

[ORIGINAL ARTICLE]**Prevalence of urinary incontinence in post natal c- section women in age group (21- 45 Years) - A cross-sectional observational study**Jodh Rucha¹, Kadel Asmita², Nagulkar Jaywant³¹Intern, ²Assistant Professor, ³Professor Principal, Department of Physiotherapy, Dr.Ulhas Patil College of Physiotherapy, Jalgaon, India.**ABSTRACT :**

Background- According to the ICS (International Continence Society), urinary incontinence (UI) is characterized by any loss of involuntary urine associated or not with efforts. It is more frequent in women, due to anatomical reasons and hormonal changes, as well as births and pregnancies that can generate overload and favour structural damage to the pelvic floor tissues. The purpose of the study was to assess the postpartum prevalence of urinary incontinence following cesarean section in women with age group 21-45yrs.

Methodology and analysis - A cross-sectional study was conducted among 94 postnatal caesarean section women aged 21 – 45 years using convenient sampling. Women with any Recent abdominal surgery, any neurological pathology, Obesity, prenatal women were excluded. Their urinary incontinence symptoms were investigated using QUID questionnaire.

Result- The findings revealed that urinary incontinence was prevalent in post natal c-section women in age group 21-45years where stress incontinence was more prevalent than urge incontinence.

Conclusion- The study concluded the prevalence of urinary incontinence by 31.91% in post c-section women age group of 21-45yrs. In which 27.65% women show positive result for stress incontinence and 4.25% for urge incontinence so elective cesarean section did not prevent urinary incontinence.

Keywords: *Urinary incontinence, QUID questionnaire*

Introduction

According to the ICS (International Continence Society), urinary incontinence (UI) is characterized by any loss of involuntary urine associated or not with efforts. It is more frequent in women, due to anatomical reasons and hormonal changes, as well as births and pregnancies that can generate overload and favour structural damage to the pelvic floor tissues. UI is a multi factorial condition and the risk factors most commonly identified among women include anatomical and obstetric factors, advanced age, traumatic injury and overload in the pelvic floor tissues, menopause and medication use, in addition to smoking, obesity, caffeine consumption and sedentary lifestyle or intense physical activity.^[1]

Epidemiological studies conducted on UI show that the condition is 2-3 times more common in women,

UI can be considered as a normal part of aging when in fact it's not and is observed in women at any age group from different cultures and races, contrary to general opinion which is more common in elderly population, thus constituting a worldwide problem. In a systematic literature review, UI has been reported to have a wide prevalence interval with a rate of 16.2% to 81.9%.^[2]

Incontinence can be classified into (i) stress urinary incontinence (SUI), when there is involuntary loss of urine during efforts, (ii) urge urinary incontinence (UUI), when there

is involuntary loss of urine through urination and (iii) mixed urinary incontinence (MUI), when there is a combination of urinary loss on exertion and urinary urgency.^[1] The pelvic floor is made up of the muscles, ligaments, and fascial structures that act together to

*Corresponding author

Rucha Jodh

Email : ruchajodh2000@gamil.com

Dr.Ulhas Patil College of Physiotherapy, Jalgaon, India.

Copyright 2023, VIMS Journal of Physical Therapy. This is an Open Access article which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



support the pelvic organs and to provide compressive forces to the urethra during increased intraabdominal pressure.^[3] Urinary continence is due to the fact that bladder pressure remains lower than urethral closure pressure, and incontinence may result from bladder or urethral impairment; when closure pressure is lower than bladder pressure, leakage occurs.^[4]

The urethra, vagina, and rectum pass through the pelvic floor and are surrounded by the pelvic floor muscles. During increased intra-abdominal pressure, the pelvic floor muscles must contract to provide support. When the pelvic floor muscles contract the urethra, anus, and vagina close. The contraction is important in preventing involuntary loss of urine or rectal contents. The pelvic floor muscles must also relax in order to void.^[2]

The pelvic floor muscles (PFMs) have an important role in pelvic organ support and the continence control system. Different stages in a woman's life, such as pregnancy, postpartum period, and menopause, can cause changes in these muscles. Damage to the pelvic floor can result in incontinence and constipation, decreased or total loss of PFM strength, or genital prolapse. These conditions negatively affect quality of life (QoL).^[5]

After the abdominal incision is made during a c-section, scar tissue is formed from collagen during the healing process. The collagen fibers of this scar tissue can extend deep into the layers below the skin and create bladder problems. Bladder issues after a c-section such as urinary incontinence can result when this scar tissue attaches to the wall of the bladder. After a woman gives birth, things begin to reduce back down in size, this scar tissue pulls on the bladder making her feel as though she needs to urinate more urgently (urge incontinence) or more often (overactive bladder).^[6]

It is uncertain whether women who deliver by cesarean section have an increased risk of urinary incontinence as compared with nulliparous women. Several studies with small numbers of subjects have shown that women with urinary incontinence have decreased PFM thickness, decreased PFM electromyographic activity, and less muscle strength (force-generating capacity) compared with control subjects without urinary incontinence.^[7]

Inappropriate leakage of urine is perceived by many women but is not always reported to the doctor.^[5] It is possible that these women live relatively well with

the losses because they believe it is "normal", perhaps because women close to them experience them too. In addition, we must point out that the responses may have been influenced by the shame of talking about the topic, highlighting the need to address this issue more frequently in order to be demystified, showing women that urinary loss should not be a cause for shame. It is a problem that can be prevented and, when present, needs to be treated.^[1]

However, an increasing awareness of the problem has in recent years attracted more patients to seek advice. UI not only causes personal suffering for the individual afflicted but is also of considerable economic importance for the health service.^[6] The presence of UI can lead to significant deterioration of a Person's health, both physical and mental, and can thereby Compromise an individual's ability to work and can even induce Social isolation. UI not only causes personal suffering for the individual afflicted but is also of considerable economic importance for the health service.^[8]

Women's life expectancy has been extended gradually, however, prolongation of life does not imply an increase in quality of life, as quality time spent and healthy life are more important. Urinary incontinence (UI), which is an important problem affecting quality of life, can occur at any age in women. Many are reluctant to discuss such a stigmatizing condition with their physicians out of embarrassment, but also because they lack knowledge about the condition and its available treatments. Older people also delay seeking health care for these reasons.^[9]

Women in particular often believe that incontinence is an inevitable consequence of childbirth and aging, as only 9% of incontinent women ever consult health professionals about the problem. Although the reluctance of patients to openly discuss their urinary symptoms serves as a barrier to providing treatment, UI often remains unaddressed because of a lack of awareness among health care professionals and care providers.^[9] So, the purpose of this study is to check the prevalence of urinary incontinence in post natal c-section.

Materials And Methods

Materials

1. Pen/pencil
2. QUID Questionnaire

Methodolgy

It is a Cross sectional observational study in population of post natal c-section women of age group 21-45yrs. Minimum Sample Size for the study was 94. It was conducted in Jalgaon. The duration for the study was 6 months. The method selected for sampling was purposive sampling. To estimate the population proportion , G power software was used. Participants should be women who delivered by c-section before one year . Participants with any neurological pathology, any abdominal surgery, obesity, prenatal women, which may affect outcome of study or subjects not willing to participate should excluded.

1. Research design : Cross sectional study

2. Study Population : post natal women with age group 21-45 yrs.

3. Place of study : Dr. Ulhas Patil medical college and hospital

4. Sample size : 94 (calculated on G power software)

Analysis: A priori: Compute required sample size

Input: Tail(s)

= One

Effect size $d_z = 0.3421053$

α err prob = 0.05

Power (1- β err prob) = 0.95

Output: Noncentrality

parameter $\delta = 3.316834$

Critical t = 1.661404

Df = 93

Total sample size = 94

Actual power = 0.950293

Selection criteria:

Inclusion criteria :

- Postnatal c-section multiparous women in age group 21-45 years post after one year

Exclusion criteria:

- Prenatal women
- Perinatal women
- Recent abdominal surgery
- Any neurological pathology
- Pregnant females
- Obesity
- Women delivered by NVD

Outcome measures:

1. QUID (Questionnaire for urinary incontinence

diagnosis)

- The Questionnaire for Urinary Incontinence Diagnosis (QUID) is self administered structured , a 6-item urinary incontinence (UI) symptom questionnaire, was developed and validated to distinguish stress and urge UI. . The individual were asked the questions and severity of urinary incontinence and its type was recorded according to score.
- Interpretation: Each item scores 0 (None of the time), 1 (Rarely), 2 (Once in awhile), 3 (Often), 4 (Most of the time) or 5 (All of the time). Responses to items 1, 2 and 3 are summed for the Stress score; and responses to items 4, 5, and 6 are summed for the Urge score. Stress scores ≥ 4 for SUI and Urge scores ≥ 6 for UUI

PROCEDURE:

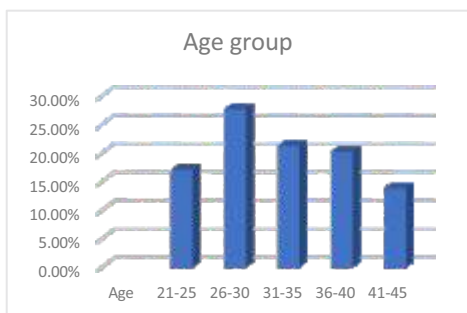
1. Ethical clearance was taken from the ethical committee of Dr. Ulhas Patil College of Physiotherapy, Jalgaon prior to the commencement of study.
2. An cross-sectional study was undertaken at Dr. Ulhas Patil College of Physiotherapy, Jalgaon. Participants were selected on the basis of Inclusion and Exclusion criteria mentioned earlier and requested to participate in the study.
3. A brief demographic data of all patients was obtained and a written consent was taken from all participants.
4. Then the participants were provided with the pre-validated questionnaire and were requested to fill the same questionnaire. data was collected, analyzed and results was declared.
5. At the end of the procedure educate the patient about the importance of knowledge of the urinary incontinence made them aware about the condition.

Statistical Analysis:

The data was collected and analysed by Descriptive Statistics using the SPSS version 24.0

Result

- Baseline data for females is distributed age wise.



Graph no. 1

Age group	Result				
	21-25	26-30	31-35	36-40	41-45
Percentage	17.02%	27.65%	21.27%	20.21%	13.82%

Table no.1 : Graph no. 1 shows Total 94 subjects are included in this study 17.02% between age group 21-25years , 27.65% between 26- 30years , 21.27% between 31-35 years , 20.21% between 36-40 years and 13.82% between 41-45years.

Quid Questionnaire

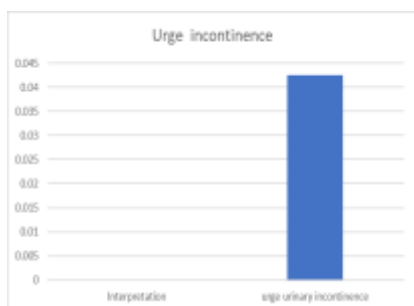


Graph no. 2

Stress urinary incontinence	
No. of women	26
Percentage	27.65%

Graph no. 2 shows Among 94 women with c-section 27.65% were positive and 72.34% were negative for stress urinary incontinence .

Quid Questionnaire



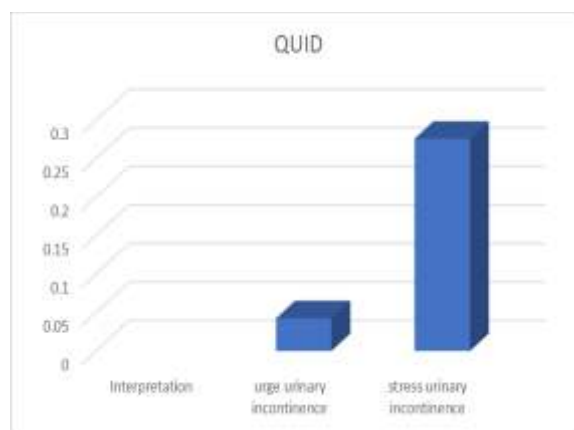
Graph no. 3

urge urinary incontinence	
No. of women	4
Percentage	4.25%

Table no.2

Graph no. 3 : shows Among 94 women with c-section 4.25% were positive and 95.74% were negative for urge urinary incontinence.

Quid Questionnaire



Graph no. 4

	Stress urinary incontinence	Urge urinary incontinence
No of women	26	4
Percentage	27.65%	4.25%

Table no.3

Graph no. 4 : shows Among 94 women with c-section 4.25% were positive with urge urinary incontinence and 27.65% were positive with stress urinary incontinence and 31.91% shows negative result for urinary incontinence

Discussion

The objective of the study was to evaluate the prevalence of stress urinary incontinence and urge incontinence following caesarian section in women with age group 21- 45 years. In the study there were 94 participants among which all are women who delivered by caesarian section of age group 21-45yrs. The score obtain with the help of questionnaire shows that around 31.91% women are positive and 68.08% show negative result. Among which symptoms of stress incontinence were reported by 27.56% and urge incontinence by 4.25%.

The detailed data on incontinence and the 94

participants permitted analyses defined according to age and type of incontinence. The part of the questionnaire addressing incontinence has been used in previous studies and the classification of types of incontinence and the severity index have been validated.

The result demonstrated that the finding of the present study have investigated whether cesarean section is an independent risk factor for urinary incontinence or not. Our study group was selected from the general

population, had a wide age distribution, and was studied one year after delivery.

Barbosa AM in his cross sectional study conclude that two-year urinary incontinence prevalences following vaginal childbirth and cesarean section were 17% and 18.9%, respectively.^[2] In study by Ozek B, interval of prevalence rates were given as 10-51%, the corresponding rates in stress, urge and mixed type UI were indicated as 22.9-57%, 2.8-23% and 12.4-51.4%, respectively.^[3]

Different stages in a woman's life, such as pregnancy, postpartum period, and menopause, can cause changes in pelvic floor muscles. Damage to the pelvic floor can result in incontinence and constipation, decreased or total loss of PFM strength, or genital prolapse. These conditions negatively affect quality of life.^[10]

In addition to pregnancy itself, physiological changes associated with the second stage of labour appear to play a role in postpartum urinary incontinence.^[18] Labor is common before a cesarean section, and the surgery itself might carry a risk of incontinence. As after the abdominal incision is made during a c-section, scar tissue is formed from collagen during the healing process. The collagen fibers of this scar tissue can extend deep into the layers below the skin and create bladder problems. Bladder issues after a c-section such as urinary incontinence can result when this scar tissue attaches to the wall of the bladder. After a woman gives birth, things begin to reduce back down in size, this scar tissue pulls on the bladder making her feel as though she needs to urinate more urgently (urge incontinence) or more often (overactive bladder).^[2]

We found that childbearing is associated with an increased risk of both stress incontinence and urge-type incontinence, whereas only the risk of stress incontinence is associated with the vaginal mode of

delivery. These results suggest that the mechanical strain during labor may add to the risk associated with pregnancy itself.^[16]

Inappropriate leakage of urine is perceived by many women but is not always reported to the doctor.^[11] It is possible that these women live relatively well with the losses because they believe it is "normal", because they live in a community where women living with them experience the same too, considering its normal. In addition, we must point out that the responses may have been influenced by sense of awkwardness about the topic showing women that urinary loss should not be a cause for shame. It is a problem that can be prevented and, when present, needs to be treated.

So based on the identification of the problem, it was possible to aware them about the condition and guide them to better live with urinary losses until therapeutic measures become effective. So the result of study provides a basis on spreading awareness of the condition. In addition as there's direct interaction with women in person we also advised some pelvic floor muscle strengthening exercises and core exercise as a home exercise protocol.

Conclusion

The study concluded the prevalence of urinary incontinence by 31.91% in post c-section women age group of 21-45yrs. In which 27.65% women show positive result for stress incontinence and 4.25% for urge incontinence.

Limitations

1. The Outcome measure was the questionnaire.
2. .Any device /equipment was not used for this study as outcome measure.

Future Scope

1. Future studies can be be conducted on a large population.
2. Intervention based studies can be carried out further.

Acknowledgment

I would like to thank Dr. Jaywant Nagulkar, Principal, Dr. Ulhas Patil College of Physiotherapy, Jalgaon for allowing me to conduct study. I am highly grateful to Dr. Asmita kadel , Assistant Professor, Dr. Ulhas Patil College of Physiotherapy, Jalgaon, for her guidance, encouragement and support. I would like to thank all my teachers for their immense support and guidance. Lastly, I would like

to devote my heartily gratitude towards my friends and family for their love, support without which this efforts won't be fruitful.

References

- De Souza Abreu-Freire N, Oliveira LF, Landim GC, Amaral LC, da Silva LI. Prevalence of Urinary Incontinence and Impact on Quality of Life: Observational Study in a Higher Education Institution. *Archives of Physiotherapy and Rehabilitation*. 2021;4(1):5-11.
- arbosa AM, Marini G, Piculo F, Rudge CV, Calderon IM, Rudge MV. Prevalence of urinary incontinence and pelvic floor muscle dysfunction in primiparae two years After cesarean section: cross-sectional study. *Sao Paulo Medical Journal*. 2013;131:95-9.
- Sensoy N, Dogan N, Ozek B, Karaaslan L. Urinary incontinence in women: prevalence rates, risk factors and impact on quality of life. *Pakistan journal of medical sciences*. 2013 May;29(3):818.
- Brown SJ, Gartland D, Donath S, MacArthur C. Effects of prolonged second stage, method of birth, timing of caesarean section and other obstetric risk factors on postnatal urinary incontinence: an Australian nulliparous cohort study. *BJOG*. 2011 Jul;118(8):991-1000. doi: 10.1111/j.1471-0528.2011.02928.x. Epub 2011 Apr 13. PMID: 21489125.
- Norton P, Brubaker L. Urinary incontinence in women. *The Lancet*. 2006 Jan 7;367(9504):57-67.
- Milsom I, Gyhagen M. The prevalence of urinary incontinence. *Climacteric*. 2019 May 4;22(3):217-22.
- Wyndaele M, Hashim H. Pathophysiology of urinary incontinence. *Surgery (Oxford)*. 2017 Jun 1;35(6):287-92.
- Fritel X, Ringa V, Quiboef E, Fauconnier A. Female urinary incontinence, from pregnancy to menopause: a review of epidemiological and pathophysiological findings. *Acta obstetrica et gynecologica Scandinavica*. 2012 Aug;91(8):901-10.
- Groutz routz, Asnat, Eli Rimon, Simona Peled, Ronen Gold, David Pauzner, Joseph B. Lessing, and David Gordon. "Cesarean section: does it really prevent the development of postpartum stress urinary incontinence? A prospective study of 363 women one year after their first delivery." *Neurourology and Urodynamics: Official Journal of the International Continence Society* 23, no. 1 (2004): 2-6.
- AR, Kendall S, Bunn F. Women's experiences, beliefs and knowledge of urinary symptoms in the postpartum period and the perceptions of health professionals: a grounded theory study. *Primary health care research & development*. 2017 Sep;18(5):448-62.
- Rortveit G, Daltveit AK, Hannestad YS, Hunskaar S; Norwegian EPINCONT Study. Urinary incontinence after vaginal delivery or cesarean section. *N Engl J Med*. 2003 Mar 6 ; 3 4 8 (1 0) : 9 0 0 - 7. doi:10.1056/NEJMoa021788. PMID: 12621134.
- Özdemir ÖÇ, Bakar Y, Özengin N, Duran B. The effect of parity on pelvic floor muscle strength and quality of life in women with urinary incontinence: a cross sectional study. *Journal of physical therapy science*. 2015;27(7):2133-7.
- Xuan R, Yang M, Gao Y, Ren S, Li J, Yang Z, Song Y, Huang XH, Teo EC, Zhu J, Gu Y. A Simulation Analysis of Maternal Pelvic Floor Muscle. *International Journal of Environmental Research and Public Health*. 2021 Oct 15;18(20):10821.
- FitzGerald MP, Burgio KL, Borello-France DF, Menefee SA, Schaffer J, Kraus S, Mallett VT, Xu Y, Urinary Incontinence Treatment Network. Pelvic-floor strength in women with incontinence as assessed by the brink scale. *Physical therapy*. 2007 Oct 1;87(10):1316-24.
- Messelink B, Benson T, Berghmans B, Bo K, Corcos J, Fowler C, Laycck J, Huat-Chye Lim P, van Lunsen R, Lycklama a Nijeholt G, Pemberton J, Wang A, Watier A, Van Kerrebroeck P. Standardization of terminology of pelvic floor muscle function and dysfunction: report from the pelvic floor clinical assessment group of the International Continence Society. *Neurourol Urodyn* 2005;24:374-380.
- P. Brubaker L. Urinary incontinence in women. *The Lancet*. 2006 Jan 7;367(9504):57-67.
- Thom DH, Rortveit G. Prevalence of postpartum urinary incontinence: a systematic review. *Acta obstetrica et gynecologica Scandinavica*. 2010

- Dec;89(12):1511-22.
18. Bradley CS, Rahn DD, Nygaard IE, Barber MD, Nager CW, Kenton KS, Siddiqui NY, Abel RB, Spino C, Richter HE. The questionnaire for urinary incontinence diagnosis (QUID): validity and responsiveness to change in women undergoing non-surgical therapies for treatment of stress predominant urinary incontinence. *Neurourol Urodyn.* 2010 Jun;29(5):727-34. doi: 10.1002/nau.20818. PMID: 19787711; PMCID: PMC2891326.
 19. Nguyen K, Hunter KF, Wagg A. Knowledge and understanding of urinary incontinence: survey of family practitioners in northern Alberta. *Can Fam Physician.* 2013 Jul;59(7):e330-7. Erratum in: *Can Fam Physician.* 2013 Sep;59(9):925. PMID: 23851561; PMCID: PMC3710064.
 20. Wesnes SL, Hunskaar S, Bo K, Rortveit G. The effect of urinary incontinence status during pregnancy and delivery mode on incontinence postpartum. A cohort study. *BJOG.* 2009; 116: 700-7.
 21. Morkved S, Bo K. Prevalence of urinary incontinence during pregnancy and postpartum. *Int Urogynecol J Pelvic Floor Dysfunct.* 1999; 10: 394-8.
 22. Viktrup L, Lose G, Rolff M, Barfoed K. The symptom of stress incontinence caused by pregnancy or delivery in primiparas. *Obstet Gynecol.* 1992; 79: 945-9.
 23. Eftekhari T, Hajibaratali B, Ramezanzadeh F, Shariat M. Postpartum evaluation of stress urinary incontinence among primiparas. *Int J Gynaecol Obstet.* 2006; 94: 114-18.
 24. Abrams P, Andersson KE, Birder L, et al. Evaluation and treatment of urinary incontinence, pelvic organ prolapse, and fecal incontinence. *Neurourology and Urodynamics* 29 (2010): 213-240.
 25. Caetano AS, Tavares MCGCF, Lopes MHB, et al. Influence of physical activity on the quality of life and self-image of incontinent women. *Revista Brasileira de Medicina do Esporte* 15 (2009): 93-97.
 26. Correia S, Dinis P, Rolo F, et al. Prevalence, treatment and known risk factors of urinary incontinence and overactive bladder in the noninstitutionalized Portuguese population. *International Urogynecology Journal Pelvic Floor Dysfunction* 20 (2009): 1481-1489.
 27. Fernandes S, Coutinho EC, Duarte JC, et al. Quality of life in women with urinary incontinence. *Revista de Enfermagem Referência* 5 (2015): 93-99
 28. Weber AM, Abrams P, Brubaker L, et al. The standardization of terminology for researchers in female pelvic floor disorders. *International Urogynecology Journal* 12 (2001): 178-186.
 29. Leroy LS, Lúcio A, Lopes MH. Risk factors for postpartum urinary incontinence. *Revista da Escola de Enfermagem da USP* 50 (2016): 200-207.
 30. Fritel X, Tsegan YE, Pierre F, et al. "EDEN Mother- Child Cohort Study Group": Association of postpartum depressive symptoms and urinary incontinence. A cohort study. *European Journal Obstetrics Gynecology Reproductive Biology* 198 (2016): 62-67.
 31. Marques LP, Schneider IJC, Giehl MWC, et al. Demographic factors, health conditions and life habits associated with urinary incontinence in the elderly in Florianópolis, Santa Catarina. *Revista Brasileira de Epidemiologia* 18 (2015): 595-606.
 32. Wesnes SL, Hunskaar S, Bo K, et al. The effect of urinary incontinence status during pregnancy and delivery mode on incontinence postpartum. A cohort study. *British Journal of Obstetrics and Gynaecology* 116 (2009): 700-707.
 33. Rincon AA. Caracterización clínica de la incontinencia urinaria y factores asociados em usuarias de la Unidad de la Mujer del Centro de Salud Familiar "Ultra estación" em la ciudad de Chillán, Chile. *Revista Médica de Chile [Internet]* 143 (2015): 203-212.