



Development and Validation of a Scale Measuring Home-Based Parental Involvement in Adolescents' Academic Activities

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Abstract

Background: The growing academic pressures, due to the increasing social competition, have made Parental Involvement (PI) a critical variable influencing the academic achievement and mental health status of adolescents within the Indian socio-cultural scenario. However, the existing measurement devices have been constructed using the western perspective and self-reports by the parents, with little consideration for adolescents' perspective in the Indian scenario.

Problem: No validated multi-dimensional scale for measuring Home-Based Parental Involvement in the academic activity of adolescents in India, especially Madurai.

Method: This study was conducted to propose a PI scale from the viewpoint of adolescents at home. The initial pool of 82 items was developed based on the available literature and models of PI and EST. Secondary school students studying in Madurai, Tamil Nadu, $n=800$ took part in the research via the survey method. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) models using the SPSS 27 and AMOS 23 software were applied for validating the proposed factor structure. Also, reliability and concurrent validity analysis of the instrument was carried out.

Results: The Kaiser-Meyer-Olkin (KMO) value of 0.912 and the results of Bartlett's test of sphericity ($\chi^2 = 17315.592$, $p < 0.001$) indicated the adequacy of the data for factor analysis. The six-factor structure was proven with EFA and CFA. The extracted factors accounted for 33.45% of the total variance. The reliability values ranged from 0.698 to 0.754. Moreover, significant positive correlations were identified between PI, psychological well-being ($r = 0.418$, $p < 0.01$) and academic performance ($r = 0.302$, $p < 0.01$).

Conclusion: It can be seen from the outcomes that the developed scale is reliable, valid as well as culture-specific tool to measure home-based PI in the context of adolescent academics.

Keywords: Home-based Parental Involvement, Adolescents, Scale development, Validation, Psychological well-being, and Academic Performance.

1. Introduction:

Parental Involvement (PI) in children's academic activities is widely recognized as an important factor influencing students' academic achievement, educational aspirations, and

psychological development (Yang et al., 2022). PI in education refers to the activities that parents perform to help their children succeed academically and develop social and emotional skills (Mocho, Martins, Ratinho, et al., 2025). It can take various forms, such as home-based assistance, school-based discussions, and visiting the school to communicate with teachers (Shon & Jilke, 2022). Recently, social competition has increased, leading parents to elevate their expectations about their children's accomplishments (Liu et al., 2025). Parents are gradually using various methods to attain better educational opportunities for their children, as they expect their children to achieve success and have a better future ahead. (Liu et al., 2024; Woo & Choi, 2025). However, the period of adolescence serves as an essential developmental stage during which parents need to provide their children with support and guidance, because this time frame shapes their children's academic behavior and learning results (Mocho, Martins, Dos Santos, et al., 2025). The modern learning landscape now demands that parents provide support to their children at home (van der Vlies, 2020). Therefore, home-based PI, including academic monitoring, emotional encouragement, provision of learning resources, and guidance in time management, contributes to students' academic engagement and performance by fostering positive learning environments that enhance students' motivation, confidence, and academic performance.

The construct of PI encompasses diverse dimensions of parental support and various ways that parents participate in their children's education (Farsijani et al., 2022). Previous studies (Alter et al., 2025; Cosso et al., 2022) discovered multiple aspects of PI, which include academic assistance and emotional support, academic progress monitoring and learning material distribution (Alharthi, 2023). These three aspects of parental involvement in the education field for their kids have helped students get ahead academically by two separate channels. Active involvement in the field of education by parents for their kids helps build up academic discipline, improves study habits and educational aspiration. Adolescents in the modern-day environment of academia face challenges like the pressure of academics, career-related indecision, difficulties with time management and digital distractions (Berdida, 2023). Due to the pressures of excessive academic life, the adolescents are more prone to suffer from psychological issues, lack creativity, become less enthusiastic about their independent study. This practice contributes to educational inequality, leading to social divides that do not allow people to reach their full potential. There is much work to be done in the field of psychological science to fill the gaps existing in the empirical knowledge concerning parents' education engagement in India. It is necessary to conduct research into the full impacts of PI on adolescent development, including the examination of its psychological meaning and essential cultural factors. Students have to form their academic study patterns due to increased academic pressure (Cheng & Lin, 2023).

However, the creation of a PI assessment scale is challenging since the PI assessment patterns vary depending on the socio-cultural context, education system and family background (Mocho, Martins, Dos Santos, et al., 2025). While there are many PI assessment tools available today, most of them tend to originate from the West and do not take into account some unique aspects of socio-educational life of developing countries such as India. PI exhibits variation depending on many aspects including educational qualifications of parents, type of their profession, economic situation of the family and culture. Therefore, the creation of tools that can be used to assess home PI should be carried out since educational

institutions need tools that would take into account their unique cultural features (Wildmon et al., 2024). There can be differences in PI for students who study in government, private, and aided schools due to the varying institutional expectations and family environment. It has been shown by (Khaleel & Mohammad, 2024) that there could be some differences in the PI of working and non-working parents and family structures and qualifications. The theory related to psychological well-being (Ryff & Keyes, 1995) states that environmental mastery and positive relations, which come through parental guidance, are the basic prerequisites of psychological well-being of the student. The current situation calls for developing a holistic measure for assessing the PI.

The development and validation of these instruments become very important, especially in ensuring that the measurement of PI is carried out in an appropriate manner. There is a need for a valid instrument to measure PI and at the same time establish the areas where intervention should be focused. This means that the instrument has to go through the process of psychometric validation in order to check the reliability and validity of the instrument in providing an accurate measurement of the target construct. In this case, the EFA model will be used in order to identify the main constructs of PI while the reliability test will be used in establishing the consistency of the scale over time. The current research seeks to construct and analyse an Indian home-based PI scale for assessing the phenomenon of PI in adolescents' educational performance. The measurement device effectively evaluates multiple aspects of PI which, in fact, are important when considering adolescents' academic development and progress. The validity and reliability of the instrument are proven through the use of the employed statistical procedures. The proved scale will hopefully become useful for assessing PI in various educational contexts.

1.1 Problem Statement

The academic activities of adolescents need PI since the involvement creates pathways that would help to improve the academic performance and growth of the individual. However, the quantification of home-based PI is difficult owing to the unavailability of a best scale and culturally-relevant instrument. Moreover, most of the existing PI scales either measure general or school-based involvement while home-based involvement is more complex than that. Additionally, the existing scales have been developed in western countries and cannot fully reflect the socio-cultural differences and educational structural differences in India. PI in India differs based on school types, education boards, and working condition of parents. These factors affect how the parents support the academic activities of their adolescent children. There are many studies done on PI and its effects on academic performance but most of the literature is based on self-reported measures by parents only. Little attention has been paid towards home-based PI among adolescents. Research community is lacking in validated scales which can be used to measure home-based PI among diverse educational and social background. Existing educational research needs validated scales in order to have measurement tools in the educational environment. The current study attempts to develop and validate a scale. It is designed to measure a home-based PI in adolescent academic activities from the perspective of the adolescents themselves.

1.2 Significance of the study

PI in adolescent educational activities functions as an essential factor that determines students' academic performance, their mental health, and their total life development. The

need for a complete testing system that reflects local cultural values prevents researchers from studying home-based PI and developing effective intervention programs for this research area. The present study establishes a solution for this existing research gap through the development and validation of a scale that assesses home-based PI in adolescent educational activities. The research findings will deliver essential research elements that will advance educational research, policy formation and educational teaching methods. The study provides educational researchers with a validated psychological assessment tool that measures home-based PI among adolescents. The scale enables researchers to conduct comparative studies between various types of schools and educational boards and different socio-demographic categories, which drive research on PI and student academic performance.

The study enables educators and school administrators to use the scale for two purposes, which include determining PI levels and creating methods to improve home-school partnerships. The program helps parents understand essential involvement areas, which include academic support and motivation, time management and emotional support, so they can effectively participate in their children's educational activities. The study helps society progress because it helps adolescents achieve better educational results. Increased PI results in improved academic performance for students, decreased dropout rates and enhanced psychological well-being for students. The study advances educational progress through its discovery, which shows that increased PI leads to better academic results and the development of social responsibility in students. The study provides value to researchers, educators, parents and policymakers by presenting a complete home-based PI assessment tool, which helps measure its impact on adolescents' academic performance.

1.3 Research Objectives

The objectives of the current research are as the following,

- To develop materials that demonstrate how adolescents complete their academic work from their home environment.
- To validate the proposed dimensions of home-based PI through EFA and Confirmatory Factor Analysis (CFA).
- To establish the reliability and validity of the developed scale using psychological well-being and academic performance measures.
- To develop a multidimensional scale measuring home-based PI in academic activities as perceived by adolescents.

The remaining section of the research is as follows: Section 2 analyses relevant literatures that are related to PI and scale development. The third section describes the methodology, including the sample, data collection, and statistical techniques. The fourth section details the scale construction and validation methodology, followed by the findings and discussions. The conclusion section brings the paper to its conclusion and draws out implications.

2. Literature Survey:

In case of home-based education, there are many aspects that are covered by PI ranging from expectations of parents regarding academic achievements of their kids, their level of supervision at home, emotional involvement when any school-related problem surfaces to the extent to which they support learning through school tasks and homework. There is another aspect too of the rate or frequency of parent-child communication on school matters.

As a result, many researchers and educators have constructed and validated parental support to boost children's school performance. This subsection critically analyses the prior studies on PI and their contribution to the academic success of the students.

2.1 PI in Adolescents' Academic Activities

Parents are a significant element in structuring adolescents' persistence and academic performance. Also, the definition of PI includes various aspects, which makes it difficult to reach a precise conclusion about its meaning. Parents serve as the primary influence on their child's educational development for the entire duration of their learning journey. Parents contribute essential support to their child's educational and social development, which becomes more critical than their financial resources, according to their actual social status. It is necessary to consider not only actual activities but adolescents' perceptions of PI to determine parental participation's true effect on adolescent outcomes. (Song et al., 2024) observed that children from highly involved parents got higher grades/attainment in all subjects compared to those children whose parents reported mostly non-involvement or very low involvement in their school.

Home-based PI, including learning monitoring, helping learning tasks, and home-school communication, was highly linked to adolescents' learning experience. Parental involvement in learning was a positive factor related to the development of interest and engagement. Previous findings have found that parents' attitudes and expectations for adolescents' learning were positively related to adolescents' interests and engagement in learning; meanwhile, home-based PI was a significant mediator (Zhao et al., 2024). PI has been related to improved academic behaviours, including learning habits and discipline, which ultimately assist with school performance (Hsieh, 2023).

PI helps adolescents develop their social and emotional skills, which then helps them to adapt to school life. When parents communicate with their children in a supportive way and participate in home activities, this practice helps strengthen their parent-child bonds while leading to better educational results. Home-based PI leads to positive effects on adolescents' social-emotional development and their school transition, according to research findings. Parental involvement at higher levels leads to more students who ask for help, because it builds their confidence and helps them stay focused on their studies (Li et al., 2023). The research has shown that parental self-efficacy and family environment function as vital elements that define the efforts in parental involvement that leads to success. Parents who show confidence in their ability to help their children with schoolwork will dedicate more time to academic activities at home, which will help their children achieve better academic results.

Adolescent academic performance is affected by family and socio-demographic factors, which determine their PI levels. Research shows that parental education, family structure and socio-economic background together create a pathway that defines PI development. Parental expectations have been shown to mediate the relationship between socio-demographic characteristics and parental engagement in children's education (Gao & Luo, 2023). The PI shows a positive connection that leads to better academic results and increased involvement in both educational and extracurricular activities. The students who work together with their parents improve their academic results and spend more time on their

schoolwork, according to. The PI supports student development in literacy skills and academic performance according to (Penderi et al., 2023).

The academic performance of adolescents depends on their multidimensional academic performance index, which affects both their academic results, their learning participation and their emotional and social growth. Studies show that home-based PI is essential for students to achieve their academic goals and develop their entire skills. The positive association between PI and academic outcomes requires researchers to study home-based PI that adolescents use during their academic activities. These findings provide a foundation for developing a comprehensive scale to measure home-based PI in adolescents' academic activities (Çalışkan, 2025).

2.2 Dimensions and Significance of PI in Adolescents' Academic Activities

The concept of parental support encompasses multiple dimensions, which include different types of parental assistance that help adolescents achieve their academic goals. The typical dimensions of this concept include six elements, which start with academic support and extend to emotional support, communication and learning environment, parental expectations and academic progress monitoring. PI at home extends beyond assisting with homework and includes providing motivation, setting academic goals, and guiding students in time management. Indeed, scientific studies prove that parents' attitude and expectations coupled with their ways of communicating play a significant role in defining adolescents' participation in academic activities and learning. Parents' attitudes towards the academic topics, alongside their expectations from learners, actually create learning interests that students finally develop through their home involvement processes (Song et al., 2024; Zhao et al., 2024). In other words, multiple dimensions of the PI models reveal that academic support and communication, as well as emotional support, contribute greatly to shaping students' academic achievement (Penderi et al., 2023).

Actually, there exist multiple dimensions of home involvement PI, which affect academic achievement of students in various ways. When academic monitoring goes together with parental expectations and motivational support, students tend to build better study habits, so their performance ends up improving. Students also seem to improve their learning engagement through home-based PI, which actually includes guidance and encouragement, and then their academic potential grows. Research suggests that parental self-efficacy plays a role here, because when parents feel more capable, they engage more in academic activities, and that boosts students' educational readiness and performance (Xiao et al., 2025). The literature shows that the dimensions of parental monitoring and academic guidance have been proposed to have a extensive effect on students' academic achievements, as they have been found to facilitate students' development of proper study and learning behaviours (Hsieh, 2023). The research demonstrates that multiple dimensions of parental involvement must be studied to comprehend how adolescents develop their academic abilities.

Home-based PI research now has more evidence showing that its different aspects depend on family relationships and environmental factors. The three factors of parental expectations, plus communication, together with family environment, create essential elements that determine how adolescents engage in school activities and develop their study motivation. Family background needs to be studied together with PI practices because both factors determine how students achieve their academic goals and develop their skills (Gao

& Luo, 2023; Kovács et al., 2024). Recent studies on scale development research have shown that PI needs comprehensive measurement instruments because its multidimensional nature requires multiple assessment methods (Ates, 2021; Çalişkan, 2025; Liu et al., 2024). The study results show that home-based PI dimensions need to be identified because they serve as the base for constructing a complete measurement scale, which this research will develop.

2.3 PI and Student Outcomes

Students show better academic results because of PI, which shows different effects based on how people participate in different types of engagements. The evaluation procedure through academic success incorporates features of motivation in addition to socio-emotional development, extracurricular activities and career development. PI at home in particular is an essential component when it comes to adolescents' learning behavior and future educational development trajectory. Parents who help communicate and supervise the academic development contribute to improving learning skills and motivational skills to learn and attain academic success. The parental involvement directly influences children's performance is related to the way how people interact with their educational activities. Positive parental involvement contributes to increasing independence and motivation of learners, while too much of parental supervision leads to reducing effectiveness in learning and becoming sure of academic skills (Hsieh, 2023). In the same way, parents' expectations and encouragement have been proven to be beneficial for increasing academic engagement and interest of students (Song et al., 2024; Zhao et al., 2024).

Moreover, PI makes a great contribution to socio-emotional development and educational choice made by adolescents. Parental support in communication and expectations make a great impact on engagement and motivation in learning. Research shows that parental expectations affect adolescents' engagement in academics due to better relations between parents and children and emotional support (Song et al., 2024). Likewise, positive parental involvement is shown to have a positive effect on socio-emotional adjustment and school adaptation of adolescents; thus, the involvement of parents not only helps to achieve success in studies but also improves emotional state of students (Shebani et al., 2025). In addition, parental self-efficacy is shown to be correlated with greater involvement in parenting practices, and, consequently, greater educational preparedness of students (Kea et al., 2025).

Also, PI enhances the engagement in extracurricular activities and fosters career aspirations and educationally oriented goals. Research suggests that parents who encourage their children and are involved in the educational process help their children to engage in sports and extracurricular activities. Research shows that PI impacts educational outcomes and sports performance through its effects on student engagement in extracurricular activities and their educational goals (Liu et al., 2026). The research evidence shows that family background and parental expectations shape the educational and career choices adolescents make, which eventually lead to their long-term academic and professional objectives (Zafeer et al., 2025). The research demonstrates that PI operates as a multidimensional construct that affects various student achievement results. Research on PI explains its effects through a single construct approach, which restricts researchers from understanding its multiple effects. The complete home-based PI measurement system requires development because it needs to assess all aspects that affect adolescents' academic

progress and personal growth. The proposed research develops and tests a new scale that assesses home-based PI activities of adolescents in their educational work.

2.4 Measurement of PI

The introduction of multiple assessment tools for parental involvement in education originates from the growing need to measure parental involvement, which educational institutions have established as their main priority. Existing assessment tools mainly evaluate school-based parental involvement, which includes activities like attending school meetings and interacting with teachers, whereas home-based PI receives much less focus. The current restrictions prevent researchers from fully understanding the relationship between parental home support and the academic activities of adolescents. Recent studies on scale development demonstrate that home-based PI establishes a direct connection with the learning behaviours, academic motivation and decision-making processes of adolescents. Multiple assessment tools have treated parental involvement as a single-dimensional factor, while research evidence shows that parental involvement consists of multiple dimensions, which include academic support, emotional encouragement, communication and monitoring (Lamprianidou et al., 2025; Yang et al., 2025).

Existing measurement methods face their second challenge because they need to assess both contextual factors and developmental requirements. The development of many PI scales occurred in Western countries, which leads to their failure to capture the diverse parental practices that exist throughout various educational environments. The available measurement instruments mainly assess early childhood and primary education stages, while they provide insufficient assessment of adolescent development needs. Existing instruments fail to measure how adolescents need parental support for their academic planning and career aspirations, and time management skills. Research studies demonstrate the requirement for measurement tools that test PI through culturally relevant methods that use multiple dimensions and are suitable for specific age groups (Bond et al., 2025; Solichah et al., 2025; Zulfiqar et al., 2025). The need for a thorough home-based PI assessment system requires development to address the existing limitations.

2.5 Research Gap

Based on the analysis of prior studies on PI and the outcome on adolescents' academic improvement, the following gaps still exist, and the present research aims to address these challenges.

- The first issue is that there is a geographical and socio-cultural bias; most scales that have been validated come from western countries and fail to take into consideration the peculiarities of intergenerational caregiving practices and socio-economic factors in developing countries like India (Xiao et al., 2025). While current literature is beginning to examine Asian context, it is still very much cantered on East Asian populations (Solichah et al., 2025; Zhao et al., 2024).
- Second, there is a conceptual conflation in existing measurement tools between school-based and home-based involvement. Current research indicates that home-based involvement is a more potent mediator for learning interests and academic achievement than school-based activities (Zhao et al., 2024). The lack of focused research on home-based PI limits a comprehensive understanding of how parents support adolescents' academic activities in real-life contexts (Gao & Luo, 2023).

- Third, many studies' scales focus on early childhood or primary education, with limited emphasis on adolescents. These limitations restrict the applicability of existing instruments in measuring PI among adolescents in diverse educational settings.

Though many studies examined the role of PI for academic and other activities, the insufficient validation of the scale measuring emphasises the need for effective validation in PI scale measurement. Therefore, the research designs and tests a six-dimensional scale that measures adolescent behaviour in Madurai and effectively addresses existing research deficiencies. The study delivers a culturally appropriate assessment tool, which measures home-based academic socialization.

3. Theoretical framework:

The present study is based on established theoretical frameworks that demonstrate how PI affects adolescents' academic and psychological development. The multidimensional view of PI is supported by Bronfenbrenner's Ecological Systems Theory (EST) (1979), which emphasizes the influence of familial microsystems on adolescent development (Kitchen et al., 2019). According to this theory, the family represents a primary microsystem that directly affects adolescents' learning experiences and well-being. The academic activities of students through parental involvement create essential pathways that students use to develop their cognitive abilities, their emotional skills and their social interaction abilities. The model of PI, which Joyce L. Epstein proposed in 1995, shows home-based activities, communication and educational assistance as vital components of parental involvement. As can be seen from Epstein's model, the effective parental involvement needs not only the involvement of parents in school-related activities but also in home-related activities that involve learning resource provision, progress monitoring and emotional support (Young-Berry, 2025). The dimensions mentioned in the current study, such as study support, motivation and emotional support, are consistent with this model.

Self-Determination Theory (Deci & Ryan, 2012) proves that supportive contexts increase intrinsic motivation and psychological well-being. Adolescents exhibit high levels of motivation and engagement in education when their parents use the principles of autonomy support and emotional support and encouragement. This theory is supported by the positive correlation found between PI and psychological well-being and academic achievement in the current study. This research requires several factors both in the emotional and behavioural spheres because of their impact on the development of academic and psychological competencies of adolescents. The comprehensive measurement system must include different cultural elements since it is based on the theoretical connection between them.

4. Methodology:

4.1 Research Design

The study utilises quantitative research methodology by involving the use of surveys to construct and test a multidimensional scale aimed at assessing the effects of PI within the domestic environment on the academic achievement of adolescents. Surveys were chosen by the researchers since the methodology helps the researchers to collect information from many respondents during the construction and testing of the measurement instrument. A structured methodology was involved in the development of the scale and included steps

such as pilot testing, generation of items, exploratory factor analysis, expert review, reliability as well as CFA.

4.2 Participants

The sample consisted of 800 young adults learning in fifteen schools located in the district of Madurai in Tamil Nadu. There was diversity in the schools in terms of types of management ranging from government schools, government-aided schools, private schools, private-aided schools, and corporation schools. These subjects were recruited from schools that fall under the State Board, CBSE, and Matriculation Board categories in order to ensure variety in their educational background. Male, female, and co-educational students of various socio-demographic backgrounds including religion and working and non-working parents were included in the sample.

4.3 Instrumental Development

The first phase of the instrument construction in this present work was focused on conducting an extensive literature review in the area of parental involvement and adolescents' academic and social development. The review, together with Epstein's Model of Parental Involvement and Bronfenbrenner's Ecological Systems Theory, led to the generation of 82 items assessing multiple aspects of home-based PI through dimensions such as infrastructure, study support, motivation, aspiration, time management, and emotional support.

The survey items were developed as statements and then measured via a five-point Likert scale, moving from 1 (Strongly Agree) to 5 (Strongly Disagree). It included both positive and more negative sentence then response bias could be slightly minimized (although not totally). Content validation for the initial scale was done by a panel of experts, who have different backgrounds (teachers, psychologists, researchers of adolescent development, educational psychology specialists). Several revisions were made, which were guided by the opinion of the experts, to improve clarity and content relevance and cultural compatibility items.

In addition, the instrument was subjected to item analysis, reliability testing and factor validation to establish the properties of psychometric in the scale. Results from the statistical analyses and conceptual appropriateness resulted in the 48 items that were included in the final scale with acceptable psychometric properties. To ensure that all statements were scored in the same direction, higher scores represented higher levels of home-based PI as reported by adolescents; positive statements were scored as is, and negative statements were reverse-scored during analysis.

4.3.1 Operational Definitions

Infrastructure: Availability and sufficiency of physical facilities for learning and resources that can aid students in their studies at home.

Study Support: Help provided by parents in academics and homework, supervision of the child's learning process.

Motivation: Encouragement and praise of the parents for the student's motivation towards academics.

Aspiration: Parental expectations, goals, and long-term educational or career paths envisioned for the adolescent.

Time Management: Parental guidance and monitoring regarding how adolescents allocate and balance time for studying and resting.

Emotional Support: The provision of empathy, comfort, care, and stress relief relating to the adolescent's academic pressures

4.4 Pilot Testing and Item Reduction

Initially, a pilot study was commenced using 50 adolescents to evaluate the clarity of questions, the relevance of the items, as well as the internal consistency of the testing materials. Item analysis was undertaken through item-total correlations and item discrimination analysis to identify items of weak discrimination. Independent-samples t-tests were utilized to relate students who scored highly on the scale to those who scored poorly on the scale to determine the discriminatory capability of the items from the scale. Data from the statistical tests, the reliability testing and conceptual relevance showed that the items that exhibited weak discrimination and minimal psychometric adequacy were pruned. This progression give rise to in the initial pool of 82 items being reduced to the final 48 items by eliminating low-performing questions through item analysis and discrimination index testing. The final 48 items are displayed in Table 1 for this scale. The final 48 items were then arranged in a random order and coded for administration and analysis purposes (A1-A48).

Table 1. Statements Included in the Scale after the Reduction of Items

Name of the Dimension	Positive Statements	Negative Statements
Infrastructure	51, 81, 82, 41	16, 4, 17, 43
Study Support	3, 12, 6, 31	5, 7, 11, 10
Motivation	36, 29, 38, 30	26, 24, 27, 64
Aspiration	78, 55, 19, 53	68, 63, 15, 20
Time Management	40, 76, 39, 45	8, 77, 72, 79
Emotional Support	49, 50, 42, 32	62, 18, 61, 9

4.5 Data Collection Procedure

Data gathering activities were performed through organized methods to achieve dependable results. The researchers obtained official permission from school officials before they began their data collection activities. The purpose of the study was presented to the school administration, who granted the required approvals for the student survey. The researcher conducted in-person questionnaire distribution to enable participants to comprehend all questions and answer correctly. The study objectives were explained to participants before they received the research instruments, which included a promise of confidentiality for their collected responses that would only serve academic research purposes. The study required volunteer participation, which researchers obtained through informed consent from all participants.

These two instruments were used to collect the necessary data, namely, PI in Academic Activities of Adolescents Scale and Psychological Well-Being Scale created by Ryff in 1995. Both of these instruments were administered simultaneously to assess both PI and psychological well-being of the participants. Participants were allowed adequate amount of time to complete all the items of the measures while the researcher remained there to answer any questions that could arise during the test completion process. As soon as the participants finished with completing the questionnaire, the study gathered the completed questionnaires to prevent any possible loss of data and to ensure that each question was answered. Prior to performing the statistical analysis of the gathered data, the researchers performed data screening.

4.6 Data Analysis

The quantitative data was analysed by means of SPSS 27. Home-based PI dimensions were initially defined based on previous literature and theoretical frameworks. To confirm the reliability and validity of the constructed instrument, EFA with PCA and Varimax rotation was conducted in order to validate the underlying structure of the constructed dimensions. Item selection criteria involved factor loadings greater than 0.40 and cross-loadings less than 0.30. The suitability of the data for FA was assessed by means of KMO and Bartlett’s Test of Sphericity, with the KMO value being more than 0.80 and the significant Bartlett’s test.

The Cronbach’s alpha coefficient was used to determine the reliability of the scale and its dimensions. Intrinsic validity was determined in order to gauge the degree of the construct measured by the items. For determination of criterion-related validity, the concurrent validity was established through the computation of the Pearson Correlation Coefficient (PCC) among the scores of the PI scale and Psychological Well-being Scale. Significance testing of the correlation was conducted at both 0.01 and 0.05 levels. Descriptive analysis and correlation were done using the statistical program. A CFA was conducted to confirm the six-factor structure that emerged from the EFA. Six latent or hidden constructs existed in the measurement model with each construct manifesting itself through eight observed variables. The goodness of fit of the model, such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) were obtained. Figure 1 displays the research design framework of the current Research.

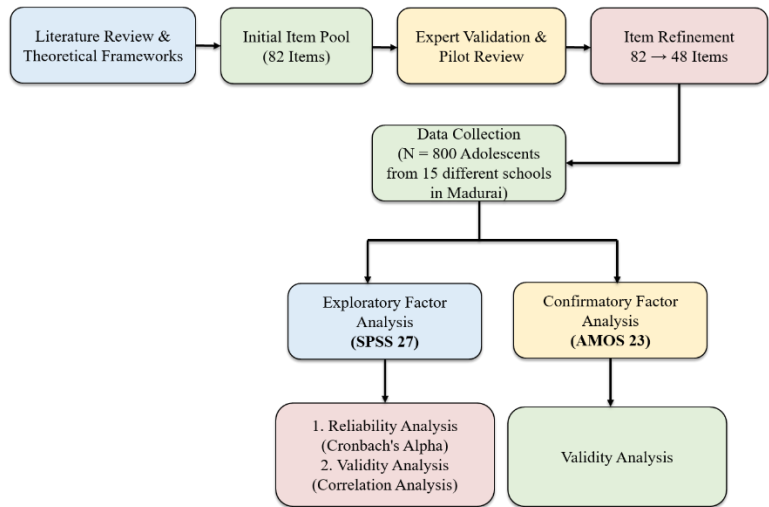


Figure 1. Research Design Framework

4.7 Ethical Consideration

Ethical norms of research involving minors were maintained during this study. Informed consent was acquired from participants as well as their parents or guardians. Anonymity and confidentiality prevailed throughout the procedure, and participation was entirely voluntary, allowing the participants to withdraw at any point without being penalized.

5. Results and Discussion:

5.1 Sample Characteristics

This study was carried out amongst 800 adolescents studying in different kinds of schools in Madurai district. The demographic characteristics of the participants were analysed to

understand the distribution of the sample across different socio-demographic variables. The research sample included 464 female participants who made up 58% of the sample and 336 male participants who represented 42% of the sample. The student population distribution showed that 52.1% of students attended private unaided schools, 36.3% attended private aided schools, 6.3% attended government-aided schools, and 5.4% attended corporation schools.

The educational board distribution shows that 80.6% of students studied under the state board, while 13.5% studied under the CBSE board and 5.9% studied under the ICSE/ISC. The school types revealed that 55.4% of students came from co-educational schools, while 34.6% attended girls-only institutions and 10% studied at boys-only schools. A majority of students (82.3%) studied in English medium, while 17.8% attended Tamil medium schools. The student population consisted of nuclear families, which made up 72.4% and joint families, which accounted for 27.6%. The sample showed different levels of parental educational attainment. The education levels of mothers showed that 34.4% reached higher secondary education, while 27.6% completed primary education, and the rest obtained higher education. The education levels of fathers showed that 33.5% reached higher secondary education, while 26.9% completed primary education, and the rest obtained higher educational qualifications. The study results maintain generalizability because the research participants represent various school types and educational boards and different socio-demographic backgrounds. Detailed demographic features of the participants are shown in Table 2.

Table 2. Demographic Characteristics of the Participating Students

Variable	Category	Frequency	Percentage (%)
Gender	Female	464	58.0
	Male	336	42.0
Type of School	Private unaided	417	52.1
	Private Aided	290	36.3
	Govt. Aided	50	6.30
	Corporation	43	5.40
Board	State Board	645	80.6
	CBSE	108	13.5
	ICSE/ISC	47	5.90
Nature of School	Co-education	443	55.4
	Girls only	277	34.6
	Boys Only	80	10.00
Class	9 th	277	34.60
	10 th	184	23.00
	+1	124	15.50
	+2	215	26.90
Medium	English	658	82.30
	Tamil	142	17.80
Religion	Hindu	666	83.30
	Muslim	90	11.30
	Christian	44	5.51
Family Type	Nuclear	579	72.41
	Joint	221	27.61

5.2 Validation of the Proposed Factor Structure

The proposed dimensions of home-based PI derived from existing literature and theoretical frameworks were empirically validated using EFA. The suitability of the data for factor analysis was considered using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The sampling adequacy assessment showed excellent results through a KMO value measurement, which achieved 0.912. The data met the necessities for factor analysis because Bartlett's Test of Sphericity demonstrated a significant result with a ($\chi^2 = 17315.592$, $df = 3003$, $p < 0.001$) outcome. The KMO value of 0.912 shows that the sampling adequacy for this study was at an excellent level (Table 3).

Table 3. KMO and Bartlett's Test

Test	Value
KMO Measure	0.912
Bartlett's Chi-square	17315.592
df	3003
sig	0.000

5.3 Validation of Underlying Dimensions

PCA with Varimax rotation was employed to inspect the proposed six-factor structure derived from prior literature. The extracted factors supported the conceptual dimensions of Infrastructure (1), Study Support (2), Motivation (3), Aspiration (4), Time Management (5), and Emotional Support (6). As shown in Table 4, the six retained factors collectively explained 33.45% of the total variance, confirming the multidimensional nature of home-based PI.

Table 4. Total Variance Explained

Factor	Eigenvalue	% Variance	Cumulative %
1	12.272	15.733	15.733
2	5.924	7.594	23.327
3	2.403	3.080	26.407
4	2.273	2.914	29.321
5	1.659	2.127	31.449
6	1.564	2.005	33.454

5.4 Reliability of the Scale

In order to regulate the reliability of the scale, the Cronbach's alpha coefficient was used, measuring the level of internal consistency of the measurement device. The results of the evaluation of the reliability of the measurement scale are shown in Table 5 below. The Cronbach's alpha ranged between 0.698 and 0.754, meaning that the levels of internal consistency for all scales of the instrument were acceptable. The scale of Time Management had the highest level of the reliability coefficient ($\alpha=0.754$), followed by Motivation ($\alpha=0.733$), Infrastructure ($\alpha=0.729$), Emotional support ($\alpha=0.727$), and Study support ($\alpha=0.714$). The Aspiration scale had an acceptable level of reliability ($\alpha=0.698$). It can be determined that the items in each scale measure the constructs consistently.

Table 5. Reliability of the Scale

Dimension	No. of Item	Cronbach's Alpha
Infrastructure	8	0.729
Study Support	8	0.714
Motivation	8	0.733

Aspiration	8	0.698
Time Management	8	0.754
Emotional Support	8	0.727

The refinement of the scale from 78 to 48 items contributed to improving the overall internal consistency of the instrument.

5.5 Concurrent Validity of the Scale

Further, used PCC analysis to test the criterion-related validity of their study by testing the relationship between PI scales and the Psychological Well-Being Scale (Ryff, 1995) and students' academic performance. The results are illustrated in Table 6.

Table 6. Correlation among PI, Psychological Well-Being, and Academic Performance

Dimension	Psychological Well-Being	Academic Marks
Infrastructure	0.314**	0.250**
Study Support	0.183**	0.082**
Motivation	0.355**	0.284**
Aspiration	0.377**	0.291**
Time Management	0.291**	0.158**
Emotional Support	0.383**	0.267**
Total Score (N=800)	0.418**	0.302**

The research found that all six components of participative indicators showed positive links to both psychological well-being and educational success. The total PI score showed a significant positive correlation with psychological well-being ($r = 0.418$, $p < 0.01$) and academic performance ($r = 0.302$, $p < 0.01$). The two dimensions that showed the strongest connection to psychological well-being were emotional support and motivation, with respective correlation values of $r = 0.383$ and $r = 0.355$. Academic performance showed significant relationships with aspiration, which had a correlation of $r = 0.291$ and motivation, which had a correlation of $r = 0.284$. The higher PI levels demonstrate that adolescents who achieve better psychological health will have better academic results. These findings support the concurrent validity of the developed scale.

5.6 Confirmatory Factor Analysis

CFA was conducted to examine the adequacy of the proposed measurement model derived from theoretical and empirical literature. The measurement model fit the observed data according to the model fit indices, which showed an acceptable fit (Table 7 and Figure 2). The instrument construct validity received support because the CFI and TLI values exceeded 0.90 and the RMSEA and SRMR values stayed within the acceptable limit of 0.08.

Table 7. Model Fit Indices for CFA

Fit Index	Obtained Value	Recommended Value
CFI	0.913	≥ 0.90
TLI	0.904	≥ 0.90
RMSEA	0.061	≤ 0.08
SRMR	0.057	≤ 0.08

Table 6 presents the Model fit indices obtained from the CFA. The CFI (0.913) and TLI (0.904) values exceeded the suggested threshold of 0.90, indicating a satisfactory model fit. Likewise, the RMSEA (0.061) and SRMR (0.057) values were within the acceptable limit of 0.08, further assisting the adequacy of the measurement model. Overall, the findings confirm

that the proposed factor structure demonstrates acceptable construct validity and adequately represents home-based PI among adolescents.

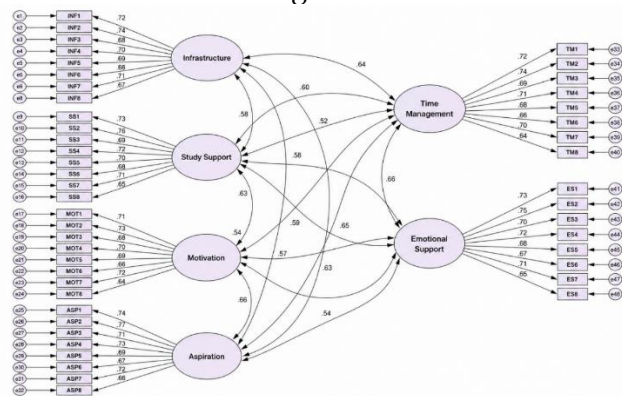


Figure 2. CFA Model Outcome for the Home-Based PI scale

The outcomes of the existing study demonstrate that the developed home-based PI scale as perceived by adolescents is a reliable and valid instrument for measuring adolescents' academic activities. The proposed six-dimensional structure derived through theoretical framework and existing studies was empirically supported through EFA and further validated using CFA. The KMO value was 0.912, and Bartlett's Test of Sphericity was significant, which together confirmed that the data were adequate for factor analysis and also supported the proposed factor structure.

Also, the reliability analysis across all six dimensions showed Cronbach's alpha values of 0.873, and this indicates the instrument works reliably. For concurrent validity, the results also pointed to meaningful positive associations between parental involvement, psychological well-being, and academic performance among adolescents. In other words, the results suggest that when home-based PI is higher, adolescents tend to show better psychological well-being and improved academic outcomes. Finally, the developed scale gives a culturally relevant, multidimensional instrument for assessing home-based PI across various educational settings in India.

5.7 Discussion

The contemporary study aimed to develop and validate a scale measuring home-based PI in adolescents' academic activities. The research results establish strong proof for both the reliability and validity of the developed instrument. The study results are analyzed using EST Epstein's model of PI and SDT.

The six-factor structure identified through EFA reflects the multidimensional nature of PI. Recent studies have similarly emphasized that PI includes multiple components such as emotional support, academic guidance, and home learning environment. For instance, a recent study found that PI consists of distinct domains, including emotional support, academic assistance, and environmental support, all of which significantly influence student outcomes (Zafeer et al., 2025). The current research findings closely match the dimensions that were established in the present study.

The present study results about reliability testing received validation from recent empirical investigations. The (Sharma, 2024) study found that multidimensional PI constructs display different reliability patterns across their dimensions because of the different ways adolescents behave in different contexts. The current scale demonstrates

moderate reliability for specific dimensions because of the presence of strong overall reliability. The concurrent validity analysis results showed that PI established a positive connection with both psychological well-being and academic performance. The results of this study support findings from multiple recent research investigations. The study found that PI has a robust optimistic link with academic performance ($r=0.44$, $p\text{-value} \leq 0.01$), which shows that better academic results occur when parents become actively participated in their children's educational activities. Recent research from (Hyder & Anbar, 2025) has demonstrated that parental involvement apparently boosts students' academic performance, their ability to concentrate during class and their overall study performance.

The study found that emotional support establishes a strong link with psychological well-being, which scientific research supports because it demonstrates that emotional support and home resources create positive effects on student well-being and academic performance (Bhandari, 2025). Another recent study (Shebani et al., 2025) also found that PI creates a positive effect on student motivation, which leads to academic passion, thus establishing a stronger link between parental support and student academic results. Recent meta-analytic and empirical studies have confirmed that PI positively affects academic performance in various situations, thus supporting the research results of this study. The research results establish the developed scale's validity while demonstrating that PI serves as an essential factor for both academic progress and psychological growth during adolescence. The present study improves existing research by introducing a culturally relevant multidimensional PI measurement tool that applies to Indian settings. The results of the study support both traditional and modern research, which increases the empirical evidence base for the scale.

5.7.1 Implication of the Study

The study constructs an innovative theoretical framework, where PI is a multi-dimensional concept comprising both academic and emotional factors. The identification of six different dimensions allows constructing a well-rounded theoretical framework that covers the issue of PI in the context of adolescent education. The current theoretical models become extended via the inclusion of culturally specific parental behaviours elements that take place in the Indian educational settings. The validated scale allows measuring the PI of the students in the process of their educational activities by educators, school administration, and psychologists. The study proves how PI of parents through the emotional support and motivation contributes to the better psychological condition of adolescents and academic success of those. Educational institutions can apply the constructed scale in order to develop intervention programs aimed at increasing the parental involvement in adolescents' education.

It becomes clear from the study that the schools should develop systems that would allow parents to be actively involved in the educational process of their children. Educational institutions can develop more structured parent involvement programs such as workshops, different awareness programs, etc., in order to increase the ability of parents to be engaged in the process of education of their children.

5.7.2 Limitation of the Study

Although the current research demonstrates an effective result, there are several restrictions. First of all, the sample consisted of adolescents who live in one certain geographic area, and thus the research results cannot be easily generalized for other cultural and regional

backgrounds. In addition, the research involved self-reports, so the problem of response bias was possible, even when the adolescents try to give truthful answers. Moreover, the subjects were recruited among adolescents attending certain schools, and thus the research results do not completely reflect the situation within the larger adolescent population. Even though the suggested factor structure demonstrated good reliability and validity, further evidence from different cultural and educational backgrounds would strengthen the applicability of the tool. Additional studies involving longitudinal designs and mixed methods might help to obtain a deeper understanding of home-based PI and its relation to the adolescents' academic and psychological performance.

6. Conclusion:

The present study succeeded in emerging and validating a culturally valid, multi-dimensional measure of parental involvement in adolescents' academics at home in the Indian context. The measure, which has six distinct dimensions such as Infrastructure, Study Support, Motivation, Aspiration, Time Management and Emotional Support, actually appears to reflect that complex and holistic concept of parental involvement. Further, the psychometric analysis revealed high internal consistency reliability for the measure ($\alpha = 0.873$), along with good construct validity in terms of six unique factors, and these factors were highly meaningful with respect to the psychological well-being and academic achievement of adolescents.

These results have shown that as parents participate more in the process of learning of their children, these children display higher academic performance as well as exhibit better results in terms of their mental well-being. This research project also provides an actual tool that will be adapted to Indian culture and society, and that will allow the creation of home-school partnerships to promote positive adolescent development. In general, the findings of this research project have clearly demonstrated how important the role of parents' participation is in order to provide children with all the necessary support to succeed in their academic career as well as gain mental strength. The research project is likely to attain its goals in the form of regional and population-based studies.

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Appendix - Home-Based Parental Involvement Scale

Description and Scoring Procedure

This scale is a multidimensional instrument designed to assess adolescents' perceptions of home-based PI across six core dimensions. It contains a total of 48 items evaluated on a 5-point Likert scale:

- 1 = Strongly Agree (SA)
- 2 = Agree (A)
- 3 = Undecided (U)
- 4 = Disagree (D)
- 5 = Strongly Disagree (SD)

To ensure that a higher total score reflects a higher level of home-based PI, the scale employs both positive and negative statements with distinct scoring allocations such as follows:

- Positive Statements: These items must be reverse-scored during data entry and statistical analysis.
 - Scoring Key: SA = 5, A = 4, U = 3, D = 2, SD = 1
 - Item Numbers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47
- Negative Statements: These items are scored directly as selected by the participant.
 - Scoring Key: SA = 1, A = 2, U = 3, D = 4, SD = 5
 - Item Numbers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48

Item	Statement	SA	A	U	D	SD
1	Maintain a healthy parent-child relationship.					
2	My parents don't help me wake up and get ready for studying in the morning.					
3	Help me to understand the content and concepts of study materials and difficult lessons.					
4	My parents don't remind me to complete my homework.					
5	Encourage and motivate me whenever I feel low.					
6	Hardly acknowledge my academic progress.					
7	Collect and disseminate educational and career information, and keep updating me.					
8	Never encourage play, book reading, or any other recreational activities.					
9	Help me to balance my leisure time and study time.					
10	My parents don't help me get ready for school on time.					
11	Help me to prepare for my test/exam without tension and anxiety.					
12	Ignorant of my mental health/psychological status at thDuring the time of exams.					
13	Gives me sufficient time to refresh myself in the evening.					
14	My parents don't skip their pastime activities when I am studying.					
15	Keep track of and help file past question papers for ready reference.					
16	My parents don't check my diary and test notes.					
17	Acknowledge my academic progress and praise me verbally.					
18	No confidence in my ability to achieve in academic performance.					
19	Encourage me to prepare for competitive exams.					
20	Suppressing my ambition owing to financial background and other reasons					
21	Encourage me to spend time on my physical fitness and well-being (exercises, cycling, yoga, jogging, running, etc.)					
22	Compel me to help with household chores.					
23	Provide tips and orient me to free myself from anxiety, fear and tension.					
24	Struggle to recognise the difficulties I experience in my studies.					
25	Gives me sufficient nourishment to refresh myself in the evening.					
26	Never gets me all the accessories needed for my learning on time.					

27	Prepare a schedule for my learning.					
28	Never help me in completing my records/worksheets/assignments.					
29	Inspire me to learn with enthusiasm by friendly reminders and guidance.					
30	Continuous reprimanding whenever I score low marks, rather than coming up with solutions.					
31	Set realistic goals (Short, medium, and long-term) for my academic work in school, considering my present capacity.					
32	Discrepancies between my parents' aspirations/expectations and mine.					
33	Schedule my time for learning at home.					
34	Keep advising and compelling that I should study every time.					
35	Provide moral support during times of difficulty.					
36	Cannot rely on appropriate guidance and counselling.					
37	Provide a pleasant and peaceful atmosphere at home.					
38	Discusses family problems and interpersonal problems in my presence					
39	Arrange for external support (tuition, remedial classes) if I am weak in any subject.					
40	Never sits with me during my study hours, even if I want their presence.					
41	Have confidence in me and encourage my every effort.					
42	Pressurising me to score high marks, not realising my capabilities					
43	Want to give me the best education in the city.					
44	Pressure me to accomplish the goals set by them in academic performance.					
45	Keep track of my performance.					
46	Restriction on talking with friends.					
47	Readily assess and understand my mood.					
48	Hardly has the time and patience to listen to my sharing.					