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Scoping Paper

Mapping Education Research Produced By Pakistan-Based Scholars: Report On An Analysis Of International Databases

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EXECUTIVE SUMMARY

This report presents findings from a comprehensive mapping and review of education research outputs produced by Pakistan-based scholars between 2015 and 2024, also including the first four months of 2025. The exercise aimed to identify trends in publication focus, thematic priorities, authorship patterns, funding sources, and international collaboration. The review covered research published in international peer-reviewed journals and books, as well as internationally published conference proceedings, using calibrated searches on Scopus and Web of Science. The scope of the mapping was limited to research focusing on key levels of education, namely pre-primary, primary, and secondary education, as well as teacher education and training.

The findings show a steady increase in research production since 2015, with notable peaks in 2021 and 2024. A thematic analysis of keywords revealed seven dominant domains in the research landscape: early childhood education (ECE), education technology, disability-inclusive education, curriculum and assessment, teacher professional development, gender and equity, educational leadership and management, and language and literacy. In terms of geographical coverage, Punjab accounted for the highest number of publications, followed by Sindh, Khyber Pakhtunkhwa (KP), and a smaller proportion of studies focused on Balochistan, the Federally Administered Tribal Regions (FATA), and Azad Jammu and Kashmir. A total of 345 male and 241 female authors were identified, with a steady rise in female first authorship over time, reaching a milestone in 2024 when female first authors outnumbered males for the first time. Authorship patterns also indicate a growing culture of collaboration, with most publications since 2020 being co-authored rather than solo-authored.

Collaboration trends indicate a strong presence of cross-country partnerships, with the highest number of co-authorships and institutional links involving scholars and institutions in the United States, United Kingdom, Malaysia, China, and Saudi Arabia. A review of funding sources revealed a diverse array of actors. These were categorised into six broad types: international aid and development agencies (e.g. the World Bank, the United States Agency for International Development (USAID), and the UK Foreign, Commonwealth and Development Office (FCDO)), international research councils and foundations (e.g. the Economic and Social Research Council (ESRC) and the UK Foreign and Commonwealth Development Office (FCDO), and the German Research Foundation), international academic institutions (e.g. Harvard Kennedy School and TU Berlin), domestic academic institutions (e.g. Lahore University of Management Sciences (LUMS) and Aga Khan University), national or provincial government bodies (e.g. the Higher Education Commission of Pakistan), and domestic or regional research councils and non-governmental organisations (NGOs).

While a growing number of publications by Pakistani scholars are appearing in international journals, visibility and impact remain uneven. This review seeks to bring greater attention to the contributions of Pakistan-based researchers, particularly those producing work that is policy relevant but that may be overlooked in global forums.

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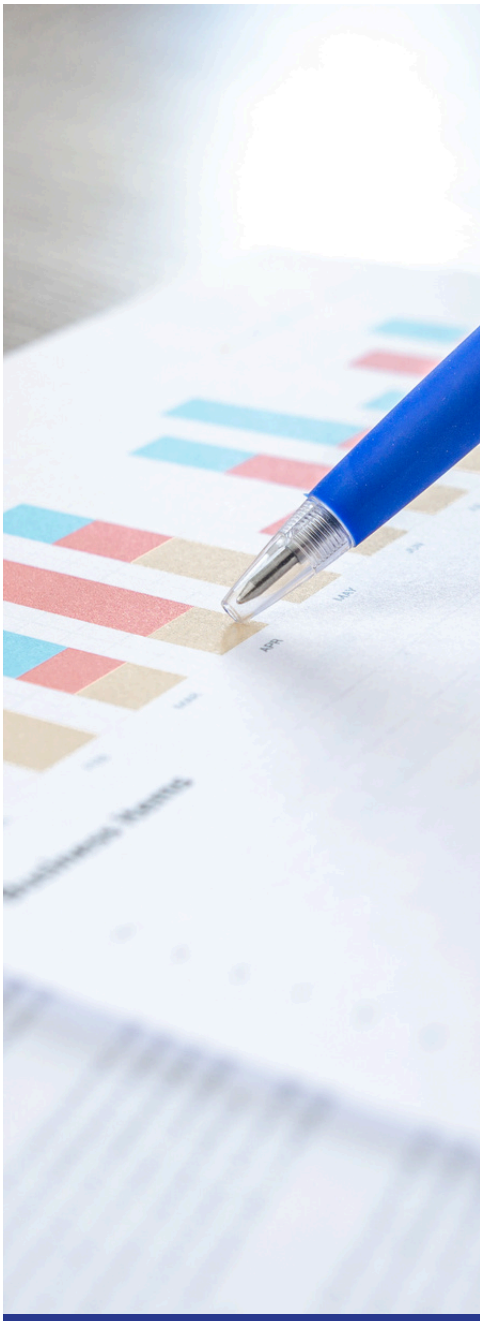
LIST OF ABBREVIATIONS

AERD	African Education Research Database
DARE-RC	Data and Research in Education – Research Consortium
DFID	UK Department for International Development (now FCDO)
ECE	Early Childhood Education
ESRC	Economic and Social Research Council
FATA	Federally Administered Tribal Regions
FCDO	UK Foreign, Commonwealth and Development Office
KP	Khyber Pakhtunkhwa
LUMS	Lahore University of Management Sciences
NEP	National Education Policy
NGO	Non-Government Organisation
SDGs	Sustainable Development Goals
UMT	University of Management and Technology
USAID	United States Agency for International Development

INTRODUCTION

Education research produced by scholars at Pakistani institutions represents a valuable yet under-recognised resource for informing the National Education Policy (NEP) and improving practice. Despite a growing body of academic work emerging from within the country, its visibility, accessibility, and policy impact remain limited, both in international discourse and domestic decision-making spaces. This is partly due to structural challenges faced by Pakistan-based researchers in publishing in high-impact international journals, including limited access to funding, insufficient institutional support, and barriers related to language and editorial standards (Altbach, 2015; Shamim and Qureshi, 2013). As a result, much local evidence remains unpublished or is confined to lesser-known local journals, reducing its potential to influence education reform agendas (Sheikh, 2023). Even when scholars from the Global South publish in international journals, their work often receives limited visibility or is undervalued due to entrenched hierarchies in global academic publishing. This review aims to bring attention to such contributions (Silova et al., 2017). These systemic barriers mirror those faced by researchers in other low- and middle-income contexts, such as sub-Saharan Africa, where regional scholarship often remains marginalised in global policy debates (Asare et al., 2021; Tarkang and Bain, 2019).

This report presents a systematic mapping of peer-reviewed education research articles authored by scholars affiliated with Pakistani institutions between 2015 and 2025. The review is part of the Data and Research in Education – Research Consortium (DARE-RC) initiative, which aims to strengthen evidence-informed policymaking by increasing the production, accessibility, and use of high-quality education research in Pakistan.



The review is motivated by three interlinked challenges:

Visibility

Much of the research produced in Pakistan does not reach international audiences or gain traction in citation indices, limiting its perceived credibility and uptake.

Policy relevance

Strengthening understanding of how locally produced research aligns with NEP priorities and Sustainable Development Goals (SDGs) is essential for enhancing its relevance and potential impact. Bridging this gap can support the integration of local evidence into wider policy debates and more responsive decision-making processes.

Capacity strengthening

Mapping the geography, themes, and institutional affiliations of research production can help identify areas for targeted capacity development.

Drawing inspiration from the African Education Research Database developed by the REAL Centre in collaboration with the charity Education Sub Saharan Africa (Mitchell and Rose, 2018) and recent cross-country mappings of early childhood and foundational learning research in sub-Saharan Africa (Williams and Rose, 2024; Binesse and Rose, 2024), this review adopts a structured scoping methodology to analyse the scope, trends, and gaps in Pakistan's education research landscape. In doing so, it seeks to contribute to:

- Strengthening the connection between research and policy
- Recognising the work of Pakistani scholars
- Informing DARE-RC's future research agenda focused on increasing visibility of Pakistani education research

METHODOLOGY

The methodology for this scoping review was designed to ensure a systematic and transparent process for identifying, selecting, and analysing peer-reviewed education research produced by scholars based in Pakistan. The process was adapted from protocols used for similar mapping exercises conducted for the African Education Research Database (AERD), with contextual adjustments to reflect Pakistan's education and research landscape.

2.1 Scope and timeframe

The review covers peer-reviewed journal articles published between January 2015 and April 2025, with at least one author affiliated to a Pakistan-based institution. For 2025, considering the time of this review, only the four months up until the end of April were included. The 10-year timeframe was selected to capture meaningful trends in research production.

2.2 Data sources

The search focused exclusively on two international academic databases: Scopus and Web of Science. These databases were selected for their wide coverage of peer-reviewed academic literature in internationally-recognised publications and ability to generate bibliometric indicators such as citation counts and author affiliations.

2.3 Search strategy and inclusion criteria

Search terms were adapted from AERD's scoping protocols (Mitchell and Rose, 2018) and tailored to capture education-related research on Pakistan. The inclusion criteria are set out in Table 1.

Table 1: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Articles published in international peer-reviewed journals, academic books, or as conference proceedings indexed or published through recognised international platforms	Articles published in local or national journals and locally published books, not indexed in Scopus or Web of Science
At least one author is affiliated with a Pakistan-based institution	At least one author is affiliated with a Pakistan-based institution
Article focuses on pre-primary, primary, or secondary education	Articles focused on higher education, tertiary education, or adult education
Articles with a policy relevance	Articles that are purely theoretical with no clear policy relevance

2.4 Data extraction and coding

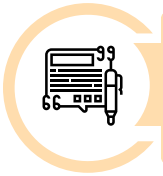
Each included article was coded according to the following variables:

Bibliographic information
title, author names, year of publication, DOI, abstract.

Author information
gender (inferred from names), institutional affiliation(s), location (province).

Thematic classification
derived from author-assigned keywords and manual review of abstracts. Phase of education targeted (pre-primary, primary, secondary, or multiple) was also identified. Themes were cross-referenced with SDG 4 and Pakistan's NEP.

Methodology
whether the methodology was qualitative, quantitative, or mixed with a further disaggregation of types of methods used.



Citation data
number of citations (as at April 2025).

Funding
whether external or internal funding was acknowledged in the publication.

Collaboration type
national (multi-institutional within Pakistan), international (collaboration with institutions abroad), or none.

2.5 Analytical approach

Multiple analytical approaches were used to examine trends in education research in Pakistan over the past 10 years.

Descriptive statistics were employed to analyse patterns in authorship, institutional affiliations, research themes, and funding sources across the decade. This enabled a longitudinal view of how research capacity and focus areas have evolved.

Thematic analysis was used to identify key themes addressed by the publications, as well as highlight gaps in terms of themes that remain underrepresented in the literature.

Regional breakdown was conducted to assess the geographical spread of research, highlighting provincial representation and institutional clustering, thereby providing insight into regional disparities in knowledge production.

While this review focused on internationally indexed literature given the objectives of the study, it acknowledges the limitations of this approach in excluding valuable locally published or grey literature.

FINDINGS

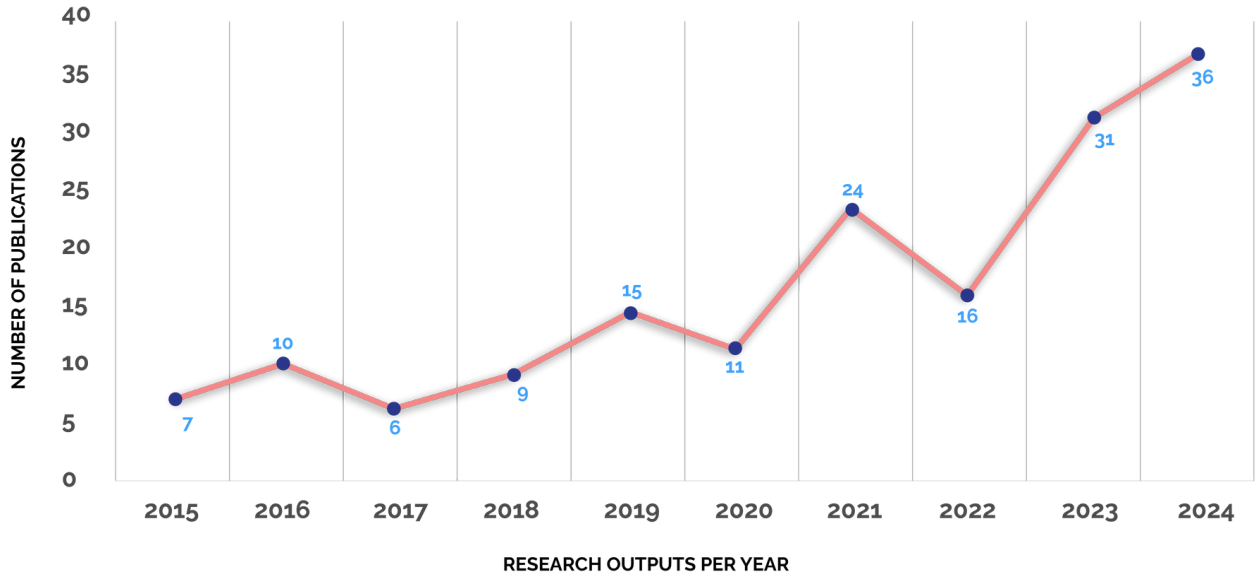
In this section, we present an analysis of education research outputs produced by scholars affiliated with Pakistan-based institutions between 2015 and 2024 (with an additional four months of 2025 from January to April included). The focus is on key attributes of the research, including authorship patterns, institutional affiliations, methodologies employed, thematic priorities, and sources of funding. We also examine collaboration trends and the extent to which research aligns with national policy priorities.

3.1 Research output trends and types

A total of 173 education-focused research publications produced by Pakistan-based scholars were identified between 2015 and 2025. Figure 1 shows the trends in research outputs over this 10-year period. The eight additional publications from 2025 were excluded from the graph, as only partial data (covering four months) were available at the time of analysis and would not accurately reflect the full year's output.

As shown in Figure 1, research output increased steadily over the decade, with some fluctuations. The number of publications rose from just seven in 2015 to 36 in 2024, indicating a growing research presence by Pakistan-based scholars. Notably, 2017 marked the lowest point in outputs (six publications), after which there was a gradual increase, peaking in 2021 with 24 publications. A sharp dip occurred in 2022 (16 publications), potentially due to lag effects from COVID-19, followed by an increase in outputs to 31 publications in 2023 and the highest output recorded in 2024 (36 publications).

Figure 1: Trends in research outputs, 2015–2024



Of the 173 publications reviewed, 84% are peer-reviewed journal articles, 13% are book chapters, and 3% are published conference proceedings. Out of the 146 peer-reviewed journal articles identified from the databases, the journals listed in Table 2 represent those with the highest concentration of published articles by authors affiliated with Pakistan-based institutions. These publications are spread across a range of journals, with the most predominant ones being Cogent Education, SAGE Open, and Frontiers in Education, which published the most articles from Pakistani authors (four each). Several other journals, including Compare, Education Sciences, and PLOS ONE, each published three articles.

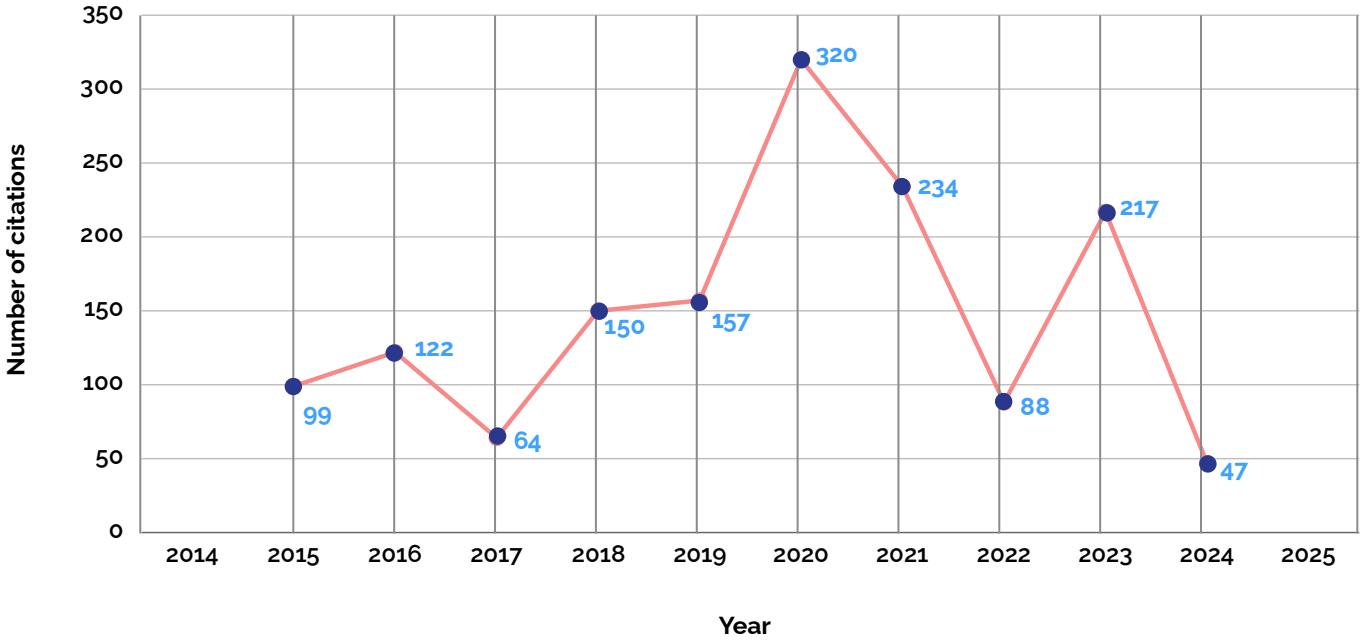
In addition, 96 other journals featured a single article from Pakistan-based scholars over the 10-year period. This indicates a wide dispersion of research across a broad set of international journals.

Table 2: Journals with the highest number of articles

Journal name	Number of articles
Cogent Education	4
SAGE Open	4
Frontiers in Education	4
Education Sciences	3
Compare	3
Journal of Education (Boston, Mass.)	3
Education and Information Technologies	3
Asian Journal of Social Science	3
World Development	3
PLOS ONE	3

Figure 2 shows the number of citations received by research outputs published between 2015 and 2024. In total, there have been 1,499 citations over the period. This represents an average of eight citations per publication. Citation trends peaked in 2020 with 320 citations. There was a noticeable decline in citations in 2022 (88), which could be due to fewer publications as a result of the pandemic. There was a recovery in 2023 (217). The low citation count for 2024 (47) is expected, as recent publications have had less time to accumulate citations. Overall, citation patterns indicate significant uptake of research.

Figure 2: Number of citations for research outputs

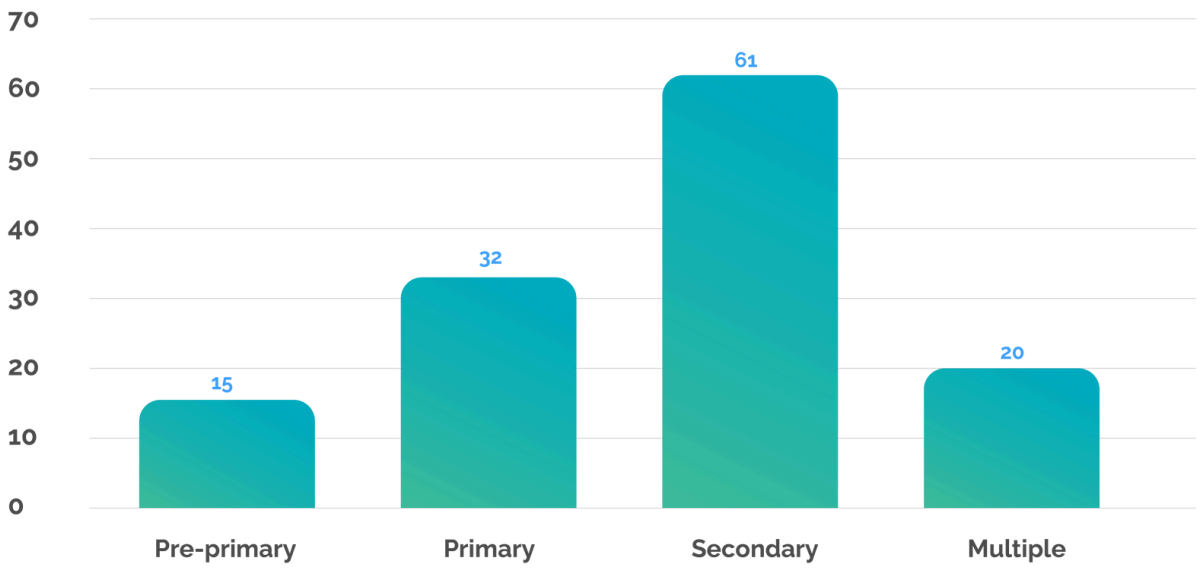


3.2 Thematic breakdown

Figure 3 shows the distribution of education research articles by phase of education. Secondary education consistently received the highest scholarly attention across the years.

Even though the overall number of publications on pre-primary education is the lowest (35), there has been a visible rise in publications on pre-primary education from 2020 onwards, reflecting a growing policy and research interest in foundational learning and ECE. Studies spanning multiple education levels (pre-primary, primary, and secondary) appeared consistently across the timeline, especially after 2020, suggesting a shift toward more integrated or system-wide analyses in recent years.

Figure 3: Phase of education targeted in the journal articles



Note: The total number of articles is lower than the 173 publications analysed overall, as 45 of the 173 articles did not focus on a specific school level.

Figure 4 presents a word cloud generated from keywords provided by authors across the education research outputs published by Pakistan-based scholars between 2015 and 2025. Keywords such as *teacher education, teachers, COVID-19, curriculum reform, inclusive schooling, and pedagogical practices* indicate recurring areas of scholarly attention. The visual density of keywords such as *distance learning, school leadership, professional development, and technology integration* highlights the importance of practical classroom challenges, policy responsiveness, and the use of digital tools in teaching and learning.

Figure 4: Word cloud for the keywords

Note: Keywords were analysed for 150 out of 173 publications. The remaining 23 publications, most of which were book chapters, did not include any keywords and were therefore excluded from this analysis.

To further synthesise these diverse research topics, the above keywords were grouped into thematic categories (see Table 3). We identify below how these are linked to national and global education priorities.

Table 3: Thematic breakdown of the keywords

Theme title	Theme description
Curriculum and policy	Education policy reform, curriculum and textbook design, school governance, and the alignment between curriculum and textbook content and policy priorities
Teacher education and pedagogy	Teacher training, instructional practices, and professional learning
Assessment and outcomes	Learning outcomes, testing, and achievement measures in education
Technology and innovation	Use of digital tools, machine learning, and online learning in education
Crisis and emergency	Education in conflict zones, during COVID-19, and the climate and other emergencies
Gender and social inclusion	Equity in education for girls, women, and other marginalised groups, such as religious and ethnic minorities, those impacted by poverty. language barriers, etc.
Disability-inclusive education	The needs of learners with disabilities

Based on the categorisation in Table 3, Figure 5 presents the thematic distribution of education research produced by Pakistan-based scholars between 2015 and 2025 (for 150 out of 173 publications that included keywords; the remaining 23 publications did not include any keywords). The most prominent theme was technology and innovation (25%), reflecting a strong research focus on digital learning tools, online education, and ICT integration. This aligns with Pakistan's increasing emphasis on EdTech under the Digital Pakistan vision, and supports SDG 4.4, which calls for enhancing ICT skills among youth and integrating technology into education systems.

Teacher education and pedagogy (22%) is the second highest theme and reflects steady scholarly attention to teacher training, classroom practice, and professional development. These are cornerstone priorities within the NEP, which emphasises continuous professional development, reform of pre-service training, and competency-based approaches. This theme also contributes to SDG 4.A, which calls for increasing the supply of qualified teachers.

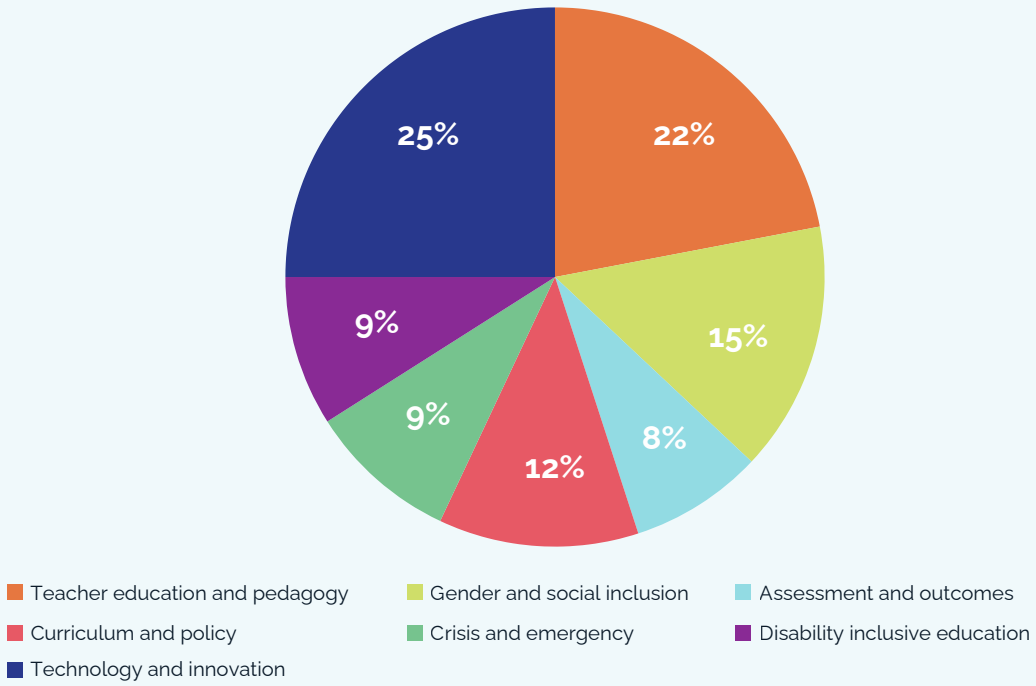
Gender and social inclusion is the third most prominent theme, accounting for 15% of total publications. This reflects growing scholarly attention to equity in education for girls, women, and other marginalised groups, including issues like bullying, harassment, and health challenges such as stunting. The focus aligns with Pakistan's NEP goals for inclusive and safe learning environments and supports SDG 4.5 on eliminating disparities in education. In addition, 9% of publications focused specifically on disability-inclusive education. This directly aligns with SDG 4.5, which aims to eliminate disparities in education and ensure access for persons with disabilities, and intersects with the NEP's commitment to inclusive, barrier-free schooling environments.

Curriculum and policy is relatively low (12%), with notably less attention than technology and innovation. This area is closely linked with national strategies for revising and contextualising curricula to reflect constitutional values, equity, and global citizenship.

Crisis and emergency education (9%) saw a surge in research following the COVID-19 pandemic and a broader focus on education in conflict-affected, climate change-affected, and disaster-prone regions. This supports the NEP goal of ensuring continuity in learning during emergencies, especially for displaced and vulnerable populations.

Assessment and outcomes (8%) was less represented, despite its importance in both the NEP goals and the SDGs. The relatively low visibility of research on learning outcomes signals areas where further scholarly attention is needed to bridge policy–practice gaps.

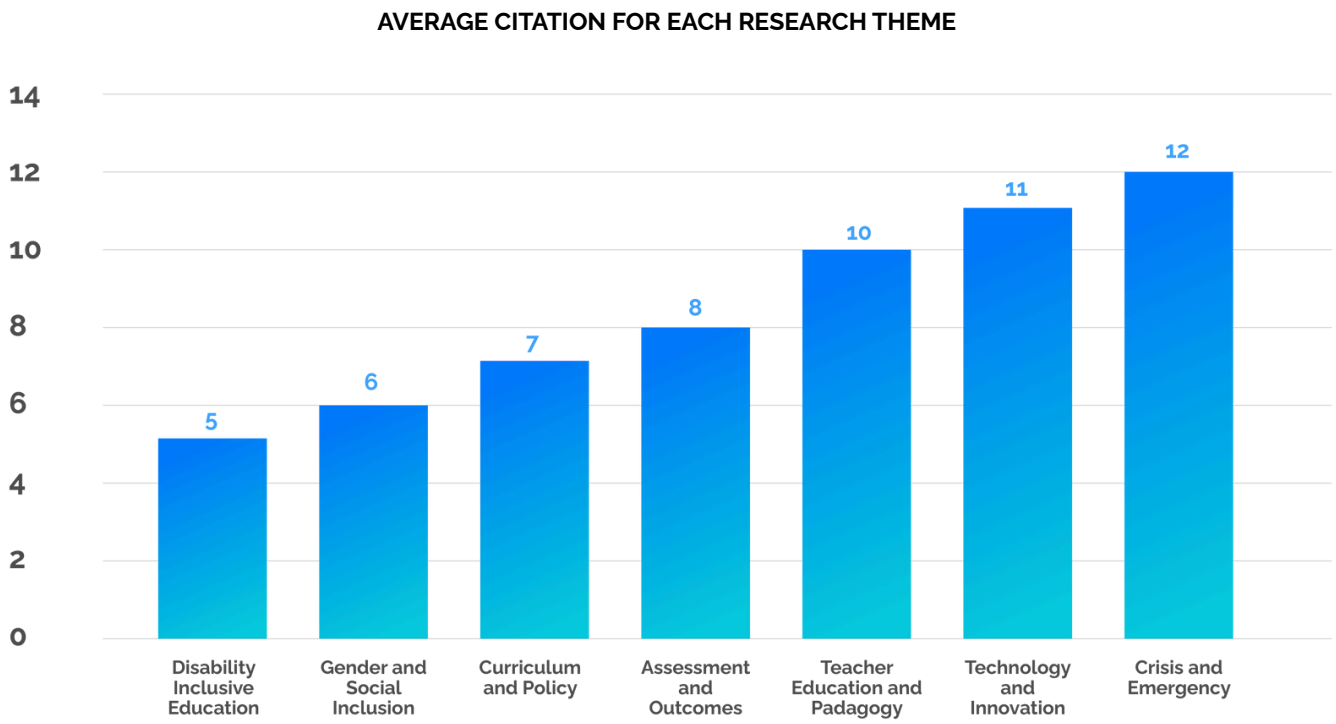
Figure 5: Percentage of research outputs per theme



Note: This graph represents a thematic breakdown for 150 out of 173 publications. The 23 publications without keywords are not included. Note also that 24 of these publications included more than one theme

Figure 6 shows the average number of citations per publication for each theme. Publications associated with crisis and emergency had the largest number of citations per publication (12), while having one of the lowest proportions of publications (see Figure 5). Technology and innovation is second with 11 citations per publication on average, followed by teacher education and pedagogy (10), and assessment and outcomes (eight). Curriculum and policy and gender and social inclusion averaged seven and six citations per publication, respectively. Disability-inclusive education had the lowest average, with five citations per publication. This suggests that, while some themes are not only widely studied but also highly cited, others – particularly equity-focused areas – remain less visible. However, some of the publications related to disability-inclusive education are more recent and hence this could be one of the reasons why their citation count is low.

Figure 6: Average citations for each research theme per publication



Note: This graph represents a citation breakdown for 150 out of 173 publications that were organised under themes. The 23 publications without keywords are not included.

Table 4 presents the distribution of publications by level of schooling across each thematic area. Secondary education is the most frequently addressed level (56 publications), followed by primary (28) and multiple levels (18). Several themes, including technology and innovation and teacher education and pedagogy, span across multiple schooling levels, highlighting their cross-cutting relevance.

Table 4: Distribution of research themes across school level

Level of schooling					
Theme	**Pre-primary**	**Primary**	**Secondary**	**Multiple**	**Total**
Curriculum and policy	1	3	7	5	16
Teacher education and pedagogy	3	4	12	2	21
Assessment and outcomes	1	2	10		13
Technology and innovation	3	6	14	3	26

Level of schooling					
Theme	**Pre-primary**	**Primary**	**Secondary**	**Multiple**	**Total**
Crisis and emergency	2	3	3	1	9
Gender and social inclusion	3	3	7	6	19
Disability-inclusive Education	1	7	3	1	12
Total	**14**	**28**	**56**	**18**	**116**

Note: The total number of articles is lower than the 173 publications analysed overall, as 45 articles did not cater to a particular school level or did not have information on the school levels available and 23 articles were not assigned a theme due to no keywords being assigned. At the same time, there were 24 publications that were categorised under more than one theme.

Table 5 links the research themes with the SDG priorities as well as targets identified in the 2017 NEP.

Table 5: Research themes and their links to SDG 4 and the 2017 NEP

Theme	Relevant SDG 4 targets	Relevant 2017 NEP priorities
Curriculum and policy	SDG 4.7: Education for sustainable development, global citizenship, and human rights	Contextualised curriculum, values-based education, strengthening governance and policy coherence
Teacher education and pedagogy	SDG 4.c: Increase supply of qualified teachers SDG 4.a: Inclusive and effective learning environments	Pre-service and in-service teacher training, continuous professional development reforms, competency-based teaching approaches
Assessment and outcomes	SDG 4.1: Ensure all learners acquire recognised and measurable learning outcomes SDG 4.6: Universal youth and adult literacy	Learning assessments, national student testing, measuring foundational learning and minimum competencies
Technology and innovation	SDG 4.4: Increase relevant skills, including technical and vocational skills SDG 4.a: Build and upgrade education facilities, including ICT	Integration of ICT in classrooms, promotion of digital learning under the Digital Pakistan vision
Crisis and emergency	SDG 4.1: Quality primary and secondary education SDG 4.a: Safe and inclusive learning spaces	Education continuity in emergencies and conflict zones, resilience and contingency planning in NEP

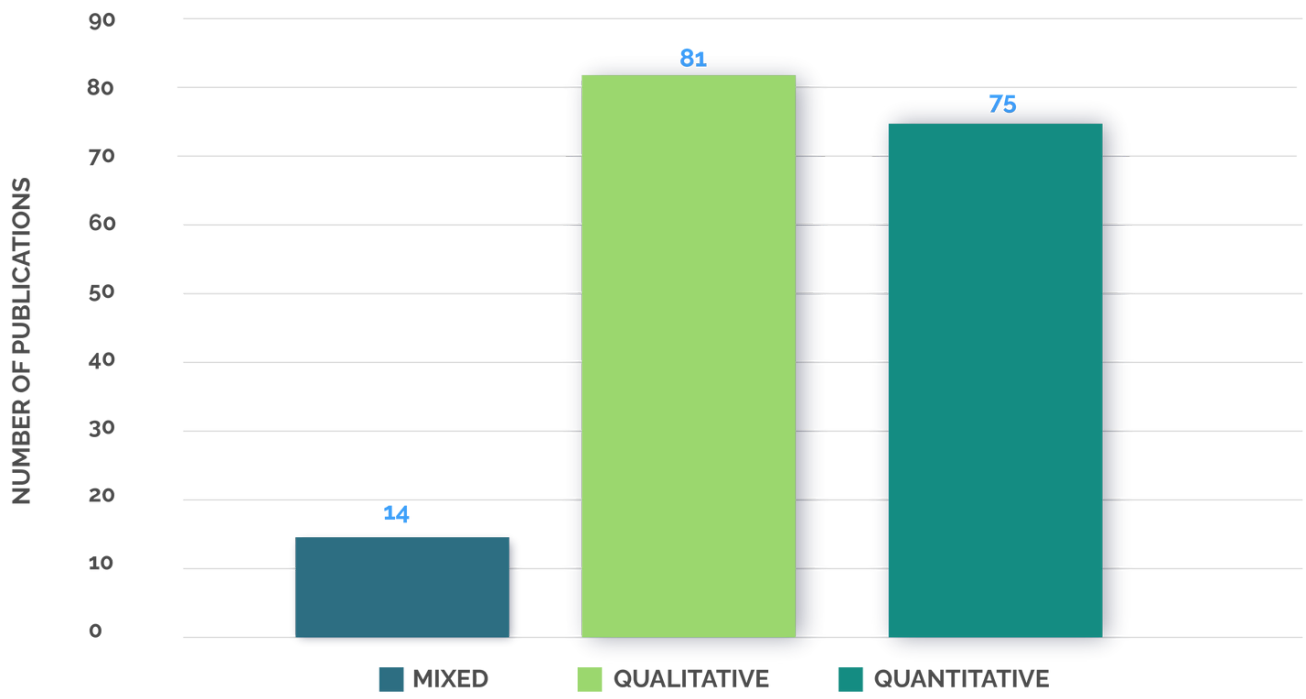
Theme	Relevant SDG 4 targets	Relevant 2017 NEP priorities
Gender and social inclusion	SDG 4.5: Equity in education SDG 5.1 and 5.5: End all forms of gender-based discrimination and ensure full participation	Gender parity in access, learning outcomes, and teacher representation, equity for marginalised communities
Disability-inclusive education	SDG 4.5: Eliminate gender disparities and ensure access for persons with disabilities	Barrier-free, inclusive schooling environments, targeted support for children with disabilities

3.3 Research methods

The identified publications were also analysed to explore the methodological approaches used. The analysis focused on both the type of methods (qualitative, quantitative, or mixed methods) and the specific data collection and analysis techniques used.

Figure 7 shows the distribution of studies using qualitative, quantitative, and mixed-methods approaches. Out of the total studies analysed, 81 used qualitative methods, 75 used quantitative methods, and 14 employed mixed methods.

Figure 7: Research methods employed



Note: This graph includes 170 out of the 173 publications, as three publications were theoretical/conceptual in nature and did not employ any particular methodology.

Table 6 highlights the distribution of research methods across school levels. This indicates a relatively even spread of quantitative and qualitative methods for each level relative to their number of publications, other than pre-primary where qualitative approaches are more apparent. Mixed methods are less common for all levels of education.

Table 6: Distribution of research methods across school levels

School level	Research methodology			Total number of articles
	Mixed	Quantitative	Qualitative	
Multiple	2	9	8	19
Pre-primary	3	3	8	14
Primary	2	11	17	32
Secondary	5	27	28	60
Total number of articles	**12**	**50**	**61**	**125**

Note: The total number of articles is lower than the 173 publications analysed overall, as 45 articles did not focus on a specific school level, and three were more theoretical/conceptual in nature.

Table 7 presents the methodological breakdown of the publications across the themes. Technology and innovation (43) and teacher education and pedagogy (42), which had the highest number of studies overall, had a greater number of publications using quantitative methods compared to qualitative methods. Gender and social inclusion and curriculum and policy were more likely to be qualitative. Publications associated with disability-inclusive education were predominantly quantitative, with a more limited number of qualitative studies. Assessment and outcomes showed a stronger quantitative focus (seven), while crisis and emergency had a more even distribution across methods. Overall, mixed-methods studies were least common across all themes.

Table 7: Distribution of research themes across research methodologies

	Methodology			
Theme	Mixed	Qualitative	Quantitative	Total
Assessment and outcomes	3	3	7	13
Crisis and emergency	2	7	6	15
Curriculum and policy	2	12	7	21
Gender and social inclusion	3	12	8	23
Disability-inclusive education	0	4	11	15

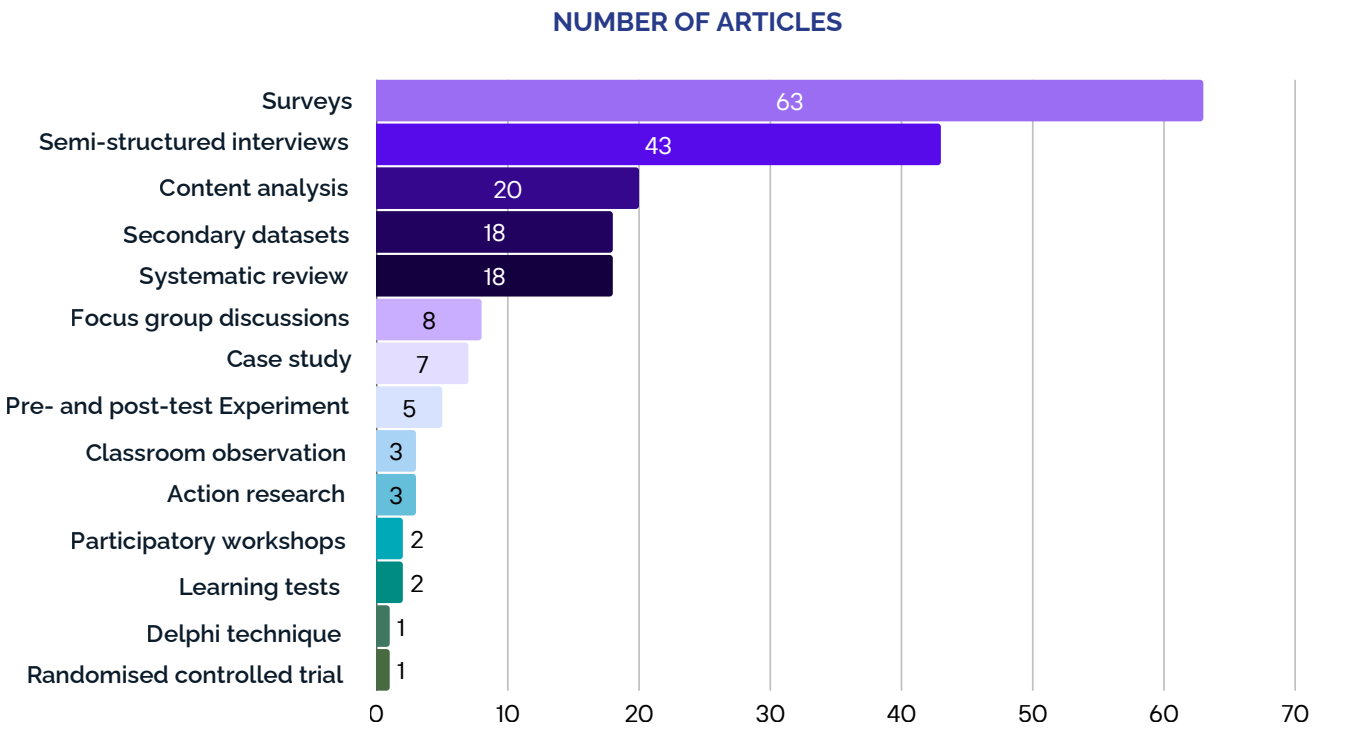
	Methodology			
Theme	**Mixed**	**Qualitative**	**Quantitative**	**Total**
Teacher education and pedagogy	2	18	22	42
Technology and innovation	3	16	24	43
Total	**15**	**72**	**85**	**172**

Note: The total number of articles is lower than the 173 publications analysed overall, as three articles did not have a specific methodology and 23 articles were not assigned a theme due to no keywords being assigned. At the same time, there were 24 publications that were categorised under more than one theme.

Figure 8 presents a breakdown of specific methods used across the studies. Surveys were the most used method, appearing in 63 articles, followed by semi-structured interviews in 43 articles. Other frequently used approaches included content analysis (20 articles), use of secondary datasets (18), and systematic reviews (18).

More interactive or field-intensive methods such as focus group discussions (eight articles), case studies (seven), and pre- and post-test experiments (five) were used less frequently. Very few studies applied classroom observation (three), action research (three), participatory workshops (two), or learning assessments (two). Only one study employed a randomised controlled trial.

Figure 8: Types of methods used

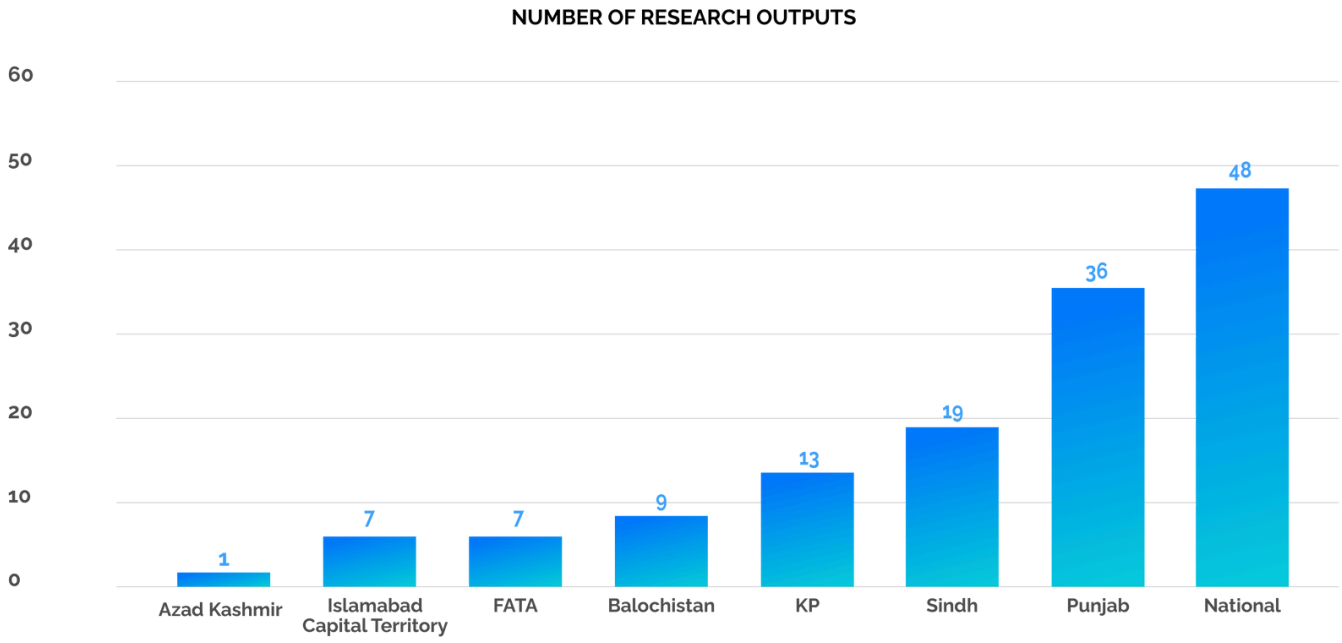


Note: This graph includes 170 out of the 173 publications, as three publications were theoretical/conceptual in nature.

3.4 Institutional and regional patterns

This section presents the breakdown of research outputs by geographic location and institutional affiliation. Figure 9 shows the provincial distribution of education research conducted by Pakistan-based scholars. Nearly half of the studies (48) were classified as national in scope, without a specific provincial focus. Among province-specific studies, Punjab had the highest number of studies (36), followed by Sindh (19), KP (13), and Balochistan (nine). A smaller number of studies were focused on the Islamabad Capital Territory (seven), FATA (seven), and Azad Jammu and Kashmir (one). The limited number of studies from regions such as Balochistan and Azad Jammu and Kashmir highlights ongoing regional disparities in research representation.

Figure 9: Geographic distribution of research articles



Figures 10 and 11 display the number of articles by private and public institutions respectively. Overall, the identified scholars were based in more public institutions (75) compared to private institutions (24). Most outputs were concentrated among a small number of universities. Aga Khan University led with 17 publications, followed by University of Management and Technology (UMT) with nine and LUMS with eight. Several other institutions, including the University of Education, University of Punjab, and University of Karachi, produced between three and six publications each. The chart also shows contributions from specialised research institutes and teacher education colleges, albeit in smaller numbers.

Figure 10: Number of articles published by scholars based in private institutions

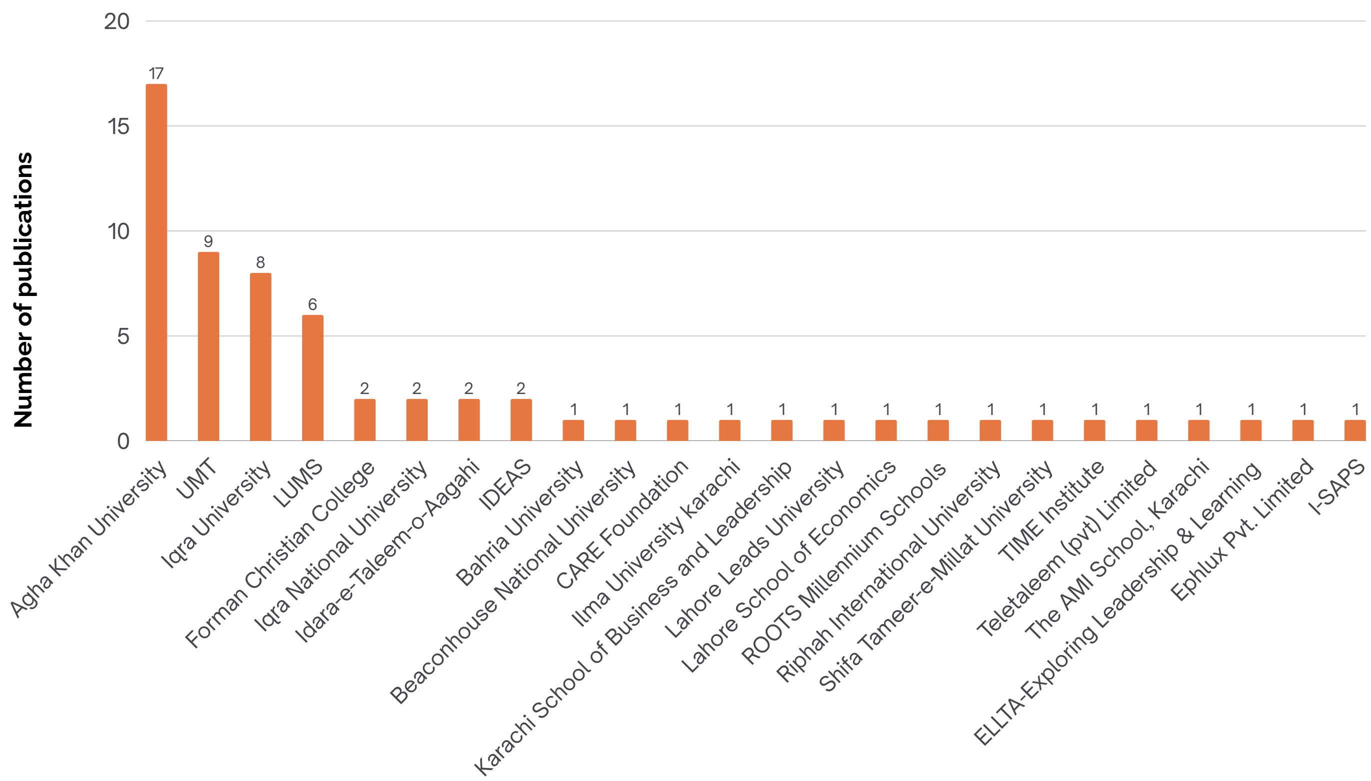
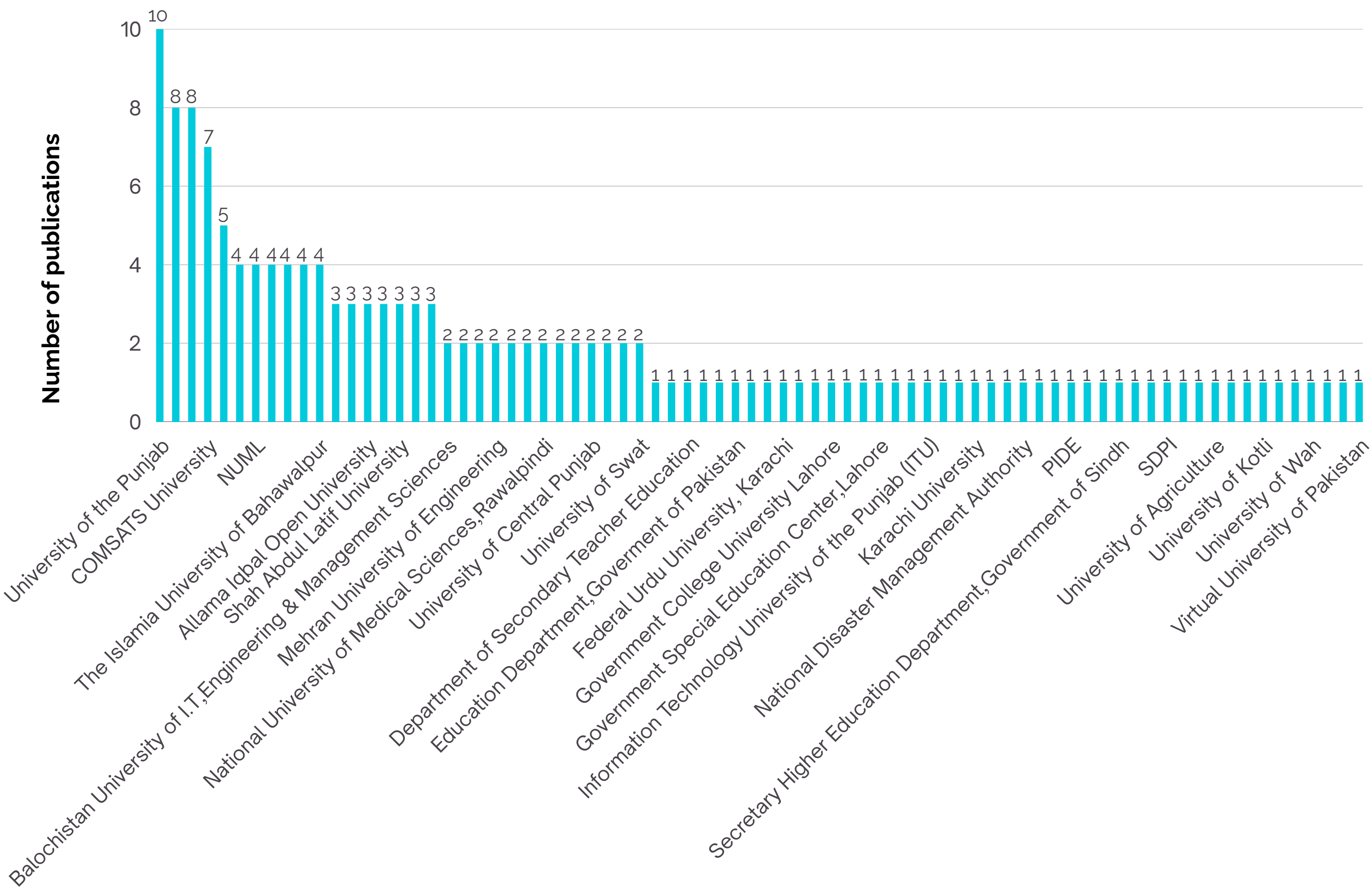


Figure 11: Number of articles published by scholars based in public institutions

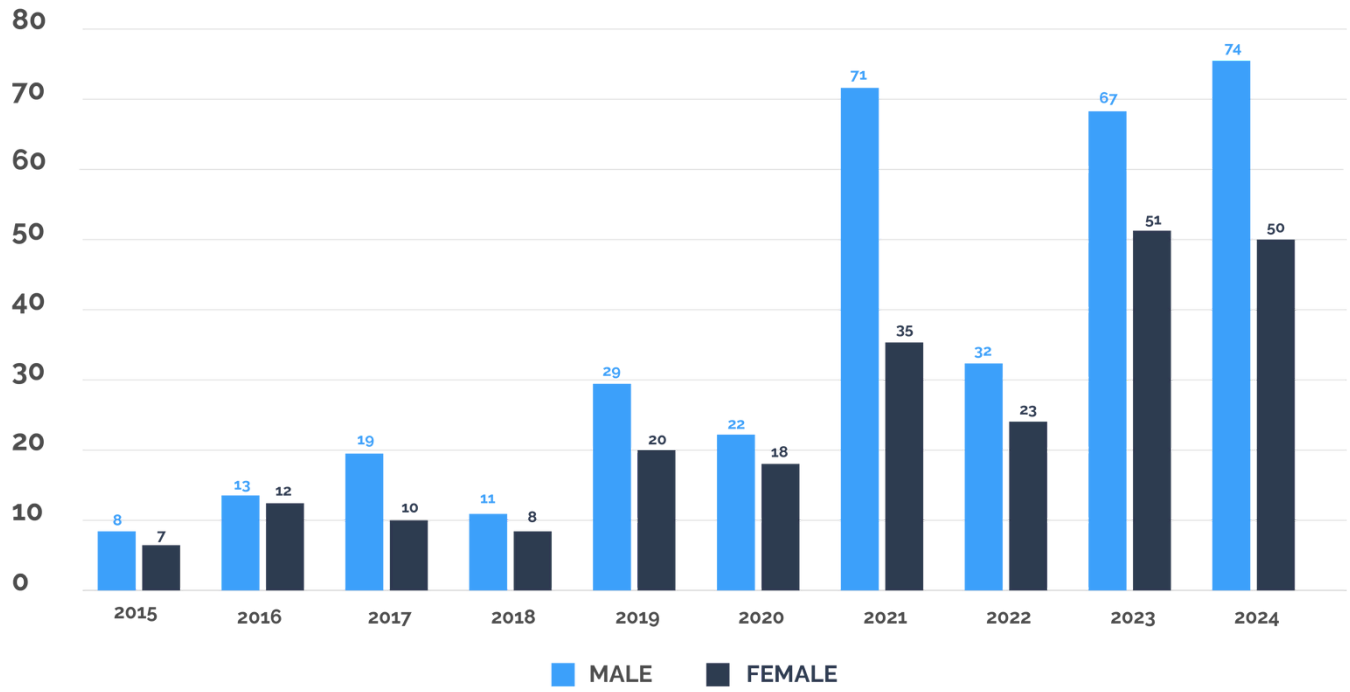


3.5 Researcher characteristics

Female authorship comprised 41% overall, with a total of 345 male and 241 female authors identified across the dataset. These figures include repeated authorship, as some researchers contributed to multiple publications. The gender of authors was analysed to understand trends over time. As highlighted in Figure 12, there was a steady increase in both male and female authors over the decade, but with a disparity between them becoming increasingly apparent as number of publications increased. This difference was the highest in 2021, with 71 male authors and only 35 female authors.

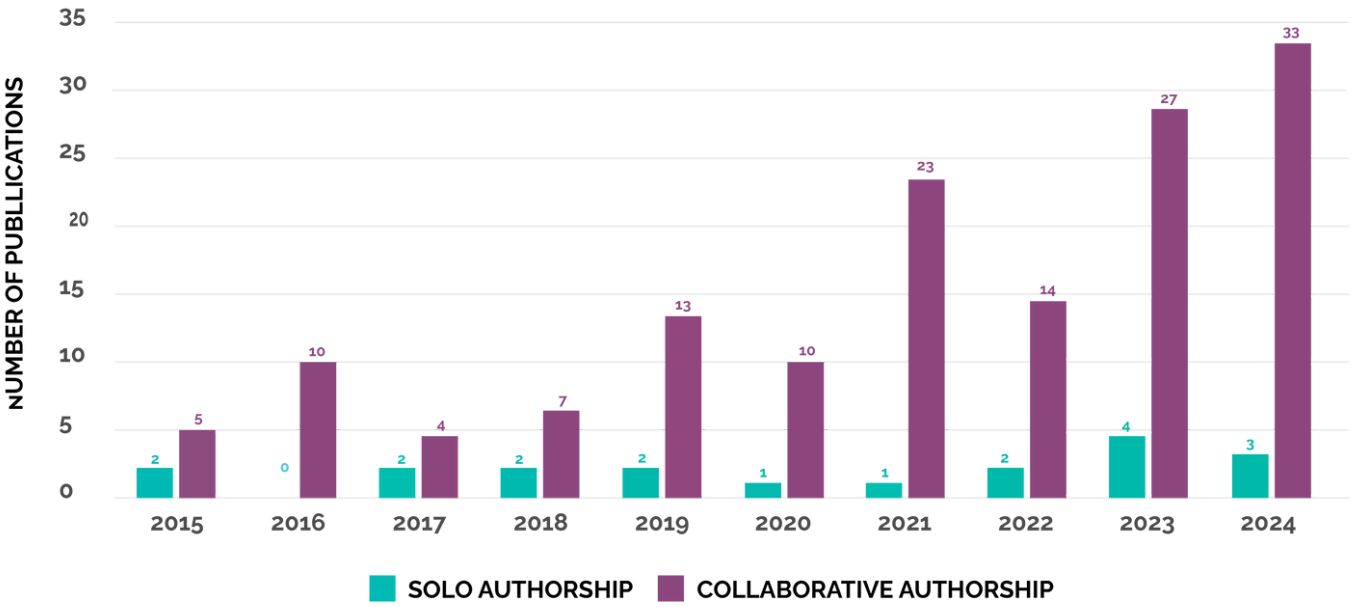
Over the period, 102 publications had first authors who were male and female. However, in 2024, for the first time, the number of female first authors (20) surpassed male first authors (16).

Figure 12: Gender breakdown by authorship



Collaborative authorship was significantly more common than solo authorship. Figure 13 illustrates that, over the years, most publications were co-authored. This suggests a culture of teamwork and shared inquiry within Pakistan's education research community.

Figure 13: Solo and collaborative authorship patterns



3.6 Research funding

Funding status was reported or identifiable for only a subset of publications, as no funding information was provided for 51 publications. Of the rest, 75 research outputs were not funded and 47 received funding. Funded articles showed a gradual increase in recent years, particularly from 2021 onwards (see Figure 14).

Figure 14: Research funding trends

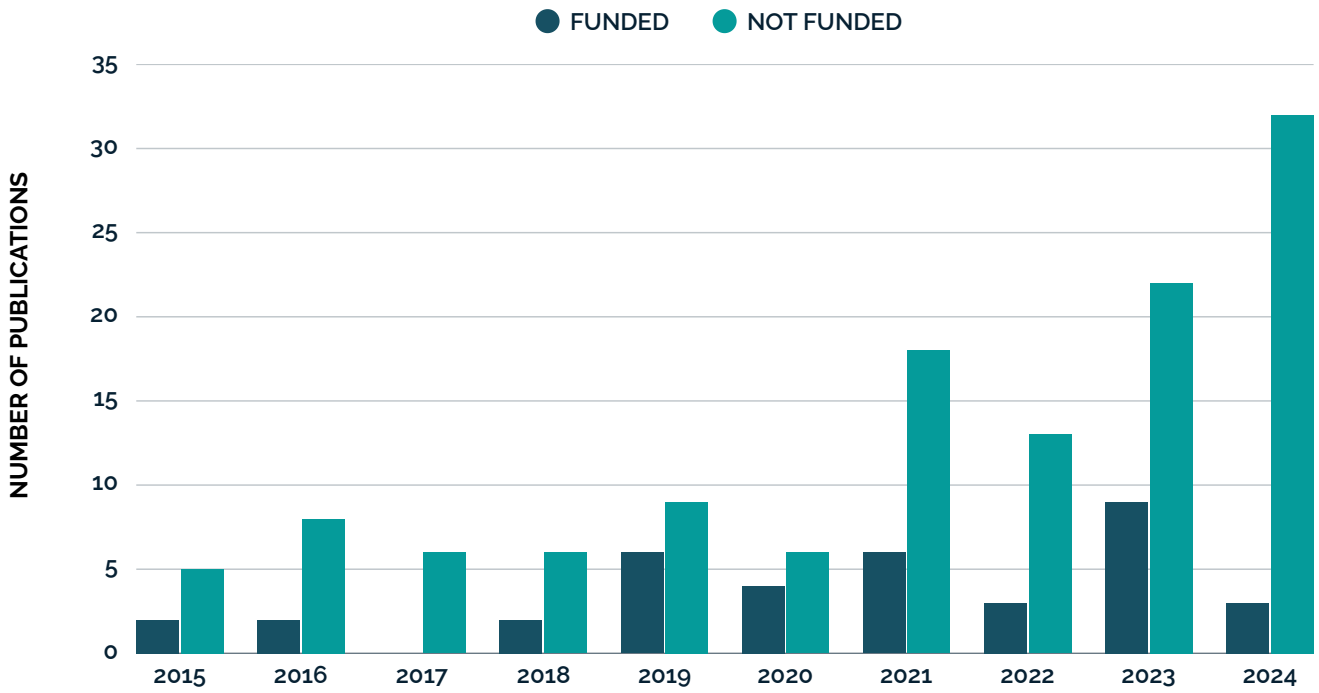
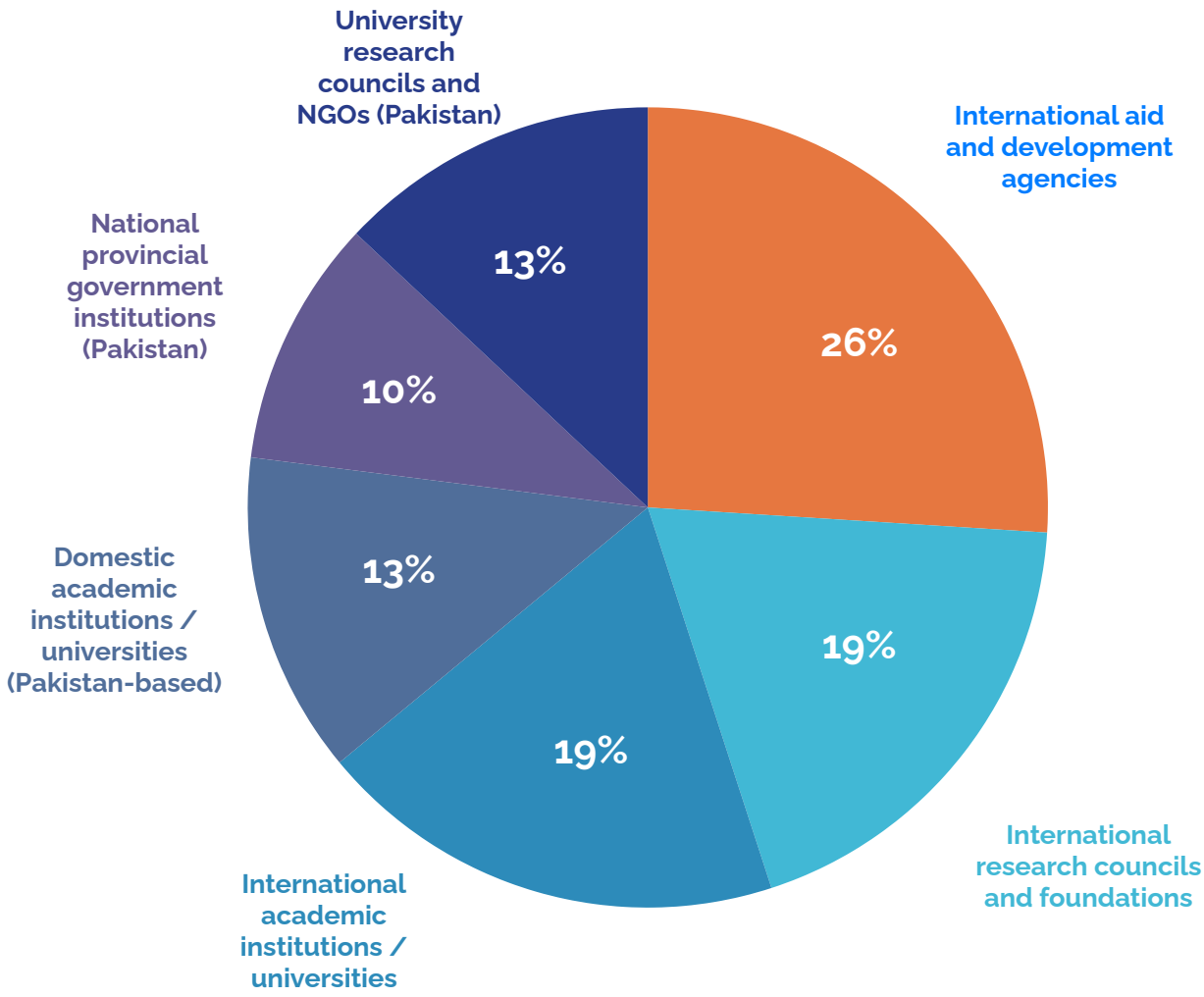


Figure 15 highlights how the types of funding sources included both national and international organisations. The studies reviewed were supported by a wide range of international and national funders, including the World Bank, FCDO, USAID, ESRC-DFID, UNICEF, the British Council, Aga Khan University, and the Higher Education Commission of Pakistan, alongside academic institutions such as the University of Helsinki, TU Berlin, and Harvard Kennedy School. Additional funding came from German and Chinese research foundations, private donors like the Horowitz Foundation, and Pakistan-based institutions including LUMS, UMT, and the Health Services Academy.

The funding sources have been categorised into six groups: international aid agencies, international research councils, international academic institutions, domestic academic institutions (Pakistan-based), national/provincial government bodies in Pakistan, and domestic/regional research councils or NGOs. Figure 15 below shows the percentage distribution of each category based on the frequency of mentions.

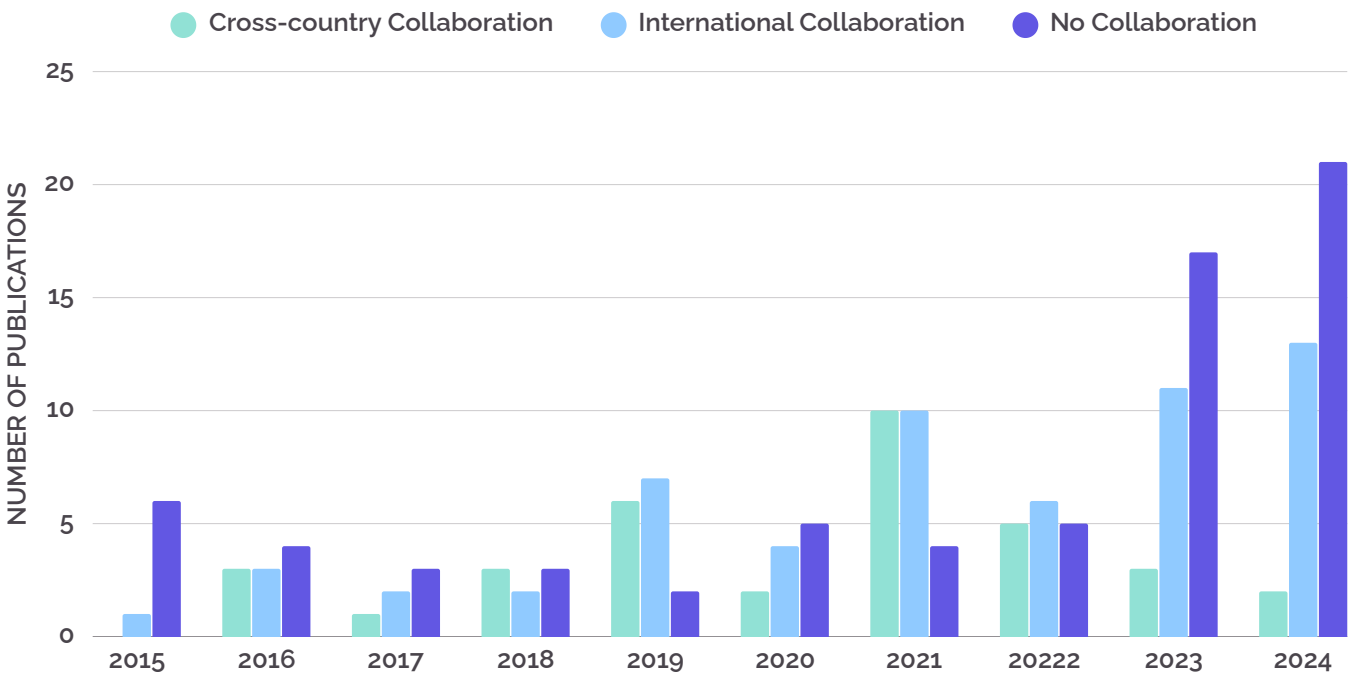
Figure 15: Types of funding sources (%)



3.7 Collaboration and partnerships

Collaboration in education research is increasingly global in scope. Out of the 173 research outputs, 66 involved international collaboration, often with co-authors affiliated with institutions in the United Kingdom, United States, Malaysia, China, and Saudi Arabia. In addition, 35 articles involved cross-country collaboration, either through comparative case studies, joint authorship, or participation in globally funded projects. Figure 16 highlights the trends in domestic and international collaborations from 2015 to 2025.

Figure 16: Patterns of research collaboration



3.7.1 Patterns of domestic collaboration

Out of the total 35 local/national collaborations reviewed, 17 were within a single province, while 18 spanned across provinces or involved national-level institutions.

In KP, within-province collaborations were strong, with repeated linkages between institutions such as the University of Malakand, University of Haripur, Sarhad University, University of Peshawar, Abdul Wali Khan University, and Bacha Khan University. A similar pattern was observed in Punjab, where institutions like the University of the Punjab, University of Sahiwal, GCU Faisalabad, University of Education (Lahore and Okara), UMT, and Virtual University were commonly linked in collaborative work. Sindh also showed within-province collaboration ties, involving the University of Sindh, Shah Abdul Latif University, Mehran University, and Government College University Hyderabad. In Balochistan, although overall research activity was lower, local collaboration occurred among BUITEMS, Sardar Bahadur Khan Women's University, and the provincial Education Department.

Cross-provincial and national-level collaborations typically involved more established or research-oriented institutions. For example, LUMS was involved in partnerships across provinces, including with the Karachi School of Business and Leadership and the National Disaster Management Authority. UMT partnered with institutions in Punjab, Sindh, and KP, while the National University of Modern Languages appeared in collaborations that spanned Punjab, Balochistan, and federal institutions. Aga Khan University engaged with both public universities and private partners such as Ephlux Pvt. Ltd., signalling a broader outreach orientation.

Figure 17 highlights patterns for the 17 within-province collaborations and Figure 18 shows the 18 cross-province collaborations.

Figure 17: Provincial distributions of within-province research collaborations

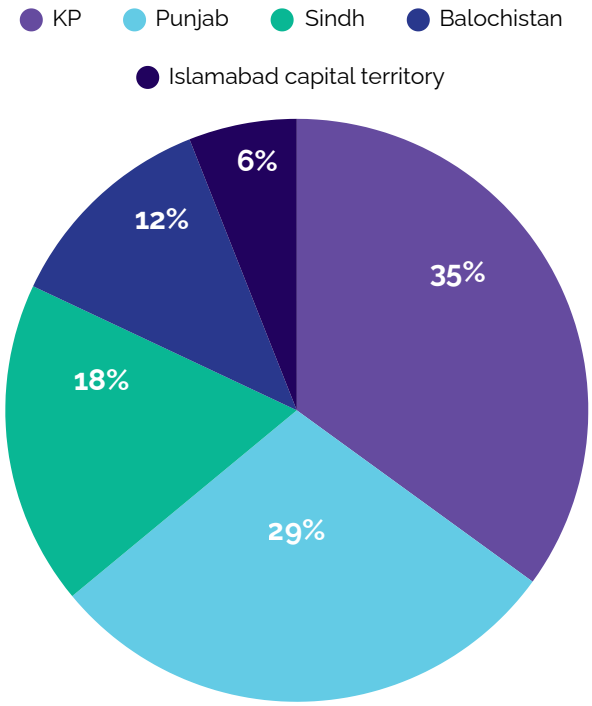
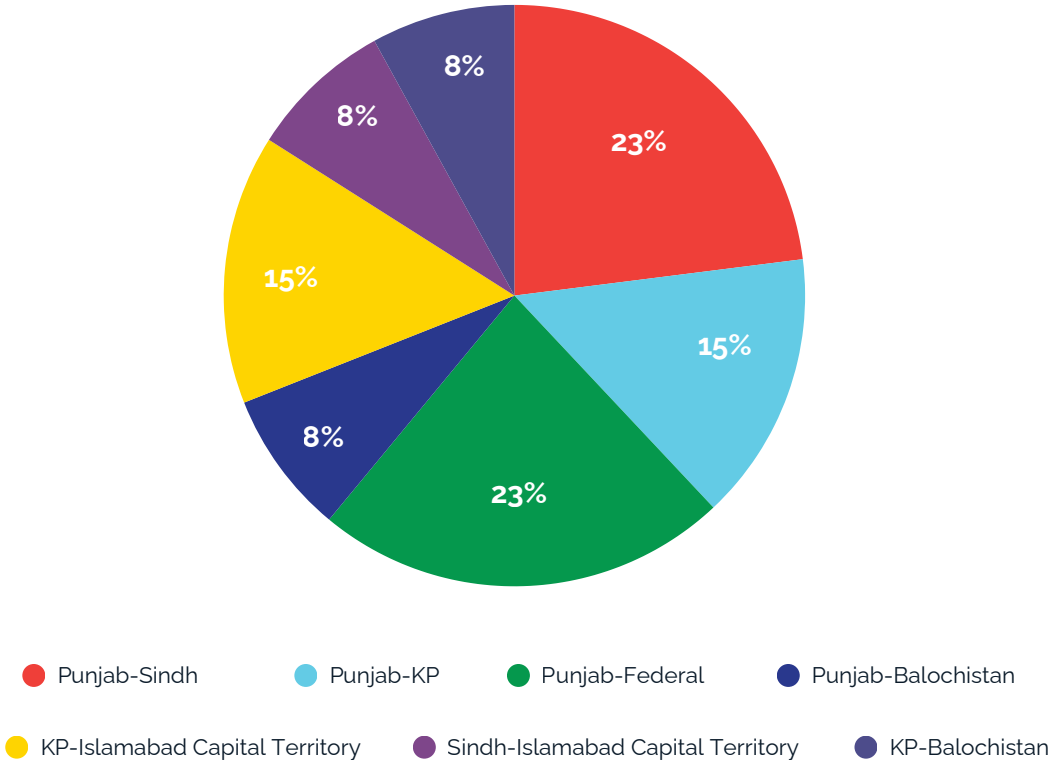


Figure 18: Cross-provincial research collaborations



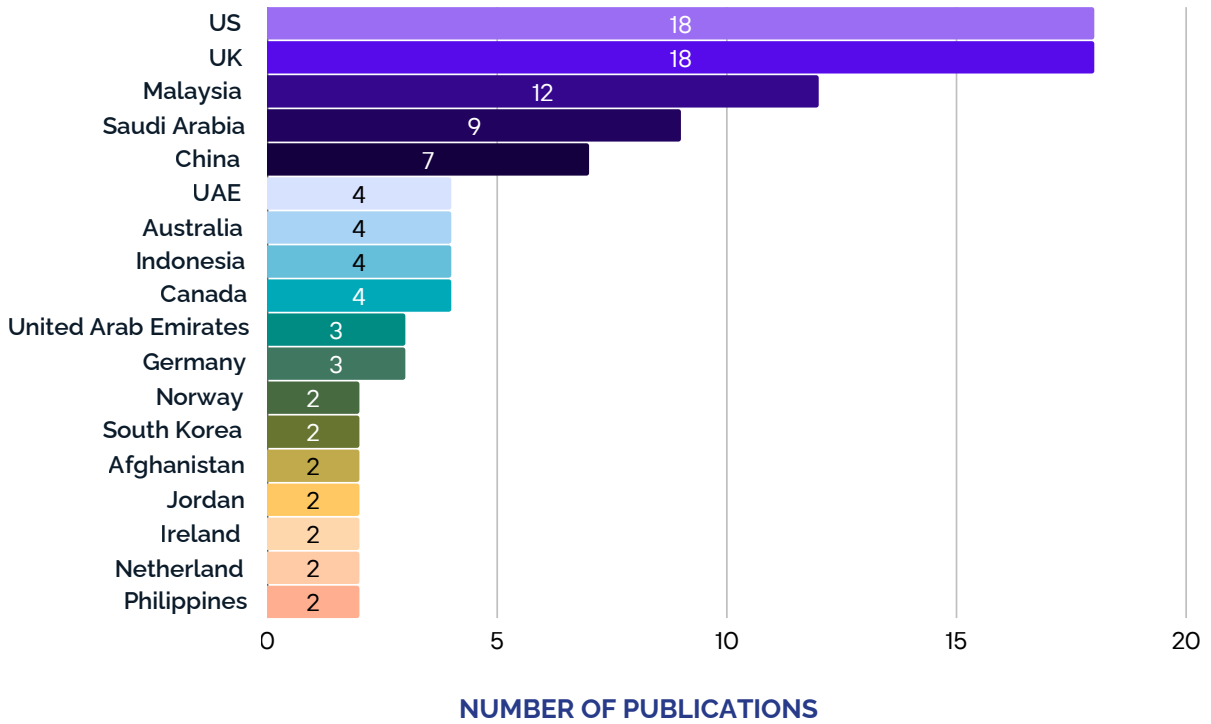
This mapping highlights the high number of within-province collaborations in Punjab and KP, with limited cross-regional integration and underrepresentation of regions such as Balochistan and the Islamabad Capital Territory.

This breakdown highlights a dual need: to strengthen regional research ecosystems in underrepresented provinces like Balochistan and Azad Jammu and Kashmir, and to incentivise more cross-province collaboration between universities and provincial governments to increase the policy relevance and practical impact of education research in Pakistan.

3.7.2 Patterns of international collaboration

A total of 66 articles involved international collaborations. The chart shows the distribution of these collaborations by country. The United States emerged as the most frequent international partner, featuring in nearly one-third of internationally co-authored articles. Other commonly represented countries include Malaysia, Saudi Arabia, Canada, and South Korea. While the dataset reflects a diverse geographic spread of collaborations—extending to Europe, Africa, and Southeast Asia—North American and Southeast Asian countries were the most prominent. This suggests that Pakistan-based education researchers are increasingly engaging with global networks, particularly in areas related to higher education, EdTech, and policy research. Figure 19 shows the number of publications that have been developed in collaboration with partners in different countries (the graph only shows countries with collaborations on more than one publication).

Figure 19: International research collaborations



DISCUSSION AND RECOMMENDATIONS

This review of education research conducted by Pakistan-based scholars from 2015 to 2025 provides valuable insights into the thematic, geographic, and methodological patterns shaping the field. We identify in this section gaps and opportunities to enhance the relevance, inclusivity, and policy impact of education research in the country.

Summary of key gaps and opportunities

The research landscape is heavily concentrated in certain provinces, particularly Punjab and KP, while regions such as Balochistan and Azad Jammu and Kashmir remain significantly underrepresented.

Thematically, there is strong engagement with teacher education, technology, ECE, and crisis-related research, but limited attention to climate change education, gender and social inclusion, assessment systems, and education financing.

Although female authorship has increased in recent years, male authors still dominate in overall representation.

Research methods mainly include surveys and semi-structured interviews, with minimal use of experimental designs, participatory methods, or randomised control trials.

International collaboration is growing, but only a small number of institutions drive most cross-border partnerships.

Implications for the DARE-RC research agenda

This review identifies certain areas in Pakistan's education research landscape that align with DARE-RC's cross-cutting themes of **effective data use** and **scalable solutions**. The following points outline how the findings can inform DARE-RC's future research directions and funding priorities.

1. Effective data use

What the review found:

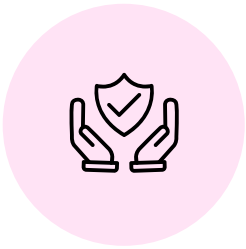
Research methods mainly include surveys and semi-structured interviews, with minimal use of experimental designs, participatory methods, or randomised control trials.

Although international collaboration is growing, a small number of institutions drive most cross-border partnerships.

Much of the research does not report funding, limiting transparency in how data is resourced and supported.

Implications for DARE-RC:

Focus on strengthening methodological diversity, particularly by encouraging the use of more rigorous and participatory approaches.



Support initiatives that promote transparency in research funding and design.

Encourage broader institutional collaboration across provinces to diversify the sources and ownership of research data.

2. Scalable solutions

What the review found:

The research landscape is geographically concentrated in Punjab and KP, with limited outputs from Balochistan, Azad Jammu and Kashmir, and FATA.

Thematically, while there is strong engagement with teacher education, technology, and ECE, areas such as education financing, assessment systems, gender and social inclusion, and climate change education remain underexplored.

Research remains fragmented, with limited cross-institutional or cross-provincial partnerships.

Implications for DARE-RC:

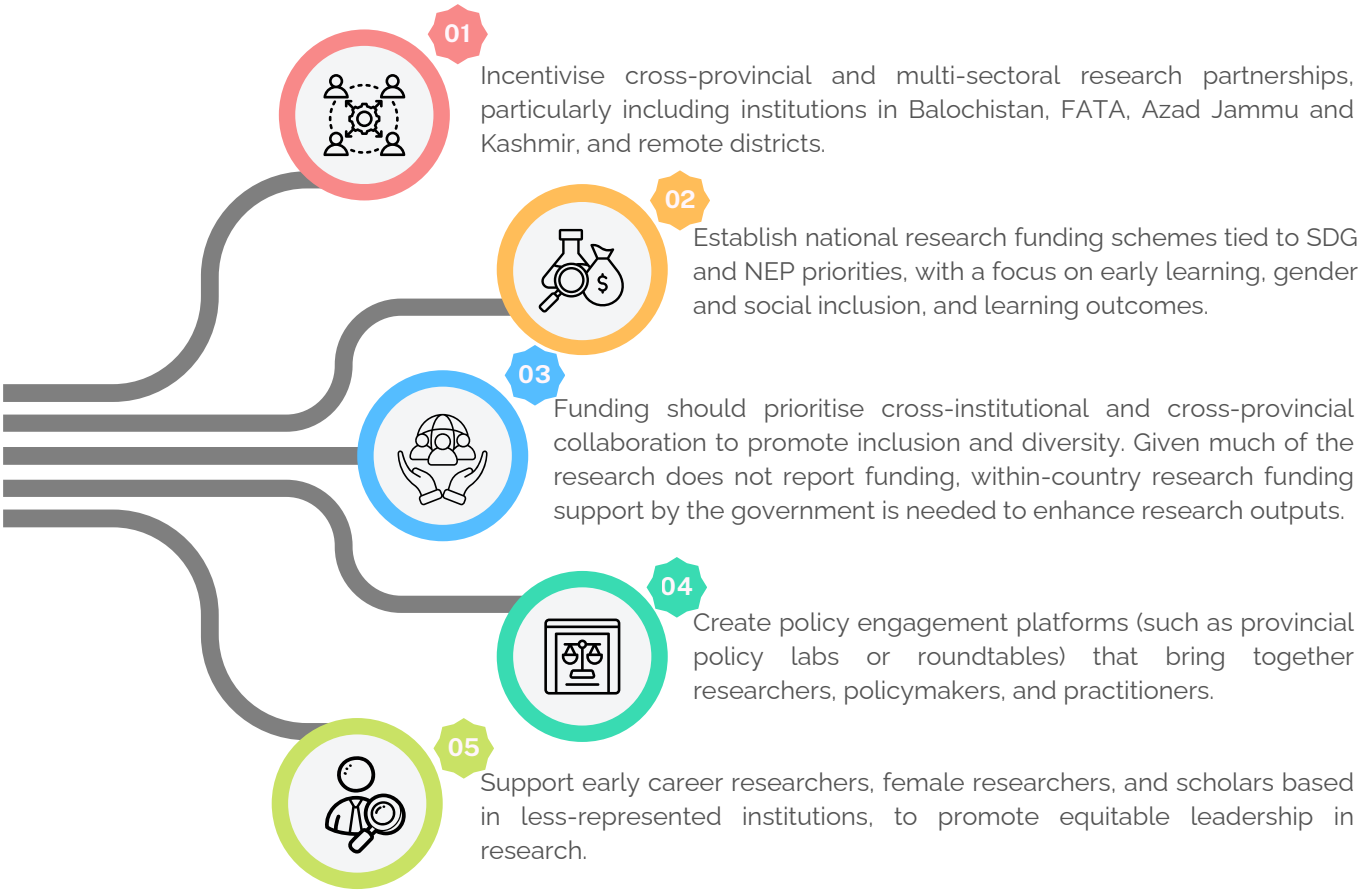
Fund research in underrepresented regions to build an evidence base that is nationally relevant and inclusive.

Prioritise under-researched themes that are critical to education system reform and policy alignment.

Promote research collaboration across provinces and institutions to support learning that can be scaled beyond isolated contexts.

Overall recommendations to improve research visibility and policy uptake

The following recommendations apply broadly to government bodies, national research institutions, and DARE-RC, and aim to improve research quality, equity, and impact in Pakistan's education sector:



These recommendations aim to help bridge the gap between knowledge production and policy action, ensuring that education research in Pakistan is more inclusive, impactful, and aligned with the country's development priorities.

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