

Mapping the Research Methodology in Pakistani Educational Journals: Trends, Gaps, and Future Directions

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Abstract

This study comprehensively analyzes the research methods and methodologies used in articles published in academic research journals in Pakistan. Content analysis was chosen as the research methodology for this study because it is ideal for analyzing large-scale data, identifying patterns and trends, and providing insights into the research landscape in Pakistan. A systematic content analysis of PhD dissertations and journal articles published between (2005 – 2014) was conducted to identify dominant trends and patterns in education research in Pakistan over the past decade. Results show a strong bias toward quantitative methods, including non-experimental designs, probability sampling techniques, and a predominance of survey research. However, the study also revealed important limitations, including a lack of systematic empirical research, insufficient use of qualitative and mixed methods, and poor practice of reference methods. Most studies show a narrow perspective, failing to examine social structures and power dynamics critically. The findings of this study highlight the need for a more comprehensive, standardized, and in-depth methodology in educational research in Pakistan to address complex social and educational issues effectively. The findings have implications for researchers, policymakers, and educators seeking to increase the quality and impact of educational research in Pakistan.

Keywords: Research Trends, Academic journals, Research Methodology, Academic publications

Introduction

Examining research trends and patterns is essential for sharing knowledge and shaping the stance of future research in a particular domain (Dunkin, 1996; Glass, McGaw & Smith, 1981). Such research is important in every field, as it enables analysis of the current state of knowledge fields and informs future possibilities (Brown, 1969; Choi, Seo, & Kim, 2016). Local researchers should take advantage of the global academic research system to understand the intellectual direction of other nations. By doing so, they will be able to discover the nuances of research excellence, understand the difficulties in education and anticipate the challenges ahead, which will ultimately enable them to find innovative solutions (Zhao et al., 2008; Rejeb et al., 2023; Wang et al., 2024). Furthermore, adopting a global perspective will allow local researchers to rigorously test their hypotheses against international standards, fostering a culture of critical review and enriching their findings with diverse perspectives (Rothblatt & Wittrock, 1993). These scholarly efforts have informed and improved educational practices and led to meaningful reforms in the education system, helping to create a robust and evidence-based learning environment (Onwuegbuzie & Daniel, 2003; Baekgaard & Lystbaek, 2019).

A remarkable trend has emerged recently in Pakistan's educational research landscape, marked by increased publications in refigure academic research journals and a significant increase in dissertations in higher education institutions. This increase in research efforts requires a critical review to assess its impact and value in improving educational practices and driving reforms in the educational research landscape. This research effort will highlight the current trends and expose the developments in this field because academic journals serve as an important source for scholarly debates that shape the direction of fields such as education. By analyzing these journals, we can trace the evolution and growth of educational research, revealing the strengths, weaknesses, and future directions of this field. (Ventura & Mombro, 2006; Tomaszewski et al., 2020).

Although this study does not directly assess the quality of published research, it may provide indirect insight into the quality of research conducted in Pakistan. As Ventura and Mombro (2006) point out, publications in prestigious journals are a key indicator of a faculty's and university's research excellence, allowing indirect assessment of research quality. By analyzing trends and patterns of publications in high-ranking journals, we can understand the value of research conducted in Pakistan.

This new study is a pioneering study of educational research in Pakistan, combining both articles and journal analyses to provide a comprehensive overview of the field. It differs from previous investigations; it takes an in-depth look at the current state of educational research in the context of international higher education and offers a new perspective. In particular, social science research in Pakistan has grown significantly in the last decade. Particularly in education, economics, and psychology, following the reorganization of the Higher Education Commission (HEC) and the establishment of new public sector universities in 2002. This growth has led to significant research content, with education emerging as the leading field in terms of doctoral degrees completed in public sector universities, as reported by HEC (2013-14). By examining this broad research landscape, the study aims to uncover trends, patterns, and insights that will inform evidence-based decision-making in education policy and practice.

Although few research studies have examined specific aspects of educational research in Pakistan, such as trends in doctoral degrees in library and information science (Samdani & Bhatti, 2011) and some topics in MPhil degrees in distance education (Hussain & Ghafran, 2013), there is still a large knowledge gap in the literature. In particular, there has been no comprehensive study of the complete state of educational research in Pakistan, even though education is the most researched field in the social sciences and accounts for the highest number of doctoral degrees completed in public sector universities. This study aims to fill this gap, addressing a critical gap in the existing literature by providing a comprehensive analysis of educational research in Pakistan. Although there has been some research on specific sub-fields of education, such as educational psychology, learning and teaching and learning science, focused on the wider Asia-Pacific region (Kim, Koh, Jo, Nam, & Kim, 2014; Koh, Cho, & Caleon, 2014; Tan, Chai, Tsai, Lim, & Chou, 2012) but still there is a significant gap in understanding the overall landscape of educational research in Pakistan. Despite the abundance of educational research, no study has specifically examined the current state of educational research in Pakistan, leaving a large knowledge gap. This study aims to fill this gap by providing a comprehensive overview of educational research in Pakistan, analyzing trends, patterns and insights that inform evidence-based decision-making in educational policy and practice.

The analysis provides valuable insights that help clarify current trends and biases in education research and highlight the underlying factors shaping the current research landscape in Pakistan. By identifying these trends and biases, the study aims to better understand the current educational research model in Pakistan and support its future development. This study contributes to highlighting the unique features of educational research in Pakistan and provides recommendations for improving and developing the field.

Pakistan is making efforts to develop its higher education sector internationally, albeit in a unique way. Research has accelerated in the last decade, but a large knowledge gap remains: to date, there is no comprehensive study that specifically examines current research trends and patterns in the Pakistani context; there is a dire need for updated insights into the country's research landscape. Given the unprecedented growth in research output in this area, it is crucial to assess the state of research development, particularly with a focus on Pakistan's education sector. This review is critical to understanding developments, trends, and gaps in educational research, which will ultimately inform strategies to improve the quality, relevance, and impact of research in this important field. This goal can be achieved through systematic analysis of research articles, which provide a robust scale for assessing research output. By examining these disciplines, this study intends to provide a comprehensive overview of the research landscape in Pakistan, to shed light on the current state of educational research and to inform strategies for future growth and development.

Research Question

The primary research question guiding this study was: What research methods are used in academic research papers published in different fields of education, and what changes and trends have been observed in these methods over time?

This question seeks to identify research designs, methods, and techniques used in educational research and examine any changes or trends in their use over a specific period. This can provide insight into the development and progress of educational research in Pakistan. These subsidiary research questions provide a more detailed and specific exploration of the leading research question, and seek to uncover different aspects of the research methodology used in academic research papers.

Research design and sampling

1. What research methods/designs were used in the research articles?
2. What sampling techniques were used in the research articles?
3. What is the relationship between the nature of research and sampling techniques?
4. What was the range of sample sizes used in the research articles?
5. What is the relationship between the nature of research and article sample size?

Data collection instruments

1. What were the most commonly used instruments/tools for data collection in research articles?
2. What was the relationship between the nature of the research and the data collection instruments in the articles?

Data analysis

1. What data analysis techniques were most often used in the articles?

References and Citation Practices

1. What was the limit on the number of references used in the articles?
2. What was the relationship between the nature of the research and the number of references used in the articles?

These questions are intended to provide a comprehensive overview of research methods used in academic research papers, including research design, sampling techniques, data collection instruments, data analysis methods, and citation practices.

Methods & Materials

Content analysis was chosen as the research methodology for this study because it is ideal for analyzing large-scale data, identifying patterns and trends, and providing insights into the research landscape in Pakistan. This method allows for a systematic and detailed examination of educational research over a specific period, making it an ideal choice for this study. A systematic content analysis of journal articles published between (2005 – 2014) was conducted to identify dominant trends and patterns in education research in Pakistan over the past decade. Local/national HEC-recognized and SSCI-indexed journal articles in the discipline of education, available online, were the primary data sources for this purpose. From SSCI-indexed journals, only articles written by at least one author with an affiliation (affiliated to any organization, as a professional, faculty member or as a student) with Pakistan in any way were included in the analysis.

In response to the research question and the corresponding quantitative results that emerged as a consequence of the content analysis of the research articles, further explanations and reflections were sought through the expert opinions of editors of journals who can be regarded as the gatekeepers of any of the formalized disciplinary discourse (Wagner & Wittrock, 1991). The content analysis results and detailed statistics prepared using SPSS, were shared with the experts. Their perceptions and interpretation were sought to deepen understanding of emerging trends and patterns and to contextualize findings in the wider educational panorama.

The researchers used the comprehensive framework to systematically analyze and evaluate the research articles, providing a structured method for evaluating research studies' various elements and quality. To achieve the objectives of this study, the researchers, with the consent of the original authors, adapted and combined various elements of the existing framework developed by previous studies, modifying them according to the specific needs and objectives of this study and ensuring a robust and comprehensive methodology for analysis (Ertl et al., 2013; Sozbilir & Kutu, 2008; Zhao et al., 2008).

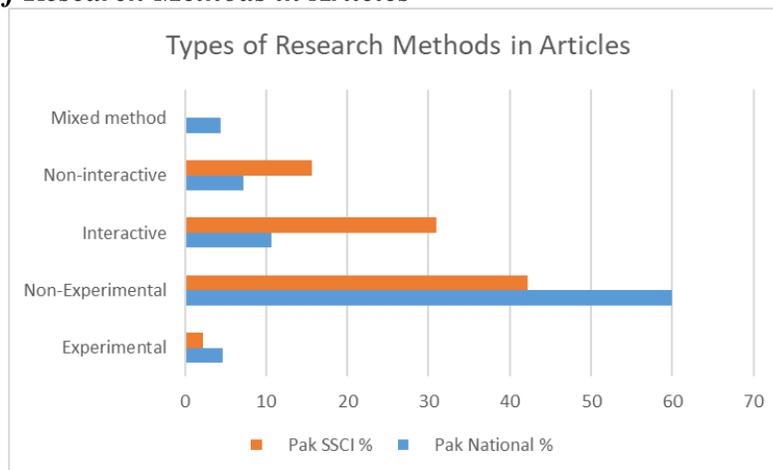
Results

The study's results revealed trends and patterns in using different research designs and methods, sampling techniques, sample sizes, data collection instruments, data analysis techniques, and the number of citations in journal research articles. Furthermore, the results revealed relationships between different types of research and methodological characteristics, presented through cross-tabulation analysis, and provided a comprehensive overview of the research landscape.

1. What research methods/designs were used in the research articles?

Research articles represent an essential body of disseminated knowledge and provide a concise and focused platform for researchers to share their findings and contribute to the scholarly exchange in their field. It would be interesting to see whether research designs and methodological preferences in the articles are consistent with those used in doctoral dissertations or whether there are significant differences in methodological choices made by researchers when publishing in journals, which may highlight unique trends or patterns in scholarly communication.

Figure 1. Types of Research Methods in Articles



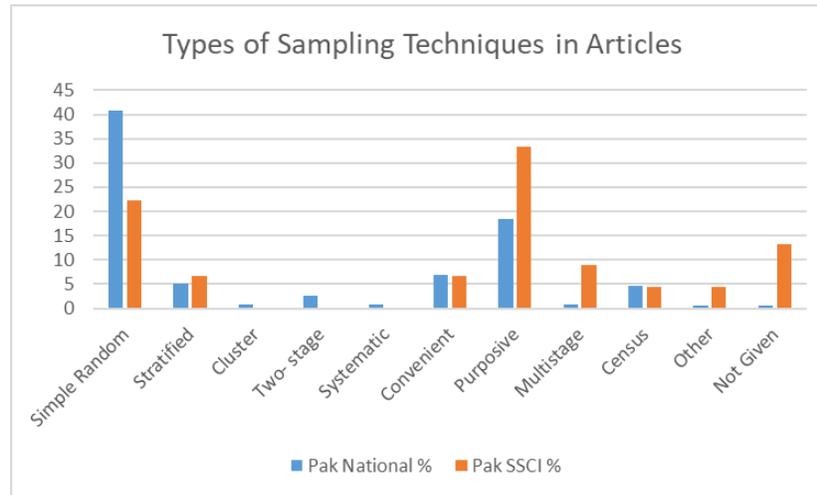
Note. The total number of articles analyzed in studies exceeds the total number of articles reported in specific categories because some studies were entered in the 'other' category, not included in the base count, which indicates a diverse range of research topics and methods in addition to the basic categories.

Figure 1 shows that in local Pakistani journals, most studies (60%) used non-experimental designs, followed by interactive (10.6%), non-interactive (7.2%), and experimental designs (4.7%). In contrast, SSC-indexed journals predominantly used non-experimental designs (42.2%), followed by interactive (31%) and non-interactive designs (15.6%), with differences in research methods between the two journal types.

2. What sampling techniques were used in the research articles?

The figure below shows the abundance of different sampling techniques that researchers have used in their studies, separating the common methods from the less common methods and thus providing insight into the methodology adopted by researchers in their research studies.

Figure 2. Types of Sampling Techniques in Articles



Note that the number of sampling techniques may exceed the number of articles, as more than one sampling technique may be used in a single article.

According to Figure 2 above, the most common sampling technique in local Pakistani journals was simple random sampling, which was used in 41% of the research articles, followed by purposive sampling, which was used in about 19% of the studies, which shows a clear preference for these two methods among researchers published in these journals. In contrast, results from articles in SSC-indexed journals showed a different trend, where purposive sampling was the dominant technique used in 33.3% of studies, followed by simple random sampling used in 22.2% of research articles. Notably, 13.3% of studies in this category did not specify any sampling technique, highlighting a different methodological approach than local Pakistani journals. Other sampling techniques were used to a lesser extent in articles published by Pakistani researchers, indicating a strong preference for dominant methods, such as simple random and purposive sampling, and relatively little use of alternative methods.

3. What is the relationship between the nature of research and sampling techniques?

The following figure presents an analysis of the sampling techniques used in the research articles, which explores their associations with specific research types, thereby providing insight into the methodological choices researchers adopt in different fields of study.

Figure 3: Type of Research in Articles vs. Sampling Techniques

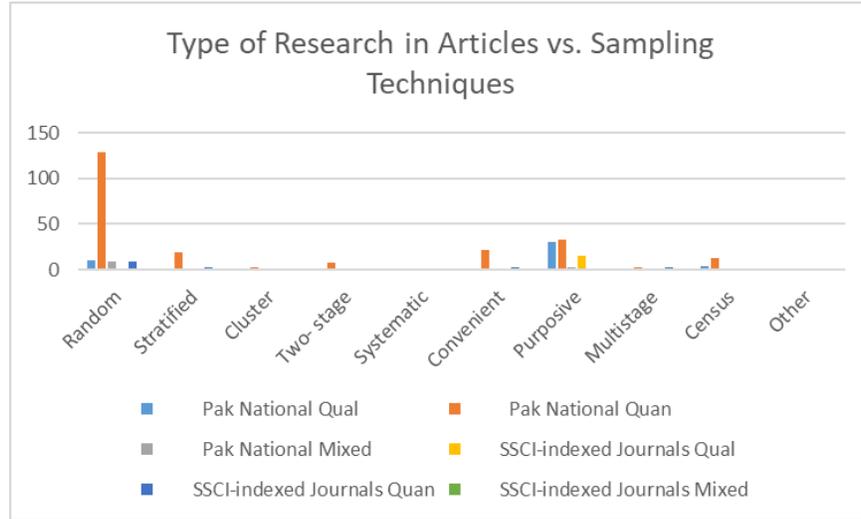
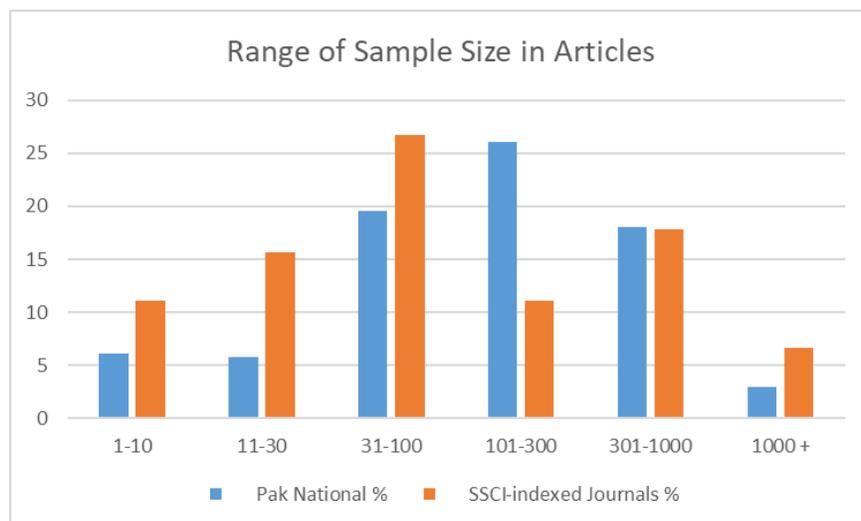


Figure 3 shows that in local Pakistani journals, simple random sampling was preferred for quantitative studies. In contrast, convenience and purposive sampling were commonly used in quantitative and qualitative research. In contrast, SSCI journals showed a clear difference, with purposive sampling being the dominant choice for qualitative studies and random sampling being used more frequently in quantitative research, suggesting a more sophisticated methodological approach in these international journals.

4. What was the range of sample sizes used in the research articles?

The following figure provides an overview of the sample sizes used in research articles published in journals, highlighting the diversity in methodological approaches and research designs.

Figure 4. Range of Sample Size in Articles



Note. The percentage may not equal to 100 because a few studies did not use a sample.

According to Figure 4, most of the studies (45.6%) published in local Pakistani research journals used a sample size of 31 to 300 participants, possibly due to the specific focus and scope of the research. Another 21% of studies used larger sample sizes of more than 300 participants. In contrast, the SSC-indexed journals showed a different distribution, with 42.3% of the articles using a relatively small sample size of 11–100 participants, while 24% of the studies used a sample size of more than 300 participants, and only 11.1% used a sample size between 101–300 participants.

5. What is the relationship between the nature of research and article sample size?

The figure below illustrates sample size selection patterns and preferences across different research disciplines, providing insight into researchers' methodological choices across disciplines and publications.

Figure 5. Type of Research in Articles vs. Sample Size

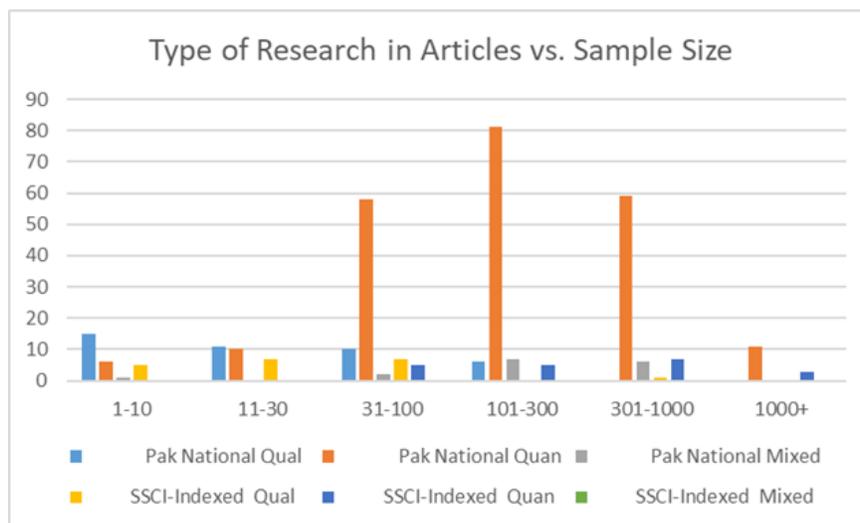
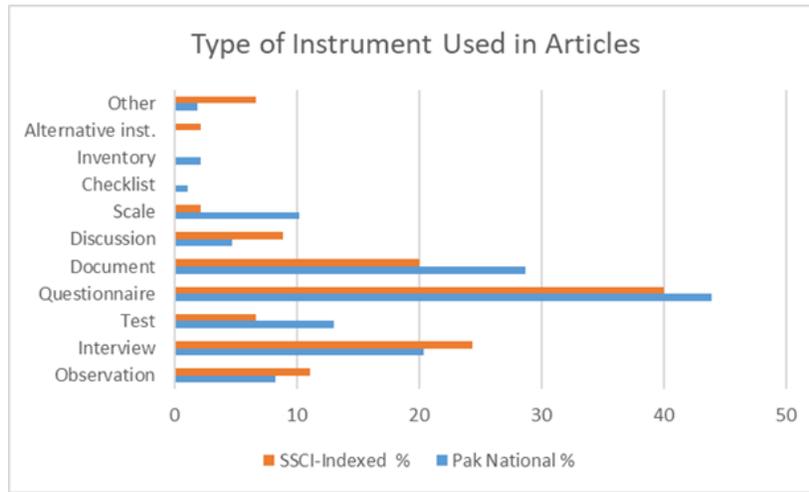


Figure 5 shows a consistent trend in local Pakistani journals and SSC-indexed journals: qualitative studies used smaller sample sizes, while quantitative studies used larger sample sizes. Notably, more than half of the studies in the research articles chose sample sizes of 31 to 1,000 or more, likely due to the abundance of quantitative studies in the publications.

6. What were the most commonly used instruments/tools for data collection in research articles?

The subsequent figure provides valuable opinions on the data collection methods used in research articles. It provides a comprehensive overview of the various tools and instruments used to collect data from participants and thus clarifies the methodological approach adopted by the researchers in their studies.

Figure 6. Type of Instrument Used in Articles



Note. The percentage is more than 100 due to reporting all instruments used in articles.

Figure 6 provides a detailed overview of the data collection instruments used in the research articles, showing that questionnaires (43.9%) and rating scales (10.2%) were the dominant instruments in local Pakistani journals, followed by document analysis (28.7%). In contrast, interviews (20.4%) and tests (13%) were used less frequently. On the other hand, in the SSC-indexed journals, questionnaires (40%), interviews (24.4%), and document analysis (20%) emerged as primary data collection methods. In contrast, other methods were used to a lesser extent; the two journals' different types indicate different preferences for data collection tools.

7. What was the relationship between the nature of the research and the data collection instruments in the articles?

The following figure illustrates the relationship between research design and data collection methods in published research articles, providing insight into the tools and techniques used in different studies and research fields. It also highlights methodological choices made by researchers.

Figure 7. Type of Research vs. Instrument in Articles

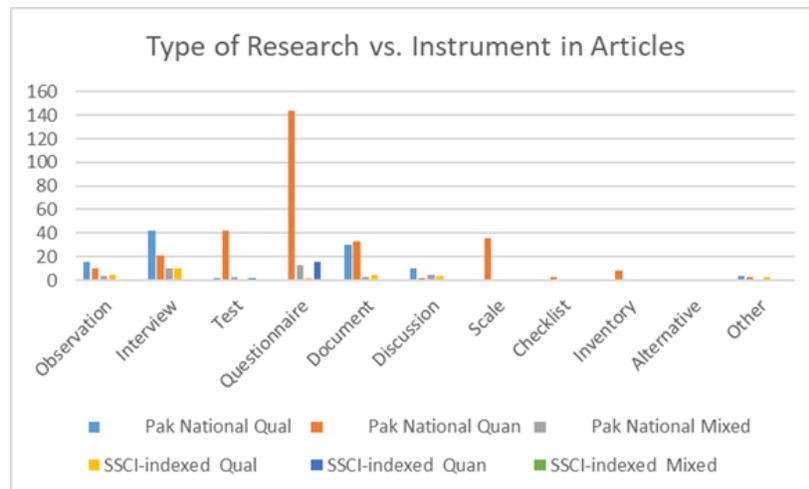


Figure 7 shows that various instruments have been used in quantitative research, with questionnaires being the most common, followed by tests, documents, and rating scales. On the other hand, a clear difference is seen in SSC-indexed journals, where interviews and document analysis dominate in qualitative studies. At the same time, questionnaires remain the primary data collection tool in quantitative research, which indicates a more specific approach to data collection in these international journals.

8. What data analysis techniques were most often used in the articles?

The subsequent figure provides an overview of the statistical techniques used by the authors in the articles, showing different preferences for different methods. This figure illustrates researchers' preference for specific techniques over others and provides insight into the choice of analytical methods and methodologies used in their studies.

Figure 8. Types of Statistical Techniques Used in Articles

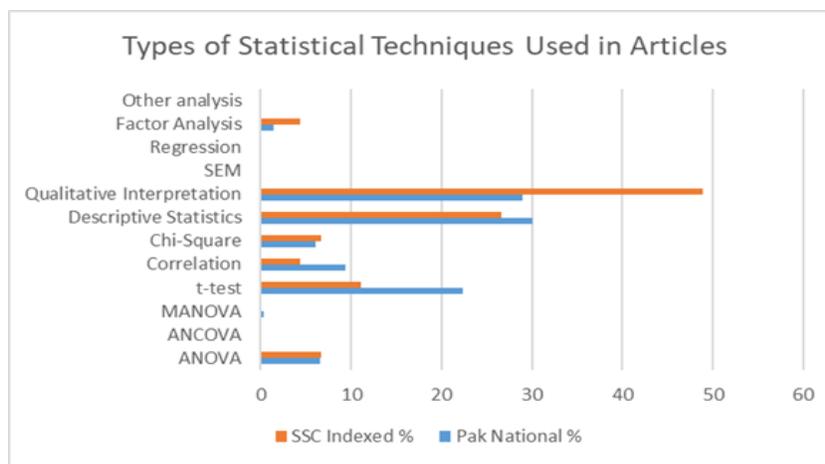


Figure 8 details the statistical techniques used in the research articles published in local Pakistani and SSC-indexed journals. In local journals, descriptive statistics (30.1%) and t-tests (22.4%) were the most frequently used techniques. However, a significant proportion (29%) of studies relied on standardized interpretation for data analysis. In contrast, SSC-indexed journals show a greater tendency toward qualitative interpretation (49%), followed by descriptive statistics (26.6%), indicating a different methodological emphasis between the two journal types.

9. What was the limit on the number of references used in the articles?

The following figure illustrates the variation in the number of references across research articles in selected journals, highlighting the different practices of researchers. This figure presents the references used, highlighting how researchers rely on existing literature to support their work.

Figure 9. No of References Used in Articles

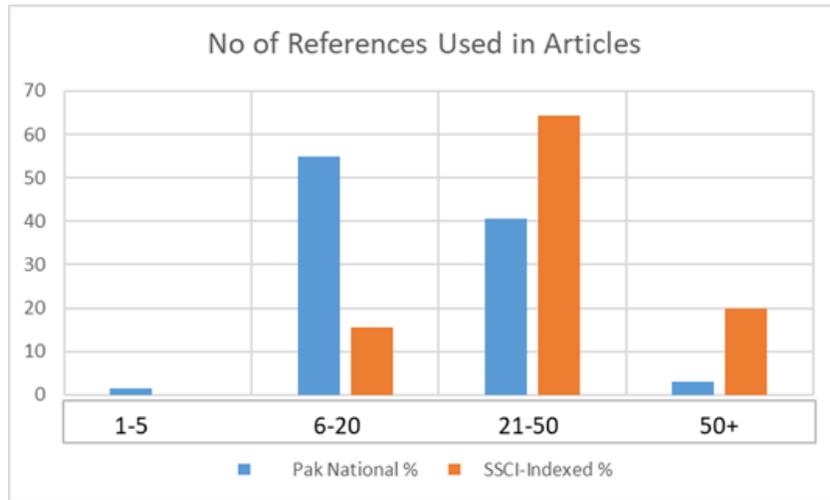


Figure 9 compares the references in research articles in Pakistani local and SSC-indexed journals. In Pakistani local journals, most articles (55%) cited 6–20 references, while 40.6% cited 21–50 references, and only a small proportion (3%) cited more than 50 references. In contrast, a different pattern was observed in SSC-indexed journals, where 65% of articles cited 21–50 references, 20% cited more than 50 references, and a relatively small proportion (15.6%) cited 6 - Cited 20 references, indicating significant differences in citation practices between the two journal types.

10. What was the relationship between the nature of the research and the number of references used in the articles?

The following figure illustrates the extent to which researchers using different research designs drew on existing literature to inform their studies and provides insight into how scholars have shaped their methodology and research.

Figure 10. Type of Research vs. Number of References Used in Articles

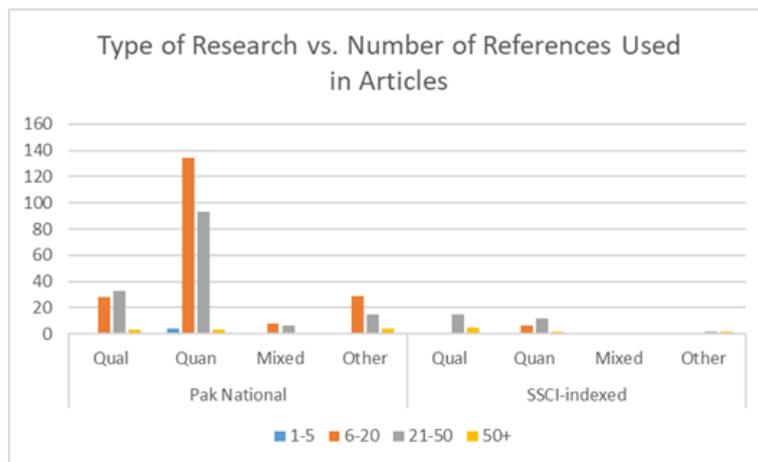


Figure 10 shows the distribution of citations across different research article types, showing a consistent pattern in the number of citations in Pakistani local and SSC-indexed

journals. Notably, most studies in all three categories (almost all) cited between 6 and 50 citations, with no significant differences observed between research designs or journal types, which indicates uniform referencing across the board.

Discussion

The awe-inspiring reliance on non-experimental designs (60%) is a worrying trend in Pakistani research disciplines, which reflects a lack of methodological diversity and innovation. Furthermore, the dominance of quantitative surveys, which fail to contribute meaningfully to theoretical development, represents a missed opportunity for more rigorous and impactful research. This highlights the need for researchers to go beyond descriptive studies and adopt empirical and theoretical approaches to ensure meaningful progress in their fields. The research scenario in Pakistan shows a significant reduction in the number of studies contributing to the extension of existing knowledge or the formulation of new theoretical frameworks. Many studies exhibit methodological limitations, characterized by a lack of randomized experimental designs, rigor and comprehensiveness. This highlights the need for researchers to adopt more robust and systematic procedures to increase their findings' validity and impact and ensure meaningful progress in their respective fields. The underutilization of interpretive research methods can be attributed to many researchers lacking the necessary skills and expertise to conduct in-depth, nuanced studies (Mohajan, 2018; Pregoner, 2024).

The findings indicate the need for researchers to develop their skills in qualitative research methods and to engage with real-world contexts, thereby enabling a richer, more contextualized understanding of the phenomena under investigation. The findings of the present study are consistent with the findings of Saigol (2005), who showed through interviews with faculty members that most of the research conducted in universities was primarily of an applied nature, and there was a distinct lack of attention to theoretical development. This convergence of findings suggests a continuing trend in the Pakistani education landscape where practical applications are prioritized over theoretical development, which calls for further research and consideration. A decade later, the academic research landscape in Pakistan is still remarkably similar, reflecting the cultural preferences of Turkish and American researchers. Quantitative studies still dominate the field, strongly leaning toward non-experimental research designs consistent with practices in Turkey and the United States. Although some studies use descriptive, survey, and quasi-experimental methods in these countries, the overall preference for quantitative methods highlights a common research trend observed in these contexts (Arik & Türkmen, 2009; Göktaş et al., 2012; Nelson & Coorough, 1994; Taherdoost, 2022).

A comparison of sampling techniques in local and SSC-indexed journals in Pakistan reveals different preferences. Among local Pakistani journals, random sampling was the dominant method, with most studies (80%) relying on relatively small sample sizes (less than 300 participants). An opposite pattern was seen in SSC-indexed journal articles, where 33.3% of studies used purposive sampling while 22.2% of studies utilized simple random sampling techniques, with 13.3% of such studies giving no sample. The data collection techniques used in the Pakistani journals included questionnaires, interviews, and document analysis, which is consistent with earlier studies such as Göktaş et al. (2012), Karadağ (2011), and Kucuk et al. (2013) is consistent with the findings. Notably, these researchers also chose quantitative data collection instruments, which were less commonly used in other studies. This indicates a common methodology for the region's traditional and established data collection techniques. Questionnaires and tests are preferred by Pakistani researchers due to practical advantages, as

indicated by Baker (2003) and Baş (2005). These devices are readily available, low cost, and facilitate rapid data collection, making them an attractive choice.

Furthermore, Pakistani researchers encountered few problems in using these data collection instruments related to their specific context, indicating no significant problems in adopting and applying these methods. Modified questionnaires, scales, tests, and interview forms demonstrated poor quality; many were self-administered and lacked clarity of psychometric properties. In particular, the validity and reliability of these instruments have not been adequately addressed, calling into question their rigor. Furthermore, pilot studies were often neglected or, when conducted, their results were not adequately interpreted (Mason, 1996; Patton, 2002). This shortcoming indicates a significant gap in ensuring the methodological robustness of these research instruments.

Results were presented to experts via email with the request to comment on the results in the light of their vast experience in the relevant field. A Pakistani expert researcher has echoed the same concern, noting that a key limitation of local research is that “Tools developed abroad are uncritically adopted, without due attention to possible social and cultural biases. Furthermore, the expert emphasized that research findings are often interpreted in isolation, without reference to relevant international studies, which can lead to a lack of contextual understanding and nuanced insights” (Email Correspondence).

Another Pakistani expert confirmed that most of the research used traditional quantitative methods. These traditional techniques are widely used, indicating a reliance on established statistical methods for data analysis” (Email Correspondence). Another Pakistani expert further emphasized that a significant challenge in the research landscape is the limited skills of academics and researchers in applying advanced statistical techniques, which inhibits the possibility of more complex data analysis and deeper insights. This skills gap highlights the need for better training and capacity-building strategies to provide researchers with the skills necessary to take advantage of modern statistical methods” (Email Correspondence). The dominant reliance on basic and intermediate statistical techniques in educational research indicates gaps in expertise and experience with advanced statistical methods. This limitation may limit the depth and rigor of research findings, highlighting the need for researchers to expand their statistical knowledge and adopt more advanced analytical methods to unlock deeper insights and contribute meaningfully to this field.

Conclusion

Educational research in Pakistan has shown a strong bias towards quantitative methods, resulting in non-experimental designs, including descriptive and survey research and experimental methods dominating the methodological landscape of the field. Methodological choices in Pakistani educational research, including using probability sampling techniques and large sample sizes, reflect a strong quantitative focus. Additionally, reference patterns in Pakistani journal articles show a consistent trend, where most studies cite a modest number of sources, typically between 6 to 20 citations.

Pakistani researchers have adopted mainly Western methodologies, but the abundance of small-scale quantitative studies has reduced critical examination of social structures. Despite abundant research, few studies attempt to raise complex and probing questions that challenge the status quo and foster a deeper social perspective. Pakistani research generally lacks systematic

empirical research, and studies often lack a clear and systematic methodology. Moreover, qualitative and mixed-methods research is also weak, indicating that further development and exploration of these methods is needed to improve the depth and detail of research findings. Even in studies that claimed standardized methods, true standardized methods were lacking. Research was often incomplete and depended on instruments that collected only non-quantitative data rather than going in-depth to conduct detailed research and collect rich data.

The findings of this study provide valuable insights into the development of educational research in Pakistan, which may serve as a model for similar studies in other Asian countries and may be helpful in the development and growth of educational research across the region. The research findings have far-reaching implications, providing valuable guidance for various stakeholders in education research, including editors, authors, PhD supervisors, deans, heads of research departments, methodologists, research methods teachers, and practitioners. These findings are not only beneficial to the educational research community of Pakistan but also relevant to other Asian countries and provide insights that can improve research practices and support the development of educational research globally. In other words, study findings have the potential to influence future research agendas, policy decisions, and educational operational practices. These findings can be a valuable resource for policymakers, helping them develop effective strategies for educational development and guiding practitioners to improve their professional practices and, ultimately, educational outcomes. will assist in the improvement and overall development of the field. Insights from this study may serve as motivation for Pakistani researchers to critically review their educational research efforts, which will facilitate comparative analysis and highlight similar and divergent perspectives. By recognizing and learning from these similarities and differences, researchers can improve their research methods, foster collaboration, and collectively advance the field of educational research in Pakistan.

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