Subtler manifestations of patriarchal gender norms on gender relations- A qualitative investigation on Engineering college students

V.S. Sai Tharun[1], Prabakar S[2*]

[1] Department of Social Sciences, SSL, VIT, Vellore, 632014, India
Email: saitharun.vs2021@vitstudent.ac.in **- ORCID:** 0009-0004-6165-4355

[2] Department of Social Sciences, SSL, VIT, Vellore, 632014, India
* **Corresponding Author Email:** prabakar.s@vit.ac.in **- ORCID:** 0000-0003-0950-3651

Abstract:

Gender disparity is observed to be markedly higher in Science, Technology, Engineering, and Math (STEM) fields, as evident from the findings of earlier research studies. Gender relations refer to the complex dynamics of social interactions between men and women in a social group setting; they are one of the determining factors of gender disparity. Hence, this investigative study focuses on the informal interactions among men and women students of private engineering colleges to gain insights into how patriarchal norms contribute to gender disparity. Private technological institutions are specifically chosen as the study as it is noted that they have been given less focus in this particular area of study. Although the gender dynamics of the contemporary Indian society has witnessed considerable change with liberalization and globalization, patriarchy continues to remain deeply entrenched and poses a formidable challenge in the cultural and social phenomenon of gender construction in various social realms. This persisting patriarchal trend tends to be reflected in the students' perception of gender norms. The present study aims to highlight the challenges of gender relations among students and attempts to offer feasible inputs to foster gender equality within the academic community in college campuses by actively promoting inclusivity and parity. This research study is cross-sectional, employs qualitative methods to obtain gender relations through the face-to-face interview method used to collect data from the students to gain full understanding of the gender environment of the campus, the prevalence of patriarchy in the educational system and the influence of patriarchal norms on the student community

1. Introduction

In nearly every aspect of the Indian social structure, women face covert or overt discrimination, and the educational fields of STEM which are predominantly viewed as male-oriented are not exempt from this deeply embedded trend. Engineering students tend to perpetuate patriarchal societal values, beliefs and attitudes as well as stereotypical gender roles, labels and norms since these restrictive beliefs are paradoxically instilled in them by the very culture in which they are raised. Men tend to demonstrate the male dominance instilled ingrained in them by society when working as professionals in technological disciplines [1]. Although patriarchy is a social organization system based on the misguided notion of superiority of men over women, the social processes, interactions, behaviours, and task division construct clear, pre-determined, standardized divisions of masculinity and femininity. Even if the sociocultural traditions and conventions are dynamic and ever shifting in numerous aspects in the context of masculinity and feminine approaches, it is an undisputable fact that male domination and female oppression are issues widely prevalent in the traditional Indian culture. The social reality of gendered inequities is attributed to a deep-rooted patriarchal framework.

The functioning of most conventional Indian families has historically been largely patriarchal in nature with power and control vested in the hands of the eldest male member who is perceived as a figure of authority. Family roles have been assigned based on gender differentiations, and there has been

a widespread cultural belief that women should be submissive to male domination, follow imposed rules and behave in a decorous manner considered appropriate for women [2]. Gender roles are very much polarized in the Indian family system, and women are permitted and confined to only those socially constructed ideal tasks that suit the feminine boundaries set by the male-centric society. Men regard traditionally dressed women as modest, even in this global age [3]. Sons have often been seen as more desirable than daughters in many civilizations and gender discriminatory practices are often evident in families. Sons are given precedence in educational opportunities and household responsibilities performed outside the family, and they have more freedom to explore, spend money, and buy things of their choice. Rigid social norms, identities and roles are prescribed for women, to channelize their behaviour into conventional channels which serves to further accentuate gender differences. Daughters are expected to shoulder domestic responsibilities in addition to attending school and to contribute to household chores performed within the home [4].

The lower perceived utility of girls over boys across a variety of patriarchal, patrilineal, and patrilocal cultures places girls in a disadvantageous position in terms of population size [5]. The idea of masculinity focuses on attributes like self-aggrandizement, independence, control, and submission; in contrast, female traits are defined by interdependence, collaboration, receptivity, emotionality, etc..[6]. Gender binary and predefined masculinity predictions that were either designed to be fulfilled by subjects or utilized as a tool for oppression were brought about by colonialism [7]. The same "violent frontier masculinity on which settler colonial conquest relied" feeds violence against women today [8]. The gender roles are assigned by the social hierarchy reproduced by the patriarchal system, which primarily impacts the social position accorded to women [9]. Indian culture displays sharp contrasts with its high scores on masculinity versus femininity reflecting the prevalence of distinct gender roles in society [10]. Many urban gender studies show that not only family but also peer groups influence the social structure of gender; for example, in the context of student hostel life, there is a visible trend of private defiance as young men free from confining restrictions imposed by parental supervision and enjoying newfound independence from physical proximity to their parents attempt to indulge in whims and fancies that were earlier strictly controlled. In most cases, the hostel in undergraduate education is usually the first opportunity to stay outside the confines of the parental home and supervision. In the case of daughters, fathers don the role of chastity guardians, and women constantly strive to live up to their expectations of a "good girl" [11].

The perpetuating patriarchal culture, traditional gender stereotypes and fundamental inequality evident in Indian society are paradoxically experiencing both change and continuity [12]. Since the late 1990s, the change has been accompanied by liberalization and globalization, and a higher emphasis is being placed on women's education and empowerment/ development.

1.1. STEM and Gender Gap

Students majoring in STEM fields acquire advanced skills, abilities and talents in their relative disciplines, they are more likely to engage in innovative problem-solving and critical decision-making, and have better career prospects with a wider range of employment opportunities [13]. STEM education aims to equip students with the necessary professional and personal skills to succeed in their workplace, lay the foundation for their career and empower them to work together with other people towards common organisational goals [13]. STEM education, research and study are more important than ever because of the increased global interest in STEM education fields and greater number of job opportunities [14]. Compared to other fields of study, gender disparity and inequality among students in the engineering stream is relatively high. Engineering and Technology is India's fourth largest stream, with 37.27 lakh students enrolled across the country. A major share of 71.5% of the 21.48 lakh students are male, while 28.5% are female [15]. Women in engineering fields are typically underrepresented in institutions and professions when compared to their male counterparts.

The ratio of women in undergraduate engineering is usually higher at about 20% in the non-IITs than in the IITs [16] Women tend to face challenges like bias, prejudice, unfair treatment, discrimination, subordination and do not feel included or involved in the academic environment in engineering departments and higher education institutions. This situation is related to structural and institutional elements, which include institutional types, resource availability, interaction patterns, and employment and educational locations [17]. Various forms of sexism by students and faculty members can be seen to be extensively prevalent in many forms on college campuses where women are generally outnumbered. The disparity in power between the oppressor and the oppressed group is a significant aspect of sexism [18]. When women are

driven to pursue higher education in the field of their choice, they face many constraints, restrictions, limitations due to the pervasive masculine culture and their choices become more gendered [19] because marriageability and social safety become critical concerns for the family. With the expansion of the IT sector, the participation of women IT engineers in the hitherto male-dominated field is witnessing an increasing trend [20]. However, the representation of women in STEM fields is still significantly less than ideal [21], and the necessary promotional measures must be implemented at the earliest by the government, concerned authorities and educational institutions.

1.2. Gender relations and students:

The social relationships forged between women and men uniting them into social groups in a specific community define how power and control over resources are distributed between the sexes. The academic culture prevailing in engineering departments and higher education institutions appears to be a male-dominated arena that is hostile to women. This is due to inherent structural and institutional factors such as work environment, educational settings, available resources, interaction patterns, and institution types [22]. Studies argue that gender relations, rather than the numerical proportion of women, are essential in the operation of tokenism, with negative consequences occurring only for token women [23]. In male-dominated professions, the classroom and campus climate is hostile and non-conducive to women, resulting in an unwelcoming 'chilly climate' [24]. Sexism on college campuses manifests itself in a variety of ways. The power disparity between the oppressor and the oppressed group is a crucial feature of sexism [18]. Sexist behaviour has also been studied as microaggressions, which are everyday slights that are frequently unconscious and subtle [25]. Microaggressions objectify women while giving men more power and privilege [26]. 'Humor' is also a form of symbolic violence, and women demonstrate internalized sexism by allowing themselves to be an object of ridicule for the dominant group(18). The paradigm shift in the topics of recent investigative research studies, from women in engineering to gender gap in engineering in recent years, has contributed to a better understanding of the relationship between engineering and masculinity [27]. Women are marginalized by the overbearing influence of the masculinity-dominated culture evident in engineering workplaces [28], though now the conventional culture is changing in tandem with the dynamics of gender owing to the entry of more women into STEM fields traditionally viewed as a male bastion.

2. Materials and Methods

The current investigation uses a qualitative research methodology and an in-depth interviewing technique to obtain descriptive responses from the participants of the study. The study population comprises of B.Tech students currently enrolled in a private college, many of whom voluntarily agreed to participate in the study on request. From among the members of the group, a technique known as purposive sampling is used to select ten volunteers to participate in the study. The selection is primarily based on the participants' openness and enthusiasm displayed toward the study's objective and the central topic. The questions are constructed in a thematic manner to elicit useful and relevant responses from the respondents, which is effectively accomplished through careful choice of simple and clear language. The objective of using an in-depth a comprehensive interview as a research method is to gather the free and frank opinions and fresh ideas of students concerning sensitive topics such as patriarchy and gender disparity, as well as their feelings and views regarding the widespread prevalence of these issues in society and the STEM fields. During the interview, there is full involvement of two individuals: an interviewer and a recorder. Their roles are to maintain a simultaneous system of asking questions and documenting the obtained responses methodically. In each segment of the interview devoted to a particular topic, open-ended questions are posed to the interviewees giving them the opportunity to provide a response that is honest and complete. Such open-ended responses can contribute to a qualitative investigation of the topics under consideration

The main themes of the present study are ennumerated as follows: 1. Patriarchy and society 2. Gender bias in STEM fields 3. Role of gender within friendship circles and in social interactions of students in the campus, and 4. Perception of gender differences by students. Before the respondents are asked for their ideas on the aforementioned concepts, a general outline about patriarchy and basic information on gender bias is provided to them. Then their perception of each theme is obtained through the one-to-one interview method. The consent of all respondents is obtained prior to commencing the study. The invitation to be a part of the study is widely circulated among the student community and the participation of all respondents is strictly on a voluntary basis.

The gathered data is subjected to a thematic analysis, where the themes chosen in the questions are analyzed separately by identifying their concepts and meanings. A meticulous record is maintained of all interviews and categorized into main themes and critical terms. Also, the similarities and differences among the answers of the respondents are evaluated before inferences are drawn to establish proper results.

3. Results and discussion

The findings of the current study offer deep insights into the gender dynamics among engineering students through a thematic analysis of inputs given by them in the course of the interview. Each theme is discussed as subplots of the obtained results, which are explained through thematic descriptions and evaluations.

3.1. Patriarchy and society

The respondent's perspective on the socially constructed patriarchal system is the subject of the first portion of the interview. Most students, particularly females, used phrases such as masculine domination, privilege and position of power enjoyed by the head of the family (father) when asked to define patriarchy in their own words, indicating that students in the technical field had an average understanding of what this term refers to. Some comments portrayed patriarchy as a historical phenomenon or something that predated modern civilization, and which does not exist now. This shows the students' lack of awareness of the enduring issue the continued prevalence of sexism], in a perhaps slightly lesser degree, in nearly every sphere of society despite changing attitudes. However, the students began describing a few situations in which they had personally encountered a patriarchal mentality after being provided an understanding of how patriarchal notions govern society and how despite being in the modern age, patriarchal gender standards and gender-specific identities are being instilled, which monitor and direct the activities of men and women in society. Some respondents were forthcoming about incidents they saw in their families and in the families of others, such as their neighbours or relatives, where the father is the controller of the family and acts as a dictator or where women are deprived of life choices and fundamental freedom. Other respondents described incidents they had personally experienced. While most of the female respondents said that their decision to pursue engineering was taken independently, several male respondents said that their parents had a significant influence over their educational choice and career decision-making. Regarding the patriarchal impact on society, most respondents opined that there was no such effect because their families were not excessively patriarchal. Thus, the current research study indicates that patriarchal family traditions have little impact on the academic choices made by students.

3.2. Gender bias in STEM fields

Some of the respondents reminisced about] their childhood days and recalled how they were taught to behave in a particular way because they were either boys or girls. Other respondents recounted a few incidents that they had witnessed in their own families as well as in the families of others, such as their neighbours or relatives, in which the father is the controller of the family, enjoys a position of power and acts as a dictator or in which women do not have liberty, enjoy equal rights, have freedom of choice, independently make their own life decisions or face discrimination on account of their gender. Some male respondents stated that there was a high degree of parental involvement in academics which had a significant impact on their career decision-making process. Parents were deeply involved, closely oversaw, and exerted a considerable influence over their wards in their choice of core subjects and main course. On the other hand, most female respondents stated that it was their independent choice to join the engineering field. They faced no objection, were free to make their own choices and their parents readily extended their support and encouragement on hearing about their academic decision. Regarding the patriarchal impact that society has on individuals, most respondents stated that they did not experience any such influence, mainly because the makeup of their families was not predominantly patriarchal. As a result, this demonstrates that the patriarchal family standards of the household are not influencing the student's choices in academics. According to a few respondents, some of the faculty believe gender disparity is a major issue in engineering. It is a male-dominated profession with a marked majority of the workforce being male and there is significant underrepresentation of women in professional STEM disciplines. The gender disparity and inequality have negative implications and create barriers that makes workplaces more challenging and less comfortable for women. Women find it difficult when there is gender stereotyping, when distinctions are made or there is discrimination at the workplace merely on account of their gender identity as they hinder their career advancement. However, all respondents stated that

faculty members treat the students on par without revealing any preference or bias for one gender over another.

3.3. Role of gender within friendship circles and in social interactions of students in the campus

All the respondents said that the classroom setting is an equitable and inclusive learning environment entirely devoid of any stereotypical gender prejudice and that both academic and non-academic staff members interact with male and female students in an equally respectful friendly? manner sans favoritism. The findings of the study indicate that when it comes to social relations, males are more interested in being part of peer groups, forging friendships and participating in enjoyable and energetic activities like sports and events. Contrarily, women rely on close and deep friendships for emotional support and give less importance to sports than men do. Teams are formed and leadership positions are held equally by male and female students, but the work classification reveals that men are generally deputed work such as arranging things off campus and logistics. In contrast, women are primarily involved in management and organization. This demonstrates that gender relations, roles and norms evident in the larger society are also visible within the sphere of the campus. Both men and women forge close relationships with members of their gender in friendship and peer circles; however, whereas males place a higher premium on belonging to the friend's circle, women do not accord such importance to maintaining cordial connections with their peers. Distractions from studies, lack of concentration and losing focus are dysfunctional aspects found to be equally present among the male and female students, which shows that gender relations are observed to be equally common in some aspects, while also being very different in some respects. Both male and female respondents report that they have good social interactions, and a majority of them agree that they enjoy meeting and spending time with friends and colleagues on a frequent basis. While male and female students on campus communicate well with one another, they do so with distinct viewpoints and expectations based on some elements of their gender relations. Strong friendship bonding is noted among men and the same holds true for women as well despite many differences in the dynamics of male and female friendships. Senior students mentioned that they enjoy good relations with female colleagues and mutually help each other. This could indicate that the difficulties of shyness, awkwardness, and reluctance to converse freely

with girls than boys once faced have decreased over the years.

3.4. Perception of gender differences by students

In the early stages of their academic life, some of the respondents are not aware of the gender stereotyping and inequalities in society and the workplace because they hail from a high-profile private institution and come from an economically and educationally privileged background. In addition, having been treated equally in their families and on campus, they remain unaware of the social reality of gender bias, discrimination, stereotyping and inequality which exists in every sphere outside their cloistered environment. However, a few of the female respondents also raised the issue of women in precarious situations and how they fight for their fundamental right of gender equality guaranteed by the Indian constitution and for senior leadership roles and top management positions on the job ladder. Also discussed were the ideas and points of view held by feminists regarding gender equality. Many male respondents provided their perspectives on preventing and reducing gender discrimination, stating that they believe gender norms should be challenged in society and that changes to abolish regressive social norms should be speedily implemented. When questioned about their thoughts on gender inequality in the student body, they stated that there are no instances of such discrimination on their campus; nonetheless, they all acknowledged that despite increased access to educational opportunities and greater inclusion of women in academic institutions, they continue to be vastly outnumbered and to face a number of barriers, challenges and biases. There is a skewed gender ratio with an evident inequality in the distribution of the ratio of men and women working in the engineering field.

4. Conclusions

The influence of traditional patriarchal socio-cultural norms and values on engineering students at a private university, has been investigated in this explorative research study. It is evident that there is increased awareness of patriarchy, gender traditionalism and gender inequalities among students. Earlier research studies [29] and statistics reveal that women face gender equality challenges due to the strong male dominance in STEM fields which must ideally have no gender boundaries. It is also clear that women are underrepresented in the field of engineering education [30]. Students tend to unconsciously internalize patriarchy; they

unintentionally display patriarchal practices, maintain some gender stereotypes, and adopt common perceptions imbued from society. They are not aware of their oppressive or discriminatory actions and therefore take no steps to prevent them. However, some of the students reflect the influence of patriarchy and gender prejudice from rigid cultural gender roles in family settings and society having witnessed first-hand male dominance, authority, power, and control. Although these students are generally not patriarchal in multiple ways, they do showcase a few norms of patriarchy thereby undermining gender equity. It is commendable that despite awareness of society's standards regarding traditional gender behaviour and rules, students adopt positive gender norms and forge favourable gender relations in many other aspects. The study is qualitative and has focused on investigating and gaining insights into students' perceptions on gender equality. The study finds that students, in some ways, perpetuate the stereotypical gender notions that they receive from society in the campus environment, while also paradoxically adopting measures to foster gender equality and restore gender balance. The present study has been carried out in an attempt to satisfactorily answer the following research question…....? The study's results will be significantly improved with the inclusion of a statistical analysis and with the use of quantitative methods of measurement. This will help in extending the analysis for application to a more extensive and varied population. Additional study on the same subject at many other private and public engineering institutions at the state and national levels would bring a greater understanding of gender perspectives in the engineering field which will be helpful in narrowing the gender gap by promoting and achieving gender neutrality. An assessment of the same study among workers in the STEM area will bring to light the many facets of gender relations, prevalent gender inequalities, lack of gender parity and the detrimental impact of persistent patriarchy on the industry.

Author Statements:

- **Ethical approval:** The conducted research is not related to either human or animal use.
- **Conflict of interest:** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper
- **Acknowledgement:** The authors would like to extend their gratitude to all the participants of this study.

References

[1]. Gupta N. (2020). Patriarchy reinforced or challenged? A study of engineering students in an elite Indian institute. *Gend Technol Dev.* 3;24(2):250–270.

[2]. Bose M, Mukhopadhyay CC, Seymour S. (1996). Women, Education, & Family Structure in India. *Pac Aff.* Spring 69(1):124.

[3]. Derne, S., & Jadwin, L. (2000). Male Hindi filmgoers' gaze: An ethnographic interpretation. *Contributions to Indian Sociology*, 34(2), 243-269.

[4]. Ram U, Strohschein L, Gaur K. (2014). Gender Socialization: Differences between Male and Female Youth in India and Associations with Mental Health. *Int J Popul Res.* 1–11.

[5]. Gupta, M. D., Chung, W., & Shuzhuo, L. (2009). Evidence for an incipient decline in numbers of missing girls in China and India. *Population and Development Review,* 35(2), 401-416.

[6]. Alvesson, M., & Due Billing, Y. (2009). Understanding gender and organizations.

[7]. Singh KK. (2017). Queering colonial power: Sikh resistance in the Ghadr movement. *Sikh Formations: Religion, Culture, Theory.* 13(4):268–90.

[8]. Burns J. (2017). Biopolitics, Toxic Masculinities, Disavowed Histories, and Youth Radicalization. *Peace Review.* 29(2):176–83.

[9]. Aneja A. (2019). Women's and gender studies in India: Crossings. Women's and Gender Studies in India: *Crossings.* 18;1–386.

[10]. Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and dimensions of culture. *Cross-cultural research*, 38(1), 52-88.

[11]. Bansal, P. (2012). Youth in contemporary India: Images of identity and social change. *Springer science & business media.*

[12]. Gupta N. Rethinking the relationship between gender and technology: a study of the Indian example. *Work, Employment and Society.* 2015 Aug 21;29(4):661–72.

[13]. Zollman A. (2012). Learning for STEM Literacy: STEM Literacy for Learning. *Sch Sci Math*. 112(1):12–9.

[14]. Li, Y., Froyd, J. E., & Wang, K. (2019). Learning about research and readership development in STEM education: A systematic analysis of the journal's publications from 2014 to 2018. *International Journal of STEM Education*, 6, 1-8. https://doi.org/10.1186/s40594-020-00207-6

[15]. AISHE Survey [Internet]. 2020 [cited 2023 Jan 11]. Available from: https://aishe.gov.in/aishe/viewDocument.action?documentId=277

[16]. Gupta N. (2020). Patriarchy reinforced or challenged? A study of engineering students in an elite Indian institute. *Gend Technol Dev*. 24(2):250–270.

[17]. Sonnert, G., Fox, M. F., & Adkins, K. (2007). Undergraduate women in science and engineering: Effects of faculty, fields, and institutions over time. *Social Science Quarterly*, 88(5), 1333-1356.

[18]. Bearman, S., Korobov, N., & Thorne, A. (2009). The fabric of internalized sexism. *Journal of Integrated Social Sciences*, 1(1), 10-47.

[19]. Gautam, M. (2015). Gender, subject choice and higher education in India: Exploring 'choices' and 'constraints' of women students. *Contemporary Education Dialogue*, 12(1), 31-58.

[20]. Patel, R., & Parmentier, M. J. C. (2005). The persistence of traditional gender roles in the information technology sector: A study of female engineers in India. *Information Technologies & International Development*, 2(3), pp-29.

[21]. Chatterjee C, Ramu S. (2018). Gender and its rising role in modern Indian innovation and entrepreneurship. *IIMB Management Review*. 30(1):62–72.

[22]. J. Robinson, G., & McIlwee, J. S. (1989). Women in engineering: A promise unfulfilled?. *Social Problems,* 36(5), 455-472.

[23]. Yoder, J. D. (1991). Rethinking tokenism: Looking beyond numbers. *Gender & society,* 5(2), 178-192.

[24]. Hall, R. M., & Sandler, B. R. (1982). The Classroom Climate: A Chilly One for Women?.1818 R Street, N.W., Washington, DC 20009.

[25]. Barthelemy, R. S., McCormick, M., & Henderson, C. (2016). Gender discrimination in physics and astronomy: Graduate student experiences of sexism and gender microaggressions. *Physical Review Physics Education Research,* 12(2), 020119. https://doi.org/10.1103/PhysRevPhysEducRes.12.020119

[26]. Nadal KL, Vigilia Escobar KM, Prado GT, David EJR, Haynes K. (2012). Racial microaggressions and the Filipino American experience: Recommendations for counseling and development. *J Multicult Couns Devel.* 40(3):156–173. https://doi.org/10.1002/j.2161-1912.2012.00015.x

[27]. Faulkner W. (2013). Doing gender in engineering workplace cultures. II. Gender in/authenticity and the in/visibility paradox. *Engineering Studies.* 1(3):169–89. https://doi.org/10.1080/19378620903225059

[28]. Faulkner W. (2009). Doing gender in engineering workplace cultures. I. Observations from the field. *Engineering Studies.* 1(1):3–18. https://doi.org/10.1080/19378620902721322

[29]. Gupta N. (2019). Intersectionality of gender and caste in academic performance: quantitative study of an elite Indian engineering institute. *Gend Technol Dev.* 23(2):165–86. https://doi.org/10.1080/09718524.2019.1636568

[30]. Weeden KA, Gelbgiser D, Morgan SL. (2020). Pipeline Dreams: Occupational Plans and Gender Differences in STEM Major Persistence and Completion. *Sociol Educ.* 93(4):297–314. https://doi.org/10.1177/0038040720928484