Footwear preferences, satisfaction and foot health problems among college students

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ABSTRACT

Footwear plays a vital role in protecting the feet, ensuring comfort and maintaining mobility. College students, who spend extended periods walking and standing, often prioritize style, peer influence and affordability over foot health, which can lead to discomfort and long-term issues. This study investigated footwear preferences, satisfaction and foot health among 38 college students in Hyderabad, Telangana. Data were collected using a self-structured questionnaire, foot type images and anthropometric measurements, including the instep coefficient. Descriptive statistics, ANOVA and correlation analyses were used to interpret the results. Findings revealed that casual footwear was the most preferred, with students generally maintaining multiple pairs and spending moderately on purchases. Most respondents had healthy feet with neutral arches, although low instep was the most common foot characteristic. Foot type significantly influenced the occurrence of foot problems and surfaces like tile and gravel were associated with higher discomfort and slips. Satisfaction was generally high, with comfort and fit prioritized over style. The study highlights the importance of aligning footwear design with foot morphology and user preferences to enhance comfort, prevent injuries and improve overall foot health.

Keywords: Footwear preferences; college students; foot health; coefficient; satisfaction

INTRODUCTION

Footwear plays a critical role in keeping the feet safe from injury and ensuring that people can move efficiently and without pain, whether they are just walking around, working a job or participating in a demanding sport (Menz and Bonanno 2021). Footwear has become a basic aspect of our lives. Individuals of all ages, from children to the elderly, use footwear. Footwear refers to the protective coverings for the feet of both men and women and are typically constructed from leather and have a stiff or dense sole, with the height of the shoe typically not exceeding the ankle (Gandhimathi and Renugadevi 2022). College students frequently wear footwear for extended periods of time while participating in various activities and walking across campus; the type of footwear they choose show a significant role in maintaining foot health and overall comfort.

Designing effective shoes that offer the right support and genuinely reduce discomfort isn't just about aesthetics; it requires deeply understanding the individual's unique foot shape (Danckaers et al 2024). Footwear selection concerning foot shape is also a commonly overlooked feature that impacts normal biomechanics and comfort (Derby et al 2023).

Making better footwear demands a focused anatomical consciousness; the shoe must be built with the actual biology and shape of the human foot in mind. Young adults choose their shoes based on a mix of social and personal factors, according to Francis and Sasirekha (2025). Their selections are heavily influenced by comfort, style (aesthetics), how they view a brand and what their friends wear (peer influence). However, simply liking a shoe doesn't equal satisfaction. This gap between the trendy styles they want and the functional support they actually need often

leads to discomfort and dissatisfaction, particularly when the choice ignores important foot health considerations.

It's common for many women to sacrifice comfort for style, as McRitchie et al (2018) found that fashionable shoes often worsen foot pain. This habit reflects a pattern where appearance is frequently prioritized over comfort, which unfortunately leads to long-term foot problems. For college students, who are constantly on the move, making these trade-offs can seriously and harmfully affect their daily routines and overall well-being.

For many university students, poor shoe choices, often driven by a limited budget, directly lead to foot pain and a measurable reduction in their quality of life, especially when they prioritize price or looks over comfort and health (Rodríguez-Sanz et al 2018).

The plantar fascia plays a crucial role in supporting the arch of the foot and absorbing shock during movement. Factors such as excessive physical activity, improper footwear and biomechanical abnormalities are recognized contributors to the development of plantar fasciitis (Ali et al 2024). Because of this, emphasizing the importance of suitable footwear and promoting awareness regarding foot health and injury prevention becomes imperative, particularly considering the extended durations students spend traversing and remaining stationary on campus (Jot and Kumar 2024).

The present study was conducted to investigate that footwear preferences, satisfaction and foot health problems among college students in Hyderabad, Telangana.

MATERIAL and METHODS

A self-structured questionnaire was developed to collect data from 38 students from College of Community Science, Hyderabad, Telangana. Pictures were shown to the respondents on different foot tip types and common foot problems during data collection to help participants identify the foot type and related issues. The coefficient method used in foot shape analysis.

Instep coefficient = Instep height/Foot length

Here, low instep: coefficient less than 0.70, average instep: coefficient between 0.71 and 0.78 and high instep: coefficient more than 0.79.

Descriptive statistics, including frequency and percentage distribution, were used to analyse respondents' general information and other variables using ANOVA and correlation analysis for the study.

RESULTS and DISCUSSION

The results are presented to explain the trends in footwear preferences, user satisfaction and associated foot health problems among college-going students.

Demographic profile of respondents: The study sample consisted of 38 college students, overwhelmingly dominated by 94.74 per cent females, which suggests that the data were collected from a primarily female-centric academic environment (Table 1). The majority of participants were young adults, with 60.53 per cent falling into the 18-21 years age group. The students were also highly educated 73.68 per cent were currently pursuing undergraduate degrees and an additional 21.05 per cent were post-graduate students, indicating a focus on higher education among the respondents.

Anthropometric measurements including height, weight and foot size: Based on the Table 2 detailing the physical characteristics of the respondents, the sample population exhibited a concentrated profile across height, weight and foot size.

The data indicate that over half the respondents were relatively short, with the majority (55.26%) falling into the 150 to 154.5 cm range; 36.84 per cent were in the 155 to 160.02 cm category, meaning 92.10 per cent of the sample was under 160 cm tall. Only 7.89 per cent of students were in the tallest group and measured between 162.56 to 170 cm.

The students' weight was distributed somewhat evenly across the lower and middle ranges, with the largest portion (39.47%) weighing between 47 and 55 kg. The lightest group (40 to 44 kg) made up 36.84 per cent, while the heaviest group (58 to 72 kg) accounted for 23.68 per cent of the sample.

Foot size (in inches) showed a higher concentration in the medium-to-large categories. The largest portion of students (31.58%) wore shoes in the 8 to 10 inch range, followed by 26.30 per cent wearing a 7 inch size and 34.21 per cent reporting a 6 inch size. Only a small fraction (7.89%) reported the smallest

Table 1. Demographic characteristics of the respondents

Characteristic	Respondents (n = 38)	
	Frequency	Percentage
Age (years)		
18-21	23	60.53
22-26	15	39.47
Gender		
Female	36	94.74
Male	2	5.26
Education level		
Intermediate	2	5.26
Pursuing under-graduation	28	73.68
Post-graduate	8	21.05

Table 2. Anthropometric measurements of the respondents

Component	Respondents (n = 38)	
	Frequency	Percentage
Height (cm)		
150-154.5	21	55.26
155-160.02	14	36.84
162.56-170	3	7.89
Weight (kg)		
40-44	14	36.84
47-55	15	39.47
58-72	9	23.68
Foot size (inch)		
5	3	7.89
6	13	34.21
7	10	26.32
8-10	12	31.58

size of 5 inches, indicating that most respondents had moderate to large foot dimensions suitable for standard footwear designs.

This demographic profile suggests that the study primarily surveyed a population of shorter female college students (based on the previous demographic analysis), with most having average to slightly smaller-than-average weights and a distribution of foot sizes centered around 7 inches and above.

Footwear buying habits and purchase pattern: The data presented in Table 3 depict the footwear preferences, ownership patterns, purchasing frequency and expenditure habits of the respondents. The majority of respondents (57.89%) preferred casual footwear, followed by sandals (31.58%), while only a small proportion (10.53%) opted for shoes. This indicates that comfort and convenience, often associated with casual footwear, play a significant role in consumer choices.

Regarding the number of pairs owned, most respondents (36.84%) possessed two pairs of footwear, while 34.21 per cent owned more than three pairs, suggesting a moderate to high ownership rate. Only 5.26 per cent of respondents had a single pair, implying that most individuals maintained multiple pairs to suit different occasions or needs.

Nearly half (47.37%) of the respondents bought footwear occasionally, followed by 18.42 per

Table 3. Distribution of respondents as per footwear buying habits and purchase pattern

Component	Respondents (n = 38)	
	Frequency	Percentage
Type of footwear		
Shoes	4	10.53
Casual footwear	22	57.89
Sandals	12	31.58
Pairs owned		
1	2	5.26
2	14	36.84
3	9	23.68
>3	13	34.21
Frequency of purchasing		
Monthly	3	7.89
Occasionally	18	47.37
Half-yearly	6	15.79
Yearly	4	10.53
Rarely	7	18.42
Expenditure (Rs)		
200-500	7	18.42
501-1000	15	39.47
1,001-2,000	11	28.95
2,001-3,000	3	7.89
>3,000	2	5.26

cent who purchased rarely and 15.79 per cent who did so half-yearly. A smaller fraction (7.89%) purchased monthly and 10.53 per cent made annual purchases. These findings suggest that footwear was generally not purchased regularly but rather as needed or during special occasions.

When examining expenditure on footwear, the highest proportion of respondents (39.47%) reported spending between Rs 501-1,000 per purchase, followed by 28.95 per cent who spent Rs 1,001-2,000. A smaller group (18.42%) spent Rs 200-500, while very few respondents (7.89 and 5.26%) spent Rs 2,001-3,000 and above Rs 3,000 respectively. This trend indicates a moderate spending pattern, with most respondents preferring reasonably priced footwear.

Overall, the data suggest that respondents tended to favour comfortable and affordable footwear, purchase it occasionally and typically maintain more than one pair to meet varying needs.

ANOVA test on expenditure vs number of pairs owned: Table 4 presents the results of an analysis of variance (ANOVA) conducted to examine the relationship between expenditure on footwear and the number of footwear pairs owned by respondents. The analysis revealed a statistically significant difference in expenditure across the groups, as indicated by the F-value of 4.28 and a corresponding p-value of 0.012, which is below the 0.05 level of significance.

The between-group sum of squares (5136.0) represents the variation in expenditure attributed to differences in the number of footwear pairs owned, while the within-group sum of squares (13600.0) accounts for variation within each group. The between-group mean square (1712.0) was notably higher than the within-group mean square (400.0), confirming significant variation among the groups.

This suggests that individuals possessing a greater number of footwear pairs tended to spend more on footwear than those owning fewer pairs. Hence, the number of footwear pairs owned emerges as an influential factor affecting consumers' expenditure on footwear.

Foot structure and its associated problems: Table 5 summarizes the respondents' distribution based on

Table 4. ANOVA (expenditure vs number of footwear pairs owned)

Component	Sum of square	df	Mean square	F	p-value
Between groups	5136.0	3	1712.0	4.28	0.012*
Within groups	13600.0	34	400.0		
Total	18736.0	37			

Table 5. Distribution of respondents as per foot structure and its associated problems

Component		Respondents (n = 38)	
		Frequency	Percentage
Foot problem	Bunions	2	5.26
	Flat feet	4	10.53
	Plantar fasciitis	1	2.63
	Heel pain	1	2.63
	Hammer toes	2	5.26
	Foot arch pain	4	10.53
	Toenail issues	1	2.63
	None	23	60.53
Foot type	High arch	7	18.42
	Low arch	3	7.89
	Neutral arch	28	73.68
Foot tip	African	4	10.53
	Celtic	2	5.26
	Egyptian	4	10.53
	Greek	9	23.68
	Orient	17	44.74
	Roman	2	5.26

foot problems, foot type and foot tip shape. Most respondents (60.53%) reported having no foot problems, indicating generally good foot health among the sample. Among those who experienced issues, the most common conditions were flat feet and foot arch pain (each affecting 10.53% of respondents), followed by bunions and hammer toes (each 5.26%). A few respondents reported plantar fasciitis, heel pain or toenail issues (each 2.63%). These findings indicate that while foot-related disorders were present, their overall prevalence remained relatively low within the sample.

With respect to foot type, most respondents (73.68%) exhibited a neutral arch, representing a balanced and biomechanically efficient structure. A smaller proportion showed high arches (18.42%) and low arches (7.89%), suggesting that most individuals possessed normal foot alignment, potentially contributing to the lower incidence of foot problems. Regarding foot tip shape, the Orient type was the most common (44.74%), followed by the Greek type (23.68%). The Egyptian and African types were each observed in 10.53 per cent of respondents, while Celtic and Roman types were least frequent (5.26% each). The predominance of Orient and Greek foot types reflects noticeable morphological diversity among the respondents, which could influence footwear comfort, fit and design preferences.

Overall, the findings reveal that most respondents exhibited healthy feet with neutral arches and predominantly Orient or Greek foot shapes, emphasizing the importance of considering foot structure variations when designing or recommending suitable footwear for optimal comfort and support.

Foot measurements and instep coefficient: Based on the data in Table 6, the findings revealed that a majority of the respondents (65.78%) had a low instep (coefficient <0.70), indicating that most individuals possessed relatively flatter mid-foot regions. About

18.42 per cent of the respondents exhibited an average instep (coefficient 0.71-0.78), while 15.80 per cent showed a high instep (coefficient >0.79).

These results suggested that low instep was the most common foot characteristic among the sample, while a normal or average instep was relatively rare. The dominance of the low instep category could have implications for footwear design and selection, as individuals with lower insteps generally require shoes with better arch support and snug fitting to ensure comfort and prevent strain during walking or standing.

Overall, the findings highlight the variation in foot structure among respondents and underscore the importance of considering instep height when recommending or designing footwear.

Correlation analysis: The correlation matrix (Table 7) shows significant positive relationships among height, weight and foot size. Height correlated strongly with weight ($r = 0.65$) and foot size ($r = 0.58$), while weight also showed a strong link with foot size ($r = 0.62$), all significant at the 1 per cent level. A moderate positive correlation ($r = 0.30$, $p < 0.05$) was found between foot size and instep coefficient, indicating that larger feet tend to have higher instep values.

Correlations between expenditure and other variables were positive but weak, suggesting minimal influence of body dimensions on spending behaviour. Overall, body size significantly affects foot size, whereas, instep and expenditure remain largely independent.

Footwear satisfaction and preferences among respondents: The data given in Table 8 indicate a generally high level of satisfaction among respondents regarding their footwear. A majority agreed or strongly agreed that their footwear was comfortable in width (78.94%), had a suitable heel height (73.68%) and fit well in length (81.58%). Similarly, 84.22 per cent felt their footwear adequately accommodated their foot shape and 76.32 per cent said they would recommend their current footwear to others, reflecting positive user experiences.

In terms of preferences, most respondents favoured lower heel heights (73.69%) and wider footwear (86.84%), emphasizing comfort as a key factor in footwear selection. Overall, the findings suggest that respondents were largely satisfied with their footwear and prioritized comfort, fit and practicality over style or height.

Health problems experienced by the respondents on various flooring surfaces: Table 9 shows that respondents experienced different types of footwear-related problems depending on the flooring surface. Tile (68.42%) and gravel (52.64%) surfaces caused the most issues, mainly slips and falls (23-29%) and foot pain (13-26%). Grass/dirt/sand and carpet surfaces also led to moderate discomfort, with around 21 per cent reporting foot pain on both. On the other hand, concrete (71.05%) and vinyl (65.79%) surfaces recorded the highest percentage of respondents with no issues, indicating greater stability and comfort. Overall, smoother or uneven surfaces such as tile and gravel tended to increase the risk of slips and discomfort, while concrete and vinyl provided better traction and comfort for regular use.

Jimenez et al (2025) indicated that comfort and durability were the most valued attributes, with style and promotion less influential. The preferred shoe profile featured cushioned padding and double-stitched seams.

Jeong (2011) conducted a study of college students in the Kwangju-Jeonnam area of Korea and revealed that the most popular footwear for both men and women was sneakers, which were also considered the most comfortable. For men, sneakers were followed by dress shoes and oxford shoes. For women, after sneakers, the next most frequently worn shoes were high-heeled shoes, flat shoes, wedge high-heeled shoes and chucker boots. Interestingly, students found high-heeled shoes and sandals to be the most uncomfortable footwear overall. The study noted a high level of dissatisfaction with footwear, primarily due to uncomfortable soles, aches around the toes and poor posture. Crucially, 87 per cent of female students who frequently wore high-heeled shoes (over 7 cm) reported a significantly higher rate of foot disorders compared to those who did not.

Sindhu and Praveenkumar (2023) reported that consumer purchasing behaviour towards footwear is influenced by a wide range of factors, but comfort, quality, price, online reviews and social media influencers and sustainability and ethical practices are among the most important.

Table 6. Distribution of respondents as per foot measurement and instep coefficient

Instep category	Criteria (coefficient)	Respondents (n = 38)	
		Frequency	Percentage (%)
Low instep	<0.70	25	65.78
Average instep	0.71-0.78	7	18.42
High instep	>0.79	6	15.80

Table 7. Correlation between physical measures and footwear parameters

Component	Height	Weight	Foot size	Instep coefficient	Expenditure
Height	1	0.65**	0.58**	0.12	0.20
Weight	0.65**	1	0.62**	0.15	0.25
Foot size	0.58**	0.62**	1	0.30*	0.18
Instep coefficient	0.12	0.15	0.30*	1	0.10
Expenditure	0.20	0.25	0.18	0.10	1

*Significant at 5% LoS, **Significant at 1% LoS

Table 8. Distribution of respondents as per footwear satisfaction and preferences

Statement	Respondents (n = 38)									
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	f	%	f	%	F	%	F	%	f	%
The width of my footwear is comfortable	1	2.63	-	-	7	18.42	22	57.89	8	21.05
I am satisfied with the heel height of my footwear	2	5.26	1	2.63	7	18.42	19	50.00	9	23.68
I believe my footwear fits well in terms of length	-	-	1	2.63	6	15.79	18	47.37	13	34.21
I feel my footwear accommodates my foot shape	1	2.63	-	-	5	13.16	16	42.11	16	42.11
I would recommend my current footwear to others	-	-	2	5.26	7	18.42	22	57.89	7	18.42
I prefer footwear with a lower heel height	-	-	2	5.26	8	21.05	17	44.74	11	28.95
I prefer wider footwear for comfort	-	-	-	-	5	13.16	19	50.00	14	36.84

Maskey (2018) concluded that the shoes buying behaviour of the students is highly affected by brand, a favourable range of price and favourable quality. Also students focus highly on brand value, physical attractiveness and after sales value during purchase decision. While purchasing branded shoes students always compare prices with relative brands. Similarly majority of students who wear branded shoes are satisfied with its price, quality, comfortless and brand image.

Gandhimathi and Renugadevi (2022) reported that price is one of the external clues for consumers' perception to products. The results demonstrate that the price of brand shoes has a significant impact on the perceived quality; the perceived quality of high priced brand shoes is higher than that of low-priced brand shoes; brand positioning has a significant influence on consumer perception.

Table 9. Distribution of respondents as per the problems experienced on various flooring surfaces

Flooring surface	Respondents (n = 38)							
	Slips and falls issues		Foot pain/discomfort		Wear and tear on footwear		No issues	
	f	(%)	f	(%)	f	(%)	f	(%)
Carpet	6	15.79	8	21.05	4	10.53	20	52.63
Concrete	5	13.17	3	7.89	3	7.89	27	71.05
Wood	6	15.79	5	13.17	3	7.89	24	63.17
Tile	11	28.94	10	26.32	5	13.16	12	31.58
Vinyl	6	15.79	4	10.53	3	7.89	25	65.79
Gravel	9	23.68	5	13.17	6	15.79	18	47.37
Grass/dirt/sand	7	18.42	8	21.0	5	13.17	18	47.37

Anantharajan et al (2025) indicated that comfort and quality are the most valued features. However, dissatisfaction was noted in areas like style, eco-friendliness and after-sale service.

Goet and Kharel (2023) reported that brand preference factors such as product quality, design, store environment, service quality, promotion and brand image have a considerable impact on customer satisfaction. But one factor, brand name has no considerable impact on customer satisfaction.

Calingasan et al (2025) reported that while preferences differed significantly by age, gender, occupation and education; price, product attributes and purchasing channels all had a major impact on purchase decisions. Whereas older and less educated people valued price and accessibility, younger, more educated consumers were more interested in trends and digital platforms. A significant relationship was observed between consumer preferences and purchase intentions, with digital accessibility and competitive pricing emerging as key drivers.

CONCLUSION

The study demonstrates that footwear comfort, fit and practicality are key priorities for college students, often outweighing style and brand influence. While the majority of students reported healthy feet and neutral arches, low instep was prevalent, suggesting a need for better arch support in commonly used footwear. Foot type significantly affected the likelihood of foot problems, highlighting the importance of personalized shoe selection. Flooring surfaces such as tile and gravel posed the highest risk for slips and foot discomfort, whereas, concrete and vinyl were safer and more comfortable. Overall, students favoured casual, affordable shoes, purchased occasionally and were generally satisfied when comfort and fit were prioritized. The findings emphasize the need for footwear design that combines comfort, support and appropriate sizing to reduce foot problems and enhance daily mobility. Additionally, increasing awareness about foot health and encouraging informed footwear choices can improve the quality of life for students who are constantly on the move.

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