 cm in thickness, and tapered at the lower ends. Before puberty, the outer



surface of the labia is similar to that of the adjacent skin, but after puberty the labia majora are covered with hair. The labia majora are richly supplied with sebaceous glands. Under the skin, there is a layer of connective tissue rich in elastic fibers, adipose tissue, venous plexuses but with no muscle fibers (*Shafik et al., 2004*).



**A: Clitoral hood**

**B: Clitoris**

**C: Urethral opening**

**D: Labia minora**

**E: Labia majora**

**F: Opening of Vagina**

**G: Vestibule**

**H: Residual Hyman**

**I: Opening of Anus**

**Fig (1): Anatomy of female external genitalia.**

The labia majora vary in appearance according to the amount of fat within the tissues. In multiparous women the labia majora are less prominent and the inner surface is more skin like. They may merge posteriorly into the perineum to form the posterior commissure. In nulliparous women the labia majora are more prominent and the inner surface is more like a mucous membrane. They usually lie in close apposition (*Cunningham et al., 1993*).

### **C) Labia minora:**

Labia minora are two small moist and red cutaneous folds 3-4 cm long. They are similar in appearance to a mucous membrane and are covered by stratified squamous epithelium. The tissues of the labia minora converge superiorly, where each is divided into two lamellae; the lower pair fuse to form the frenulum of the clitoris, and the upper pair merge to form the prepuce. Inferiorly, the labia minora extend to approach the midline as low ridges of tissue that fuse to form the fourchette (*Sakamoto et al., 2004*).

Labia minora are rich in sebaceous follicles with few sweat glands. The interior of the labial folds is composed of connective tissue with many vessels and some smooth muscular fibers. They are supplied with a variety

of nerve endings and are extremely sensitive. In multiparas women, it is common for the labia minora to project beyond the labia majora. In nulliparous women, they are usually not visible behind the non separated labia majora (*Pardo et al., 2006*).

#### **D) The clitoris:**

The clitoris is an erectile organ approximately 2 cm in length. The clitoris is the principal female erogenous organ and it is homologous to penis. Clitoris is located in the upper part of the vulva between the folds of the labia minora. Its free end points downward toward the vaginal opening. The clitoris is composed of a glans, corpus formed of two corpora cavernosa, and two crura covered by the prepuce (*Yang et al., 2006*).

The glans is usually less than 0.5 cm in diameter that covers the distal part of the corpora cavernosa. It is made up of spindle-shaped cells and covered by stratified squamous epithelium that is richly supplied with nerve endings. The corpora cavernosa is 1–3 cm long in the flaccid state. The corpus is attached to the mons pubis and symphysis pubis by the suspensory ligament (*Dickinson, 1949*). They are made of cavernous erectile tissue covered by the tunica albuginea. The corpora cavernosa have the same

structure as the male penis. They are erected to go back and up to the glans with sexual arousal but they lack a subalbugineal layer that would reduce venous outflow producing rigidity (*Berman et al., 2001*).

The crura arise from the inferior surface of the ischiopubic rami and fuse just below the middle of the pubic arch to form the corpus. The prepuce covers all or part of the glans, its size varies considerably, and it is just like the foreskin of the male penis (*Williams et al., 1995*). *Verkauf et al.* in a prospective study measured the clitoris during routine gynecological examination. They suggested that the clitoral dimensions are not influenced by age, height, weight, or current use of oral contraceptives, but in pregnant women it was significantly larger. The clitoral sexual response is also not affected by aging (*Verkauf et al., 1992*).

### **E) The hymen:**

The hymen is a fold of mucous membrane which surrounds or partially covers the external vaginal opening. It is composed mainly of elastic and collagenous connective tissue. It is covered by stratified squamous epithelium. The hymen has no glandular or muscular elements, and it is not richly supplied with nerve fibers. Its opening varies in diameter. The hymen