Laughter-Induced Urinary Incontinence Among Late Adolescent College Students: A Cross-Sectional Survey

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Abstract

BACKGROUND: Giggle incontinence is an underrecognized type of urinary incontinence that occurs exclusively during laughter, most commonly affecting adolescent girls. It can significantly impact self-esteem, social participation, and overall quality of life. Although true prevalence is uncertain, survey data suggest that up to 25% of adolescents may experience giggle induced leakage at least once, with around 10% continuing to have episodes into late adolescence.

AIM: To assess the prevalence, awareness, and symptom severity of giggle incontinence among hostel students aged 18 to 20 years

METHOD: A cross-sectional survey was conducted among 110 adolescent girls residing in hostels at Jnana Jyoti Nagar, Prudence College of Institution, Bangalore. A structured questionnaire was used to gather information on urinary leakage during laughter, associated factors, and management strategies. Data were analyzed to determine prevalence and awareness levels of giggle incontinence

RESULT: Among 110 participants, 13 reported giggle incontinence, mostly of mild severity. Awareness of the condition was low, and most participants coped through self-managed behavioural strategies. Chi-square analysis revealed a significant association between BMI and giggle incontinence ($\chi^2 = 8.21$, df = 3, $p < 0.05$). Overweight participants exhibited the highest prevalence (5 out of 13). These findings suggest that BMI may influence the likelihood of experiencing giggle incontinence.

CONCLUSION: Giggle incontinence is prevalent among adolescent girls but remains underdiagnosed due to lack of awareness. Early recognition and health education can reduce psychosocial distress.

KEYWORDS: Giggle incontinence, Prevalence, Adolescents; Laughter-induced incontinence, BMI

INTRODUCTION:

Giggle incontinence, or "laughing-induced incontinence," is an involuntary urinary leakage caused by laughter or other forms of physical exertion[1]. Urinary incontinence is defined as the involuntary leakage of urine at inappropriate times and places, constituting a medical, social, and hygienic problem that may be temporary or permanent and can lead to distress, social isolation, and reduced quality of life. In adolescent populations, especially those from 18 to 21 years old, this condition tends to be neglected. While giggle incontinence is typically associated with younger children, it can persist into late adolescence and early adulthood, affecting a significant portion of the population. This developmental cohort that

transitions from adolescence to young adulthood may be plagued by social embarrassment and anxiety due to this condition, impacting their quality of life, self-esteem, and social interactions. Giggle incontinence in adolescent girls can have multifactorial causes, including physiological, neurological, and psychological components.[2]Those factors may come from weakened pelvic floor muscles, hormonal fluctuations, or increased stress levels, all of which could contribute to the involuntary leakage of urine on occasions of laughter or physical exertion. In this age group, the stigma attached to incontinence can also cause many to overlook professional support and undiagnosed or untreated incontinence can exist.
A 2024 scoping review of 26 studies examined 351 cases of giggle incontinence, most commonly in girls, with an average age of around 12 years.[3] While it starts early in life, symptoms can persist through adolescence and impact confidence, one's social life, and emotional health. Early detection and support are also essential as the underlying cause and rate remain unknown. Urinary incontinence belongs to several clinical types, including stress, urge, mixed, overflow and Giggle incontinence. Giggle incontinence is a specific condition where there is leakage of urine which may range from few drops to complete emptying of bladder following laughter, particularly in children and adolescents. Pathological basis includes laughter-mediated detrusor overactivity, temporary pelvic floor and urethral sphincter relaxation, autonomic nervous system dysregulation resulting from parasympathetic overactivation. A key neurophysiological mechanism is considered, comparing the condition to cataplexy in which strong emotions trigger short-term loss of muscle tone that impairs continence control. Video urodynamic research supports these explanations and shows that detrusors contract involuntarily without sensation with simultaneous relaxation of the pelvic floor during laughter. Increased daytime urgency or voiding dysfunction, and symptom resolution with bladder retraining or pelvic floor therapy, also indicate an overlap between neurological and urological mediators suggesting that the conditions are multifactorial.[4]
We seek to investigate the prevalence of giggle incontinence in girls of adolescent ages 18–21 years, and examine its relationship to body mass index (BMI) which may provide possible underlying reasons.

NEED OF THE STUDY

- Many adolescent girls who experience giggle incontinence hesitate to seek help due to stigma, embarrassment, or mislabelling of symptoms. This contributes to underdiagnosis and a reduced quality of life.
- Studies recently indicate pelvic floor dysfunction and neurological involvement as contributing factors to giggle incontinence. Therefore, targeted assessment of affected adolescents is essential.
- The survey seeks to normalize the condition and lessen stigma surrounding it. It also endeavours to increase awareness about giggle incontinence.

AIM OF THE STUDY

To assess the prevalence of giggle incontinence in late adolescent girls

OBJECTIVES OF THE STUDY

Primary Objective

To determine the prevalence of giggle incontinence among late adolescent girls.

Secondary Objectives

To determine the association between giggle incontinence and body mass index (BMI) in late adolescent girls

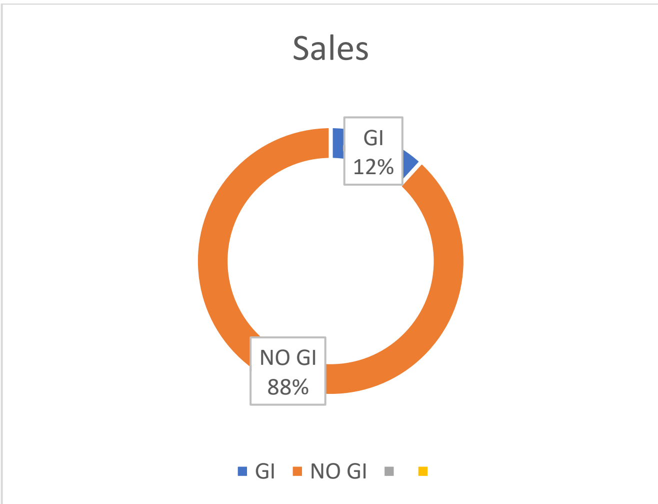
MATERIALS AND METHODS

This study employed a quantitative, cross-sectional descriptive design to determine the prevalence of giggle incontinence and examine its associated factors among late adolescent females. The study population comprised unmarried late adolescent college girls aged 18–21 years residing in mallathahalli, Bengaluru, with a total sample size of 110 participants. Data were collected through a structured, self-administered questionnaire distributed via Google Forms (Annexure 1), designed to capture key demographic, anthropometric, lifestyle, and clinical variables relevant to giggle incontinence. The survey included participant characteristics such as age, height, weight, marital status, and lifestyle habits, along with menstrual, medical, and gynecological history, hydration patterns, daytime voiding frequency, nocturia, and history of urinary tract infections to contextualize baseline bladder health. Targeted questions assessed the presence and characteristics of giggle incontinence, including age of onset, frequency, duration, severity of leakage, associated triggers such as laughter and emotional state, urgency, and coping strategies. The instrument also evaluated the functional and psychosocial impact of symptoms, including activity avoidance, emotional burden, help-seeking behavior, perceived peer prevalence, prior exposure to physiotherapy-based interventions, and willingness to seek further support. Participation was voluntary, and individuals with known neurological disorders (e.g., multiple sclerosis or spinal cord injury) or those already receiving treatment for urinary incontinence were excluded to minimize confounding. The collected data were systematically compiled and analyzed to estimate prevalence and identify factors associated with giggle incontinence within the study cohort.

RESULTS

A total of 110 unmarried late adolescent girls participated in the study. Out of these, thirteen participants (11.8%) reported experiencing giggle incontinence, while 97 participants (88.2%) did not report any urinary leakage during laughter. The prevalence of giggle incontinence in this study population was therefore 11.0%.

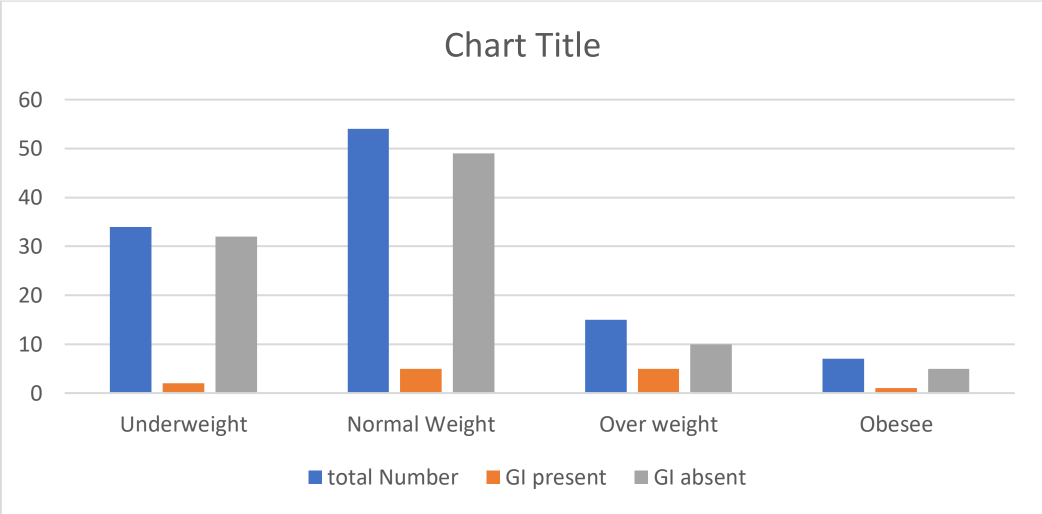
Figure 1: Prevalence of giggle incontinence among participants (n = 110)



- Out of 110 participants included in the study, BMI distribution revealed that 34 participants (30.9%) were underweight, 54 (49.1%) had a normal BMI, 15 (13.6%) were overweight, and 7 (6.4%) were obese, indicating that nearly half of the study population fell within the normal BMI range, with a substantial proportion also being underweight, while overweight and obese individuals constituted a smaller segment of the sample.

- Overall, giggle incontinence was identified in 13 participants (11.8%), of whom 5 (38.5%) had a normal BMI and another 5 (38.5%) were overweight, followed by 2 underweight participants (15.4%) and 1 obese participant (7.6%). These findings indicate that giggle incontinence was most frequently observed among participants with normal and overweight BMI, with comparatively fewer cases among underweight and obese categories.

Figure 2 : Distribution of participants with and without GI among BMI categories



- Out of 110 participants, giggle incontinence was identified in 13 individuals, with the highest number of cases observed in the normal-weight and overweight BMI categories (five cases each), followed by underweight (two cases) and obese participants (one case).
- Comparison of observed and expected frequencies revealed a marked excess of giggle incontinence cases in the overweight group (observed = 5; expected = 1.77), suggesting a potential positive association between higher BMI and giggle incontinence, whereas the underweight and normal-weight groups demonstrated fewer cases than expected and the obese group closely approximated the expected distribution.
- A chi-square test of independence was performed to examine the association between BMI category and giggle incontinence, yielding a chi-square value of 8.21 with 3 degrees of freedom (χ^2 = **8.21**, df = **3** statistically significant) This value exceeded the critical chi-square value of 7.815 at the 0.05 significance level, indicating a statistically significant association between BMI and the presence of giggle incontinence ($p < 0.05$).
- These findings suggest that increased BMI, particularly in the overweight category, may be a contributing factor to giggle incontinence among late adolescent females; however, the relatively small sample sizes in certain BMI groups warrant cautious interpretation and highlight the need for further studies with larger cohorts.

Table 1: Observed Frequencies of GI among BMI categories

BMI Category	Giggle Incontinence Present (O_1)	Giggle Incontinence Absent (O_2)	Total
Underweight	2	32	34
Normal Weight	5	49	54
Overweight	5	10	15
Obese	1	6	7
Total	13	97	110

Table 2: Expected Frequencies of GI among BMI categories

BMI Category	E_1 (Incontinence Present)	E_2 (Incontinence Absent)
Underweight	4.02	29.98
Normal Weight	6.38	47.62
Overweight	1.77	13.23
Obese	0.83	6.17

DISCUSSION

The present study identified an 11.0% prevalence of giggle incontinence among late adolescent girls, a finding that closely aligns with previously reported prevalence rates ranging from 7% to 12% in adolescent populations.[2] This consistency across studies reinforces the understanding that giggle incontinence, while frequently underreported, is not an uncommon condition in this age group. Despite its relatively lower prevalence compared to other urinary disorders, giggle incontinence represents a clinically relevant and often overlooked urological concern among adolescents, warranting greater attention in both clinical practice and research.

Giggle incontinence is characterized by involuntary urinary leakage occurring exclusively during episodes of laughter and has been reported predominantly in females. Although the condition is episodic, its psychosocial impact can be substantial. Adolescents affected by giggle incontinence may experience embarrassment, diminished self-esteem, and avoidance of social interactions, which can negatively influence emotional well-being, academic participation, and overall quality of life. These findings are consistent with existing literature emphasizing the psychosocial burden associated with paediatric and adolescent urinary incontinence.

A key finding of the present study is the statistically significant association between body mass index (BMI) and giggle incontinence, with a higher occurrence observed among overweight individuals. This suggests that increased BMI may act as a contributing factor in symptom manifestation. Elevated body weight is known to increase intra-abdominal pressure, which may place additional stress on pelvic floor musculature and urethral support mechanisms. While giggle incontinence has traditionally been considered to have a neurogenic basis potentially involving transient central inhibition of bladder control triggered by laughter our findings indicate that mechanical and musculoskeletal factors related to body composition may also play a complementary role, particularly in adolescents with higher BMI.

This multifactorial perspective is supported by urodynamic evidence reported by Kunnath et al. (2021), who demonstrated largely normal bladder compliance, capacity, and detrusor activity in children with giggle incontinence. Their findings suggest that giggle incontinence is unlikely to result from a primary structural or functional bladder abnormality, reinforcing the hypothesis of a central or neurogenic mechanism. At the same time, the observed association with BMI in the present study indicates that peripheral factors, such as pelvic floor loading and biomechanical stress, may influence symptom expression, highlighting the complex interplay between central and peripheral contributors.

Interestingly, the obese category in the present study did not demonstrate a disproportionately high number of cases. This may be attributed to the relatively small sample size within this subgroup, limiting statistical power, or to behavioural adaptations such as reduced engagement in triggering activities or underreporting due to stigma. These findings underscore the need for larger, adequately powered studies to further clarify BMI-related risk gradients in giggle incontinence.

Recent literature further contextualizes the present findings. In a comprehensive scoping review, González-Maldonado and García-Mérida (2024) synthesized evidence from 26 studies spanning more than six decades and reported a clear female predominance, with peak onset occurring between 5 and 16 years of age. The review highlighted considerable heterogeneity in diagnostic criteria and treatment approaches, emphasizing the need for standardized definitions and well-designed prospective studies to improve understanding of the condition's pathophysiology and management. The present study contributes to this body of evidence by providing prevalence data and identifying BMI as a potential modifiable factor in late adolescence.

Pharmacological studies, such as the pilot work by Baek et al. (2012), have demonstrated symptom improvement with atomoxetine, a selective norepinephrine reuptake inhibitor, supporting the hypothesis that central nervous system regulation plays a role in giggle incontinence. These findings, together with urodynamic evidence and the present study's BMI association, suggest that giggle incontinence may arise from a combination of neurogenic susceptibility and modulating mechanical factors.

Education and awareness remain pivotal in addressing giggle incontinence. Improving knowledge among adolescents and healthcare providers can facilitate early recognition, reduce stigma, and promote timely referral. Normalizing discussions around giggle incontinence may encourage affected individuals to seek help without fear or shame. From a management perspective, a multidisciplinary approach integrating physiotherapy, medical management, and psychosocial support is essential. Early physiotherapy-based interventions, including pelvic floor muscle strengthening and bladder training, may be particularly beneficial in reducing symptom frequency and mitigating associated psychosocial distress.

Overall, the findings of the present study, supported by emerging and established literature, underscore the importance of recognizing giggle incontinence as a multifactorial condition with meaningful physical and psychosocial implications. Addressing both central and peripheral contributors through early, comprehensive, and multidisciplinary intervention may significantly improve outcomes and quality of life for affected adolescents.

CONCLUSION

The present study demonstrates that giggle incontinence affects 11.0% of adolescent females, highlighting it as an underrecognized yet clinically relevant condition. A significant association was observed between body mass index and giggle incontinence, with a higher prevalence among overweight individuals, suggesting that increased BMI may contribute to symptom manifestation alongside underlying neurogenic mechanisms. Although less prevalent than other urinary disorders, giggle incontinence can have a substantial impact on self-esteem, social participation, and overall quality of life. These findings underscore the importance of improving awareness and facilitating early identification of the condition. Early physiotherapy-based interventions, including pelvic floor muscle strengthening and bladder training, along with a multidisciplinary management approach, may effectively reduce symptom burden and mitigate associated psychosocial consequences. Further studies with larger and more diverse populations are warranted to strengthen the evidence base and guide targeted preventive and therapeutic strategies.

LIMITATIONS

- Data were self-reported without clinical verification, potentially leading to underreporting or misclassification of giggle incontinence episodes.
- The cross-sectional design prevents assessment of causal relationships, and participants may have experienced hesitation or embarrassment in reporting symptoms, introducing response bias.
- The cross-sectional design limits the ability to establish causal relationships between body mass index and giggle incontinence. The relatively small sample size, particularly within certain BMI categories, may have reduced statistical power and limited the generalizability of the results

REFERENCES:

1 Physiotherapy in obstetrics and gynaecology ,author : Margaret Polden and jill mantle.
2 Kunnath SM, Clothier J, Solomon E, Wright AJ, Taghizadeh A. Urodynamic characterization of giggle incontinence in children. Neurourol Urodyn. 2021;40(7):1703–11.
3 González-Maldonado AA, Garcia-Merida M. Giggle incontinence: A scoping review. Pediatr Res. 2024. https://doi.org/10.1038/s41390-024-03065-y
4 Maternik M, Krzemińska K, Zurowska A. The management of childhood urinary
5 incontinence. Pediatr Nephrol. 2014;30:41–50. https://doi.org/10.1007/s00467-014-2791-x
6 Physio-Pedia. Giggle incontinence [Internet]. [cited 2025 Aug 20]. Available from: https://www.physio-pedia.com/Giggle_Incontinence
7 Austin PF, Bauer SB, Bower W, Chase J, Franco I, Hoebeke P, et al. The standardization of terminology of lower urinary tract function in children and adolescents: Update report from the Standardisation Committee of the International Children's Continence Society. Neurourol Urodyn. 2018;37(S4):S1–44. https://doi.org/10.1002/nau.23552
8 ERIC: The Children's Bowel & Bladder Charity. Giggle incontinence [Internet]. [cited 2025 Aug 20]. Available from: https://eric.org.uk/childrens-bladders/giggle-incontinence/
9 News-Medical. Understanding giggle incontinence: Causes, symptoms and management [Internet]. 2024 Feb 27 [cited 2025 Aug 20]. Available from: https://www.news-medical.net/news/20240227/Understanding-giggle-incontinence-Causes-symptoms-and-management.aspx
10 Salehzadeh F, Naini AE. Methylphenidate in the treatment of giggle incontinence. Indian J Pediatr. 2009;76(9):959–61. https://doi.org/10.1007/s12098-009-0186-9
11 Baek M, Park S, Choi H. Atomoxetine for the treatment of giggle incontinence: A pilot study. J Urol. 2012;188(5):2020–4. https://doi.org/10.1016/j.juro.2012.07.022
12 Loening-Baucke V. Giggle incontinence: Evolution of concept and treatment. J Pediatr Urol. 2017;13(4):362–9. https://doi.org/10.1016/j.jpurol.2017.06.011
13 Dumoulin C, Cacciari LP, Hay-Smith EJC. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. Cochrane Database Syst Rev. 2018;10:CD005654. https://doi.org/10.1002/14651858.CD005654.pub4

14 Richardson I, Palmer LS. Successful treatment for giggle incontinence with biofeedback. J Urol. 2009;182(4 Suppl):2062–6. https://doi.org/10.1016/j.juro.2009.03.021
15 Hacıislamoğlu A, Ekşi M, Özlü DN, Yavuzsan H, Evren İ, Karadağ S, et al. Evaluation of the efficacies of methylphenidate and biofeedback treatments in giggle incontinence: One- year follow-up study. J Pediatr Urol. 2021;17(5):646.e1–e5. https://doi.org/10.1016/j.jpurol.2021.07.015
16 Canbaz FA, Gerçel G, Sağ S. Efficacy of biofeedback therapy for giggle incontinence in children: How many sessions are required? Neurourol Urodyn. 2025;44(1):207–11. https://doi.org/10.1002/nau.25605
17 Cho DS, Lee KS. Current management of giggle incontinence. Investig Clin Urol. 2016;57(2):84–8. https://doi.org/10.4111/icu.2016.57.2.84
18 Dinneen MD, Bono AV. The management of childhood urinary incontinence. BJU Int. 2000;85(6):655–61. https://doi.org/10.1046/j.1464-410x.2000.00531.x
19 Erdoğan S, Yücel S, Çetinel B. Non-pharmacological management of urinary incontinence in children. J Pediatr Urol. 2016;12(4):207–13. https://doi.org/10.1016/j.jpurol.2016.06.001
20 Bø K, Mørkved S, Frawley H, Sherburn M. Evidence for benefit of transversus abdominis training alone or in combination with pelvic floor muscle training to treat female urinary incontinence: A systematic review. Neurourol Urodyn. 2009;28(4):368–73. https://doi.org/10.1002/nau.20700
21 Park S, Lee S. Influence of conventional posture versus optimal toilet posture on voiding efficiency in children: A comparative observational study. J Pediatr Urol. 2020;16(2):214.e1– e6. https://doi.org/10.1016/j.jpurol.2020.01.010