Parental Supervision, the Home Study Environment and Adolescents' Time Management: Evidence from Parents and Students in Indian Junior Colleges

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DOI: https://doi.org/10.51244/IJRSI.2026.1309000190

Received: 25 September 2026; Accepted: 01 October 2026; Published: 17 October 2026

ABSTRACT

Purpose. Parents contribute to adolescents' schooling both by providing material resources, such as a place to study, and by what they do, such as monitoring and guiding study routines. This study asked which of these is associated with adolescents' time management and, through it, with academic performance.

Methods. Two independent samples were drawn from junior colleges in Jalgaon City, Maharashtra, India: 116 parents of Class 11 and 12 students, and 343 students. The two samples were not linked, so parents and students cannot be matched as pairs. Parents reported on their supervision of study, the study space and physical study conditions at home, and their child's time management and academic performance. Students reported on parental and teacher support, their own time management and their performance. Associations were estimated with hierarchical regression using heteroscedasticity-consistent standard errors, and indirect associations with 5,000 percentile bootstrap resamples, controlling for demographic characteristics. The design is cross-sectional.

Results. In the parent sample, parental supervision was associated with the child's time management ($\beta = .33$, $p = .038$). Once supervision was controlled, neither study space nor physical study conditions was associated with time management or performance. Time management was the strongest correlate of parent-rated performance ($\beta = .43$, $p < .001$), and the indirect association of supervision with performance through time management was statistically significant ($ab = 0.14$, 95% CI [0.01, 0.30]). Parent-rated time management had low reliability ($\alpha = .58$). Parental education was strongly associated with study space ($\varepsilon^2 = .14$) but not with the child's time management. In the student sample, parental support was a stronger correlate of time management than teacher support ($\beta = .46$ against .19), with an indirect association with performance of 0.23 (95% CI [0.15, 0.33]).

Conclusions. From both the parents' and the students' side, what parents do was associated with adolescents' time management, and what parents provide was not. These are associations from cross-sectional data and do not show cause or temporal order. The parent sample is small and well educated, and the two samples give supporting evidence from different perspectives, not matched parent and child data. With those limits in mind, family-engagement programmes in junior colleges may gain more from helping parents monitor and structure study routines than from focusing on home resources, a possibility that longitudinal studies of matched parent and adolescent pairs should test.

Keywords: parental involvement; home learning environment; time management; academic performance; adolescents; multi-informant; India

INTRODUCTION

Parental involvement is among the most studied influences on children's schooling, and meta-analyses agree that it is positively associated with achievement (Fan & Chen, 2001; Jeynes, 2007). They also agree that the association depends on the form involvement takes. In adolescence, involvement that structures and supports

the child's own learning, such as communicating expectations, discussing schoolwork and helping plan study, is more consistently associated with achievement than direct help with homework or visits to school (Hill & Tyson, 2009). Involvement can even be counterproductive when it is controlling or intrusive (Pomerantz et al., 2007). A later meta-analysis confirmed that the associations of involvement with adjustment and achievement vary with the form involvement takes (Barger et al., 2019).

Parents also contribute materially. Families with more education and income can provide a quiet room, adequate lighting and fewer interruptions, and socioeconomic status is itself one of the most consistent correlates of achievement (Sirin, 2005). The physical environment of the home affects children's development through crowding, noise and the quality of the space available (Evans, 2006). In many Indian households, where several family members share limited space and the Class 12 board examination and the competitive entrance tests that follow determine access to higher education, a dedicated study space is a meaningful resource.

For junior colleges, the difference between what parents *provide* and what parents *do* has a practical side. A college that wants to involve families has to decide whether to advise parents about the home environment or about their own supervision of study. The two are correlated, since educated parents tend both to provide better conditions and to monitor study more closely, so their separate contributions can only be identified when both are measured.

The present study examines one pathway through which either form of contribution might operate: the adolescent's time management. Time management, meaning the planning, prioritising and protection of study time, is a self-regulatory skill consistently associated with academic achievement (Aeon et al., 2021; Liu et al., 2026) and a core resource-management strategy in self-regulated learning (Wolters & Brady, 2021). Self-regulation develops through social scaffolding before it becomes self-directed (Zimmerman, 2002), and parental monitoring of study routines is one of the most direct forms that scaffolding can take (Grolnick & Slowiaczek, 1994). Homework research at secondary level shows that students' management of homework time is associated with their families' help and monitoring as well as with their own characteristics (Xu, 2010). A good study space, by contrast, removes an obstacle but does not in itself teach a student to plan.

We tested these ideas with two independent informant groups from the same educational setting. Parents reported on their own supervision, the home environment and their child's time management and performance. Students reported on the support they received from parents and teachers and on their own time management and performance. A pattern that appears from both sides is less likely to be an artefact of a single informant's perspective (De Los Reyes et al., 2015). The parents and students were not matched as parent and child pairs. The student sample is therefore used as supporting evidence from a second perspective, not as a family-level check on what individual parents reported.

1.1 Hypotheses

H1. Parental supervision of study is positively associated with the adolescent's time management, as reported by parents.

H2. The home study environment (study space and physical study conditions) is positively associated with the adolescent's time management, as reported by parents.

H3. Each family factor has an indirect association with academic performance through the adolescent's time management.

H4. In an independent sample of students, perceived parental support is positively associated with time management and, through it, with self-reported academic performance, over and above teacher support.

All four hypotheses concern associations. The data are cross-sectional, so the indirect pathways in H3 and H4 describe how the observed associations decompose statistically. They cannot establish that supervision comes before time management, or time management before performance.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue IX September 2026

We also examined whether parental education, a marker of family resources, is associated with the home environment, with supervision and with the child's time management.

METHOD

2.1 Design and participants

The data come from a cross-sectional survey of junior college students, their parents and their teachers in Jalgaon City, Maharashtra, conducted between April and July 2026 as part of the first author's doctoral research. The parent and student samples were recruited independently through the same institutions, and responses were not linked, so no parent can be matched to a particular student. The two samples are therefore analysed separately, and the study compares the pattern of associations across informants rather than the responses of individual families.

Parents. Of approximately 320 parents or guardians of Class 11 and 12 students who were invited, 116 completed the questionnaire (about 36%). Respondents were fathers (54.3%), mothers (38.8%) and other guardians (6.9%). The sample was relatively well educated: 40.5% held a postgraduate qualification, 31.0% a graduate degree, 19.0% secondary education and 9.5% primary education. Most were in salaried service (48.3%), followed by homemakers (19.8%), business (16.4%), farming (8.6%) and other occupations (6.9%).

Students. Of approximately 700 Class 11 and 12 students invited, 343 completed the questionnaire (about 49%). Of these, 52.8% were female and 77.3% were in Class 12; 52.8% were in the science stream, 72.6% attended private colleges and 79.0% lived in urban areas. The student sample is described in more detail in a companion article by the same authors, currently under review.

2.2 Measures

All items were answered on a five-point agreement scale (1 = *strongly disagree*, 5 = *strongly agree*) and presented in English and Marathi. Composite scores are item means.

Parent questionnaire

Parental supervision was measured with four items: "I regularly monitor my child's study schedule", "I ensure that my child follows a fixed study routine", "I discuss academic progress with my child" and "I guide my child in managing study time effectively".

Home study space was measured with two items: "My child has a proper place to study at home" and "The home environment is suitable for studying".

Physical study conditions were measured with three items on the lighting, ventilation and temperature of the study area.

Child's time management was measured with three items: "My child manages time effectively for studies", "My child completes assignments on time" and "My child avoids last-minute study habits".

Child's academic performance was measured with two items: "My child performs consistently well in academics" and "I have observed improvement in my child's academic performance".

The questionnaire as designed also contained a reverse-worded supervision item ("I rarely monitor my child's studies"), a reverse-worded environment item ("The home environment is often distracting for study") and an item on minimising distractions. The two reverse-worded items correlated weakly with the rest of their scales (corrected item-total $r = .25$ for the supervision item), a common artefact of reversed wording (Weijters et al., 2013). The distraction item describes a parental action rather than a property of the home. All three were excluded from the measurement model (Section 3.1). Results using the complete scales as originally designed are reported as a sensitivity analysis.

Student questionnaire

Perceived parental support was measured with three items on parents' encouragement to study regularly, monitoring of the study routine and guidance with difficulties (α = .80). Perceived teacher support was measured with three items on teachers' guidance in managing study time, timely academic help and motivation (α = .91). **Time management** was measured with six items covering planning, goal setting, prioritisation, efficient use of time, avoiding delay and a disciplined routine (α = .87). **Self-reported academic performance** was measured with five items covering marks, improvement, timely completion, participation and confidence (α = .84). **Perceived challenges** (five items, α = .81) were included as a covariate.

2.3 Ethical considerations

Permission was obtained from the heads of all participating institutions. Participation was voluntary and anonymous. Each questionnaire stated the purpose of the study and the right to withdraw, and no identifying information was collected. Respondents indicated their willingness to take part by choosing to complete the questionnaire, and the data are reported only in aggregate.

2.4 Analysis

Confirmatory factor analysis (maximum likelihood, semopy 2.3) tested the parent measurement model. Fit was judged against Hu and Bentler (1999), bearing in mind that RMSEA is inflated in small samples with few degrees of freedom (Kenny et al., 2015). Composite reliability (CR) and average variance extracted (AVE) were computed from the standardised loadings (Fornell & Larcker, 1981).

In the parent sample, a three-step hierarchical regression predicted the child's performance from the demographic controls (parental education and the respondent's relationship to the child), the three family factors, and the child's time management. In the student sample, time management and performance were regressed on parental support, teacher support and challenges, controlling for gender, class, stream, college type, residence and parental education. All regressions used HC3 standard errors (Hayes & Cai, 2007). Indirect effects through time management were estimated with 5,000 percentile bootstrap resamples (Preacher & Hayes, 2008), with the other family factors and the demographic controls held constant. We keep the conventional notation of mediation analysis (*a*, *b*, *c*, *c′* and *ab*) and the term "indirect effect" for the product *ab*, because that is the name of the statistic. We use it in a statistical sense only. All variables were measured on one occasion, so the analysis shows whether the association between a family factor and performance is shared with time management. It does not show the order in which these things happen, and the estimates should not be read as causal effects.

Differences by parental education were tested with the Kruskal–Wallis *H* test and summarised with ε^2. Eleven parent responses and 38 student responses repeated the full response pattern of an earlier respondent. They were retained in the main analysis, and the principal parent models were re-estimated without them.

RESULTS

3.1 Parent measurement model

The five-factor model (supervision, study space, physical study conditions, child's time management, child's performance) fitted the data adequately on incremental and residual indices but less well on RMSEA: $\chi^2(67) = 150.61$, CFI = .897, TLI = .861, RMSEA = .104, SRMR = .089. The four-factor model of the questionnaire as designed fitted worse ($\chi^2(113) = 308.86$, CFI = .784, RMSEA = .123, SRMR = .104). All loadings in the five-factor model were significant (.49 to .92).

Table 1 reports reliability and descriptive statistics. Study space, physical conditions and supervision were reliable (α = .77 to .89). Parent-rated performance was acceptable for a two-item scale (α = .73). Parent-rated time management had low reliability (α = .58; CR = .61; AVE = .35), below the .70 usually expected of a scale. It has only three items, with standardised loadings of .49 to .63, and the item on avoiding last-minute study

loaded lowest. The low reliability affects the models in more than one way. Random error in the scale lowers its correlations with the family factors and with performance, so those associations are probably underestimated. In the models for performance, time management is a predictor, and an unreliable predictor is only partly controlled. The coefficient for time management is then biased downward, and the coefficient left for supervision after time management is entered may be biased upward. The indirect association through time management is on balance more likely to be understated than overstated, but the share of the total association attributed to it (Section 3.2) is uncertain for this reason. Its latent correlation with parent-rated performance was high (.76), and a model merging the two constructs fitted slightly worse ($\Delta\chi^2(3) = 8.0$, $p = .046$).

Table 1. Parent sample: descriptive statistics, reliability and correlations ($N = 116$)

Variable	*M*	*SD*	α	CR	1	2	3	4
1. Parental supervision	4.00	0.67	.77	.79				
2. Home study space	4.06	0.87	.88	.89	.47			
3. Physical study conditions	4.20	0.81	.89	.89	.47	.67		
4. Child's time management	3.74	0.66	.58	.61	.45	.29	.27	
5. Child's academic performance	4.02	0.66	.73	.76	.46	.39	.32	.47

Note. Correlations are Spearman's ρ; all are significant at $p < .01$. CR = composite reliability from the five-factor confirmatory model.

3.2 Family factors, time management and performance (parent sample)

Every family factor correlated positively with the child's time management and performance (Table 1). When the three were entered together, only supervision retained an association with time management (Table 2). Supervision was associated with better time management ($B = 0.33$, $\beta = .33$, $p = .038$). Study space ($\beta = -.05$, $p = .850$) and physical study conditions ($\beta = .20$, $p = .240$) were not. H1 was supported and H2 was not.

In the hierarchical regression on performance, the demographic controls explained 3.9% of the variance ($F = 0.68$, $p = .636$). The three family factors added 15.5% ($\Delta F(3, 107) = 6.85$, $p < .001$), carried by supervision ($B = 0.33$, $p = .037$). Time management added a further 14.8% ($\Delta F(1, 106) = 23.90$, $p < .001$), bringing R^2 to .342, and it was the only significant predictor in the final model ($\beta = .43$, $p < .001$). Once time management was controlled, supervision was no longer significant ($\beta = .20$, $p = .169$).

Table 2. Parent sample: regressions of the child's time management and academic performance ($N = 116$)

Predictor	Time management *B* (SE)	Performance step 2 *B* (SE)	Performance step 3 *B* (SE)	Step 3 β
Parental supervision	0.33 (0.16)*	0.33 (0.16)*	0.19 (0.14)	.20
Home study space	−0.04 (0.19)	−0.04 (0.16)	−0.02 (0.14)	−.03
Physical study conditions	0.16 (0.14)	0.18 (0.13)	0.11 (0.11)	.14
Child's time management			0.43 (0.12)***	.43
R^2	.202	.194	.342	
ΔR^2		.155***	.148***	

Note. All models control for parental education and the respondent's relationship to the child; no control variable was significant. HC3 standard errors. *$p < .05$, ***$p < .001$.

The indirect effect of supervision on performance through time management was 0.14 (95% bootstrap CI [0.01, 0.30]), which is 42% of the total association (Table 3). The indirect effects of study space (−0.02, [−0.16, 0.15]) and physical conditions (0.07, [−0.04, 0.17]) were not significant. H3 was supported for supervision only, as a statistical association in cross-sectional data.

Table 3. Indirect associations through time management (5,000 bootstrap resamples)

Sample	Antecedent	*a*	*b*	*c*	*c′*	*ab* [95% CI]
Parents (*n* = 116)	Parental supervision	0.33	0.43	0.33	0.19	0.14 [0.01, 0.30]
	Home study space	−0.04	0.43	−0.04	−0.02	−0.02 [−0.16, 0.15]
	Physical study conditions	0.16	0.43	0.18	0.11	0.07 [−0.04, 0.17]
Students (*n* = 343)	Parental support	0.45	0.52	0.36	0.13	0.23 [0.15, 0.33]
	Teacher support	0.18	0.52	0.23	0.13	0.09 [0.01, 0.17]

Note. Unstandardised coefficients. *a*: association of the antecedent with time management; *b*: association of time management with performance; *c*: total association of the antecedent with performance; *c′*: the same association after adjusting for time management. Each model controls for the other antecedents and the demographic variables. The labels follow the convention of mediation analysis and do not imply temporal or causal order. Parents and students are independent samples, not matched pairs.

3.3 Parental education

Parental education was strongly associated with the home study space (H = 19.02, p < .001, ε^2 = .14): mean scores were 3.64 for parents with primary education, 3.52 for secondary, 4.10 for graduates and 4.38 for postgraduates. It was also associated with physical study conditions (H = 10.20, p = .017, ε^2 = .06). Its association with supervision was weaker and not significant (H = 7.35, p = .062, ε^2 = .04), and it was not associated with the child's time management (p = .076) or performance (p = .116). In the student sample, perceived parental support did not differ by parental education (H = 3.43, p = .330). Better-educated parents reported better study conditions, but their children did not manage time any better.

3.4 The student perspective

In the student sample, parental and teacher support were correlated (r = .72). With both entered, together with challenges and the demographic controls, parental support was the stronger correlate of time management (B = 0.45, β = .46, p < .001; teacher support B = 0.18, β = .19, p = .031; R^2 = .45). Time management was in turn strongly associated with self-reported performance (β = .57, p < .001). The indirect effect of parental support through time management was 0.23 (95% CI [0.15, 0.33]), 64% of its total association with performance, and that of teacher support was 0.09 ([0.01, 0.17]). H4 was supported. Figure 1 compares the standardised associations with time management across the two samples.

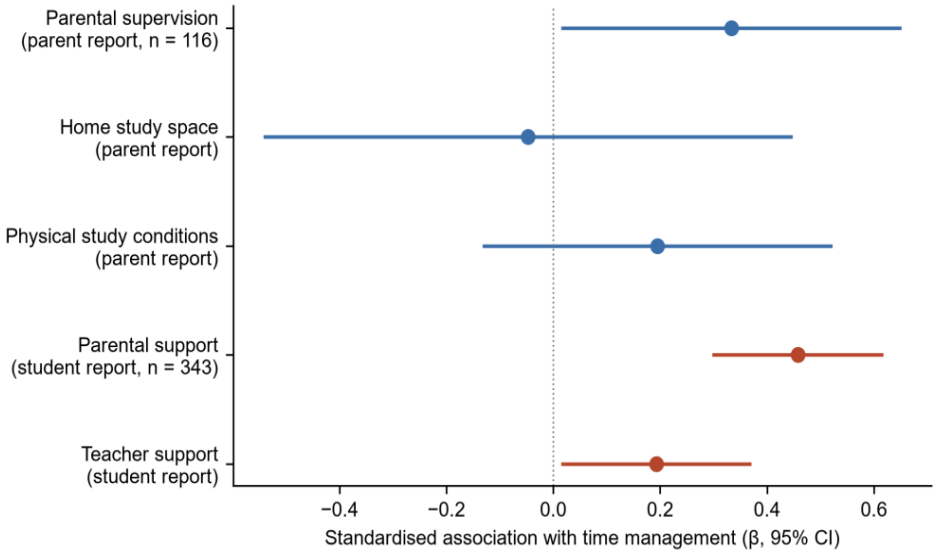


Figure 1. *Standardised associations of family and teacher factors with adolescents' time management in the parent sample (blue) and the student sample (red). Each estimate is adjusted for the other factors in its sample and for demographic controls. Bars are 95% confidence intervals.*

3.5 Sensitivity analyses

Three checks were carried out. First, with the parent scales as originally designed (five supervision items and seven environment items), supervision was again associated with time management ($B = 0.34$, $p = .007$) and the home environment was not ($B = 0.19$, $p = .086$), with an indirect effect of supervision of 0.14 [0.03, 0.28]. Second, removing the 11 repeated parent responses ($n = 105$) left the supervision path ($B = 0.35$, $p = .027$), the time-management path ($B = 0.46$, $p < .001$) and the indirect effect (0.16 [0.02, 0.32]) essentially unchanged. Third, the supervision coefficient is sensitive to the reverse-worded item. With that item removed but the environment scale left as designed, the supervision path was $B = 0.28$ ($p = .051$). Given the width of the intervals, the parent-sample indirect effect should be regarded as modest and in need of replication. The student-sample estimates, based on three times as many respondents, are more precise.

DISCUSSION

We asked whether adolescents' time management is associated more with the resources parents provide or with what parents do, and we looked at the question from two independent vantage points. From the parents' side, supervision of study was associated with the child's time management, and the quality of the study space and physical conditions was not, once supervision was taken into account. From the students' side, support from parents was a stronger correlate of time management than support from teachers, although both forms of support are known to be associated with adolescents' engagement (Wentzel, 1998; Wang & Eccles, 2012). In both samples, time management was the variable most closely associated with academic performance, and part of the association between family involvement and performance was statistically accounted for by it. These are associations observed at one point in time. The study does not show that supervision improves time management or that time management improves performance.

4.1 Practices rather than resources

Well-educated parents reported considerably better study spaces, in line with the socioeconomic gradient in home learning resources (Sirin, 2005; Evans, 2006). Yet neither parental education nor the study space was associated with how well the child managed time, while supervision was. This fits the view of time management as a self-regulatory skill that is learned through interaction (Zimmerman, 2002). When a parent monitors a routine or helps plan the week, the adolescent gets a structure that can later be internalised. A quiet room removes an obstacle, but it does not supply that structure (Grolnick & Slowiaczek, 1994). Our data are consistent with this account and cannot confirm it, because supervision and time management were measured at the same time. The reverse reading is also open: parents may find it easier to keep up a routine of monitoring with a child who already plans well. The result also agrees with evidence that the forms of involvement that matter most in adolescence are those that support the young person's own management of learning (Hill & Tyson, 2009; Barger et al., 2019).

The physical environment may still matter. Most parents rated the study space highly, and a restricted range limits the associations that can be observed; in poorer households than those sampled here, having no study space at all may matter a great deal. What the data show is narrower: among families that already have adequate space, what parents do is more closely associated with time management than what they provide.

4.2 Convergence across informants

Parents and students were independent samples. Their responses were collected separately and anonymously and were never linked, so the reports cannot be compared family by family, and the parents who answered are not necessarily the parents of the students who answered. What the study offers is supporting evidence from two perspectives on the same setting, not matched parent and child data. The two groups answered different questions about the same process, and the two patterns agree: parental involvement is associated with the adolescent's time management, and time management with performance. Agreement between informants who hold different vantage points and different potential biases is stronger evidence than either source alone (De Los Reyes et al., 2015). The agreement is at the level of the group and says nothing about whether a particular parent's supervision goes with that parent's own child's time management or performance. Neither sample

showed a gradient in parental support by education, which suggests that supervisory involvement is not the preserve of better-educated families in this setting.

4.3 Practical implications

Junior colleges in India typically communicate with parents about results and attendance. If the associations found here reflect an influence of supervision on time management, which a cross-sectional study cannot show, brief guidance on supervisory practices may be more useful: agreeing a weekly study plan with the child, checking that it is followed, and discussing progress rather than only marks. This kind of guidance costs little and does not depend on household resources. Because the association between involvement and outcomes depends on its quality (Pomerantz et al., 2007), guidance should emphasise structure and encouragement rather than control. Whether such guidance changes how students manage time is a question for an intervention study, and until that is done the suggestion is a hypothesis.

4.4 Limitations

The survey was cross-sectional. Supervision, time management and performance were all reported on one occasion, so neither the direction of the associations nor their order in time can be established. This applies with most force to the indirect pathway from supervision through time management to performance. A significant indirect effect in such data shows that the three variables are related in the way a mediation process would produce, but other processes would produce the same pattern. Children who already manage their time well may invite less anxious and more consistent supervision, and a parent's general confidence in the child could raise all three ratings together.

The parent sample is small (N = 116) and self-selected, with a response rate of about 36%. It is also well educated: 71.5% of respondents held a graduate or postgraduate degree, and only 9.5% had primary education alone. Parents who chose to respond may well be more engaged with their children's studies than those who did not, and most rated their home study space highly. The results therefore describe a fairly advantaged group of families in one city, and they should not be generalised to parents with little schooling or to households without a usable study space. The small sample also makes the estimates imprecise. The confidence interval for the parent-sample indirect effect runs from 0.01 to 0.30, and the supervision coefficient fell just short of significance in one sensitivity analysis (Section 3.5).

Parent-rated time management had low reliability (α = .58; CR = .61). The scale has three items, and its consequences for the estimates are set out in Section 3.1. Its latent correlation with parent-rated performance was high (.76), so parents may have partly rated a single impression of how well the child is doing, and the separation of the two constructs rests on a small difference in model fit. The parent measurement model required respecification, and its fit remained weak on some indices (CFI = .897, TLI = .861, RMSEA = .104). Kenny et al. (2015) show that RMSEA is unreliable with few degrees of freedom and small samples, but that argument does not cover CFI and TLI, which also fell below the conventional .90 to .95. The parent results are best treated as provisional until they are repeated with a longer and better-performing scale. All outcomes are reports rather than examination records (Kuncel et al., 2005), and within each sample the predictors and outcomes came from the same informant, so shared method variance may inflate the associations (Podsakoff et al., 2003).

Parents and students responded independently and anonymously, and the two sets of responses were never linked. The study cannot test whether a given parent's supervision is associated with that parent's own child's time management or performance. The agreement between the two samples is agreement between two group-level patterns.

4.5 Directions for future research

A longitudinal design is needed first. If supervision, time management and performance are measured at two or more points in Class 11 and Class 12, their order in time can be examined and the indirect pathway tested properly. Future studies should also collect matched parent and adolescent pairs, with a shared anonymous

code linking each parent's questionnaire to the child's, so that the association can be tested within families. Objective academic records, such as college examination marks and Class 12 board results, should be obtained with consent and used in place of ratings of performance. It would also help to measure parent-rated time management with more items and recruit parents across the full range of education, including families with limited study space.

CONCLUSION

In two independent and unmatched samples from Indian junior colleges, parents' supervision of study, and not the quality of the home study environment, was associated with adolescents' time management, and time management was the variable most closely associated with academic performance. Parental education went with the resources families provide, not with how well their children manage time. These are cross-sectional associations and do not establish cause. The parent sample is small and well educated, and its time-management measure had low reliability. Guidance for parents on structuring and monitoring study routines is inexpensive and open to families at every level of education, and the results make it a reasonable candidate for family-engagement efforts. Whether it works should be settled by longitudinal research with matched parent and adolescent pairs and objective academic records.

Data availability

The anonymised data and analysis scripts are available from the corresponding author on reasonable request.

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