



RESEARCH ARTICLE

Comparative analysis of home environment characteristics: A study of urban and rural farming adolescents

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Received: 23 November 2025; Accepted: 23 February 2026; Available online: Version 1.0: 22 March 2026

Cite this article: Patra K, Patra C, Mohanty B, Mahapatra SK. Comparative analysis of home environment characteristics: A study of urban and rural farming adolescents. *Plant Science Today*. 2026;13(sp1):01-06. <https://doi.org/10.14719/pst.12889>

Abstract

Home environment constitutes a fundamental determinant in influencing adolescents' emotional well-being, social competence and scholastic achievement. The present study examines and contrasts multiple factors of home environmental conditions experienced by adolescents residing in urban versus rural agricultural communities. Through random sampling methodology, a total of 200 participants ranging from 13 to 18 yr of age were selected. For collecting the response, a validated Home Environment assessment instrument that evaluated multiple domains, including parental emotional regulation, scholastic encouragement, family communication patterns and disciplinary approaches, was utilised. The findings demonstrate meaningful variations across numerous home environment characteristics like control, protectiveness, social isolation, deprivation of privileges, conformity, rewards, nurturance, rejection, permissiveness and social desirability. when comparing urban and rural adolescent populations. Particularly noteworthy were gender-related differences observed in several environmental dimensions between these two geographical contexts. It concludes that both urban and rural respondents present distinctive advantages and obstacles that shape adolescent development in unique ways.

Keywords: adolescent growth; agricultural rural communities; domestic environment; parental engagement; teenage development

Introduction

The adolescent period represents a pivotal developmental phase characterised by the transformation from childhood dependency to adult autonomy. This is the transitional stage and each developmental window exhibits distinctive biological, psychological and social characteristics that collectively shape the individuals' emerging identity and behavioural patterns. During these formative years, young people navigate intense physical changes, psychological reorganisation and evolving social relationships that fundamentally influence their developing sense of self and conduct. Throughout this critical period, the family environment functions as the primary and most powerful agent of socialisation. The home context plays an instrumental role in shaping core values, establishing emotional equilibrium, cultivating motivation and forming self-perception – elements that collectively establish the groundwork for subsequent adaptation and achievement in life (1). When adolescents experience a constructive and intellectually stimulating home atmosphere, they tend to develop greater self-assurance and demonstrate healthier developmental trajectories. Conversely, family environments characterised by persistent conflict or parental neglect may significantly impede both emotional maturation and academic progress (2).

Within the Indian context, Urban family units predominantly adopt nuclear configurations, with household members typically engaged in professional or service-sector occupations. These families characteristically prioritise formal education, encourage individual autonomy and embrace contemporary social values. Adolescents growing up in urban settings generally enjoy enhanced access to quality educational institutions, digital technological resources and diverse extracurricular developmental opportunities (3). The communication climate within urban households tends toward democratic patterns, actively promoting adolescent self-expression and fostering independent decision-making capabilities (4). Nevertheless, urban living arrangements simultaneously introduce distinctive challenges. The accelerated pace of city life frequently restricts the quantity of meaningful parent-child interaction time, potentially generating emotional disconnection and reduced parental oversight. These circumstances may contribute to psychological stress and feelings of social isolation among urban adolescents (5). Furthermore, the intense academic competition and societal performance expectations prevalent in urban environments can generate considerable stress, anxiety and psychological exhaustion among metropolitan adolescents. The relentless pressure to excel academically or conform to prevailing social trends may compromise their emotional health, despite residing in materially advantageous

circumstances (6). Consequently, while urban families provide more resource-rich and modernised environments, they occasionally fail to deliver consistent emotional nurturance and attentive presence, yielding mixed developmental outcomes for adolescents. Adolescents from rural agricultural families typically experience joint or extended household arrangements, maintained through strong kinship networks and adherence to traditional cultural norms. These family structures provide young people with robust feelings of communal belonging and solid moral foundations (7). Parental supervision and disciplinary practices in rural contexts tend toward greater strictness, emphasising values of respect, obedience and family cohesion. While adolescents in agricultural communities benefit from emotional intimacy and substantial community support networks, they may simultaneously face constraints on personal autonomy, limited access to educational resources and restricted exposure to diverse social experiences (8,9). Economic limitations combined with lower parental educational attainment levels can further shape parenting approaches and overall home environment quality (11).

Young people raised in rural farming communities develop within socio-cultural contexts deeply rooted in agricultural traditions, collective living arrangements and intimate family connections. Rural households more frequently adopt joint or extended family structures where multiple generations cohabit while sharing resources, labour responsibilities and decision-making authority. The daily rhythm of life in these agricultural households closely follows farming cycles—planting seasons, harvest periods and seasonal labour demands—activities that involve all family members, including adolescent children. This active engagement in agricultural work instils fundamental values including cooperation, personal responsibility and reverence for natural systems (7). However, rural adolescents often encounter limited exposure to contemporary educational technologies, internet connectivity and co-curricular enrichment experiences due to economic constraints and infrastructural limitations.

Conversely, many parents in rural farming families possess minimal formal schooling, directing their primary attention toward agricultural productivity and household subsistence (8). Their parenting philosophy tends to emphasise traditional values such as obedience, discipline and respect for elders rather than promoting self-expression or academic excellence. Nevertheless, rural farming families frequently compensate for these educational limitations by providing substantial emotional security, strong community integration and clear moral guidance. Urban parents, benefiting from more extensive educational backgrounds, typically adopt democratic or permissive parenting approaches that encourage open dialogue, personal autonomy and individual self-expression. Adolescents within such family systems often experience considerable independence and decision-making latitude (4). They encounter diverse perspectives through exposure to global media platforms and multicultural interactions, experiences that significantly shape their aspirations and worldview. However, this apparent developmental advantage also presents unique challenges.

The fast-paced urban lifestyle frequently diminishes the quantity of quality interaction time parents allocate to their children, resulting in emotional distance and weakened supervision (5). Within dual-career family structures, adolescents may experience loneliness, peer pressure, or identity confusion attributable to inadequate parental guidance. Moreover, academic competition and societal expectations can generate stress, anxiety and burnout

among urban adolescents. The persistent pressure to achieve academic excellence or conform to social trends may adversely affect their emotional well-being despite living in materially comfortable conditions (6). Thus, while urban families offer more resource-abundant and modernised environments, they sometimes fail to provide consistent emotional support and attention, resulting in mixed outcomes for adolescent development. Another significant distinction lies in the social environment and breadth of exposure experienced by these two groups. Urban adolescents typically interact with peers from diverse socio-economic and cultural backgrounds, an experience that encourages open-mindedness and social adaptability. However, this diversity also exposes them to competitive pressures, consumerist values and peer influence. By comparison, rural farming adolescents mature within more culturally homogeneous, tradition-oriented communities where social expectations are strongly influenced by cultural heritage and family reputation. While this stability ensures consistency and shared identity, it may also constrain individuality and limit aspirations beyond agricultural or traditional vocational paths (9).

Materials and Methods

The present study was conducted in the Sundargarh district of Odisha state to find out the differences in home environment among urban and rural adolescents. The urban samples were taken from Rourkela city, while the rural sample was drawn from different villages across the district. The data collection process was completed within a period of 25 days. The study comprised a total sample of 200 adolescent. The participants were selected by using simple random sampling method. The sample was equally divided into urban (n=100) and rural (n=100) groups, encompassing both male and female individuals aged 13 to 18 years. The home environment inventory (HEI) (10) was used as the primary assessment instrument to evaluate ten distinct dimensions of the domestic environment, namely control, protectiveness, punishment, conformity, social isolation, reward, deprivation of privileges, nurturance, rejection and permissiveness. The hei consists of 100 items. Each item is rated on a five-point likert scale ranging from “mostly” to “never”. The score for each dimension was calculated by summing the responses of the relevant item for each subscale. Higher or lower scores indicate the extent to which a particular dimension is present in the home environment. The administration procedure maintained confidentiality and followed standardisation procedures to encourage authentic participant responses. By using comparative statistical analyses on data from both geographical groups to identify differences in home environment dimensions between urban and rural adolescent populations within the district.

Results and Discussion

The investigation included 200 adolescents aged between 13 and 18 years (Mean age = 15.75 years, SD = 1.31) recruited from Rourkela, Sundargarh district, Odisha. The sample was equally distributed across urban (n = 100) and rural (n = 100) residential settings. Gender distribution revealed 102 male participants (50.5 %) and 98 female participants (49.5 %), ensuring balanced demographic representation across both geographical groups as shown in Table 1. This balanced sampling design enabled robust comparative analyses between urban and rural farming adolescents within Sundargarh district, a region characterised by its dual industrial-agricultural economic

Table 1. Demographic characteristics of study participants

Variable	n (%)
Total sample	200 (100 %)
Age range	13-18 years
Mean age (SD)	15.75 (1.31)
Urban	100(50.0 %)
Rural	100 (50.0 %)
Male	102 (50.5 %)
Female	98 (49.5 %)
Urban male	51 (25.5 %)
Urban female	49 (24.7 %)
Rural male	51(25.5 %)
Rural female	49 (24.7 %)

structure, where over half the population depends on agricultural livelihoods despite significant industrial presence (12). The selected age range effectively captures critical adolescent developmental phases during which home environment exerts significant influence on psychological and social outcomes (13).

Table 2 revealed that rural farming adolescents demonstrated elevated mean home environment scores ($M = 228.83$, $SD = 10.42$) when compared to their urban farming counterparts ($M = 224.10$, $SD = 9.34$). Gender-based comparisons revealed minimal differences between male adolescents ($M = 225.96$, $SD = 10.94$) and female adolescents ($M = 226.98$, $SD = 9.30$). When examining subgroups, rural males exhibited the highest mean scores ($M = 228.98$, $SD = 11.13$), whereas urban males displayed the lowest mean scores ($M = 222.94$, $SD = 9.97$). The elevated home environment scores observed among rural farming adolescents suggest distinctive family dynamics operating within the agricultural contexts of Sundargarh district. Research evidence indicates that farming families provide unique socialisation experiences characterised by the integration of work and family contexts, creating opportunities for meaningful parent-child interactions (14). Rural farming environments in Odisha emphasise intergenerational knowledge transmission and collaborative work patterns that strengthen family bonds (15). The

Table 2. Home environment scores across geographic and gender categories

Group	n	Mean	SD	Min	Max
All adolescents	200	226.46	10.15	202	256
Urban	100	224.1	9.34	203	244
Rural	100	228.83	10.42	202	256
Male	102	225.96	10.94	202	256
Female	98	226.98	9.3	203	248
Urban male	51	222.94	9.97	203	244
Urban female	49	225.29	8.59	207	242
Rural male	51	228.98	11.13	202	256
Rural female	49	228.67	9.76	203	248

Table 3. Home environment dimension scores by geographic group

Dimension	Urban mean (SD)	Rural mean (SD)	t-statistic	p-value	Cohens' d	Significance
Control	22.07 (3.68)	22.61 (3.99)	-0.982	0.3275	0.14	No
Protectiveness	21.12 (3.08)	22.88 (3.76)	-1.452	0.0481	0.31	Yes
Social isolation	22.47 (3.61)	22.58 (3.83)	-0.191	0.8488	0.027	No
Deprivation of privileges	22.70 (3.05)	22.78 (3.64)	-0.169	0.8658	0.024	No
Conformity	22.64 (3.69)	23.20 (3.85)	-1.056	0.2924	0.15	No
Reward	22.80 (3.46)	22.39 (3.90)	0.771	0.4416	-0.11	No
Nurturance	21.53 (3.76)	23.11 (4.07)	-2.053	0.029	0.30	Yes
Rejection	22.10 (3.42)	22.55 (3.99)	-0.842	0.401	0.12	No
Permissiveness	22.22 (3.47)	23.63 (3.58)	-2.802	0.0056	0.398	Yes
Social desirability	22.45 (3.67)	23.11 (3.69)	-1.255	0.2109	0.178	No

minimal gender differences align with findings indicating that farming families socialise all children into agricultural practices regardless of gender (16).

Urban farming adolescents recorded the following mean scores across dimensions as shown in Table 3: Control (22.07), protectiveness (21.12), social isolation (22.47), deprivation of privileges (22.70), conformity (22.64), reward (22.80), nurturance (21.53), rejection (22.10), permissiveness (22.22) and social desirability (22.45). In comparison, rural farming adolescents demonstrated higher scores across most dimensions: control (22.61), protectiveness (22.88), social isolation (22.58), deprivation of privileges (22.78), conformity (23.20), reward (22.39), nurturance (23.11), rejection (22.55), permissiveness (23.63) and social desirability (23.11). Statistical analyses revealed significant differences in three specific dimensions. Rural farming adolescents experienced notably higher protectiveness ($t = -1.452$, $p = 0.0481$, Cohens' $d = 0.31$) and nurturance ($t = -2.053$, $p = 0.029$, Cohens' $d = 0.30$), patterns that reflect agricultural family dynamics where close parent-child relationships develop through guided participation in farm activities (17). The elevated conformity scores observed in rural settings align with traditional farming values that emphasize personal responsibility and adherence to established family roles (18). Interestingly, higher permissiveness in rural farming contexts ($t = -2.802$, $p = 0.0056$, Cohens' $d = 0.398$) coexists paradoxically with greater parental control. This pattern suggests that rural parents grant autonomy in certain life domains while maintaining oversight in others—a characteristic pattern of farming families preparing children for eventual farm management responsibilities (19). Urban farming families situated within Rourkelas' industrial-agricultural interface may adopt different socialisation strategies influenced by proximity to urban educational and economic opportunities.

Independent samples t-test analyses revealed no statistically significant gender differences in overall home environment scores across multiple comparisons: the overall sample ($t = -0.706$, $p = 0.4811$), urban settings exclusively ($t = -1.253$, $p = 0.2131$) and rural settings exclusively ($t = 0.146$, $p = 0.8846$), as shown in Table 4. The absence of gender-based differences contradicts traditional assumptions regarding gender-differentiated parenting practices in agricultural communities. Contemporary farming families in Sundargarh increasingly recognise both sons and daughters as potential farm successors and valuable contributors to agricultural enterprises (16). This finding suggests that economic pressures and evolving social norms within Odishas' agricultural sector may be promoting more egalitarian family environments. The consistency observed across urban-rural boundaries indicates that gender equality in home environments transcends geographical contexts among farming families.

Table 4. Gender differences in home environment across geographic settings

Comparison	Male mean (SD)	Female mean (SD)	t-statistic	p-value	Significance
Overall (all areas)	225.96(10.94)	226.98 (9.30)	-0.706	0.4811	No
Urban area only	222.94 (9.97)	225.29 (8.59)	-1.253	0.2131	No
Rural area only	228.98 (11.13)	228.67 (9.76)	0.146	0.8846	No

The independent t-test from Table 5-6 demonstrated significant urban-rural differences ($t = 0.146$, $p = 0.0210$). Chi-square analysis confirmed significant distributional differences ($\chi^2 = 11.005$, $p = 0.0041$). The Permissiveness dimension revealed significant rural-urban differences ($t = -2.802$, $p = 0.0056$). Gender comparisons showed no significant differences overall or within specific geographic groups. Notably, two-way ANOVA revealed a significant area \times gender interaction effect ($F = 4.225$, $p = 0.0064$). The significant urban-rural difference reflects distinct ecological contexts that shape home environments in the Sundargarh district. Rural farming communities maintain traditional family structures characterised by intergenerational co-residence and collaborative agricultural work, fostering distinct parenting practices (20). The significant Permissiveness finding suggests rural farming families grant adolescents greater autonomy in decision-making processes, possibly reflecting early preparation for farm management responsibilities (14). The significant area \times gender interaction indicates that being male or female carries different implications for home environment experiences depending on urban versus rural farming contexts, highlighting the importance of examining intersectional effects in agricultural family research.

Significant differences emerged across three dimensions: protectiveness ($t = -1.452$, $p = 0.0481$, $d = 0.31$), nurturance ($t = -2.053$, $p = 0.029$, $d = 0.30$) and permissiveness ($t = -2.802$, $p = 0.0056$, $d = 0.398$). Non-significant differences were observed for control, social isolation, deprivation of privileges, conformity, reward, rejection and social desirability dimensions. These three significant dimensions reveal how rural farming environments in Sundargarh district create unique family dynamics. Higher protectiveness ($d = 0.31$) reflects agricultural parents' legitimate concerns regarding childrens' safety in farming contexts involving machinery and livestock (20). The elevated Nurturance ($d = 0.30$) challenges stereotypes portraying rural farming families as emotionally reserved, instead suggesting that farming contexts foster warmth through shared work experiences and mutual interdependence (13). The largest effect size for permissiveness ($d = 0.398$) indicates rural farming families grant adolescents substantial decision-making freedom, consistent with agricultural socialisation patterns preparing youth for independent farm management (14). The non-significant differences across seven dimensions suggest that fundamental aspects of home environment remain consistent across urban-rural farming contexts in Sundargarh, supporting theoretical perspectives on universal family processes.

Table 7 revealed that rural farming adolescents had the following distribution: 45 % in the high home environment category, 23 % in the low category and 32 % in the medium category. In contrast, urban farming adolescents demonstrated 25 % in the high

category, 41 % in the low category and 34 % in the medium category. This distribution reveals that rural farming adolescents in Sundargarh were approximately twice as likely to experience high-quality home environments compared to their urban counterparts. This pattern may reflect the integrated work-family context characteristic of agricultural settings, where adolescents participate in meaningful farm activities that foster stronger family connections (14). However, 23 % of rural farming adolescents experienced low home environment levels, potentially reflecting economic stressors associated with agriculture, limited access to family support services and challenges inherent to farming livelihoods in Sundargarh district, where irrigation limitations and land fragmentation affect farming viability (20, 21). The higher prevalence of low home environment levels among urban farming families (41 %) may reflect conflicts between agricultural traditions and urban opportunities, as urban-based farming families navigate dual identities and competing economic pressures. The chi-square significance ($p = 0.0041$) confirms that geographic setting substantially influences home environment quality among farming adolescents in Rourkela, warranting targeted interventions that address each contexts' unique challenges while leveraging its inherent strengths.

Conclusion

The present study provides empirical evidence that home environment dimensions differ across urban and rural contexts of Sundargarh district, reflecting the influence of socio-cultural structure, occupational patterns and family organisation. Rural farming environments demonstrated notably higher levels of Protectiveness, Nurturance and Permissiveness, reflecting traditional agricultural family dynamics that emphasise intergenerational knowledge transfer and collaborative work patterns. These findings underscore the necessity for geographically tailored family support programs. Such programs are essential to strengthen positive parenting practices, enhance emotional support and communication, address emerging challenges due to social and agricultural transition, prevent potential psychosocial difficulties during adolescence and leverage contextual strengths such as rural protectiveness and nurturance while enhancing urban emotional and educational support. Furthermore, geographically tailored interventions can help families adapt to changing socio-economic conditions while preserving culturally relevant strengths. Future research should examine longitudinal developmental outcomes associated with these distinct home environment patterns and explore intervention strategies that strengthen family functioning while respecting cultural contexts in both urban and rural agricultural settings.

Table 5. Statistical tests addressing study objectives

Objective	Statistical test	Test statistic	p-value	Result
Objective 1: Urban vs Rural (Overall)	Independent t-test	$t = 0.146$	0.2109	Significant**
Objective 1: Urban vs Rural (Levels)	Chi-square test	$\chi^2 = 11.005$	0.0041	Significant**
Objective 2: permissiveness dimension	Independent t-test	$t = -2.802$	0.0056	Significant**
Objective 3: gender (overall)	Independent t-test	$t = -0.706$	0.4811	Not significant
Objective 3: Gender in Urban	Independent t-test	$t = -1.253$	0.2131	Not significant
Objective 3: Gender in Rural	Independent t-test	$t = 0.146$	0.8846	Not significant
Objective 3: area \times gender interaction	Two-way ANOVA	$F = 4.225$	0.0064	Significant**

Table 6. Dimensional comparisons between urban and rural settings

Group	N	Total mean	Total sd	Control	Protectiveness	Social isolation	Deprivation of privileges	Conformity	Reward	Nurturance	Rejection	Permissiveness	Social desirability
Urban	100	224.101	9.337761	22.07071	22.12121	22.47475	22.69697	22.63636	22.79798	22.52525	22.10101	22.22222	22.45455
Rural	100	228.8283	10.42176	22.60606	22.87879	22.57576	22.77778	23.20202	22.39394	23.11111	22.54545	23.62626	23.11111
Male	102	225.96	10.93961	21.87	22.62	22.89	22.68	23.07	22.26	22.63	22.15	22.93	22.86
Female	98	226.9796	9.303563	22.81633	22.37755	22.15306	22.79592	22.76531	22.93878	23.0102	22.5	22.91837	22.70408
Urban Male	51	222.94	9.966085	21.54	22.16	22.86	22.22	22.72	22.26	22.5	21.7	22.32	22.66
Urban Female	49	225.2857	8.590208	22.61224	22.08163	22.08163	23.18367	22.55102	23.34694	22.55102	22.5102	22.12245	22.2449
Rural Male	51	228.98	11.12909	22.2	23.08	22.92	23.14	23.42	22.26	22.76	22.6	23.54	23.06
Rural Female	49	228.6735	9.760438	23.02041	22.67347	22.22449	22.40816	22.97959	22.53061	23.46939	22.4898	23.71429	23.16327

Table 7. Distribution of home environment quality levels by geographic area

Area	High	Low	Medium	All
Rural	45 %	23 %	32 %	100
Urban	25 %	41 %	34 %	100
All	70	64	66	200

Authors' contributions

KP and BM collected the data and prepared the manuscript. CP and SKM helped in data analysis using statistical methods. All authors reviewed and approved the final version of the manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interest to declare.

Ethical issues: None

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Additional information

Peer review: Publisher thanks Sectional Editor and the other anonymous reviewers for their contribution to the peer review of this work.

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