

Family Communication, School Climate, and Loneliness among Indian Gen Z Adolescents

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ABSTRACT

Background. During the critical phase of adolescence, individuals undergo rapid bodily and psychological changes that they may struggle to comprehend. While striving for autonomy, they may simultaneously experience emotional disconnectedness, thereby increasing their vulnerability to loneliness. In collectivistic societies like India, where close family bonds and supportive social environments play a central role in emotional development, it is essential to examine whether family communication patterns and adolescents' perceptions of school climate are associated with loneliness.

Objectives. The present study investigated the influence of Family Communication Patterns (Conversation orientation and Conformity orientation) and School Climate (Social emotional safety, Quality of instructions, Social emotional ethical learning, Morale) with Loneliness as well as gender differences among Gen Z in Himachal Pradesh, India.

Methods. The study comprised a sample of 406 adolescents (204 girls and 202 boys), aged 14–18 years, selected from public schools in Himachal Pradesh through stratified random sampling. Standardised tools were used to assess Family Communication Patterns, perceptions of School Climate, and Loneliness. Data were analysed using independent samples t-tests to examine gender differences, Pearson's correlation to assess associations among variables, and regression analysis to identify predictors of loneliness separately for Gen Z adolescent boys and girls.

Results. Findings revealed that Gen Z adolescent girls scored significantly higher on conversation orientation and all four dimensions of School Climate compared to Gen Z adolescent boys. No significant gender difference emerged in Loneliness. Among Gen Z adolescent girls, both Conversation and Conformity Orientation show significant negative correlation with Loneliness. Similarly, together, Conversation Orientation and Quality of Instruction explained 13 per cent of the variance in Gen Z adolescent girls' loneliness. Whereas no significant correlation and predictors emerged for Gen Z adolescent boys.

Conclusion. The study highlighted the protective role of open family communication and a supportive school climate in reducing loneliness among Gen Z adolescent girls. In contrast, no significant relationships were found between dimensions of school climate, family communication patterns with loneliness among Gen Z adolescent boys. This may

be attributed to boys' greater reliance on peer networks outside school and cultural norms that may discourage emotional expression. The findings emphasise the importance of gender-sensitive, school and family-based interventions to foster adolescent mental well-being.

Keywords: Family communication pattern; school climate; loneliness; Gen Z; gender differences; India

Highlights:

- The study examined how family communication patterns and school climate relate to loneliness among Indian Gen Z adolescents, highlighting gender-specific patterns.
- Significant gender differences were found in family communication patterns, with Gen Z adolescent girls scoring higher than Gen Z adolescent boys on conversation orientation.
- Conversation orientation showed a significant negative association and emerged as a significant predictor of loneliness among Gen Z adolescent girls.
- Quality of instruction, a key dimension of school climate, significantly predicted lower levels of loneliness among Gen Z adolescent girls.
- No significant associations were observed between family communication patterns, school climate dimensions with loneliness among Gen Z adolescent boys.

АННОТАЦИЯ

СЕМЕЙНАЯ КОММУНИКАЦИЯ, ШКОЛЬНЫЙ КЛИМАТ И ОДИНОЧЕСТВО У ПРЕДСТАВИТЕЛЕЙ ПОКОЛЕНИЯ Z, ПРОЖИВАЮЩИХ В ИНДИИ

Введение. В критический период подросткового и юношеского возраста дети переживают стремительные телесные и психологические изменения, которые им может быть трудно осмыслить. Стремясь к автономии, они одновременно могут испытывать эмоциональную разобщенность, что повышает их уязвимость к одиночеству. В коллективистских обществах, таких как Индия, где тесные семейные узы и поддерживающая социальная среда играют центральную роль в эмоциональном развитии, важно изучить, связаны ли паттерны семейной коммуникации и восприятие подростками школьного климата с наличием у них чувства одиночества.

Цель. В настоящем исследовании были проанализированы гендерные различия, а также влияние паттернов семейной коммуникации (ориентация на диалог и ориентация на соответствие) и школьного климата (социально-эмоциональная безопасность, качество обучения, социально-эмоциональное этическое обучение, моральный дух/настроение в коллективе) на чувство одиночества среди представителей поколения Z в Химачал-Прадеш, Индия.

Дизайн. Выборку составили 406 подростков (204 девушки и 202 юноши) в возрасте 14–18 лет, отобранных из государственных школ Химачал-Прадеш посредством стратифицированной случайной выборки. Для оценки паттернов семейной коммуникации, восприятия школьного климата и одиночества использовались стандартизированные инструменты. Анализ данных проводился с использованием t-критерия для независимых выборок (для изучения гендерных различий), корреляции Пирсона (для оценки связей между переменными) и регрессионного анализа (для выявления предикторов одиночества отдельно для юношей и девушек поколения Z).

Результаты. Результаты показали, что девушки поколения Z набрали значительно более высокие баллы по шкале ориентации на диалог и по всем четырем измерениям школьного климата по сравнению с юношами поколения Z. Значимых

гендерных различий в уровне выраженности одиночества не выявлено. Среди девушек поколения Z как ориентация на диалог, так и ориентация на соответствие показали значимую отрицательную корреляцию с одиночеством. Кроме того, совместно ориентация на диалог и качество обучения объяснили 13 процентов дисперсии одиночества у девушек поколения Z. У юношей поколения Z значимых корреляций и предикторов выявлено не было.

Выводы. Исследование подчеркивает защитную роль открытой семейной коммуникации и поддерживающего школьного климата в снижении чувства одиночества среди девушек поколения Z. Напротив, у юношей поколения Z значимых связей между измерениями школьного климата, паттернами семейной коммуникации и одиночеством не обнаружено. Это может быть связано с большей опорой юношей на сети сверстников вне школы, а также с культурными нормами, которые могут препятствовать эмоциональному самовыражению. Полученные данные подчеркивают важность гендерно-чувствительных интервенций на базе школы и семьи для укрепления психологического благополучия подростков.

Ключевые слова: Паттерн семейной коммуникации; школьный климат; одиночество; поколение Z; гендерные различия; Индия

Ключевые положения:

- Выявлены значительные гендерные различия в паттернах семейной коммуникации: девушки поколения Z показали более высокие баллы по ориентации на диалог по сравнению с юношами поколения Z.
- Ориентация на диалог продемонстрировала значимую отрицательную связь и выступила значимым предиктором одиночества среди девушек поколения Z.
- Качество обучения, ключевое измерение школьного климата, значимо предсказывало более низкий уровень одиночества среди девушек поколения Z.
- У юношей поколения Z не обнаружено значимых связей между паттернами семейной коммуникации, особенностями школьного климата и одиночеством.

RESUMEN

COMUNICACIÓN FAMILIAR, CLIMA ESCOLAR Y SOLEDAD EN ADOLESCENTES INDIOS DE LA GENERACIÓN Z

Antecedentes. Durante la fase crítica de la adolescencia, los individuos experimentan rápidos cambios corporales y psicológicos que pueden resultarles difíciles de comprender. Mientras luchan por su autonomía, pueden experimentar simultáneamente desconexión emocional, aumentando así su vulnerabilidad a la soledad. En sociedades colectivistas como la India, donde los lazos familiares estrechos y los entornos sociales de apoyo juegan un papel central en el desarrollo emocional, es esencial examinar si los patrones de comunicación familiar y las percepciones de los adolescentes sobre el clima escolar están asociados con la soledad.

Objetivos. El presente estudio investigó la influencia de los patrones de comunicación familiar (orientación al diálogo y orientación a la conformidad) y el clima escolar (seguridad socioemocional, calidad de la instrucción, aprendizaje ético socioemocional, moral) en la soledad, así como las diferencias de género entre la generación Z en Himachal Pradesh, India.

Métodos. El estudio comprendió una muestra de 406 adolescentes (204 chicas y 202 chicos), de 14 a 18 años, seleccionados de escuelas públicas en Himachal Pradesh mediante muestreo aleatorio estratificado. Se utilizaron instrumentos estandarizados para evaluar

los patrones de comunicación familiar, las percepciones del clima escolar y la soledad. Los datos se analizaron mediante pruebas t para muestras independientes para examinar las diferencias de género, correlaciones de Pearson para evaluar las asociaciones entre variables y análisis de regresión para identificar predictores de la soledad por separado para chicos y chicas adolescentes de la generación Z.

Resultados. Los hallazgos revelaron que las chicas adolescentes de la generación Z obtuvieron puntuaciones significativamente más altas en orientación al diálogo y en las cuatro dimensiones del clima escolar en comparación con los chicos adolescentes de la generación Z. No surgió ninguna diferencia de género significativa en la soledad. Entre las chicas adolescentes de la generación Z, tanto la orientación al diálogo como la orientación a la conformidad mostraron una correlación negativa significativa con la soledad. De manera similar, conjuntamente, la orientación al diálogo y la calidad de la Instrucción explicaron el 13 por ciento de la varianza en la soledad de las chicas adolescentes de la generación Z. Mientras que no surgieron correlaciones ni predictores significativos para los chicos adolescentes de la generación Z.

Conclusión. El estudio destacó el papel protector de la comunicación familiar abierta y un clima escolar de apoyo en la reducción de la soledad entre las chicas adolescentes de la generación Z. Por el contrario, no se encontraron relaciones significativas entre las dimensiones del clima escolar, los patrones de comunicación familiar y la soledad entre los chicos adolescentes de la generación Z. Esto puede atribuirse a una mayor dependencia de los chicos en las redes de pares fuera de la escuela y a normas culturales que pueden desalentar la expresión emocional. Los hallazgos enfatizan la importancia de intervenciones sensibles al género, basadas en la escuela y la familia, para fomentar el bienestar mental adolescente.

Palabras clave: Patrón de comunicación familiar; clima escolar; soledad; generación Z; diferencias de género; India

Aspectos destacados:

- Se encontraron diferencias de género significativas en los patrones de comunicación familiar, con las chicas adolescentes de la generación Z puntuando más alto que los chicos adolescentes de la generación Z en orientación al diálogo.
- La orientación al diálogo mostró una asociación negativa significativa y emergió como un predictor significativo de la soledad entre las chicas adolescentes de la generación Z.
- La calidad de la instrucción, una dimensión clave del clima escolar, predijo significativamente niveles más bajos de soledad entre las chicas adolescentes de la generación Z.
- No se observaron asociaciones significativas entre los patrones de comunicación familiar, las dimensiones del clima escolar y la soledad entre los chicos adolescentes de la generación Z.

RESUME

COMMUNICATION FAMILIALE, CLIMAT SCOLAIRE ET SOLITUDE CHEZ LES REPRÉSENTANTS DE LA GÉNÉRATION Z VIVANT EN INDE

Origines. À la période critique de l'adolescence et de la jeunesse, les jeunes traversent des changements physiques et psychologiques rapides qu'il peut leur être difficile de comprendre. En recherchant l'autonomie, ils peuvent simultanément éprouver un sentiment de détachement émotionnel, ce qui accroît leur vulnérabilité à la solitude. Dans des sociétés collectivistes comme l'Inde, où les liens familiaux étroits et un environnement social soutenant jouent un rôle central dans le développement émotionnel, il est important d'examiner si les schémas de communication familiale et la perception du climat scolaire sont liés au sentiment de solitude chez les adolescents.

Objectifs. Cette étude a analysé les différences de genre ainsi que l'influence des schémas de communication familiale (orientation vers le dialogue et orientation vers la conformité) et du climat scolaire (sécurité socio-émotionnelle, qualité de l'enseignement, apprentissage socio-émotionnel et éthique, moral/ambiance collective) sur le sentiment de solitude chez les représentants de la génération Z dans l'État de l'Himachal Pradesh, en Inde.

Méthode. L'échantillon comprenait 406 adolescents (204 filles et 202 garçons) âgés de 14 à 18 ans, sélectionnés dans des écoles publiques de l'Himachal Pradesh par échantillonnage aléatoire stratifié. Des instruments standardisés ont été utilisés pour évaluer les schémas de communication familiale, la perception du climat scolaire et la solitude. L'analyse des données a été réalisée à l'aide du test t de Student pour échantillons indépendants (pour examiner les différences de genre), de la corrélation de Pearson (pour évaluer les relations entre les variables) et de l'analyse de régression (pour identifier les prédicteurs de la solitude séparément chez les filles et les garçons de la génération Z).

Résultats. Les résultats ont montré que les filles de la génération Z obtiennent des scores significativement plus élevés en orientation vers le dialogue et sur les quatre dimensions du climat scolaire par rapport aux garçons. Aucune différence significative de genre n'a été observée concernant le niveau de solitude. Chez les filles, l'orientation vers le dialogue et l'orientation vers la conformité présentent toutes deux une corrélation négative significative avec la solitude. De plus, l'orientation vers le dialogue et la qualité de l'enseignement expliquent conjointement 13 % de la variance de la solitude chez les filles. Chez les garçons, aucune corrélation ni prédicteur significatif n'a été identifié.

Conclusion. L'étude met en évidence le rôle protecteur d'une communication familiale ouverte et d'un climat scolaire favorable dans la réduction de la solitude chez les filles de la génération Z. En revanche, chez les garçons, aucune relation significative n'a été trouvée entre les dimensions du climat scolaire, les schémas de communication familiale et la solitude. Cela peut s'expliquer par une plus grande dépendance des garçons envers les réseaux de pairs en dehors de l'école, ainsi que par des normes culturelles pouvant freiner l'expression émotionnelle. Ces résultats soulignent l'importance d'interventions sensibles au genre, basées sur l'école et la famille, pour renforcer le bien-être psychologique des adolescents.

Mots-clés: Schémas de communication familiale; climat scolaire; solitude; génération Z; différences de genre; Inde

Points principaux:

- Des différences significatives de genre ont été identifiées dans les schémas de communication familiale : les filles présentent une orientation vers le dialogue plus élevée que les garçons.
- L'orientation vers le dialogue montre une relation négative significative et constitue un prédicteur important de la solitude chez les filles de la génération Z.
- La qualité de l'enseignement, dimension clé du climat scolaire, prédit significativement un niveau plus faible de solitude chez les filles.
- Aucune relation significative n'a été observée chez les garçons entre les schémas de communication familiale, les dimensions du climat scolaire et la solitude.

Introduction

Generation Z adolescents (born between 1997 and 2012) are growing up amid rapid societal changes and global instability, which have contributed to unique psychological challenges, including increased stress and loneliness. The family serves as a secure emotional foundation where adolescents feel loved and accepted, regardless of exter-

nal circumstances (Butler, 2022). When an adolescent's need for love, understanding, and acceptance are met within the family, a strong foundation for emotional well-being is established, thereby reducing feelings of loneliness (Madsen, 2025). Within this context, the Family Communication Patterns framework, comprising Conversation Orientation (openness and relational warmth) and Conformity Orientation (hierarchy and control), as proposed by Ritchie and Fitzpatrick (1990), provides a critical lens for examining how familial dialogue styles shape an adolescent's well-being.

Despite its relevance, this framework remains underexplored in research focusing on gender differences in adolescent communication. Much of the existing literature relies on broader parenting styles or general communication inventories, which may overlook the nuanced effects of specific family communication dimensions. A classic study conducted by McNaughton (2000) found no significant gender differences in overall family communication pattern scores. However, parents tended to communicate more openly and protectively with daughters than with sons. Given the lack of recent studies using this scale to examine gender differences, no formal hypotheses regarding gender could be formulated. Although a meta-analysis by Endendijk et al. (2016) suggests a gradual narrowing of gendered parenting practices over recent decades, cultural and contextual differences persist. Furthermore, ease of communication with parents has been found to be more strongly associated with lower levels of loneliness among adolescent girls compared to boys (Rudolf & Kim, 2023; Madsen, 2025).

Beyond the family context, adolescents spend a considerable portion of their time in educational institutions, making the influence of school environments on psychological development significant. School climate, defined as the quality of relationships and practices within a school setting, has emerged as a robust predictor of adolescent mental health. A positive school climate, characterised by supportive teacher-student relationships, safety, fairness, and opportunities for autonomy, enhances students' sense of belonging and reduces emotional distress. Gender differences have also been observed in perceptions of school climate. For instance, Pan et al. (2023) reported that adolescent girls felt safer and more supported in school than boys. However, studies conducted in India reveal a more nuanced pattern. Musheer et al. (2016) found that boys rated school climate more positively, whereas Bhat and Mir (2018) and Bhat and Joseph (2019) reported more favourable perceptions among girls, particularly in private schools. These mixed findings underscore the need for continued gender-sensitive analyses of school environments.

Schools also provide opportunities for peer interaction and teacher support, both of which play a vital role in fostering adolescents' sense of belonging (Vanner, 2022). Research consistently demonstrates a negative association between school climate and loneliness (Carney et al., 2020; Arslan, 2021; Morin, 2022; Zheng et al., 2022; Jefferson et al., 2023). However, when both family and school environments fail to provide supportive networks, feelings of loneliness may intensify. Loneliness, defined as the subjective experience of inadequate social connection, is increasingly recognised as a major mental health issue among adolescents. Loneliness has been linked to diminished self-esteem, poor social competence, and broader psychosocial difficulties (Heinrich & Gullone, 2006). Several studies have examined the role of gender

in adolescent loneliness, but findings remain inconclusive. Studies have reported no significant gender differences in loneliness among Indian adolescents (Bajaj & Kaur, 2019; Maes et al., 2019). Conversely, Wedaloka and Turnip (2019) observed higher loneliness levels among female adolescents as compared to male adolescents. These varying outcomes underline the importance of further research to understand the influence of gender on loneliness within specific cultural and educational contexts.

Therefore, it is essential to address these relational contexts holistically to promote adolescents' emotional well-being and positive development during this critical stage of life.

Furthermore, several studies confirm that both Family Communication Patterns and School Climate independently and jointly predict Loneliness in adolescents. For instance, Liu et al. (2019) and Zheng et al. (2022) reported that teacher and peer support reduce loneliness, while Carney et al. (2020) and Arslan (2021) highlighted the protective role of school belonging. At a global level, Jefferson et al. (2023) found loneliness to have a significant negative correlation with academic engagement. On the family front, conversation orientation fosters openness and emotional security, reducing loneliness, while conformity orientation may suppress emotional expression and increase isolation (Endendijk et al., 2016; Madsen et al., 2025).

Despite these insights, key gaps remain. There is limited Indian research that jointly examines family and school-level predictors of loneliness among adolescents. Furthermore, few studies conducted in India have explored whether these experiences vary by gender. Importantly, the data for the present study was collected during the Omicron wave of the COVID-19 pandemic, a period marked by renewed school closures, hybrid learning models, and social isolation. These conditions may have further amplified adolescents' reliance on family communication and school connectedness, especially among Gen Z students navigating uncertain academic and emotional landscapes.

The present study addresses these gaps by examining how Family Communication Patterns (conversation vs. conformity orientation) and School Climate are associated with Loneliness among Gen Z adolescents in Himachal Pradesh, India. By centering a contemporary Indian adolescent cohort, i.e., Gen Z adolescents. This study aims to develop school and family level strategies for reducing loneliness and promoting Gen Z adolescent well-being.

Objectives

1. To assess and compare Conversation Orientation among Generation Z adolescent boys and girls.
2. To measure and compare Conformity Orientation among Generation Z adolescent boys and girls.
3. To assess and compare perceptions of School Climate (social-emotional safety, quality of instruction, social-emotional ethical learning, and morale) among Generation Z adolescent boys and girls.
4. To measure and compare Loneliness among Generation Z adolescent boys and girls.

5. To determine the effect of Family Communication Patterns (conversation and conformity orientation) on Loneliness among Generation Z adolescents.
6. To examine the effect of School Climate (social-emotional safety, quality of instruction, social-emotional ethical learning, and morale) on Loneliness among Generation Z adolescents.

Hypotheses

H01: Gen Z Adolescent Girls will perceive their School Climate more positively as compared to Gen Z Adolescent Boys.

H02: Gen Z Adolescent Girls will report significantly higher Loneliness as compared to Gen Z Adolescent Boys.

H03: There will be a significant negative correlation between Conversation Orientation and Loneliness among Generation Z Adolescent Girls.

H04: There will be a significant negative correlation between Conversation Orientation and Loneliness among Generation Z Adolescent Boys.

H05: There will be a significant positive correlation between Conformity Orientation and Loneliness among Generation Z Adolescent Girls.

H06: There will be a significant positive correlation between Conformity Orientation and Loneliness among Generation Z Adolescent Boys.

H07: There will be a significant negative correlation between School Climate (social emotional safety, quality of instructions, social-emotional ethical learning and morale) and Loneliness among Generation Z Adolescent Girls.

H08: There will be a significant negative correlation between School Climate (social emotional safety, quality of instructions, social-emotional ethical learning and morale) and Loneliness among Generation Z Adolescent Boys.

Methods

Participants

Data were collected during the Omicron wave of the COVID-19 pandemic, under partial lockdown conditions. Written informed consent was obtained from school authorities and parents, and assent was obtained from adolescents. Participation was voluntary and confidentiality was ensured. The sample comprised 406 adolescents (202 boys, 204 girls), aged 14–18 years, from Classes 9 to 12, drawn from ten public schools in Shimla, Himachal Pradesh, using stratified random sampling. Initially, 500 students from ten schools were targeted; however, incomplete responses and student unavailability reduced the final sample to 406 adolescents. On average, 50 students participated per school. Standardised tools were administered during school hours under teacher supervision in two phases to minimise fatigue. Measures included Family Communication Patterns Scale, School Climate Inventory, and Loneliness Scale. Data were analysed using IBM SPSS Statistics 20.

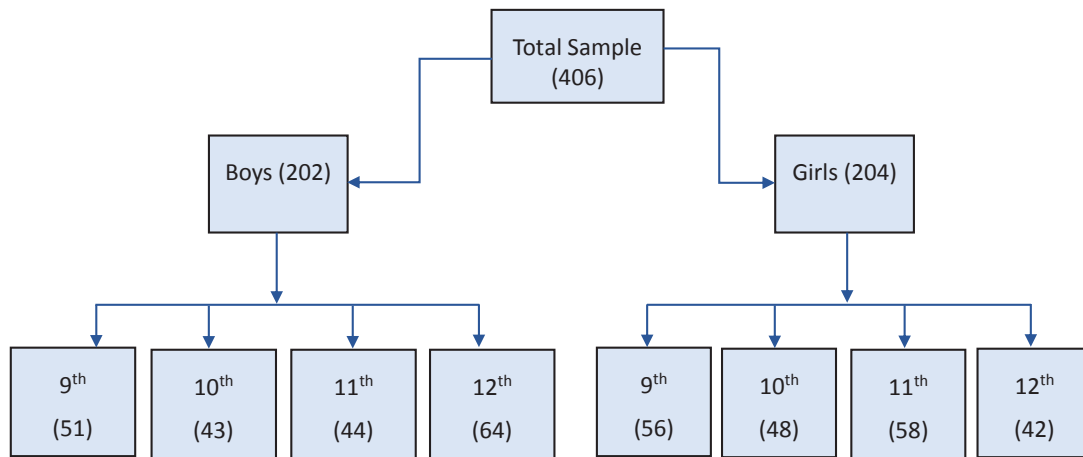


Figure 1. Schematic Representation illustrating the distribution of adolescents according to Gender and Class classifications

Materials

Questionnaires

Family communication patterns, School Climate and Loneliness were measured by the following standardised tests:

1. Family Communication Patterns Scale-R

The Family Communication Patterns Scale (Fitzpatrick & Koerner, 2006) assesses family communication through two subscales: Conversation Orientation (15 items), which measures the frequency and openness of family interactions on various topics, and Conformity Orientation (11 items), which evaluates communication focused on uniformity of beliefs and conflict avoidance. Responses are measured on a 7-point Likert scale, with higher scores in Conversation Orientation indicating more open communication, and higher scores in Conformity Orientation suggesting less flexibility in interactions.

The standardized scales demonstrated satisfactory reliability in the present sample. Cronbach’s alpha coefficients were .93 for Conversation Orientation and .89 for Conformity Orientation, indicating high internal consistency. Factor loadings ranged from .34 to .76 for Conversation Orientation and from .45 to .73 for Conformity Orientation, supporting the factorial structure of the scale. Evidence of construct, convergent, and discriminant validity has been established in prior research, and the scales performed adequately in the current study.

2. School Climate Inventory

The Comprehensive School Climate Inventory (Hatboro-Horsham High School, 2008) is a self-report tool comprising four subscales used in this study: Social-Emotional Safety (12 items), Quality of Instruction (14 items), Social-Emotional Ethical Learning (9 items), and Morale (7 items). Items are rated on a 5-point Likert scale

from 1 (“Strongly Disagree”) to 5 (“Strongly Agree”). Higher scores reflect a more positive perception of school climate. Average subscale scores below 2.5 indicate negative perceptions, above 3.5 indicate positive perceptions, and scores in between are considered neutral.

The School Climate Scale demonstrated satisfactory reliability in the present sample, with Cronbach’s alpha exceeding .80 across its dimensions. Previous research has reported an overall reliability coefficient of .78 (Musheer, Govil, & Gupta, 2018). The tool has been validated for content and construct validity, with construct validity established through correlations among its dimensions.

3. The UCLA Loneliness Scale Version 3

Developed by Russell et al. (1978), this is a 20-item self-report tool designed to assess subjective feelings of loneliness and social isolation. Respondents rate each item on a scale from 1 (Never) to 4 (Often), with several items reverse scored. Total scores range from 20 to 80, with higher scores indicating greater loneliness. Scores between 20–34 indicate a low level of loneliness, 35–49 reflect a moderate level, 50–64 suggest a moderately high level, and 65–80 represent a high level of loneliness.

The Loneliness Scale has demonstrated high reliability with internal consistency coefficients ranging from .89 to .94 and a one-year test–retest reliability of $r = .73$ (Russell, Peplau, & Cutrona, 1980). Convergent validity has been established through significant correlations with other measures of loneliness.

Statistical Methods

To analyse the collected data from the Gen Z adolescents the following statistical techniques were used:

- 1) **Comparison of means (t-test).** T-test was conducted to see the significance of differences between Gen Z adolescent boys and girls on two sub-variables of Family Communication Patterns (Conversation and Conformity Orientation), School Climate (Social-Emotional Safety, Quality of Instruction, Social-Emotional Ethical Learning, and Morale) and Loneliness.
- 2) **Correlation Analysis.** Pearson Correlation analysis was computed for two sub-variables of Family Communication Patterns (Conversation and Conformity Orientation), and School Climate (Social-Emotional Safety, Quality of Instruction, Social-Emotional Ethical Learning, and Morale) with Loneliness among Gen Z adolescent girls and boys.
- 3) **Step-wise Regression Analysis.** Step-wise regression analysis was carried out to see predictors of Loneliness separately among Gen Z adolescent boys and girls. The predicted variables were two sub-variables of Family Communication Patterns (Conversation and Conformity Orientation) and School Climate (Social-Emotional Safety, Quality of Instruction, Social-Emotional Ethical Learning, and Morale).

Results

Preliminary analyses confirmed that assumptions of normality and homogeneity of variance were met. *Table 1* reveals that Gen Z adolescent girls (M = 4.20) scored significantly (t = 3.8, p < .01) higher on the Conversation Orientation dimension as compared to Gen Z adolescent boys (M = 3.83). *Table 1* further indicates that Gen Z adolescent girls (M = 4.11) scored (t = 1.819) and Gen Z adolescent boys scored (M = 3.93). The effect size for Conversation Orientation was small to moderate (Cohen’s d = 0.38), indicating a modest but meaningful gender difference, with adolescent girls scoring higher than boys. Thus, adolescent girls were found to be significantly more open to conversations with their family members as compared to adolescent boys.

Furthermore, the *Table 1* indicates that adolescent girls (M = 4.11) scored (t = 1.819) and boys scored (M = 3.93). The effect size for Conformity Orientation was small (Cohen’s d = .18), suggesting that the observed gender difference was minimal in practical terms. Hence, there is no significant gender differences in conformity orientation among adolescents.

Table 1

Independent sample t-test for Gender Differences on Family Communication Patterns, School Climate, and Loneliness among Gen Z Adolescents

Sr. No.	Variables	Mean Males (N=201)	Std. Dev.	Mean Females (N=205)	Std. Dev.	t-ratio
A	Family communication patterns					
1	Conversation orientation	3.83	.929	4.20	1.02	3.802**
2	Conformity orientation	3.93	.908	4.11	1.11	1.819
B	School Climate					
1	Social-emotional safety	3.26	.548	3.48	.63	3.876**
2	Quality of instructions	3.15	.569	3.42	.50	5.070**
3	Social-emotional ethical learning	3.22	.625	3.54	.62	5.063**
4	Morale	3.22	.762	3.68	.76	6.490**
C	Loneliness	48.58	8.07	48.33	9.19	.289

Note. p < .05*

Furthermore, Gen Z adolescent girls (M = 3.48) scored significantly higher on Social Emotional Safety dimension (t = 3.876, p < .01) as compared to Gen Z adolescent boys (M = 3.26). The effect size for Social-Emotional Safety was small to moderate (Cohen’s d = .38), indicating a modest practical difference between adolescent girls and boys. The results showed that adolescent girls felt significantly more socially and emotionally safe in their school premises than adolescent boys.

The result also revealed that Gen Z adolescent girls (M = 3.42) scored significantly (t = 5.070, p < .01) higher on the Quality of Instructions as compared to Gen Z adoles-

cent boys ($M = 3.15$). The effect size for Quality of Instructions was medium (Cohen's $d = 0.50$), suggesting a meaningful practical difference, with girls perceiving better instructional quality than boys. Indicating that adolescent girls found the Quality of Instruction in their school significantly better than adolescent boys.

Table 1 suggests that Gen Z adolescent girls and boys also differed in social-emotional ethical learning. Gen Z adolescent girls ($M = 3.52$) scored significantly ($t = 5.06$, $p < .01$) higher on Social-Emotional Ethical Learning as compared to Gen Z adolescent boys ($M = 3.22$). The effect size for Social-Emotional Ethical Learning was medium (Cohen's $d = 0.51$), indicating a practically significant gender difference favouring adolescent girls.

Furthermore, it is evident from *Table 1* that Gen Z adolescent girls and boys were found to have differed significantly on the Morale dimension of School Climate. Further, Gen Z adolescent girls ($M = 3.68$) have significantly scored ($t = 6.490$, $p < .01$) higher as compared to adolescent boys ($M = 3.22$). The effect size for Morale was moderate (Cohen's $d = .60$), reflecting the strongest gender difference among the school climate dimensions, with girls reporting higher morale than boys. Therefore, *H01* "Gen Z adolescent girls will perceive their School Climate more positively as compared to Gen Z adolescent boys" was substantiated.

Lastly, the present results indicated that girls' mean scores ($M = 48.33$) on loneliness and boys' mean scores (48.58) have shown no significant gender differences ($t = .289$, n.s.) between adolescent girls' and boys' loneliness. The effect size for Loneliness was negligible (Cohen's $d = .03$), confirming that there is no meaningful gender difference in loneliness among adolescents. Therefore, the results showed no significant gender difference in Loneliness. Hence, *H02* "Gen Z adolescent girls will report significantly higher Loneliness as compared to Gen Z adolescent boys" was not proved.

Table 2

Correlation between Family Communication Patterns, School Climate, and Loneliness among Generation Z Adolescent Girls

Sr. No.	Variables	Loneliness
A.	Family Communication Patterns	
1.	Conversation orientation	-.297**
2.	Conformity orientation	-.187**
B.	School Climate	
3.	Social-emotional safety	-.144
4.	Quality of instructions	-.268**
5.	Social Emotional and Ethical Learning	-.136
6.	Morale	-.131

Note. $p < .05^*$

Table 2 indicate that there exist a significant negative correlation between Conversation Orientation ($r = -.297, p < .01$) and Loneliness, which signifies that more open the communication within families, the lower will be loneliness among adolescent girls. Thus, *hypothesis H03 stating that “There will be a significant negative correlation between Conversation Orientation and Loneliness among Generation Z Adolescent Girls”* was substantiated.

Table 2 further indicates that there was a significant negative correlation between Conformity Orientation ($r = -.187, p < .01$) and Loneliness among Gen Z adolescent girls. This shows that the family communication style which focuses on the homogeneity of beliefs and values to create cohesiveness among its family members was found to significantly suppress the sense of loneliness among adolescent girls. Therefore, *hypothesis H05 stating “There will be a significant positive correlation between Conformity Orientation and Loneliness among Generation Z Adolescent Girls”* was not proved. Furthermore, there has been a significant and negative correlation between Quality of Instructions ($r = -.268, p < .01$) a dimension of School Climate with Loneliness. The above results show that schools providing better quality of instructions in their curriculum significantly lowers the loneliness among adolescent girls. But the other three sub-variables of School Climate namely, social emotional ethical learning, social emotional safety and morale were found to have no significant correlation with Loneliness among adolescent girls.

Thus, *hypothesis H07 stating that “There will be a significant negative correlation between School Climate (social emotional ethical learning, quality of instructions, social emotional ethical learning and morale) and Loneliness among Gen Z among adolescent girls”* was partially proved.

Table 3

Correlation between Family Communication Patterns, School Climate, and Loneliness among Generation Z Adolescent Boys

Sr. No.	Variables	Loneliness
A.	Family Communication Patterns	
1.	Conversation	-.136
2.	Conformity	-.109
B.	School Climate	
3.	Social-emotional safety	-.087
4.	Quality of instructions	-.016
5.	Social-emotional and ethical learning	-.019
6.	Morale	-.050

Note. $p < .01^{**}, p < .05^{*}$

Table 3 shows no significant correlation between Conversation orientation ($r = -.136, n.s.$) and Loneliness among Gen Z adolescent boys. Further, the results indicated no significant correlation between Conformity Orientation ($r = -.109, n.s.$)

and Loneliness among Gen Z adolescent boys. From the results, it can be concluded that the family interaction style does not influence the loneliness of adolescent boys. Thus, the hypotheses *H04* “There will be a significant negative correlation between conversation orientation and loneliness among Generation Z adolescent boys”, *H06* (“There will be a significant positive correlation between Conformity Orientation and Loneliness among Generation Z Adolescent Boys”) and *H08* (“There will be a significant negative correlation between School Climate (social emotional safety, quality of instructions, social-emotional ethical learning and morale) and Loneliness among Generation Z Adolescent Boys”) were not proved.

Table 4

Stepwise Multiple Regression Analysis of Different Variables as Predictors of Loneliness among Gen Z Adolescent Girls

Sr No.	Variables	r	B	t	R2	R2 Change	F-ratio (R2 Change)
1.	Conversation orientation	-.297**	-.247	-3.65**	.088	.088	19.57**
2.	Quality of Instructions	-.268**	-.210	-3.10**	.130	.042	9.64**

Note. $p < .01^{**}$ and $p < .05^{*}$

Table 4 suggests that the significant predictors of Loneliness among Gen Z adolescent girls were Conversation Orientation ($\beta = -.247$ and $t = -3.65$, $p < .01$) and Quality of Instruction ($\beta = -.21$ and $t = -3.10$, $p < .01$). Thus, lower Loneliness among adolescent girls was predicted by higher scores on Conversation Orientation and Quality of Instructions accounted for 9 per cent ($F = 19.57$, $p < .01$) of variance and Quality of Instruction and this variable accounted 4 per cent of variance ($F = 9.64$, $p < .01$) in the Loneliness of Gen Z adolescent girls. These two variables accounted for 13 per cent of the variance in Loneliness.

Discussion

The results showed that there were significant gender differences between Gen Z adolescent girls and boys on the conversation orientation dimension of family communication patterns. Significantly, Gen Z adolescent girls scored higher on the conversation-orientated dimension as compared to Gen Z adolescent boys.

The reason for significant differences could be the prescribed gender roles, where culture and society play a pivotal role in influencing gender-based behaviour. Social traditions have impacted self-expression within the family, so it is common for girls to be more expressive than boys. It has been observed that in the family, girls do not hesitate to discuss their problems, whereas boys do because it may be taken as a sign of weakness. Many studies have found that the way mothers and fathers communi-

cate with children based on their gender influences the way they interact with other members of a family (McNaughton, 2000; Marks, 2009; Bornstein, 2016).

Furthermore, no significant gender differences were found between Gen Z adolescent girls and boys on the conformity orientation dimension. The results are in line with another study conducted by Kohli (2018). Furthermore, the mean scores for both Conversation Orientation and Conformity Orientation were relatively high and above the scale midpoint, suggesting that Gen Z adolescents perceive their family environment as characterized by open dialogue alongside adherence to family hierarchy. This indicates that the family encourages open communication but at the same time also wants to maintain the hierarchy within the family.

The results further revealed that Gen Z adolescent girls scored significantly higher on all the dimensions of school climate (i.e., social-emotional safety, quality of instructions, social-emotional ethical learning and morale) as compared to Gen Z adolescent boys. The results agree with Adetunji's (2016) classic study, which concluded that adolescent girls perceived school staff as having higher expectations of them and as being more concerned about their academic achievement. This perception may contribute to girls viewing their school environment more positively than adolescent boys. Such expectations can be understood through gender socialisation processes, wherein girls are often raised in ways that align more closely with institutional norms and behavioural expectations of schools as they have higher need for affiliation (Pyrne, 2020; Swinson & Harop, 2009).

The results further indicated no significant gender differences in the levels of loneliness among Gen Z adolescent girls and boys. However, in the current study, moderate levels of loneliness were observed among adolescents. Similar findings were reported by Groarke et al. (2020) and Bagaskara et al. (2021), who also found no significant gender differences in loneliness among adolescents. The absence of gender differences in the present study may be due to the pandemic context, wherein adolescents of both genders were equally engaged in online classes and academic responsibilities.

Another important finding of the present investigation was that conversation orientation had a significant negative correlation with loneliness among Gen Z adolescent girls. These results were further corroborated by the results of the regression analysis which indicated that conversation orientation has emerged as a significant predictor of loneliness among Gen Z adolescent girls. This suggests that open and expressive family communication and a positive instructional environment at school play a key role in mitigating loneliness. Girls who felt heard and supported at home reported lower loneliness, aligning with previous studies (Canas et al., 2020; Heshmanti et al., 2021) that emphasised the protective role of open family dialogue. The findings also align with gender socialisation theories, where girls are encouraged to express emotions and build emotionally secure relationships with family members (Timmer & Fischer, 1998).

On the contrary, Conformity Orientation was also negatively correlated with loneliness in Gen Z adolescent girls, although not a significant predictor in the regression analysis. Girls may feel more connected when they conform to family expectations due to their stronger social need for acceptance (Gino & Brooks, 2015). Ado-

lescent girls in Indian families are often socialised to respect rules and expectations, which might enhance their sense of belonging rather than isolation when conformity is encouraged in a liberal yet structured manner.

Quality of Instruction at school (one of the dimensions of School Climate) significantly predicted lower loneliness in Gen Z adolescent girls. This is supported by existing research (Morin, 2020; Zhang, 2020; Jefferson et al., 2023), which notes that emotionally supportive teachers and high instructional quality foster a sense of belonging and connection in classrooms. Girls may internalise these experiences more deeply due to their higher need for affiliation and emotional bonding, making teacher support a buffer against loneliness. Together, conversation orientation and quality of instruction explained 13 per cent of the variance in loneliness among Gen Z adolescent girls, showing that both home and school contexts are essential for emotional well-being in this group.

In contrast, for adolescent boys, no significant correlations were found between Conversation Orientation, Conformity Orientation, or any dimensions of School Climate with loneliness. These findings suggest that boys' experiences of loneliness are influenced by different psychosocial factors compared to girls. Cultural expectations and gender norms may discourage boys from expressing emotions openly, resulting in lower perceived emotional support from family (Polce-Lynch et al., 1998; Xiau et al., 2011). As a result, family interaction patterns may have a limited impact on their emotional well-being. Moreover, during adolescence, boys tend to shift their focus from family to peers, making peer relationships more influential than family communication in determining their loneliness (Livingston, 2019; Zimmerman, 2020).

Similarly, School Climate factors did not significantly correlate with loneliness among Gen Z adolescent boys. One possible explanation is that boys may have developed alternative support networks outside of school, including peer groups or online communities which compensate for any lack of connection at school. The Cognitive Discrepancy Theory (Peplau & Perman, 1998) supports this by suggesting that loneliness arises when there is a mismatch between desired and actual social connections. If boys can meet their social needs outside the school environment, school climate may exert minimal influence on their loneliness.

Additionally, the unique context of the COVID-19 pandemic may have altered typical social dynamics. With increased time spent at home and limited face-to-face schooling, boys might have adapted to new modes of social interaction, reducing the relevance of both school climate and family communication in explaining loneliness. This shift could also explain the absence of significant gender differences in overall loneliness levels. Both boys and girls reported moderate levels of loneliness, likely influenced by the shared experience of remote learning, disrupted routines, and constant family presence during lockdowns.

Practical Applications

The findings suggest that collaborative efforts from families, schools, and mental health professionals are essential to support adolescents in navigating emotional and

social challenges. Initiatives that foster strong interpersonal relationships both at home and in school can contribute meaningfully to reducing feelings of loneliness and enhancing overall adolescent well-being.

Conclusion

The study revealed that the structured family environment which allow space for open expression was reported to benefit Gen Z adolescent girls' mental health. Moreover, Family Communication and School Climate was found to serve as protective factors against Loneliness for Gen Z adolescent girls. On the contrary, family communication patterns and school climate showed neither significant correlations nor predictive effects on loneliness among Gen Z adolescent boys. This suggests that loneliness among boys may be shaped by other psychosocial influences beyond the family and school context.

Limitations

The present study data collection took place during the COVID-19 pandemic, a period marked by increased stress, disrupted routines, and limited social interaction, all of which may have influenced participants' responses. The sample was also drawn from a specific geographic region, which may limit the generalisability of the findings.

Ethics Statement

Written informed consent was obtained from the parents of all participating students. Additionally, teachers were informed about the study and received recommendations regarding the participants' well-being and developmental needs. The study was conducted in accordance with ethical guidelines for research involving minors.

Author Contributions

The research design, data collection, and experiments were carried out by Akanksha Jaswal. Data analysis, including correlation and regression analyses, was also conducted by the author. The author interpreted the results, prepared the manuscript, and approved the final version for submission.

Conflict of Interest

The author declares no conflict of interest.

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