RESEARCH ARTICLE

Methodological Review: Contributing Factors on Children's Educational Achievement

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ABSTRACT

Methodological review explores the diverse methodologies employed in research. This study critically examines the research methodologies employed in studying the contributing factors on children's educational achievement. With a focus on recent advances and future directions, this review provides a comprehensive overview of the development of the field, identifies methodological strengths and limitations, and offers insights for enhancing the rigor and relevance of future research. Following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, this review synthesizes empirical studies published in peer-reviewed journals. By analyzing a range of studies, prominent trends and patterns in research methodologies are identified, with a focus on their implications for applicability and generalizability. Quantitative dominance, standardized testing, and diverse analytical techniques stand out as common approaches. Notably, interdisciplinary collaboration, mixed-methods designs, and longitudinal studies are on the rise. The integration of various data sources and consideration of demographic variables contribute to enriched investigations. Findings underscore the importance of employing rigorous and varied methodologies for a comprehensive understanding of this complex phenomenon. The influence of methodological choices on the external validity of research results is examined, with an emphasis on the necessity of considering cultural and contextual variations in the applicability of findings. Researchers are encouraged to adopt a balanced approach, combining quantitative and qualitative methods, to capture both numerical trends and contextual nuances in this field of study.

KEYWORDS: Educational achievement, children, family migration, systematic review, methodological review

INTRODUCTION

Migration, a fundamental demographic force shaping settlements, is pivotal for human development (Bell et al., 2015). Migration denotes a change in habitual residence within defined geographical or political boundaries (Shryock et al., 1976; Suwal, 2014). This movement stems from a desire for improved living conditions (Pehkonen, 2005) and addresses disparities (Baganha et al., 2006). Migration's history spans epochs, beginning in Africa's Rift Valley around 120,000 years ago (Koser, 2009). It involves careful deliberation, influenced by societal factors (Pehkonen, 2005). Classification of migration include primitive, impelled, forced, free, and mass migrations (Petersen, 1958). Two overarching types are internal and international migration (Shryock et al., 1976). International migration crosses borders for settlement (Kitchin, 2009), often driven by economic disparities (Massey et al., 1993). Emigration from poorer countries seeks better opportunities (Cattaneo, 2009). Migration, a complex phenomenon, affects migrants and their home and host societies (Lowell, 2007). An estimated 281 million international migrants exist globally (IOM, 2022).

Internal migration within Nepal involves movement within the nation's borders (Suwal, 2014). This movement is driven by economic prospects, education, natural disasters, or disturbances (Rees, 2020). While challenging to measure, internal migration in Nepal has surged due to urbanization and transport networks (IOM & UNDP, 2019). Such migrations often originate from rural areas seeking economic improvement (Tiwari, 2008). Migration profoundly shapes identity and well-being (Akhtar, 1995). Nepal's internal migration, especially to urban centres, seeks better economic prospects (KC, 2003; Suwal, 2014). However, this movement presents societal challenges, including urban poverty and housing shortages (IOM, 2015). While government policies aim to support migrants, they must address these challenges (Taran, 2001).

Migrants tend to seek better educational opportunities for their children (Basnet et al., 2021). Socio-economic status affects academic achievement, and peer groups are vital for support (Driessen & Dekkers, 1997; Morrison et al., 1997). Migrant children often face difficulties forming relationships with non-migrant peers (Corson, 1998).

The influence of family migration on children's educational achievement is a critical area of study. Understanding these dynamics, particularly in Nepal's context, can provide insights into how migration shapes educational achievement. As migration continues to shape societies, comprehensive research is essential to inform policies and support mechanisms that ensure children's academic success amid internal migration. While the consequences of internal migration are multifaceted, its impact on children's educational success has gained increasing attention. This methodological review aims to analyse existing research methodologies, identify trends, challenges, and best practices, and offer insights into the complex relationship between internal migration and children's educational success. This study's focus on literature from the last decade ensures relevance but may limit insights into historical trends.

A methodological review, distinct from examining research outcomes, as indicated by Randolph et al. (2011), critically engages in the evaluation of research methods and approaches employed in empirical studies within a specific field or subject. This review aims to scrutinize the quality, rigor, and appropriateness of the methodologies embraced, with a keen focus on uncovering inherent strengths and weaknesses in their application. This review critically evaluates the quality, rigor, and suitability of the research methodologies employed, with a specific focus on identifying their inherent strengths and limitations in application

By addressing methodological gaps and

maintaining rigorous research practices, scholars can reveal accurate insights that enhance our understanding of this crucial issue.

METHODS
Identification of Literature

The aim and motivations for conducting a systematic review, followed the PRISMA framework (Liberati et al., 2009) to conduct this study. The process of identifying and obtaining relevant literature is both complex and essential for ensuring the rigor and success of a systematic review (Pandit & Adhikari, 2024). Developing a well-defined search strategy prior to initiating the literature search is crucial for ensuring efficient and relevant information retrieval.

A comprehensive search strategy was developed to ensure the systematic retrieval of relevant literature. The scope of the search, its thoroughness, and the time available for conducting it were carefully considered. For this systematic review, Google Scholar was selected as the primary search engines to identify relevant studies. Computer-based searches were conducted 2013 to 2023, utilizing advanced search techniques to enhance precision and comprehensiveness. The search terms "Children's academic achievement" AND parents OR Relationship OR involvement OR commuting were applied to the title.

The initial search yielded a total of 12400 articles across Google Scholar. A rigorous screening process was then applied to refine the selection. Of the total 12400 articles, 6760 were excluded as they fell outside the specified ten years' time range 2013 to 28th December 2023 than remaining only 5640 articles. Additionally, 68 articles remain, while key terms were screen for selecting the title only in advance search. Furthermore, 58 articles were not matched with the aim of study so, these are excluded. Ten articles were selected for inclusion in the review. By employing a systematic and structured approach to literature retrieval, this review ensured the identification of the relevant studies, thereby enhancing the validity and reliability of the findings.

Inclusion/exclusion Criteria

Specific criteria were established to ensure a rigorous selection of studies for inclusion in this systematic review. Studies were included if they met the following criteria: (1) original research articles and grey literature aligned with the objectives of the review, (2) peer-reviewed publications, (3) studies published in the English language, and (4) studies published from 2013 to 2023.

Conversely, studies were excluded if (1) the full text was unavailable, (2) the study was a thesis, (3) the research focused on clinical study, (4) the study was not aligned with the research objectives, (5) insufficient information was provided. The selection process of the records is illustrated in the PRISMA flowchart in figure 1.

Figure 1
PRISMA Flowchart for the Literature Identification from Google Scholar
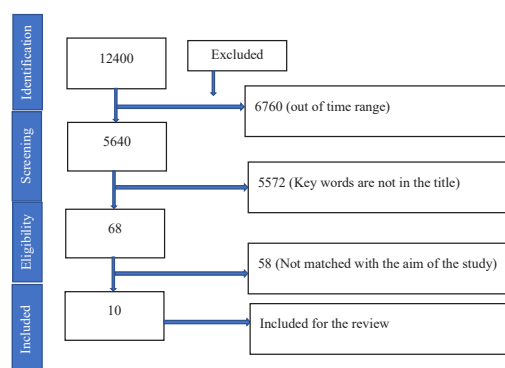
Data Extraction

Review of all eligible studies was conducted to extract relevant data, which was systematically recorded. The extracted information from each study included the following details: (1) the first author's name and date, (2) place (study area, region, or country), (3) source (journals), (4) study area, (5) study design, (6) sample, (7) sampling method, and (8) tools. Data was

thoroughly extracted from each selected record. To minimize selection bias and reduce individual errors, the extracted information was independently verified. Any inconsistencies in the data extraction process were resolved through reassessment of the articles until a common conclusion was reached. The extracted data is presented in Table 1.

RESULTS

Out of 12400 relevant articles identified through the literature search, only ten met the eligibility criteria for inclusion in the systematic review. Figure 1 presents the study selection process. A methodological review, distinct from examining research outcomes, as indicated by Randolph et al. (2011), critically engages in the evaluation of research methods and approaches employed in empirical studies within a specific field or subject. This review aims to scrutinize the quality, rigor, and appropriateness of the methodologies embraced, with a keen focus on uncovering inherent strengths and weaknesses in their application.

Zhang et al. (2020) conducted a study with 815 students enrolled in rural public elementary schools in China. Their investigation centered on exploring the link between family socio-economic status (SES), parental academic involvement, subjective social mobility, and the academic achievements of children. The research utilized a combination of data collection methods, including questionnaires, teacher evaluations, and exam scores. Like as, Idris et al. (2020) delved into the correlation between parental education and their offspring's academic success. Their descriptive quantitative research encompassed grade ten students from 114 government secondary schools, totaling 12,788 participants. The study gathered data on children's academic accomplishments by analyzing their marks from the grade nine annual examination. Employing a validated Likert scale questionnaire, researchers elicited respondents'

perspectives. Analyzing the accumulated data encompassed statistical measures such as mean, standard deviation, and Pearson correlation, illuminating the relationship between parental education and children's academic achievement.

Matthes and Stoeger (2018) investigated 723 parents of fourth-grade students in Bavaria, Germany, to probe into the influence of parental beliefs regarding their children's abilities on their educational behaviors, their children's convictions, and their academic performance. They employed questionnaires to gauge both parental beliefs and actions, as well as their children's convictions and average grades in core subjects. Structural equation modeling served as the analytical tool for scrutinizing the data, treating scales as latent variables and items as categorical variables. The model's suitability was evaluated using various indicators. In a similarly vein, Lara and Saracostti (2019) carried out a study in Chile, aiming to assess the impact of parental engagement on the academic achievements of children. This study encompassed 498 parents or guardians of grade two and three students attending 16 public schools characterized by high socio-economic vulnerability. Data collection occurred through questionnaires administered during parent-teacher meetings, focusing on evaluating parental participation across various educational dimensions. Students' scholastic accomplishments were gauged through their final average grades.

The study by Lv et al. (2018) investigated the relationship between mother-child discrepancies in educational aspirations and children's academic achievement. The sample consisted of 828 dyads from an elementary school in Hengshui, China. Academic achievement was measured using midterm and final exam scores in Chinese language, mathematics, and English language.

Table 1
Literatures for Methodological Review

S. N.	Authors & Date	Place	Source	Study Area	Design	Sample	sampling Method	Tools
1	Zhang et al. (2020)	China	British Journal of Educational Psychology	Relationship between family socio-economic status (SES) and children's academic achievement	Correlational design (multi-informational design)	815 students	Convenience sampling	Questionnaires, teacher evaluations, and exam scores
2	Idris et al. (2020)	Mardan District of Pakistan	Journal of Arts and Social Sciences	Relationship between Parents' Education and their children's Academic Achievement	Survey	510 students	Simple random sampling	Likert scale questionnaire
3	Matthes and Stoeger (2018)	Bavaria, Germany	Contemporary Educational Psychology	Influence of parents' implicit theories about ability on parents' learning-related behaviors, children's implicit theories, and children's academic achievement.	Cross-sectional design	723 parents		Questionnaire
4	Lara and Saracostti (2019)	Chile	Frontiers in Psychology	Associations between parental involvement in school and children's academic achievement	Cross-sectional design	498 parents	Cluster sampling	Likert response scale
5	Lv et al. (2018)	China	Children and Youth Services Review	Relationship between mother-child discrepancies in educational aspirations and children's academic achievement	Quantitative research design	828 students and mother		Midterm and final exam scores and questionnaires
6	McCormick et al. (2013)	Not stated	Journal of School Psychology	Associations between teacher–child relationships and children's academic achievement	Longitudinal quasi-experimental design	324 children and 60 kindergarten teachers	Not stated	Audio-enhanced computer-assisted self-interviewing software. Teachers completed paper questionnaires
7	Kremer et al. (2016)	Not stated	Children and Youth Services Review	Relationship between behavior problems and academic achievement	Longitudinal survey	2028 children	Not stated	Panel Study of Income Dynamic (PSID) Child Development Supplement (CDS Woodcock-Johnson Revised (WJ-R) Behavior Problem Index (BPI)
8	Bleiweiss-Sande et al. (2019)	Massachusetts, United States	Nutrients	Association between food group intake and academic achievement	Cluster randomized	987 children	Not stated	Not stated
9	Ding and Feng (2022)	China	International Journal of Environmental Research and Public Health	Impact of school travel on children's academic achievement	Cross-sectional survey	4,807, 8th-grade students from 112 schools	Not stated	Mid-term test scores
10	Garcia-Hermoso et al. (2017)	Chile	Environmental Health and Preventive Medicine	Relationship between the duration of active commuting to school and academic achievement in rural Chilean adolescents	Cross-sectional	389 adolescents	Convenience sampling	Schools' official records

The scores were standardized and averaged across the subjects to represent student academic achievement. Demographic variables, such as children's gender and age, as well as parental educational levels and family income, were also collected. Likewise, McCormick et al. (2013) examined the impact of teacher-child relationships on children's academic achievement. Data from 324 children, their caregivers, and 60 kindergarten teachers were analyzed. While, analysis considered various factors, such as demographics, parent involvement, and child behavior, to ensure accurate results.

The study, conducted by Kremer et al. (2016) utilized data from the three waves of the child Development supplement (CDS) of the panel study of income dynamics (PSID) to examine the relationship between behavior problems and children's academic achievement. The academic achievement of Black and White children, measured through standardized tests, was analyzed. The Woodcock-Johnson Revised (W-JR) Tests of Achievement were administered, assessing reading and math abilities. The study included children who had valid measures on standardized achievement tests across the three waves and valid information on behavior problems measured in the first wave. Covariates such as health and disability characteristics, mothers' characteristics and parenting practices, and household characteristics were controlled for in the analysis. Growth curve models were used to analyze the association between behavior problems and children's academic achievement over time.

The study conducted by Bleiweiss-Sande et al. (2019) the association between food group intake and academic achievement in elementary school children. They utilized baseline data from a cluster randomized controlled trial (CRCT) and used Massachusetts Comprehensive Assessment System (MCAS) standardized test scores as an indicator of academic achievement. The study examined the relationship between dietary intake, including healthful and less healthful food groups, and MCAS scores. Statistical analysis was performed to assess this relationship.

The study by Ding and Feng (2022) investigates the impact of school travel on children's academic achievement in China, using data from the China Education Panel Survey (CEPS). The study includes 4,807 grade eight students from 112 schools in mainland China. The analysis examines the relationship between home-school commute time, mode of transportation, and academic achievement. Academic achievement is measured using mid-term test scores in math, English, Chinese, and the mean of these subjects' scores. Control variables include individual characteristics, family background, and school information. Similarly, a study of Garcia-Hermoso et al. (2017) aimed to explore the relationship between the duration of active commuting to school (ACS) and academic achievement in rural Chilean adolescents. The sample consisted of 389 grade seven students who commuted actively by walking. Academic achievement was assessed using grades in mathematics and language obtained from official school records. Potential confounding variables such as anthropometry, screen time, physical activity, maternal education, socioeconomic status, and neonatal characteristics were also collected. Descriptive statistics were calculated, and analysis of covariance (ANCOVA) models were used to examine the association between commuting mode and academic achievement while adjusting for confounding factors. The results indicated that longer ACS duration was positively associated with higher academic achievement after accounting for potential confounders. This study contributes to understanding the potential impact of active commuting on academic outcomes in adolescents.

There is diversity of the methodologies employed to investigate the factors influencing children's academic achievement.

Researchers utilized a range of quantitative and qualitative methods to collect and analyze data. These methodologies include surveys/questionnaires, teacher evaluations, exam scores, Likert scale questionnaires, structural equation modeling, and data analysis techniques such as mean, standard deviation, and Pearson correlation. The studies demonstrate the importance of employing rigorous and varied methodologies to comprehensively explore the relationships between variables and children's academic achievement. Specially, final mark obtain by students and teacher's evaluations are used in every study.

DISCUSSION

The trend in the studies about impact of family migration on children's academic achievement is the predominance of quantitative research methods. Researchers employ surveys, standardized tests, Likert scale questionnaires, and statistical analyses such as mean, standard deviation, and Pearson correlation to quantitatively measure and analyze the relationships between various factors and children's academic success. That provides a diverse representation, enhancing the generalizability of findings to these regions. This inclusivity helps in avoiding biases related to particular demographics or locations. As well as this study establishes credibility and protects the rights and well-being of the participants. Using multi-source approach adds depth and richness to the data. These tools quantify intricate connections between diverse factors and scholastic success (Everett, 2009). Although, self-reported information might be subject to biases (Scott & Balthrop, 2021), social desirability, or inaccuracies. Using objective measurement frame in addition to self-reports could have strengthened the validity of the data (Clark & Watson, 2019).

A recurring thread is the systematic integration of standardized assessments, ensuring uniformity and comparability of academic performance metrics (Huber & Skedsmo, 2017), supporting sound conclusions. Researchers employ a diverse array of analytical tools, from correlation and regression analysis to structural equation modeling and ANCOVA, revealing micro relationships between variables (Stein et al., 2017). Demographic variables like gender, age, parental education, and socioeconomic status are commonly considered influential (Landy, 2001). Qualitative dimensions are sometimes woven into quantitative frameworks through open-ended questions and interviews, enriching narratives (Weller et al., 2018). Interdisciplinary collaborations across fields like education, psychology, sociology, and public health amplify insights. Longitudinal designs capture dynamics, while multivariate analyses disentangle effects (Little et al., 2015). A harmonious symphony of methodologies illuminates factors shaping (Kazdin, 2016) children's academic achievements within complex socio-educational contexts.

Quantitative research continues to dominate the field of research on the effects of internal family migration on children's educational achievement, there is a significant shift toward interdisciplinary collaboration and mixed-methods integration. Researchers increasingly explore diverse analytic techniques, use multiple data sources, and engage in longitudinal studies.

However, despite these trends, some gaps and challenges persist. Variability in methodologies and sample characteristics can hinder direct comparisons. Limited consideration of cultural values and regional disparities may limit generalizability (Delios et al., 2022). Longitudinal studies, while insightful, require sustained resources. Also, while mixed-methods approaches offer depth, balancing qualitative and quantitative aspects can be intricate (Timans et al., 2019). Ensuring robustness in statistical analyses remains paramount. Interdisciplinary collaboration, though promising, demands effective communication across domains. Addressing these gaps and challenges will

refine research, enhancing the understanding of children's academic achievement dynamics.

More diverse range of measures, larger and more representative samples, and potentially employing longitudinal or experimental designs to establish causality more firmly. Utilizing diverse data sources, combining quantitative and qualitative approaches, and accounting for demographic factors can broaden the applicability of findings while acknowledging cultural and contextual variations is crucial for robust applicability

CONCLUSION

The choice of methodologies to examine the effects of internal family migration on children's academic attainment has significant implications for the applicability and generalizability of study findings. To improve external validity, researchers should carefully consider the cultural, contextual, and demographic factors that may affect how their findings apply to different regions or groups. Quantitative methods, as shown in various studies, offer important insights into broad trends and statistical connections. However, to gain a more systematic insight, qualitative methods and mixed-methods approaches are essential. These approaches explore the details and context that quantitative data might miss. By using this combined approach, research results become more relevant and applicable across diverse educational landscapes and populations.

Therefore, it is crucial for researchers in this field to employ a balanced combination of quantitative and qualitative methodologies while being aware of the various factors that could affect the external validity of their findings. This approach not only enhances the reliability of research outcomes but also ensures that the insights obtained can be appropriately applied and generalized to address the complexities surrounding the impact of internal family migration on children's academic

performance across various contexts.

AUTHOR CONTRIBUTIONS

Sudesh Pandit conceptualization, formal analysis, investigation, project administration, methodology, data analysis, supervision, writing original draft, writing review and editing.

Ramesh Adhikari conceptualization, supervision, methodology, writing, review and editing.

Om Chandra Thasineku conceptualization, formal analysis, investigation, methodology, data analysis, supervision, writing, review and editing.

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