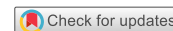THE KNOWLEDGE | RESEARCH ARTICLE

Assessing the Professional Development Needs of University Supervisors in Balochistan: A Quantitative and Exploratory Study

Ruqia Mirwani [1]   Maroof Bin Rauf [2]

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Abstract

The success of postgraduate research supervision is critical to the assessment of academic success, institutional credibility and overall research potential of a nation. This research uncovers the professional advancement demands, the supervisory measures and institutional barriers encountered by public and private universities in Balochistan, Pakistan's PhD supervisors. The study uses mixed methods in which structured data from supervisors' survey (453) and qualitative data from semi-structured interviews are used. Based on constructivist and positivist approaches, the research assesses five elements that underlie effective supervision. efficiency of supervising, subject's familiarity, access to institutions tools, supervision framework guidelines and student capacity. Analysis using descriptive statistics and binary logistic regression provides significant variables to measure perceived supervisor effectiveness as, use of expertise by the supervisor, student readiness, and transparent HEC regulations. However, the results show various obstacles, including insufficient funding of research, augmented administrative duties, and rigid institutional environs that do not allow supervisors to give quality mentorship. In particular, the female supervisors and private university supervisors may work with additional limitations as they tend not to have extensive institutional resources and recognition. This research suggests that claiming that the status of academic rank or qualifications is the only factor determining supervisory effectiveness is false. Professional development for supervisors requires systematic training, institutional support, manageable workloads, and a research-focused, egalitarian environment for continuous improvement. This research has significant implications for policymakers, university administration, and national education authorities wishing to strengthen postgraduate research supervision in the least developed academic environments of Pakistan.

Key Words

PhD Supervision, Professional Development, Higher Education, Balochistan, Logistic Regression, Institutional Policy, Gender, Higher Education Commission (HEC), Research Capacity

Corresponding Author

Ruqia Mirwani: PhD Scholar, Department of Education, University of Karachi, Karachi, Sindh, Pakistan.
Email: ruqia.mirwani@uot.edu.pk

Introduction

The effectiveness of postgraduate research programs greatly depends on the ability and perseverance of the academic supervisors. A key role supervisors play is to point a student in the right direction, advise them in methodology, and offer them emotional support (Gardner, 2008; Cornforth & Bird Claiborne, 2008). Now that

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[1] PhD Scholar, Department of Education, University of Karachi, Karachi, Sindh, Pakistan.
  Email: ruqia.mirwani@uot.edu.pk
[2] Associate Professor, Department of Education, University of Karachi, Karachi, Sindh, Pakistan.
  Email: maroof.rauf@uok.edu.pk

education directly influences the growth of a country, supervision has moved from being peripheral to a primary role at an institution. On the other hand, in Balochistan and other such places, high inequality in higher education has led to neglect of professional growth for supervisors within policies and practices.

Helping supervise graduate students at the doctoral level requires a lot more skills than simply knowing the subject well. Those leading supervisors ought to possess teaching knowledge, relationship-building skills, know-how in managing future projects, and an awareness of students from a variety of backgrounds. Wisker et al., (2021) state that for supervision to work well, it must be both rigorous and friendly, so supervisors are trained accordingly (Vanstone et al., 2013).

The system of research supervision in Pakistan, especially in Balochistan, often brings up several difficulties. It is common for supervisors to have no formal training in handling their leadership role. Since many of these early-career academics have a doctorate yet have not been mentored or experienced the best international approaches in supervision, they may need more help. The HEC in Pakistan has done a good job in establishing clear standards and policies to bring harmony to postgraduate education. Still, the system mainly looks at research achievements, without much support for training teachers, mainly in less developed places (Abbasi et al., 2021).

In addition, the working environment of university supervisors in Balochistan makes their jobs even more difficult. Public universities in the province go through constant shortage of funds, cannot take advantage of technological and library advancements, struggle under strict administrative procedures, and have too much work for the faculty. Usually, supervisors take on teaching duties, administration, and overseeing staff without receiving clear plans or rewards from their organizations (Khattak, 2022). This type of environment prevents academics from giving high-quality supervision and also makes it harder for them to do research and feel satisfied in their jobs.

Studies done in practice have indicated that supervisors who have not received special training could face a number of issues. unclear timelines for research work, a gap in providing consistent feedback to PhD students, weak relationships between supervisors and supervisees, and more PhD students leaving the program (Ali et al., 2016; Abiddin et al., 2011). Factors such as the culture and needs of communities make these issues worse for students and educators in places like Balochistan. Moreover, many supervisors here are not able to collaborate with others, receive mentorship, or get connected with international academic colleagues since many external opportunities are lacking.

Therefore, helping university supervisors learn new skills is not all that development consists of. it is a structural necessity. Elgar (2003) suggests that how well supervision is carried out depends on how seriously institutions invest in academic leadership. In Balochistan, those with supervisory roles must handle academic responsibilities and research protocols mostly alone, since they lack support or any further learning resources. Lack of regulation in this field shows an important area that policy makers are overlooking.

This research fills this gap by providing a review of the needs of university supervisors in Balochistan, using quantitative analysis. By analyzing data from faculty from seven public universities in the province, the study checks their readiness, highlights areas that need improvement, finds institutional issues, and studies what supervisors believe about their preparedness. The study relies on using structured questionnaires and other statistical tools like logistic regression to gather evidence that could guide institutions, influence HEC's policy decisions, and support capacity-building programs funded by donors. By focusing on the special problems faced by supervisors in one of Pakistan's most-ignored provinces, the research helps promote greater equity in education on a national and international scale. Additionally, it gives useful advice to support good supervision, better meet students' needs, and develop a strong environment for research in newly formed academic institutions.

Objectives of the Study

This research seeks to understand which skills and knowledge university supervisors in Balochistan should improve in their work supervising postgraduate research. Specifically, the study aims to:

1. Find the major gaps in supervisory skills among faculty managing PhD and MPhil students in Balochistan's public universities.
2. Look into the extent of education and training supervisors had either before or as part of their supervisory duties.
3. Check how your supervisors feel about being ready for various situations that may arise during their supervision duties.
4. Examine what types of policies, incentives, and resources the institution offers to develop the supervisors in their careers.
5. Compare and contrast the types of challenges and training needs perceived by men and women, non-governmental staff, and those working in different organizations.
6. Offer solutions and advice for setting up training and reforms to ensure improved supervision of research.

Significance of the Study

A lack of enough mentors in several areas hinders the quality of postgraduate research in Pakistan, mainly in Balochistan. This research has importance in different fields:

1. **Regional Significance:** In Balochistan, higher education institutions must overcome such problems as lack of sufficient faculty development, poor quality of buildings, and being neglected by the government. The research aims to uncover the personal stories and job-related issues of these supervisors, which are not often discussed in education discussions from a national point of view.
2. **Policy Relevance:** The research results can support the HEC and local education boards in preparing useful training programs, plans for certification, and reward schemes for postgraduate supervisors.
3. **Institutional Impact:** Postgraduate research supervision support, mentoring, and appraisal for faculty will be strengthened using this study's findings.
4. **Academic Contribution:** Researchers have studied student satisfaction and supervision, but very few have looked into how supervisors are prepared for their roles and what they consider to be their main professional needs. This research closes the gap and is added to the global collection of information on faculty development in developing nations.
5. **Equity and Inclusion: It** looks at imbalances between genders, unequal sharing of workloads, and the access of teachers to professional advancement. Because of this, it helps create a more welcoming, responsible, and development-focused academic environment.
6. **Capacity Building:** Overall, the study will provide ideas to establish interventions that support supervisors' knowledge, confidence, and rules in assisting students to accomplish their research, complete their programs promptly, and support universities in Balochistan.

Literature Review

Academic supervision in postgraduate education is now seen as important for achieving better research, student victories, and strengthening a university's reputation. In colleges worldwide, effective supervision is recognized as an essential job that needs to be taught through specialized training and should be supported by the institution (Wisker et al., 2021). While under-responsibility is acknowledged, literature from Pakistan—being a part of the Global South—shows that assistant professors and supervisors are often unsupported, under-resourced, and underprepared in their responsibilities (Ali et al., 2016; Abbas, 2019).

The Expanding Role of Supervisors

Traditionally, PhD supervision was seen as a relationship where the supervisor acted as a mentor and was helpful because of their in-depth knowledge in the area. However, the modern person who supervises others now does a lot more than just making sure things are done right. Supervisors now have to do a lot of different jobs, like keeping everyone organized, making sure rules are followed, answering questions, and helping out with any problems that come up. mentor, project manager, academic editor, guide for doing the right thing, and someone who can help keep you motivated. These demands need me to develop skills outside of just what I learn in my discipline, like talking with others, leadership, understanding different cultures, and knowing how to do research the right way. When these skills are missing, it's hard for supervisors to keep a good eye on things and help their team consistently.

The Need for Professional Development

According to various studies, supporting supervisors to learn and grow in their profession is important. Abiddin et al., (2011) argued that well-trained supervisors guide students better, address disputes they may have, and help students achieve higher academic confidence and success. Elgar (2003) explains that institutions in Canada that require their supervisors to complete training programs see more PhDs being completed and less attrition from programs. Meanwhile, using data from the UK, Halse, & Malfroy (2010) point out that education institutions should focus on training faculty and aspire to move beyond the simple practice of supervision towards competency-based career growth.

According to De-Lange et al., (2011), in the South African setting, supervisors should focus on professional development to keep up with the new mix of students and growing demands for research work. The results they found are matched by experiences in Pakistan, where supervisors have lots of tasks, institutions are not efficient, and there is increasing pressure to produce good studies (Khattak, 2022).

Supervisory Challenges in the Pakistani Context

HEC in Pakistan requires that both criteria, a PhD and proven research record, be met by faculty members before they manage postgraduate students. Teachers are not required to have pedagogical training or a supervisory certification. Thus, supervision tends to happen in an unstructured way, and not many rules or oversight exist within the organization. Abbas (2019) reported that a number of supervisors in Pakistan did not know about modern supervisory methods and they often expressed hesitation in managing comments from students, scheduling their time, and resolving conflicts. Ali, et al. state that when the expectations of supervisors and their supervisees differ, it can result in poor relationships and a slower progress in research.

Gender and Institutional Constraints

Gender dynamics also make things more difficult for people who supervise others in Pakistan. Female supervisors often have to deal with less time because of things they're expected to do at home and caring for their families, which results in them having fewer chances to advance and get noticed (Morgan et al., 2016). Institutions in underdeveloped provinces like Balochistan have a hard time getting the necessary resources, like training, internet, and support to help with research (Abbasi et al., 2021). This environment makes it hard for team leaders to learn new skills, so they often have to pick up knowledge in an unofficial way, like by just doing things on their own or asking other people.

Frameworks for Supervisory Competence

The field of literature also gives frameworks that help outline the best way to provide and improve supervision. According to Elger's (2007) Theory of Performance (ToP), performance in school is affected by six things: context, knowledge, skills, identity, personal factors, and fixed factors. These elements can help measure and assess the

supervisors' ability to handle their jobs. The LMX theory proposes that having a good relationship with a supervisor can improve the outcomes for the supervisor and the supervisee (Graen & Uhl-Bien, 1995). But these relationships rely on the supervisor's skill in communicating, understanding, and mentoring, skills that need to be worked on intentionally.

Research Gaps and Justification

Compared to much of the world, there are very few studies in Pakistan exploring steps to improve the training for supervisors, especially in areas like Balochistan. Though much research has looked at what postgraduate students go through, the supervisor's viewpoint is comparatively unexplored. This situation is very important because how teachers supervise can directly affect students, the progress of research, and the college's reputation.

Data and Methodology

Research Philosophical Paradigm

To study the professional development needs of PhD supervisors in Balochistan, this study uses a combination of constructivist and positivist approaches. Following the interpretive/constructivist paradigm, the qualitative part gives researchers a detailed view of what supervisors go through in their workplace and circumstances. Using constructivism, individuals can better understand what complex human events and experiences mean to people within their specific environments (Creswell, 2003).

Similarly, using positivist thinking helps researchers use numbers to support and test their hypotheses. The approach makes sure that the analysis accounts for the frequency of supervision problems and the special factors that can lead to them.

Positivism and Logistic Regression

Logistic regression analysis benefits from Positivism's focus on using evidence and finding links between events. With this technique, satisfaction and dissatisfaction are considered based on factors such as supervisors, different gender interactions, and the support given by the institute. Logistic regression uses a solid process to:

- Identify predictors of supervisory effectiveness.
- Identify and measure the strength of the relationship between various constructs.
- Compute the chances that one outcome will take place given specific conditions.

Mixing these ways of thinking helps provide information that both covers all aspects of supervising in Pakistani universities and is statistically reliable.

Mixed Methods Research Design

A convergent parallel mixed method was used to support the study by studying survey results and interviewing the participants to respond to all the research questions. This strategy works well for looking at phenomena like postgraduate supervision, since it helps in understanding both measurable results and the personal experiences of those involved.

Quantitative Strand

Research Question: What are the common challenges faced by Balochistan supervisors in postgraduate supervision?

Qualitative Strand

Research Question: How do Balochistan supervisors describe their experiences and strategies for effective supervision?

Research Design
This study involves a cross-sectional survey and semi structured interviews conducted with qualitative case inquiry. Creswell (2012) points out that this type of design suits studies that involve a large number of participants as well as short interviews to gather in-depth responses. Semi-structured interviews are used especially in social research to focus on what participants think.

Data Collection
Data Collection Procedure
- Quantitative data were collected using a structured, self-administered questionnaire distributed to PhD supervisors across seven universities in Balochistan and other Pakistani institutions.
- Qualitative data were collected via purposively selected semi-structured interviews to explore context-specific supervisory experiences and strategies.

Data Collection Tools
- **Questionnaire**: Comprised of closed-ended and Likert-scale items across five constructs: Challenges in Supervision (CS), Academic Issues (AI), Interpersonal Relationships (IR), Effective Supervisory Skills (ESS), and Male-Female Issues (MFI).
- **Interview Guide**: Included open-ended questions probing supervisors' experiences, institutional support, and personal strategies.

Population
A total of 453 PhD supervisors participated, representing diverse academic disciplines and universities across Balochistan and Pakistan. The sample includes public (83.4%) and private (16.6%) sector institutions, with a strong representation of disciplines and supervisory backgrounds.

Sampling Technique and Sample Size
Probability Sampling
Simple random sampling was used to select supervisors for the quantitative strand, ensuring generalizability. A comprehensive faculty list was used as the sampling frame.

Non-Probability Sampling
Convenience and purposive sampling were used for qualitative interviews. This approach was suitable for reaching knowledgeable respondents and achieving data saturation in thematic analysis.

Table 1
Sampling Summary

University	Frequency	Percent
University of Balochistan	42	9.5%
LUAWMS	33	7.5%
BUITEMS	17	3.8%
University of Turbat	17	3.8%
SBK Women's University	12	2.7%
Other (national) universities	291	65.7%
Total	453	100%

Pre-Testing and Pilot Study

A pilot test was conducted at the University of Turbat. Cronbach's Alpha was calculated to ensure reliability

Table 2

Construct	Alpha Value
CS	0.78
AI	0.82
IR	0.75
ESS	0.79
MFI	0.71

Data Analysis

Quantitative Analysis – Logistic Regression

The following model was applied:

$$\text{logit}(P) = \ln[P/(1-P)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n$$

Where:

- P = probability of supervisory effectiveness

- $X_1, X_2 \ldots X_n$ = predictors (ESS, CS, IR, etc.)

- Estimation used maximum likelihood estimation (MLE) in SPSS/Stata.

- Assumptions checked: linearity of log-odds, independence, and no multicollinearity.

Qualitative Analysis – Thematic Coding

Interviews were manually coded using inductive thematic analysis. Emerging themes such as time constraints, emotional labor, institutional barriers, and gender dynamics were categorized and cross-referenced with quantitative findings.

Ethical Considerations

Ethical safeguards were rigorously applied:

- **Informed Consent**: Participants were briefed and consented.

- **Confidentiality**: Data anonymized using unique codes.

- **Voluntary Participation**: Right to withdraw at any point was respected.

- **Data Security**: Electronic files encrypted; hard copies securely stored.

- **Ethical Approval**: Secured from the relevant university ethics committee.

Results and Discussion

Demographic Data Analysis

Demographic information is about the targeted population or participation group of people. According to certain attributions such as gender, sex, age, and place of the working as supervisor. It can include socioeconomic factors such as occupation and family status.

Table 2

Targeted Universities & Population

Name and Type of University	Frequency	Percent
Balochistan University of Engineering and Technology Khuzdar	1	0.2%
Balochistan University of Information Technology, Engineering and Management Sciences, Quetta	16	3.6%
Bolan University of Medical and Health Sciences Quetta	14	3.2%
Balochistan University of Information Technology, Engineering and Management Sciences	17	3.8%
Lasbela University of Agriculture, Water & Marine Sciences (LUAWMS)	33	7.5%
Sardar Bahadur Khan Women's University	12	2.7%
University Of Balochistan	42	9.5%
University of Turbat	17	3.8%
Other Universities (other Pakistani universities)	291	65.7%
Total	443	
Public Sector Universities	378	83.4%
Private Sector Universities	75	16.6%
Total	453	

Table 2 shows largest proportion of participants were from institutions categorized as "Other Universities" (65.7%), reflecting universities located outside Balochistan but included for broader comparative insights. Among the universities within Balochistan, the University of Balochistan (9.5%) and LUAWMS (7.5%) had the highest representation. Smaller contributions came from specialized and gender-focused institutions such as SBK Women's University (2.7%) and Bolan University of Medical and Health Sciences (3.2%). In terms of institutional type, a significant 83.4% of the supervisors belonged to public sector universities, while 16.6% were affiliated with private institutions. This distribution aligns with the structural dominance of public universities in Balochistan and mirrors the overall higher education landscape in Pakistan. This demographic breakdown provides a foundational understanding of the supervisory population and ensures that both mainstream and peripheral institutional perspectives are captured in the analysis.

Table 1

Participants' Gender Distribution

Gender:	Freq	Percent
Male	332	73.3%
Female	121	26.7%
Total	453	

Gender is a significant demographic variable in understanding the dynamics of postgraduate supervision, particularly within the context of Pakistani higher education where cultural and institutional norms often influence gender roles in academia. Table 3 data indicates that 73.3% of the respondents were male supervisors, while 26.7% were female supervisors. This disparity reflects the broader gender gap in faculty representation and supervisory roles within Pakistani universities, especially in public sector institutions. The underrepresentation of female supervisors also underscores the importance of exploring gender-specific challenges in supervision, which are further discussed in the Male-Female Issues (MFI) construct in the analysis chapters.

Table 2

Participants' Age Group Distribution

Age: (group)	Frequencies	Percentage
26 to 30 years	4	0.9%
31 to 35 years	20	4.4%
36 to 40 years	32	7.1%
41 to 45 years	255	56.3%
46 to 50 years	136	30.0%
Above 50 years	6	1.3%
Total	453	

Understanding the age profile of university supervisors provides insight into their stage of career development, professional maturity, and potential exposure to supervision responsibilities. Age can also influence perceptions of challenges, communication styles with supervisees, and openness to institutional reforms or training. Table 4 shows majority of participants fall within the 41 to 45 years' age group (56.3%), followed by those aged 46 to 50 years (30.0%). These two groups combined represent over 86% of the sample, suggesting that most supervisors are mid-career professionals, likely with significant academic and institutional experience. In contrast, younger faculty in the 26 to 35 years range make up only 5.3% of the sample, indicating a limited presence of early-career supervisors in the study. This could reflect the time lag typically required for faculty to become eligible as PhD supervisors, as well as institutional criteria such as holding a PhD and publishing in peer-reviewed journals. The relatively low percentage (1.3%) of participants above 50 years may suggest either early retirement, administrative shifts, or reduced involvement in hands-on supervision among senior faculty members.

Table 3

Participants' Marital Status

Marital Status	Frequencies	Percentage
Married	414	91.4%
Un-Married	32	7.1%
Widow	7	1.6%
Total	453	

Marital status is an important demographic factor that can influence time availability, workload management, and the emotional or social support systems available to university supervisors. In the context of supervisory responsibilities, personal and family commitments may affect supervisors' ability to engage deeply with postgraduate students, particularly in environments with limited institutional support. Table 5 data shows that an overwhelming majority of the participants, 91.4%, are married. This is consistent with the mid-to-late career age profile of most respondents and suggests that many supervisors may be balancing professional obligations with significant family responsibilities. A smaller proportion of participants were unmarried (7.1%), while 1.6% identified as widowed. The high proportion of married supervisors may have implications for supervisory time management, stress levels, and work-life balance. It may also influence gender-specific experiences and expectations, particularly in traditional and culturally conservative regions such as Balochistan, where familial roles may intersect with professional commitments more acutely for female faculty.

Table 4

Participants' Religious Affiliation

Religion	Frequencies	Percentage
Islam	441	97.4%
Christianity	4	0.9%
Others	8	1.8%
Total	453	

Religion, while not a direct determinant of supervisory effectiveness, can play a subtle role in shaping institutional culture, interpersonal dynamics, and perceptions around gender, authority, and mentorship—particularly in a context like Pakistan where religion significantly influences societal norms. Table 6 data indicates that a vast majority of respondents (97.4%) identify as Muslim, which aligns with the national religious demographics of Pakistan. A small number of participants identified as Christian (0.9%) or belonging to other faiths (1.8%). Although religious affiliation was not a core variable in this study, this demographic helps contextualize broader cultural and ethical influences that may shape supervisors' professional behaviors, communication patterns, and perceptions of gender dynamics—particularly relevant for interpreting responses related to the Male-Female Issues (MFI) construct.

Table 5

Participants' Academic Designation

Designation	Freq.	Percent
Lecturer	10	2.2%
Assistant Professor	21	4.6%
Associate Professor	232	51.2%
Professor	190	41.9%
Total	453	

The academic designation of PhD supervisors provides insight into their level of seniority, institutional responsibilities, and likely supervisory experience. Faculty rank may influence not only access to supervision roles but also the degree of autonomy, mentorship capacity, and institutional expectations tied to postgraduate research. Table 7 data reveals that the majority of participants were Associate Professors (51.2%), followed closely by Professors (41.9%), indicating that most supervisors involved in this study occupy senior or advanced mid-career positions within their institutions. This suggests a high level of academic experience and institutional engagement in supervision responsibilities. A smaller proportion of respondents were Assistant Professors (4.6%) and Lecturers (2.2%)—positions typically held by early-career faculty who may have recently attained PhD qualifications or are beginning to engage in supervision under formal or informal mentorship arrangements. The dominance of senior faculty in the sample strengthens the reliability of the insights gathered regarding supervision challenges, professional development needs, and institutional policies, as these individuals are likely more experienced in navigating both academic and administrative dimensions of postgraduate supervision.

Table 6

Participants' Academic Qualifications

Qualification	Frequencies	Percentage
M.Phil	13	2.9%
PhD	431	95.4%
Post Doc	8	1.8%
Total	452	

Academic qualifications are a core eligibility criterion for postgraduate supervision and serve as a foundational determinant of supervisory competence, subject mastery, and research capacity. In the Pakistani higher education context, particularly under the guidelines of the Higher Education Commission (HEC), a PhD is typically the minimum requirement to supervise doctoral students, with postdoctoral experience adding value to academic leadership. Table 8 majority of participants, 95.4%, held a PhD, indicating that the sample accurately represents the population of eligible postgraduate supervisors across Balochistan and Pakistan. A small proportion of supervisors (2.9%) held an M.Phil., which may reflect participation in co-supervisory roles or involvement at the M.Phil. level. Only 1.8% had completed postdoctoral research, highlighting a relatively limited prevalence of advanced post-PhD academic training among supervisors. This qualification profile reinforces the academic legitimacy of the respondent pool and supports the validity of their insights on supervisory practices, challenges, and capacity development needs.

Table 7

Participants' Supervision Experience (in Years)

Supervision Experience: (in Years)	Frequencies	Percentage
Less than 5 Years	80	17.8%
5 to 10 Years	243	54.1%
11 to 15 Years	75	16.7%
16 to 20 Years	49	10.9%
21 and above Years	2	0.5%
Total	449	

Years of supervisory experience offer valuable insights into the maturity of supervisory practices, the evolution of academic mentorship, and the professional development needs of faculty. More experienced supervisors may have developed strategies to navigate institutional and interpersonal challenges, while those with fewer years may face more uncertainty and require targeted training and support. Table 9 data shows that the majority of participants (54.1%) have 5 to 10 years of supervisory experience, indicating that most respondents are in the mid-career phase of their supervisory responsibilities. This group likely balances a blend of practical experience and ongoing learning needs, making them an important target group for professional development interventions. 17.8% of respondents reported less than 5 years of experience, suggesting a significant cohort of early-career supervisors who may require structured mentoring and support systems to enhance their supervisory effectiveness. Meanwhile, 16.7% have 11 to 15 years of experience, and 10.9% reported between 16 to 20 years, representing more seasoned faculty members with substantial experience in guiding postgraduate research. Only 0.5% of the respondents had over 21 years of supervisory experience, indicating that very long-term supervision veterans are underrepresented in this study.

Effective Supervision Skills of PhD Supervisors

Effective supervision lies at the heart of successful postgraduate education. This section examines the perceptions of respondents regarding the supervisory competencies of university faculty engaged in guiding MPhil and PhD research in Pakistan, particularly in Balochistan. The indicators assessed include supportiveness, mentorship, feedback provision, communication, time management, problem-solving, and relationship-building—core elements of high-quality academic supervision. The findings, presented in Table 10, show an overwhelmingly positive response from participants, suggesting a general satisfaction with the quality of supervision received.

Table 8

Testing of Effective Supervision Skills

S.No.	Statement	Agree	Neutral	Disagree	Mean	Std. dev
1	Our university supervisors provide full support to their students.	98.7%	0.9%	0.4%	1.018	0.162
2	Supervisors try to understand how the student prefers to work.	98.7%	1.3%		1.013	0.114
3	Supervisors not only assign the work to the students but are also fully involved in the work.	94.7%	3.5%	1.8%	1.071	0.318
4	Our supervisors use advanced problem-solving techniques with a flexible attitude in unexpected situations.	96.2%	2.0%	1.8%	1.055	0.296
5	Our university supervisors divide their time between different research tasks.	97.1%	1.6%	1.3%	1.042	0.258
6	Our university supervisors divide their time between different research tasks.	96.5%	2.2%	1.3%	1.049	0.270
7	Supervisors provide constructive criticism and prompt feedback on their students' work.	96.3%	2.7%	1.1%	1.049	0.262
8	Effective supervision results in supervisors providing appropriate direction and structure to their students' research projects.	98.7%	1.1%	0.2%	1.015	0.140
9	Our supervisors have the ability to set deadlines for students, challenge them and apply a little pressure when needed.	96.0%	3.1%	0.9%	1.049	0.253
10	One of the strengths of our supervisors is that they are Approachable and work to build good relationships with their students.	98.7%	0.9%	0.4%	1.018	0.162

The findings presented in Table 10 indicate a strong consensus among respondents on the presence of effective supervisory practices within their institutions. An overwhelming majority of participants agreed that supervisors are actively engaged, supportive, and competent in mentoring postgraduate students. This aligns with the broader literature on the critical role of supervisors in shaping research outcomes, ensuring academic success, and nurturing scholars' intellectual growth (Lee, 2008; Wisker et al., 2021). The highest levels of agreement were recorded for statements regarding supervisors' supportive behavior (98.7%), adaptability to student learning styles (98.7%), and provision of research structure and direction (98.7%). These findings reinforce the argument that effective supervision is multidimensional, requiring not only technical expertise but also emotional intelligence, interpersonal flexibility, and pedagogical insight (Abiddin et al., 2011; Pyhältö et al., 2012).

The results also suggest that supervisors in Pakistani universities—particularly in Balochistan—are fulfilling both instrumental and psychosocial functions, as theorized by the seminal work of Anderson and Shannon (1988). Instrumental roles involve academic guidance, problem-solving, and deadline setting, while psychosocial support includes relationship building, encouragement, and emotional availability. Statements regarding regular meetings and communication (96.5%), constructive feedback (96.3%), and building good rapport with students (97.4%) are reflective of this dual-role expectation. This high level of perceived effectiveness may be partly explained by the seniority of the respondent group, as over 93% were Associate Professors or Professors, as shown in Table 7. Senior faculty often have the experience, confidence, and institutional positioning to provide quality supervision and mentorship (Gardner, 2008). Additionally, the predominance of faculty with PhDs (95.4%) and mid-career supervisory experience (5–15 years) strengthens the credibility of these supervisory practices.

However, it is important to interpret these findings within the context of institutional variance. Although the overall results are positive, the slightly lower agreement levels and higher standard deviations on items related to task involvement (S3) and problem-solving under pressure (S4) may indicate pockets of variability in supervision quality. This could reflect inconsistencies in workload distribution, institutional support mechanisms, or supervisor-supervisee compatibility—factors identified in other studies as potential barriers to effective supervision (Ali et al., 2016; Abbas, 2019). Furthermore, Lee (2008) framework of supervisor identities—categorized as director, supporter, coach, facilitator, and friend—provides a useful lens through which to interpret these results. The participants' responses suggest that most supervisors operate in a hybrid role that incorporates direction, support, and mentoring, with a clear emphasis on relational and affective aspects of supervision.

The implications of these findings are significant. In a region like Balochistan—where higher education institutions face resource limitations, political marginalization, and underdeveloped research cultures—the presence of effective supervision practices represents a major strength and opportunity for institutional growth. It highlights the importance of sustaining and scaling professional development programs, mentorship training, and performance feedback systems to ensure that supervisory excellence is maintained and extended to less experienced faculty.

Competency of the Supervisors Related to their Subject

Subject-matter expertise is a foundational component of effective postgraduate supervision. Supervisors must not only be well-versed in the core concepts of their discipline but also possess current, research-informed knowledge that enables them to guide students through complex academic inquiries, emerging methodologies, and scholarly publishing expectations. Table 11 presents a focused analysis of respondents' perceptions regarding supervisors' disciplinary competence, particularly in relation to research relevance, scholarly output, and topical expertise.

Table 9

Subject Related Ability

S.No.	Statement	Agree	Neutral	Disagree	Mean	Std. dev
11	Lack of proper knowledge of the relevant subject also creates problems for us.	97.8%	2.0%	0.2%	1.024	0.168
12	The absence of research papers on the research topic to be supervised creates difficulties in the supervisor's work.	96.3%	2.4%	1.3%	1.051	0.274
13	Non-publication of research papers in impact factor or reputed journals raises questions about the competence of our supervisors.	97.3%	2.2%	0.4%	1.031	0.198
14	The expertise of our supervisors can be gauged from their research references.	97.1%	2.7%	0.2%	1.031	0.186

Table 11 data indicate a very high level of agreement (96–98%) with all statements, suggesting that supervisors' academic authority and research productivity are closely linked to their perceived competence. These findings are consistent with earlier literature emphasizing that strong disciplinary knowledge and a proven research track record enhance supervisory credibility and student trust (Lee, 2008; Abiddin et al., 2011). The statement with the highest agreement (97.8%) affirms that "lack of proper knowledge of the relevant subject creates problems." This reinforces the idea that supervision is not merely administrative but intellectually demanding, requiring supervisors to be immersed in current debates, methodologies, and publication trends within their field (Wisker et al., 2021). When supervisors are not adequately informed about the student's research area, it can lead to misaligned feedback, poor

topic development, and demotivation among scholars (Ali et al., 2016). Furthermore, 96.3% of respondents acknowledged the difficulty caused by a lack of prior research papers on the topic to be supervised. This underscores the importance of a research-informed supervision model, where supervisors are expected to publish and stay updated on the latest developments in their specialty. The absence of such scholarly engagement can hinder students' ability to frame original contributions and access relevant literature (Gardner, 2008; Pyhältö & Keskinen, 2012).

The concern about non-publication in impact factor or reputable journals (agreed by 97.3%) suggests that students associate their supervisor's academic legitimacy with their research visibility and publishing profile. This aligns with international literature that links the quality of supervision to research output, highlighting that supervisors with strong publishing records often set higher standards, connect students to academic networks, and model scholarly productivity (Deuchar, 2008; Elgar, 2003). Lastly, 97.1% of respondents agreed that a supervisor's research references are a key indicator of expertise. This sentiment suggests that students view academic referencing and citation practices as proxies for intellectual leadership and supervisory preparedness. As Pyhältö, and Keskinen (2012) note, subject expertise must translate into actionable supervision—through topic selection, proposal development, and critical evaluation of student work.

Determining Supervisor' Concerns Regarding Institutional Policies & Resources

Determining the poor supervision can result from the different factors which are inadequate training, lack of communication skills, micromanagement, lack of accountability, favoritism, provide unclear feedback.

Table 10

Institutional Policies and Resources

S.No.	Statement	Agree	Neutral	Disagree	Mean	Std. dev
47	Adequate funds are not available for research at our universities.	97.1%	2.4%	0.4%	1.033	0.202
48	The research output of faculty members is affected by a lack of institutional support, feedback, and motivation.	98.0%	1.3%	0.7%	1.026	0.198
49	The absence of research culture in the institutions, in general, is the biggest hindrance to the research process.	97.1%	2.4%	0.4%	1.033	0.202
50	The research resources provided by the institution (such as a library, internet, plagiarism and data analysis software, etc.) are insufficient for ~~me~~ us and our research students.	94.7%	4.4%	0.9%	1.062	0.275
51	Institutions have long procedures for research requirements that affect the supervisory process of supervisors.	96.5%	2.4%	1.1%	1.046	0.258
52	Non-payment of review fees by the university administration after the submission of theses by PhD students is a major problem for supervisors.	97.6%	2.4%		1.024	0.154
53	Institutional policies regarding the inclusion and selection of research co-supervisors also create difficulties for supervisors.	96.7%	3.1%	0.2%	1.035	0.196
54	Limitations in the selection of research topics also affect supervisors in the research process.	95.6%	3.8%	0.7%	1.051	0.248

S.No.	Statement	Agree	Neutral	Disagree	Mean	Std. dev
55	The number of PhD researchers also prevents supervisors from conducting exemplary research.	95.8%	4.2%		1.042	0.201
56	Barriers to conducting various research programs (E.g., workshops, seminars, training sessions, etc.) in their universities also affect the ability of students to innovate in non-traditional ways.	97.8%	2.0%	0.2%	1.024	0.168
57	PhD supervisors face an increasing administrative workload.	96.7%	2.7%	0.7%	1.040	0.227

Institutional policies, resource availability, and administrative systems play a pivotal role in shaping the quality and consistency of postgraduate research supervision. As highlighted in Table 12, respondents expressed an overwhelming level of agreement with statements outlining institutional constraints that hinder the supervision process. These findings suggest that despite supervisors' individual competencies, systemic and structural limitations are major barriers to delivering effective, high-quality research guidance. The most pressing concern, agreed upon by 97.1% of respondents, was the lack of adequate research funding, followed closely by 98.0% agreeing that a deficiency in institutional support, motivation, and feedback mechanisms adversely affects faculty research output. These findings mirror the broader literature from developing contexts, where underfunding of higher education institutions results in limited access to research grants, infrastructure, and professional development (Elgar, 2003; Gardner, 2008). Similarly, the absence of a research culture within institutions—also cited by 97.1% of respondents—is seen as a major impediment to scholarly activity. This aligns with findings by Abbas (2019), who emphasize that in many Pakistani universities, particularly in underserved regions like Balochistan, research is often undervalued in favor of teaching and administrative duties. Without an institutional ethos that prioritizes inquiry, innovation, and publication, even well-qualified supervisors may struggle to model scholarly excellence for their students.

Another frequently cited concern was the insufficiency of institutional research resources, such as libraries, internet access, data analysis tools, and anti-plagiarism software, which received 94.7% agreement. These limitations compromise both supervisor and student performance by restricting access to the latest literature, tools, and knowledge production methodologies (Wisker et al., 2021). Lack of resources has a ripple effect: when supervisors cannot support students in data analysis, referencing, or methodological refinement, the quality and originality of research declines, leading to delayed completions or sub-par theses. Additionally, administrative and procedural delays pose a significant challenge. For example: 96.5% noted that lengthy internal procedures for research approvals negatively affect their supervision. 97.6% reported non-payment of review fees as a demotivating factor. 96.7% raised issues with institutional co-supervisor policies, which may limit the flexibility needed to involve relevant expertise. These findings reflect persistent bureaucratic hurdles in Pakistani universities, where rigid protocols and inefficiencies erode the research experience (Khattak, 2022). When institutions fail to streamline research procedures or compensate timely for supervisory tasks, faculty may become disengaged, which undermines their ability to mentor proactively (Ali et al., 2016).

Furthermore, limitations in research topic selection (95.6%) and an overwhelming number of supervisees per supervisor (95.8%) were also highlighted as critical barriers. These concerns echo the concerns of supervisory overload, a problem identified globally, particularly in systems where performance metrics emphasize quantity over quality (Halse & Malfroy, 2010; Lee, 2008). Supervisors managing excessive numbers of PhD students are often unable to provide timely and individualized feedback, which compromises the depth of supervision. Importantly, 97.8% of respondents stated that barriers to organizing workshops, seminars, and research training programs affect

students' ability to engage with non-traditional and innovative research approaches. Without exposure to interdisciplinary forums and peer-led knowledge sharing, students may lack the critical thinking and creativity needed for advanced research. Moreover, 96.7% noted an increasing administrative workload, suggesting that supervisors are burdened with non-academic responsibilities, leaving limited time for mentorship and intellectual engagement.

Hypotheses Analysis

Logistic Regression is a statistical method used for modeling a binary outcome, where the dependent variable can take one of two possible values, typically coded as 0 and 1. It's a type of regression analysis where the outcome is categorical and is widely used in various fields such as medicine, social sciences, marketing, and more. Binary outcome the dependent variable is binary, and it can represent the presence or absence of a disease (1 = agreed, 0 = disagreed). Logit Function is the logistic regression model estimates the probability that dependent variable belongs to a particular category (e.g., 1) using the logistic (sigmoid) function. The model uses the logit transformation of the probability to linearize the relationship:

Table 11

Logistic Regression Model

Variables	Male	Female	Public	Private
Testing of effective supervision skills	Odds ratio (P>z)	Odds ratio (P>z)	Odds ratio (P>z)	Odds ratio (P>z)
Subject Related Ability	17.745 (0.015)	-0.056 (0.015)	0.142 (0.001)	-7.063 (0.001)
Competencies of postgraduate scholars	20.492 (0.086)	-0.049 (0.086)	6.820 (0.022)	-0.147 (0.022)
Institutional Policies and Resources	0.023 (0.064)	0.084 (0.092)	1.335 (0.096)	0.809 (0.831)
Policies of Higher Education Commission (Pakistan)	0.676 (0.059)	0.296 (0.024)	9.334 (0.027)	0.749 (0.096)
Prob > chi2	0.0003	0.000	0.005	0.005
Pseudo R2	0.2189	0.219	0.236	0.236

Table 13 shows Subject-Related Ability for male supervisors, subject-related ability emerged as a strong and statistically significant predictor of effective supervision (OR = 17.745; p = 0.015), suggesting that expertise in one's academic field dramatically enhances the perception of supervisory effectiveness. In contrast, the odds ratios for female supervisors and those working in private universities were negative, though still statistically significant. This inverse relationship may reflect complex or context-specific interactions, potentially linked to factors such as limited access to publication opportunities, fewer institutional incentives for research, or systemic biases that affect recognition of female faculty expertise. Among public university supervisors, subject-related ability remained a significant predictor (OR = 0.142; p = 0.001), though the odds ratio was substantially lower, possibly reflecting challenges related to bureaucratic workload, limited autonomy, or an overburdened supervisory structure.

The competencies of postgraduate students also significantly influenced perceptions of supervisory effectiveness. For male supervisors (OR = 20.492; p = 0.086) and public university supervisors (OR = 6.820; p = 0.022), supervisee preparedness, academic skills, and research capacity strongly contributed to positive supervisory outcomes. In contrast, female supervisors and those in private institutions showed negative but statistically significant odds, which may indicate that supervisors in these contexts encounter greater challenges in student motivation, academic readiness, or institutional alignment. These results suggest that supervisory effectiveness is not solely a function of faculty input but also depends on the competence, autonomy, and engagement level of the students themselves.

Institutional support structures, while widely acknowledged as important, did not emerge as statistically strong predictors of effective supervision in any subgroup. Nevertheless, the coefficients for male and public university supervisors approached significance, suggesting that resource availability—although necessary—is not independently sufficient to determine perceived supervisory success. Notably, public university supervisors recorded the highest odds ratio (OR = 1.335), indicating a weak but positive association between institutional support (e.g., access to libraries, software, and research funding) and supervisory effectiveness. This implies that supportive infrastructure must be paired with enabling institutional culture and academic autonomy to yield meaningful supervisory outcomes.

HEC policy clarity and alignment were significant predictors in two subgroups. For female supervisors (OR = 0.296; p = 0.024), reliance on external regulatory frameworks appeared to support their supervisory function, possibly by offering legitimacy, procedural clarity, or a safeguard against institutional inequities. In public universities, HEC policies had the strongest effect (OR = 9.334; p = 0.027), suggesting that national-level guidelines play an instrumental role in shaping supervisors' confidence and adherence to supervisory standards. This finding highlights the importance of coherent national supervision policies and their integration into institutional practices.

All logistic regression models yielded statistically significant Prob > chi² values (p < 0.005), indicating that the models are reliable in predicting the binary outcome of perceived supervisory effectiveness. The Pseudo R^2 values, ranging from 0.219 to 0.236, represent modest explanatory power—typical of behavioral and social science research where multiple latent variables and contextual factors influence outcomes. These values support the validity of the models while acknowledging the need to explore additional dimensions such as emotional intelligence, department-level culture, and workload balance.

The logistic regression analysis confirms that subject-related expertise, student competencies, and supportive institutional structures, particularly policies of the Higher Education Commission, significantly influence perceptions of supervisory effectiveness. The relationships vary across gender and institutional types, underscoring the need for nuanced, context-responsive policy and practice reforms. These findings call for: (1) tailored capacity-building programs for diverse faculty demographics, (2) institutional reforms to streamline resources and research support, and (3) the effective integration of HEC supervisory guidelines into daily academic operations.

Conclusion and Policy Implications
Conclusion

This study set out to explore the professional development needs, challenges, and institutional barriers faced by PhD supervisors in Balochistan, Pakistan, using a mixed-methods approach grounded in both constructivist and positivist paradigms. Through structured questionnaires and semi-structured interviews with 453 supervisors across public and private universities, the study examined key dimensions of supervision including subject-related ability, supervisory skills, institutional policy support, and student competencies.

The findings reveal that while supervisors generally demonstrate strong commitment, subject expertise, and relational skills, their efforts are significantly constrained by systemic institutional issues. A high proportion of respondents expressed satisfaction with supervisors' involvement, communication, and feedback mechanisms—hallmarks of effective supervision. However, logistic regression analysis confirmed that perceived effectiveness is strongly influenced by supervisors' academic subject knowledge, student preparedness, and the availability of institutional resources and policies—particularly those set by the Higher Education Commission (HEC).

The study also found critical disparities based on gender and institutional affiliation. Male and public-sector supervisors reported stronger associations between subject expertise and perceived supervision quality, while female and private-sector supervisors often faced systemic limitations such as lack of research funding, fewer publication opportunities, and inadequate institutional backing. Supervisors across all groups highlighted issues

such as administrative burden, procedural delays, lack of training, and insufficient research infrastructure as serious constraints to fulfilling their roles.

Taken together, these findings highlight a pressing need to move beyond the assumption that supervisory capacity arises naturally with academic rank or research qualifications. Instead, effective supervision must be intentionally developed and institutionally supported, particularly in underserved regions like Balochistan where academic isolation, policy gaps, and limited resources compromise both supervisor and student potential.

Policy Implications

Based on the findings, the study proposes the following policy-level and institutional recommendations to enhance the professional development and effectiveness of university supervisors:

1. **Institutionalize Supervisor Training and Certification:** The Higher Education Commission (HEC) should introduce mandatory training and certification programs for PhD supervisors, covering both academic mentoring and interpersonal skill development. These trainings should be periodically renewed and include modules on research ethics, student engagement, conflict resolution, and digital supervision tools.

2. **Strengthen Subject-Matter Alignment in Supervisor Assignment:** Universities must ensure that supervisors are matched with students based on direct subject expertise and recent research engagement. Supervisory assignments should be monitored by quality assurance cells to avoid mismatch and ensure scholarly relevance.

3. **Address Research Infrastructure Gaps:** HEC and provincial education departments should invest in basic and advanced research infrastructure at universities, including access to academic journals, plagiarism and data analysis software, digital libraries, and research grants. Research excellence cannot be fostered without enabling environments.

4. **Reform Institutional Procedures and Reduce Administrative Load:** Long-winded bureaucratic procedures for approvals, thesis reviews, and funding disbursements must be streamlined and digitized. Simultaneously, administrative workload on PhD supervisors should be reduced so they can focus on mentorship and research quality rather than paperwork and compliance.

5. **Make Supervisor Workload and Student Ratios Transparent:** Policies should limit the number of active MPhil/PhD supervisees per faculty member to ensure quality over quantity. Institutions should regularly audit supervisory loads and enforce upper thresholds based on research output and faculty rank.

6. **Create Incentives for Research Output and Engagement:** Supervisors should be rewarded through financial incentives, workload reductions, and promotion credits for timely student graduations, publications in indexed journals, and active mentorship. A performance-based incentive model would motivate supervisors to engage more deeply.

7. **Address Gender Inequities in Supervisory Roles:** Policies must be tailored to support female faculty, particularly in conservative regions, through mentorship networks, reduced non-academic burdens, and access to leadership roles in research governance. Gender-sensitive supervision frameworks should be developed and institutionalized.

8. **Promote a Culture of Research and Innovation:** Universities must shift from teaching-centered to research-driven cultures by regularly organizing research seminars, student-led conferences, and supervisor-led workshops. Supervisors should be empowered to innovate and encourage cross-disciplinary inquiry among their students.

Final Remarks

By capturing the lived experiences and systemic concerns of supervisors across a wide academic landscape, this study offers evidence-based insights into the current state of doctoral supervision in Balochistan and beyond. If Pakistan's higher education sector is to meet global standards and contribute meaningfully to national development, the professionalization of supervision must become a central policy and institutional priority.

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