

THE EXPERIENCES OF REGISTERED NURSES WORKING IN RURAL PUBLIC PRIMARY HEALTH CENTRES OF DISTRICT BAJAUR, KPK, PAKISTAN: A QUALITATIVE STUDY

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Abstract

Introduction/ Background

Primary healthcare centers play a significant role in improving the access to health and sufficiently equipping these facilities is important for proper functioning of these centers. This could be identified through teams working in these settings. This research navigated it through nurses being the core members in the team.

Objective

Aim was to explore the challenges experienced by the registered nurses providing health care services to patients at the rural primary health care facilities in district Bajaur, Pakistan.

Methodology

Qualitative descriptive exploratory research design was employed in this study and the research setting was three public primary hospitals in district Bajaur Khyber Pakhtunkhwa, Pakistan. The population was registered nurses who had more than one year of experience at the primary healthcare facilities. Twelve participants were selected through a purposive sampling method. Semi structure in-depth interviews conducted in-person were audio recorded and were analyzed through content analysis into different themes.

Results

Challenges experienced by nurses was the theme with five sub-themes (i) shortage of workforce and other resources, (ii) patient care and clinical challenges, (iii) security and safety concerns, (iv) climate change, and (v) strategies to improve primary healthcare. Each of these sub-themes had corresponding categories.

Conclusion

In Pakistan, particularly in Khyber Pakhtunkhwa, the primary healthcare system remains significantly underdeveloped. The government must prioritize the establishment and

improvement of primary health setups on an urgent basis, ensuring that essential healthcare services are readily available for the communities. It is imperative to invest in infrastructure development, safety and security measures, and increase the healthcare workforce.

INTRODUCTION

This chapter introduces the explorative descriptive study titled 'The Experiences of Registered Nurses Working in Rural Public Primary Health Centre's of District Bajaur, KPK, Pakistan'. This chapter comprises seven sections, the first section starts with providing a background of the topic, which gives an overview of the district Bajaur, the primary health care, then it covers the global health patterns in rural regions, a nurse's role in delivering primary healthcare, and challenges in delivering primary healthcare in rural areas. It also covers the problem statement, the researcher's reflection, the purpose of the research study, the research questions, the significance of the study, and the definitions of the key terms. It ends after providing a summary of the chapter.

The Background

Bajaur is one of the districts in Khyber Pakhtunkhwa province of Pakistan. It is located in the northwest region of Pakistan, bordering Afghanistan's Kunar province to the east, bordering Dir district on the Northeast; Utman Khel is located in the southeast; tehsil Mamund is in the southwest; and Tarkani is situated towards the north. It has seven tehsils residing in Utman Khel and Tarkani tribes with subtribes like Mamund, Salarzai, Kakazai and Wur (Ullah et al., 2021). Moreover, Bajaur has two subdivisions: Khar and Nawagai (Rehman, 2019). The district is known for its rugged terrain, mountains, and valleys. Until 2018, it was an agency of the federally administered tribal areas. According to a report published in 2023, the entire population of the district Bajaur is 1.2 million and predominantly Pashtuns (Ali, 2023).

Furthermore, agriculture is a significant part of the local economy in Bajaur. The residents engage in farming, primarily growing crops like wheat, maize and barley. Access to healthcare and education services in remote areas like Bajaur has historically been limited.

There is one secondary hospital (DHQ Khar) and three primary category D hospitals (Mamund, Nawagai, & Pashat) in the district of Bajaur. Besides these hospitals, there are basic healthcare units and community health centres at the community level.

Global Health Pattern in Rural Areas

In global healthcare, primary health centres, particularly in rural regions, have a critical role in providing equal access to vital health services. These regions have tiny villages separated by long distances, with local economies dependent on farming, fishing, extraction of resources (mining, forestry), and tourism. However, rural populations, comprising half the global population, face challenges like limited healthcare access, health disparities, and unequal healthcare personnel distribution, leading to worse work conditions (Franco et al., 2021a). Similarly, according to another study, rural populations often have restricted access to healthcare because of a shortage of healthcare workers to meet their demands (Strasser & Strasser, 2020).

According to the World Health Organization, over half of the world's population lives in remote and rural areas, supported by only 38% of the nursing professionals and less than 25% of the medical personnel. Thus, the inadequate distribution of healthcare professionals in different geographical areas presents a hurdle in the pursuit of universal healthcare (Oliveira et al., 2020a).

In Pakistan, there is an unequal distribution of healthcare resources between rural and urban areas (S. J. Khan et al., 2023a). Urban residents have better access to healthcare in comparison to those residing in rural areas like the Federally Administered Tribal Areas (Khan & Hussain, 2020). In such regions, people face significant challenges in accessing modern and high-quality healthcare services resulting in widespread difficulties in obtaining adequate medical care (S. Shah et al., 2020). Likewise, the residents of rural areas typically encounter poorer health outcomes in comparison to those living in urban areas. Similarly, they experience a greater burden of non-communicable illnesses like diabetes, hypertension, stroke, kidney disease, and chronic obstructive pulmonary disease, face restricted availability of healthcare services, and encounter shortages of specialised medical care (Bain & Adeagbo, 2022).

Moreover, primary healthcare is the first point of contact for patient care, demanding changes to satisfy the expanding demands of public health (Abdullah et al., 2020). Primary health care is recognised as the most comprehensive,

equitable, and cost-effective approach within the healthcare systems for meeting individuals' health needs, including wellness promotion, disease prevention, rehabilitation, treatment, and palliative care, thereby facilitating universal health coverage (E. WHO, 2023). Therefore, the value of primary health centres cannot be underscored in nations like Pakistan, where 64% of the population lives in rural areas (Janssen, 2024).

In the context of Pakistan, primary health care has a major role in providing health care access. According to the World Health Organisation, Pakistan's healthcare system consists of 1201 hospitals, 5518 Basic Health Units, 683 Rural Health Centres, 5802 Dispensaries, 731 Maternity and Child Health Centres, and 347 tuberculosis centres. These facilities collectively offer a total of 123,394 beds for patient care (E. WHO, 2024b).

Nurses' Role in Delivering Primary Healthcare
Nurses are considered the backbone of modern, high-quality healthcare systems around the world (Khowaja-Punjwani, 2020). Moreover, in remote regions, nurses are the frontline healthcare providers, having a critical role in providing important health services in rural primary health centres (Soesanto et al., 2022). Similarly, they provide individualised care, promoting health, empowering communities, and fostering engagement (McCullough et al., 2023).

Furthermore, a research study has reported that enhancing the availability of high-quality healthcare is crucial for eradicating inequalities in healthcare and enhancing health results. However, to attain this goal, efforts must be expanded not only locally and at the provincial level, but also globally to identify and improve the institutions and social structures that contribute to such inequities. Over the next ten years, nurses can contribute to a change in the health equity landscape by taking on new responsibilities, collaborating with communities and other sectors outside of the medical field and working in novel ways and settings (Wakefield et al., 2021).

Notably, many professionals, both within and beyond healthcare settings, are already involved in this endeavor to guarantee equal access to care. Thus, in healthcare settings, nurses play a critical role in organising care for patients and supporting their families as well as providing

person-centred care for a range of health needs, including preventative, acute, and chronic care. Additionally, through their participation in public health and community-based roles, they contribute to the promotion of public and community health by working with social services to meet patients' social needs. Thus, the role of nurses in these initiatives is essential.

Furthermore, nurses have a significant role in helping individual and community health care access with high quality, especially when they provide service and care to the underprivileged community in urban and rural areas (Wakefield et al., 2021). For example, nurses' behaviours related to health-promoting lifestyle highly affect the patients' beliefs and behaviours towards health improvement (Zeng et al., 2021).

The Challenges in Delivering Primary Healthcare

Healthcare delivery in rural primary health centres often faces challenges like geographical conditions, inadequate working environment, emotional and financial impacts of being apart from family, and working long hours (Manda et al., 2023). For example, according to a study conducted in South Africa, the key public health system concerns are workforce shortages, budgetary issues, compliance with standards of quality, efficient

administration techniques, and the equitable distribution of necessary healthcare resources (Malakoane et al., 2020). Similarly, the healthcare system in Pakistan encounters challenges such as inadequate funding, a shortage of healthcare professionals and facilities, a limited emphasis on preventive healthcare, and unequal distribution of resources (Khan et al., 2023b). Moreover, according to the Ministry of Nation Health Services Regulation and Monitoring, Pakistan's health sector confronts notable challenges, including a deficit of nurses, midwives and lady health workers, unequal geographical distribution of healthcare workforce between urban and rural, poor job satisfaction and work environment, and out-migration (HRH, 2018-30).

The Problem Statement

In rural primary health centres in the District Bajaur, KPK, Pakistan, registered nurses face several challenges that limit their ability to

provide optimal healthcare services to the local people. These problems are multifaceted, ranging from inadequate infrastructure and restricted resources to staffing shortages, cultural hurdles, security issues and geographical isolation. Moreover, despite their critical position in the healthcare system, there exists a lack of an in-depth understanding of the diverse experiences, challenges, and facilitators that registered nurses face in this particular environment. This knowledge gap impedes not only the efforts to improve healthcare delivery but also undermines initiatives aimed at enhancing overall health outcomes in the region.

Consequently, the lack of thorough understanding of the day-to-day reality faced by registered nurses in rural Bajaur impedes the development of focused interventions to address their needs and improve their effectiveness in providing treatment. Furthermore, the influence of these problems extends beyond the professional domain, thereby influencing registered nurses' work satisfaction, mental health, and retention rates. As a result, there is an urgent

need to conduct a qualitative study that explores thoroughly the experiences of registered nurses working in rural primary health centres in the District Bajaur, KPK.

This study used qualitative research methodology, in-depth interviews were conducted, to uncover the complexities of the challenges faced by registered nurses, as well as identify potential facilitators that contribute to their resilience and effectiveness in providing care according to the available resources. Moreover, the findings of this study will serve as a foundational framework for informing evidence-based interventions and policy initiatives designed to improve the working environment for registered nurses and the quality of healthcare services provided to underserved populations in rural Bajaur.

To conclude, by addressing these issues at the level of their source, this study hopes to contribute to the improvement of healthcare delivery and the promotion of better health outcomes for the residents of the District Bajaur and other rural communities in Pakistan.

Self-Reflection

The researcher, a registered nurse, has worked for around two years in one of the rural public primary health centres in the District Bajaur. During this tenure, he faced a shortage of staff and an unavailability of required resources like limited internet facility, as people were using mobile data services for internet which was unreliable due to poor network coverage.

In addition, interruptions to electricity supply were common, as according to a study, the load shedding of 20 to 22 hours per day in merged districts is quite common (UNDP Pakistan, 2021). Moreover, there was also lack of medical equipment and medicine to provide adequate care to patients. Additionally, as the healthcare setting is situated on the border with Afghanistan, a region on high alert, there are frequent issues related to security and transportation, especially during night shifts. Furthermore, the weather in Bajaur is extreme. The winter season lasts from November to March, bringing harsh low temperatures and freezing conditions (Ullah et al., 2023). Additionally, the opportunities for professional development and continuous training are fairly limited.

The Study Purpose

This research study aims to explore the experiences and importance of Registered Nurses (RNs) working in rural public primary healthcare in the district Bajaur, Khyber Pakhtunkhwa, Pakistan. The study also highlights the challenges faced by RNs in delivering care in public primary health centres in the district Bajaur, KPK.

The Research Questions

The following research questions guided the course of the research:

1. What are the experiences of registered nurses working at rural public primary health centres in District Bajaur, KPK?
2. What are the challenges encountered by registered nurses working in rural public primary health centres in District Bajaur, KPK?

The Significance of the Study

The current study conducted in the primary health centres of the tribal remote region of Bajaur where there is a lack of advanced technological resources. Thus, nurses confront a lot of challenges while providing care to the population. The role of nurses in such regions is a challenging one.

Moreover, understanding nurses' experiences can aid in adapting healthcare services according to the unique demands of the local community. This may result in more community-oriented and culturally sensitive care which can enhance health outcomes.

Therefore, the current study explored the experiences of nurses and the challenges they face while caring for patients. Hence, the study aimed to find a reasonable solution to the challenges faced by esteemed nurses working in such less developed districts. Moreover, an in-depth literature search on the experiences of nurses in Bajaur reveals that there is no such study found on the topic. Thus, this study will fill the gap in the existing literature on nurses' experiences in rural and underserved areas. Additionally, this study will also be the foundation for future research and may help the researchers in identifying challenges faced by nurses working in such tribal areas. Hence, it will contribute baseline data for the administrators, stakeholders and policymakers to know about the strategies that may help nurses to provide easy access to health for their patients. They may identify areas where additional resources like staffing, infrastructure, and equipment's required, to ensure that primary health care centres operate efficiently.

The Key Terms

The following key terms have been used in the study. Given underneath are their definitions:

Chapter Two Literature Review**Introduction**

This chapter provides a detailed critical appraisal of the available evidence of the role of registered nurses and the challenges they experienced in public primary health centres of the district Bajaur. The literature review firstly explains the search strategy, through which different articles were reviewed from different search engines. Then the overview of the primary health care scenario globally and specifically in Pakistan has been shared.

Next, the importance and role of registered nurses in rural health centres, as well as the challenges faced by registered nurses (resource constraints, workload and staffing issues, professional development and training, and sociocultural barriers), working in rural primary health setups have been shared. Towards the end, the research gap has been highlighted and the conclusion has been drawn.

Primary Health Centres

Primary healthcare (PHC) is a healthcare approach that prioritises the needs and circumstances of individuals, families, and communities. It includes a wide range of services designed to promote overall physical, mental, and social health and wellness, such as prevention, treatment, rehabilitation, and palliative care, which are integrated and comprehensive (E. WHO, 2023).

Category D Hospital

A type of health care facility categorised by Khyber Pakhtunkhwa health department that provides primary as well secondary care, having vaccination centres, paediatrics, gynaecology, surgical, medical specialities and also having pathology, dental, radiology and emergency department.

Registered Nurse

A registered nurse is a health care professional who has completed formal education and training in nursing and has obtained licensure from the Pakistan Nursing Council, who works autonomously and collaboratively to promote optimal health for individuals, families, groups, communities and populations.

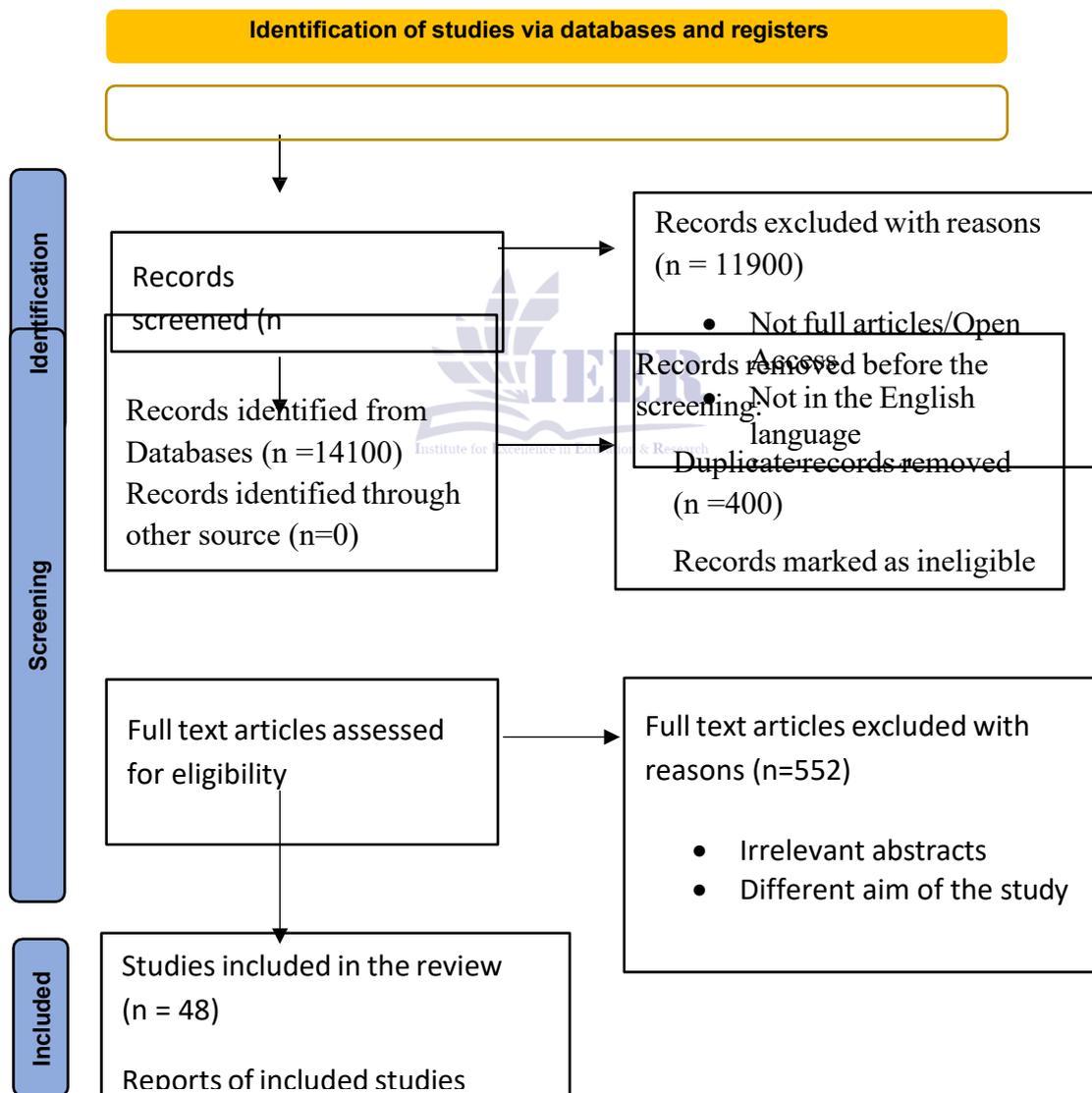
The Summary

This chapter covered an introduction to the topic. It also provided the details of the background of the topic. Next, the study highlighted the global health pattern in rural areas and provided the details of nurses' role in primary healthcare and the challenges in providing healthcare in primary health setups. Moreover, it covered the researcher's reflection, the problem statement, the significance of the study, the study purpose, the research questions and the definitions of the key terms. It ended with a summary of the chapter.

The Search Strategy

The review included a search of literature using electronic databases. These were cumulated index to nursing and allied health literature (CINAHL), PubMed, Science Direct, Google Scholar, and Wiley online library with the assistance of a research librarian. Mesh term and Boolean operators search used for keywords to explore literature in every database in this way: ‘nurses’, AND ‘primary healthcare’ OR ‘nurses’ AND ‘role’ and ‘nurses’ AND ‘challenges’ OR ‘experiences’. Thus, by using the following search techniques, related articles were filtered: For instance, the specific time span of 2014 to 2024 was selected. Moreover, the addition of the term ‘Pakistan’ and other Asian nations was done to include literature from developing countries, such as Pakistan, in the research. Likewise, the full text filter and English language were used for a comprehensive study. Similarly, only review and systemic and full articles were searched in the acquired results of 14100 articles, which were then further filtered in which specific articles were read and cited for this review. To specify, some of the articles were not in English which were also excluded. Finally, 48 articles were selected for the literature review. The details are given in the figure of the PRISMA chart flow diagram:

Figure 2.1. The PRISMA Chart Flow Diagram



Note. Adopted from Moher et al., (2009).

A Review of Relevant Literature to the Research Topic

Table 2.1 provides the details of the publications included in this literature review; it provides the

detail about the authors, the year of publication, and the purpose of the study. Then the study design, the sample size and key findings have been highlighted.

Table 2.1 Literature Review Table

Author Name	(s) Year of Publication	Purpose of Study	Study Design	Sample Size	Key Findings
Bauer and Bodenheimer	2017	This article looks at the difficulties and possibilities of providing basic healthcare in today's society and assesses the chances of registered nurses assuming more responsibilities to enhance quality in primary care.	Peer Review Study	Information not available	In order for RNs to take on a larger role in primary care, they must address barriers including payment reform and nursing education reform.
Abdullah, Abdul Aziz, Sodri, Hanafiah, Ibrahim, and Johari	2020	The aim of this research was to recognise the obstacles and factors that aid in the execution of a novel intervention in primary healthcare centres.	Qualitative study	61	Different settings pose different challenges for implementing the Care Coordinator intervention. This issue is somewhat addressed with cooperation, advice from mentors, and backing from higher-ups.
Alshawish and Naerat	2020	To investigate the prevalence of burnout and psychological	A quantitative,	295	In the current study, 22.7% of Palestinian primary health nurses and midwives were

		distress in primary health care nurses in Palestine	cross-sectional		found to experience psychological distress.
De Oliveira, De Sousa, Alves, De Medeiros, and Alves	2019	The goal of this study was to investigate the satisfaction and difficulties faced by primary health care nurses in rural areas.	Case study qualitative	11	The nurses value their colleagues in the workplace, build strong connections with the community and collaborate effectively as a team despite challenges. The research shows that both nurses and the community feel isolated in rural areas and face challenges getting to work.
Endalamaw, Khatri, Erku, Zewdie, Wolka, Nigatu, and Assefa	2024	This research explored challenges and strategies to improve the healthcare workforce at the global level in primary care settings.	A scoping review	9	The results emphasize the significance of ongoing professional growth, including educating new personnel, utilising successful hiring and retention strategies, improving the range of skills, and enhancing workplace well-being. These factors are crucial for developing a strong and adaptable primary health care staff.
Ferreira, and Dias	2018	To foster contemplation on the impact of nurses in Primary Health Care and the essential elements for rebuilding this	Qualitative study	20	The presentation of conflicts, dilemmas, and relevant aspects of nurses' practice in PHC aids in promoting critical thinking about the work environment

		professional practice, it is important to highlight their importance in providing care for individuals, families, and communities.			and the importance of integrating the profession in the development of its workspace.
Franco, Lima, and Giovanella	2021	The article aims to analyse the existing literature on primary health care in rural areas, focusing on how access to care, organisational structures, and workforce issues affect health outcomes.	Literature review method	69	The integrative review identifies key factors that influence the effectiveness of PHC in rural areas, such as the importance of community engagement, the need for policy support, and the impact of socioeconomic factors.
Vera, Barbosa Merighi, Conz, da Silva, Pinto, and Munoz	2018	The study aims to examine and depict the encounters of nurses working in a primary health care environment. The goal is to comprehend their views, obstacles, and inputs to primary healthcare.	Qualitative research design	13	The study finds that nurses in PHC play a critical role in delivering accessible and effective healthcare services. Their work is characterised by a high degree of complexity and requires a broad skill set.
Gizaw, Astale, and Kassie	2022	The goal of the research is to pinpoint and combine evidence on actions and elements that enhance	Systemic Review. qualitative or mixed method	110	Improving healthcare infrastructure, such as building more health centres and improving transportation networks,

		accessibility to primary healthcare services in rural regions.			significantly enhances access to PHC in rural areas.
McCullough, Bayes, Whitehead, William, and Cope	2022	To explore how nurses in remote areas of Australia provide diverse health care services to isolated communities, requiring formal recognition as specialists.	Constructivist grounded theory	24	In remote areas, nursing requires specialised knowledge and skills not found in any other nursing setting. This research backs up the assertion that remote nursing requires a combination of specific and flexible skills, emphasising the significance of investigating the educational and supportive needs of these nurses.
Kagi, Rasiyah, and Moran	2023	The research sought to explore the experiences of primary healthcare nurses in Western Australia's remote areas as they progress in their careers.	Qualitative, interpretative phenomenological analysis	6	Remote primary healthcare nurses face several challenges, some of which could be alleviated through improved access to local training and increased support from employers and professional groups.
Khan, Asif, Aslam, Khan, and Hamza	2020	The study likely aims to review and analyse the major challenges facing Pakistan's healthcare system.	Literature Review	Information not available	The main issues in the Pakistan Healthcare System include unfair resource distribution, insufficient healthcare funding, lack of preventive

					care adherence, and brain drain.
McCullough h, Bayes, Whitehead, Williams, and Cope.	2021	To investigate how primary health care principles are understood and implemented by nurses employed in the rural regions of Australia.	Constructivis grounded theory methods	Thirteen nurse practitioners and 11 registered nurses	A lack of physical resources, limited specialised health services, and limited time were found to impact the ability of nurses in remote areas to provide primary health care.
Nora, and Beghetto	2020	To recognise the patient safety issues highlighted by healthcare professionals in primary health care.	Scoping review	26	The analysis led to the identification of four categories: difficulties encountered by health professionals; administrative challenges in health services; challenges involving patients and their families; and resources that can improve patient safety.
Norful, Martsolf, Jack, and Poghosyan.	2017	Combining international research on the functions and responsibilities of primary care. RNs provide suggestions on how to enhance the impact of RNs in primary care teams.	Systematic review	18	The existence of licensed nurses in primary healthcare groups has been linked to enhanced patient results, such as improved handling of chronic illnesses and higher patient contentment.
Oliveira, Sousa, Silva, Alves, Diniz,	2020	To explore how nurses in the family health strategy perceive healthcare	A qualitative and exploratory research	11	Nurses working in rural PHC environments frequently assume various



Medeiros, Martiniano, and Alves		for rural populations.			responsibilities, such as providing healthcare, educating, and promoting community health. They play a vital role in delivering thorough and ongoing care to rural communities.
Panezai, Ahmad, and Saqib	2017	The goal is to pinpoint the obstacles confronted by both men and women in obtaining healthcare and suggest methods to enhance fairness in healthcare provision.	Cross-sectional survey	302	The results showed that women utilized primary healthcare services more frequently than men because of their higher healthcare requirements.
Riley, Wilson, Middleton, and Molloy	2024	To investigate the functions rural nurses perform while providing resuscitative treatment to their rural community.	Ethnographic methodology	2 rural hospitals	Obstacles include restricted availability of resuscitation resources, geographical remoteness, and the necessity for quick decision-making in high-pressure situations.
Rose, Skaczkowski, and Gunn	2023	To investigate the rural hospital work experiences of novice registered nurses in Australia and discover methods they believe could boost	Qualitative descriptive design.	13	Newly graduated nurses frequently experience loneliness because of their geographic and professional seclusion in remote regions. The problem is worsened by the lack of mentorship

		job satisfaction and retention.			and peer support available.
Russell, and Humphreys	2016	To recognise and evaluate the distinctive obstacles encountered by small rural communities in obtaining primary healthcare services.	Mixed- methods study	11	The research uncovers a number of specific obstacles faced by small rural areas, such as being isolated geographically, having few healthcare resources, and experiencing shortages in the workforce.
Vera, Merighi, Conz, Silva, Jesus, and Gonzalez	2018	This study focuses on the first-hand experiences of nurses working in PHC settings. The objective is to provide insight into their everyday tasks, challenges, and effects on patient treatment within the PHC system.	Qualitative study	13 primary healthcare nurses	Nurses in primary healthcare have a diverse range of responsibilities, which involve providing direct patient care, offering health education, preventing diseases, and promoting community health. Thus, they are essential for the operation of PHC teams.
Swanson, Wong, Misener, and Browne	2020	The aim of the study was to investigate the participation of Registered Nurses in the partnership between primary care and public health.	A scoping review	23 Articles	Registered nurses play multiple roles in linking primary care and public health. Such as promoting health, preventing disease, coordinating care, and advocating for patients.
Smith, Sim, and Halcomb	2019	To thoroughly evaluate the global research discussing	Integrative review	6	It has emphasised the importance of assisting nurses in

		the experiences of nurses employed in rural hospitals.			rural hospitals with sufficient professional development opportunities and ensuring that staffing and scheduling can be flexible and personalised.
Beks, Clayden, Binder, Keeffe, and Versace	2023	To research literature about assessing nurse-driven care approaches in rural, regional, and remote parts of Australia.	A scoping review	57	The need to establish and evaluate nurse-led and NP-led care models in rural, regional, and remote areas of Australia is essential due to disparities in healthcare workforce distribution and service accessibility.
Panezai, Ahmad, and Saqib	2020	To investigate the factors contributing to the low utilization of primary health care	Thematic analysis	31	Multiple factors contributing to the underutilization of primary health care services. Key reasons included insufficient availability of medications, lack of doctors, inadequate laboratory and diagnostic services.
McFarlan, Judd, Wapau, Nichols, Watt, and Devine.	2018	The study provide insight into how staff at a large north Queensland community controlled health services access skill development and health promotion.	Qualitative exploratory study	09	Participants expressed a strong appreciation for access to skill development, guidance and support that would enhance their health promotion practices.

Moreira, Fontes, and Barboza	2014	To identify difficulties faced by nurses in the men's health context in the primary healthcare	Explorative descriptive research	28	Several challenges faced by nurses, including the absence of male involvement, a lack of self-care behaviour, fears related to their work.
Murphy, Burge, and Wong.	2019	To identify the characteristics of primary health care in rural settings compared to non-rural settings	A scoping review	Information not available	The results indicate significant differences in various aspects of rural primary health care, especially regarding how rural patients access care.
McElroy, Wicking, Harvey, and Yates.	2022	To explore challenges and stressors experienced by remote area nurses	An integrative review	Information not available	Geographical isolation generates challenges through inequality in access to education and professional support, safety risks and vulnerability associated with living in remote areas.
McCullo, Bayes, Whitehead, Williams, and Cope.	2022	To explore rationale for formally recognizing nurses generalist scope of practice as a specialized nursing practice area.	Grounded theory	24	Nurses felt that their clinical knowledge and skills were inadequate for the advanced generalist scope of practice required in remote settings.
Lalani, and Cai	2022	To examine various barriers and facilitators affecting access to palliative care in rural communities	Descriptive qualitative study	15	Barriers to accessing palliative care include misconceptions about it being an underrecognized specialty, a shortage

					of trained providers, insufficient education and training in palliative care
Halcomb, Stephens, Bryce, Foley, and Ashley.	2016	It presented an integrative review of the literature concerning nursing competency for nurses in primary health care.	Integrative review	Information not available	The literature on competency standards for nurses in general practice and primary health care is limited.
Gulzar, Khoja, and Sajwani	2013	To explore the experience of nurses in using eHealth in their daily practices	Mix method	09	The results indicated that eHealth has increased access to healthcare for remote communities and enhanced the quality of healthcare services.
Ghafoor, Yaqoob, Bilal, and Ghafoor	2021	To explore the impact of nurses shortage on patient care	Literature Review	Information not available	Pakistan is facing great challenges regarding the nursing profession and shortage of nurses is at the top of these challenges.
Shi.	2012	To identify research evidence on the value of primary care both in USA and internationally.	Focused review	Information not available	In both developed and developing countries, primary care has been demonstrated to be associated with enhanced access to healthcare services, better health outcomes, and a decrease in hospitalization.

Wright, Jatrana, and Lindsay	2024	To explore remote area nurses experiences of the implementation of workplace health and safety policies and risk mitigation in Australia.	Qualitative study	15	Many clinics implemented never alone policies to mitigate significant risks for remote area nurses, there were still gaps in addressing hazards.
Yeater	2014	To explore successful nurse retention strategies used by rural healthcare leaders.	Qualitative study	08	Three main themes were identified: effective nurse retention incentives, meaningful relationships with leaders, and competitive advantages.
Mamalela, Holzemer, Seloilwe, and Kamiensk	2023	To explore the experiences of registered nurses involved in the transport of emergency patients within rural healthcare facilities.	Qualitative descriptive	26	Ten main themes identified included inadequate knowledge and skills, distressful practice, restricting from making decisions, challenges with staffing
Manda, Silumbwe, Kombe, and Hangoma	2022	To explore the factors influencing motivation and retention of primary healthcare workers in rural health facilities.	Exploratory qualitative study	28	Three main themes identified that are professional development, availability of opportunities for promotion and rural community dynamics.

Mangund, Roets, and Jvan Rensberg.	2020	To present the view of nurses and healthcare providers in rural Zimbabwe concerning the	Cross-sectional survey	535	Nurses reported challenges like work overload due to staff shortages and inconsistent supplies of medications.
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		accessibility of healthcare services.			
Flaubert, Menestrel, Williams, and Wakefield.	2021	To explore the role of nurses in improving healthcare access and quality	Literature Review	Information not available	Nurses play a crucial role in promoting health equity by fulfilling various functions in healthcare delivery, advocating for policy changes and engaging with the community.
Lukewich, Allard, Ashley, Bassler, Lukosius, Klassen, and Tranmer.	2020	To establish consensus on the competency necessary for registered nurses working in primary care in Canada.	A Delphi (consensus) process	137	The study resulted in a comprehensive list of forty seven competency statements organised into six categories that are professionalism, clinical practice, communication, collaboration, quality assurance and leadership.
Cassiani, and Silva.	2019	To explore the significance of expanding nursing roles to address rising demands for healthcare services in Brazil.	Literature review	Information not available	The analysis highlights the vital role nurses can have in transforming primary healthcare in Brazil especially through advanced practice roles.

WHO	2024	To explore primary and secondary care in Pakistan	Annual report on primary care	Information not available	Currently multiple health programmes in Pakistan focus on different health issues, each operating with its own distinct organizational
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					structure at the federal, provincial, district and first level care.
Muhammad , Eiman, Fazal, Ibrahim, Gondal, and Fazal	2023	To explore the healthcare system in Pakistan	Literature review	Information not available	The healthcare system in Pakistan is struggling due to inadequate financial support and infrastructure development.
Smith, Plover, McChesney , and Eileen	2019	To compare nurse education, patient to nurse ratios, nursing skill mix and work environments for nurses based on the degree of rurality.	Cross sectional, comparative and descriptive	566	The patient to nurses ratios differ among rural and urban settings, the nursing skill mix was lower in rural hospitals.
WHO	2018	To explore the expanding roles of nurses in primary healthcare	World health organization report	Information not available	Granting graduate primary health care nurses more responsibility and autonomy will enhance access to quality care in underserved and resource constrained regions.

Primary Health Care

Primary healthcare serves as the initial access point for patient treatment, demanding changes

to satisfy the expanding demands of public health (Abdullah et al., 2020).

Moreover, primary health care is the first level of care that includes various activities at the individual and community levels, focusing on promoting and protecting health, preventing diseases, diagnosing and treating illnesses, and maintaining overall well-being (Ferreira et al., 2018). Furthermore, primary health care is seen as the base of healthcare systems around the world, acknowledged for its capacity to provide affordable, fair, and top-notch healthcare services (Murphy et al., 2019).

Similarly, a research in Ethiopia indicated that improving primary healthcare is the top, reliable, and efficient method to boost the overall health and well-being of individuals, both physically and mentally. Meanwhile, primary healthcare plays a vital role in establishing a sustainable healthcare system in order to reach universal health coverage and achieve

health-related sustainable development goals (Gizaw et al., 2022).

Furthermore, research carried out in the United States suggests that individuals living in rural areas experience a greater occurrence of chronic diseases such as heart conditions, cancer, unintentional injuries, chronic lower respiratory diseases, and strokes in comparison to those in urban areas, as shown by the higher mortality rates in non-urban or rural regions (39.2%) as compared to urban areas (30.9%) (Lalani & Cai, 2022).

Similarly, a research study conducted in Zambia found that rural areas have the most significant healthcare requirements but also experience the most severe shortage of healthcare professionals, leading to difficulties in providing quality care and retaining healthcare workers in those settings (Manda et al., 2022). Moreover, another study in Brazil suggest that rural areas in many countries struggle with transport and communication challenges, disparities in healthcare funding, and limited and unevenly distributed healthcare workers, resulting in poor working conditions (Franco et al., 2021b). In addition, a study conducted with primary healthcare professionals found that the majority of adverse events are related to medication errors and diagnostic errors in the primary healthcare setting (Nora & Beghetto, 2020). Hence, a study carried out in Australia

demonstrates the significance of primary health care in rural and remote areas worldwide where obtaining health services is challenging and populations are at a higher risk for health and social problems (McCullough et al., 2020).

According to WHO, Pakistan has a fairly extensive primary healthcare system. This consists of 5000 basic health units, 600 rural health centres, 7500 additional primary care facilities, and more than 100,000 lady health workers providing services throughout Pakistan. Moreover, a network of 989 secondary care hospitals is in place at the tehsil and district levels to back up these primary health care services for referrals (WHO, 2024a). Likewise, a research study in Pakistan examines factors such as accessibility, availability, affordability, acceptability, and accommodation that affect the access of the masses towards primary healthcare services. Nevertheless, accessibility is hindered by inconvenient locations and long distances, while availability is impacted by drug shortages, staffing issues, absenteeism, and poor infrastructure at primary health care facilities (Panzai et al., 2017). Similarly, another research study has extensively documented the lack of primary health care service utilisation in Pakistan. Thus, inadequate management and lack of commitment to the primary goals of PHC are to blame for the low utilisation of public health facilities (Panzai et al., 2020).

Moreover, the disparities in primary health care access in rural regions are more pronounced because of medication and testing shortages, restrictions on users seeking additional services, and a limited number of healthcare providers in some remote regions. For instance, it is emphasised that there is a significant shortage of physicians and nurses in Latin America, particularly due to an imbalance in their distribution. Moreover, urban areas have a greater density of these professionals than rural and remote areas (Oliveira et al., 2020b).

Therefore, the challenge faced by numerous small rural and remote communities to maintain inclusive primary healthcare services is a matter of worldwide concern (Russell & Humphreys, 2016).

Subsequently, primary care is essential for building a resilient healthcare system that promotes positive health results and fair access to healthcare (Shi, 2012). However, primary healthcare workers need continuous access to

training and knowledge in health promotion to enhance their ability to provide holistic primary healthcare services. In this respect, the insights from frontline staff's experience offer a deeper comprehension of accessing skill development and guidance (McFarlane et al., 2018). Likewise, a study conducted in Ethiopia suggested the development of ten essential tactics to enhance access to primary health care services. Moreover, the key strategies recognised from global experiences consist of community health initiatives, healthcare services in schools, services for healthcare led by students, programmes to reach out, clinics on wheels, initiatives for family health, registration, plans to fund community health, remote medical services, collaboration with traditional healers, and partnerships with non-profit private sectors and non-governmental organisations like faith-based groups (Gizaw et al., 2022).

Furthermore, according to Endalamaw et al. (2024), important aspects of developing the primary health care workforce consist of strong leadership, a healthy financial system, incorporation of mobile health technology, and ensuring a continuous supply of essential resources. In addition, ongoing professional development involves educating new staff, establishing successful hiring and retention strategies, improving skill variety, and fostering workplace wellness. Thus, these components are crucial for cultivating a skilled and adaptable primary health care staff. Meanwhile, a study conducted by Swanson et al. (2020) suggested that primary care partnering with public health is focused on enhancing the healthcare system's efficiency.

Moreover, the possible areas where primary care and public health could work together that could be advantageous include the following: handling infectious illnesses such as the flu, managing long-lasting health issues like diabetes and asthma, offering intricate maternal and paediatric care, and providing healthcare to marginalised populations experiencing health and social inequalities. Role of Registered Nurses in Rural Primary Health Centres

Nurses have a vital role in primary care. It is clear and becoming more apparent that nurses' expertise is vital not only in providing direct patient care but also in coordinating various health programmes that cater to all life stages (Vera et al., 2018). Rural nurses are crucial in

providing resuscitation care, acting as first responders and frequently the only healthcare providers offering timely interventions, with increased independence and expanded practice responsibilities (Riley et al., 2024). Another study shows that both nurses and the community face feelings of isolation in rural areas, along with challenges in accessing work by practitioners and implementing policies seen in the urban areas. It demonstrates that the nurse is a crucial component of primary health care in remote regions, where they play a significant role in providing care to populations frequently overlooked by health services (De Oliveira et al., 2019).

Similarly, a research conducted in Canada indicated that primary care registered nurses played a role in changes in the healthcare system at different levels, such as systemic, organisational, intrapersonal, and interpersonal, in the areas of long-term illness, infectious disease treatment, and maternity care (Swanson et al., 2020). Likewise, research project carried out in Chile revealed that nursing plays a crucial role in primary healthcare, focusing on promoting health, preventing diseases, and providing care for people of all ages, including children, teenagers, adults, and elderly individuals (Vera et al., 2018).

Furthermore, another study conducted in Australia explained that nurses in rural areas are vital in providing healthcare services where there is a shortage of healthcare providers, leading them to frequently take on additional responsibilities to compensate (S. Smith et al., 2019). Rural nurses offer essential healthcare services to remote communities throughout Australia. They handle sudden health problems, and long-term sickness, promote health and respond to emergencies (McCullough et al., 2022).

Meanwhile, another research study found that nurses have a more crucial function in rural areas compared to urban ones, as they are required to take on additional job responsibilities, due to a lack of doctors in the context, along with issues in retaining nurses (Yeater, 2014), (J. G. Smith et al., 2019). According to the (National Academies of Sciences et al., 2021), registered nurses in primary care can assume four significant duties.: assisting patients with chronic conditions in making behavioural changes and modifying

medications based on protocols, overseeing teams to enhance care and reduce costs for patients with complex needs and high expenses by coordinating the treatment of chronically ill individuals in various healthcare facilities and advocating for public health initiatives by collaborating with communities to develop healthier environments. Thus, nurse-led care models are essential in meeting the increasing demand for healthcare services, particularly in regions with restricted availability of healthcare such as rural and remote communities (Beks et al., 2023).

According to (E. WHO, 2020), nurses play a crucial role in primary care by improving, linking, and organising care services. Their training and expertise allow them to offer secure and efficient care in the areas of disease prevention, diagnosis, treatment, management, and rehabilitation. Consequently, incorporating registered nurses into primary care settings is crucial for advancing and enhancing professional practice environments that promote top-notch care.

Moreover, establishing national competencies for nurses working in primary care could help transform the primary health care system by defining their roles, promoting teamwork among healthcare professionals, broadening their area of expertise, and enabling the assessment of their crucial role's impact (Lukewich et al., 2020). However, additional effort is needed to create and evaluate thorough competency standards that can effectively communicate the necessary skills and knowledge required by primary health care nurses for interacting with various stakeholders (Halcomb et al., 2016).

Likewise, nurses working in rural healthcare facilities need to develop advanced critical thinking abilities such as being flexible, adaptable, quickly resolving issues, prioritising tasks, and effectively communicating with others in order to succeed in the challenging isolated setting (Mamalelala et al., 2023). Adding registered nurses to primary care can improve patients' ability to see a primary care provider by allowing them to assist with tasks such as prescription renewals, addressing patient inquiries, and offering patient education. Nevertheless, registered nurses must establish precise practice protocols and nursing policies to

ensure that the provided nursing care is safe and effective (Norful et al., 2017).

Furthermore, granting more authority and independence to advanced-level primary health care nurses can enhance the availability of top-notch care in underserved regions and areas, with restricted health care services. Similarly, broadening the responsibilities of advanced-level primary health care nurses will enhance healthcare accessibility, especially in regions lacking adequate healthcare professionals (Cassiani & Silva, 2019), (P. WHO, 2018). For RNs to expand their role in primary care, they need to address several challenges: (1) establishing new payment models for independent RN care, (2) incorporating primary care skills into nursing education, and (3) defining the responsibilities of non-advanced practice registered nurses (APRNs) based on standardised protocols (Bauer & Bodenheimer, 2017).

The Challenges for Nurses in Delivering Healthcare in Rural Primary Settings

In Australia, primary healthcare nurses who work remotely face various obstacles such as difficulties in accessing professional development opportunities and advancing in their careers, as well as receiving minimal support from colleagues, employers, and professional organisations (Kagi et al., 2023). Likewise, another research conducted in Australia found that nurses working in remote areas believe that primary health care is a comprehensive social care model that involves looking after both the community and individuals. Nevertheless, they could not offer appropriate care as planned because of the lack of resources in the isolated location.

Moreover, remote area nurses' capacity to provide primary health care is impacted by inadequate physical resources, a scarcity of specialist health services, and limited time availability (McCullough et al., 2021).

Similarly, another study conducted in Palestine indicates that nurses working in primary healthcare facilities experience high levels of burnout and psychological distress. This research thus found that primary healthcare nurses require increased consideration to manage their mental well-being (Alshawish & Naerat, 2020). Moreover, a study conducted in Zimbabwe shows that nurses faced difficulties

like heavy workloads due to low staffing levels (55%) and inconsistent availability of essential medications in terms of both quantity and type ordered (46.7%). Likewise, healthcare workers encounter difficulties such as far distances to health facilities from villages (86%), expensive transport costs, and limited availability of pharmaceutical drugs (59.95%), causing them to seek assistance from traditional healers (43%) (Mangundu et al., 2020).

Similarly, a study carried out in Brazil revealed that nurses in primary health care face challenges like: lack of male presence; deficiency in self-care behaviour; work-related fear; inadequate health professional skill, and conflicting schedules (Moreira et al., 2014).

Moreover, a study carried out in Nigeria shows that most skilled nurses leave rural primary healthcare because of reasons like low pay, no incentives, heavy workloads, unfavourable conditions, stress, insufficient training, and lack of support and motivation (Lateef & Mhlongo, 2021).

Furthermore, a study done in Australia suggests that inadequate personal safety can result in burnout among staff and higher rates of turnover. On the other hand, nurses' understanding of what hinders and supports current workplace safety strategies can assist policymakers and employers in enhancing future initiatives (Wright et al., 2024a).

Meanwhile, another study suggested that nurses face some challenges while working in small rural and remote communities in geographical isolation; for example, obstacles in terms of uneven access to education and professional assistance, working beyond one's usual duties, safety concerns, vulnerability due to living in remote areas, and adjusting to severe weather conditions (McElroy et al., 2022). Additionally, nurses in rural areas encounter more difficulties due to limited resources and access to services, as well as the need for a wider range of clinical skills as compared to urban nurses (Rose et al., 2023).

Nurses Working in Primary Health Care Centres of Pakistan

Pakistan's healthcare system is dealing with challenges due to inadequate funding. Insufficient healthcare staff and facilities, lack of emphasis on preventative healthcare, and unfair allocation of resources (S. J. Khan et al., 2023b), (Muhammad et al., 2023). In addition, Pakistan

is experiencing significant difficulties in the field of nursing, with a shortage of nurses being a major issue, the nursing profession is predominantly made up of women, further exacerbating the social cultural barriers (Ghafoor et al., 2021).

Moreover, a study conducted in Pakistan explored that community members in their area had a very difficult time getting access to healthcare because there were not enough facilities to provide it. Furthermore traveling from distant places caused delays in healthcare, increased expenses, and difficulties for sick patients navigating dangerous roads in inclement weather on their way to the next level of medical facility. Thus, community health workers in underdeveloped nations put in a lot of effort and struggle every day to address patients' individual and population healthcare needs.

On the other hand, expectations of persons in the position must be in line with the circumstances they encounter, and they must also be met in order to advance healthcare at the local, provincial, and national level. In addition, community health nurses in Pakistan are required to compare their performance at the provincial and community levels in the context of health promotion. Thus, increasing access to healthcare services is made possible in large part by nurses, who are crucial members of the healthcare team. They serve as the patient's initial point of contact, offering support, care, and education to advance health and ward off illness (Mukhtar, 2016).

In Pakistan, specifically in rural areas, nurses face many challenges while caring for patients. There is a shortage of nursing staff, like in Chitral Only two nurses are on call 24/7 to care for the thousands of patients, including newborns, kids, adults, and the elderly. Thus, being primary healthcare providers, they might not handle every case thoroughly. Moreover, they lack speedy access to the internet and other technological resources that would enable them to broaden their knowledge by reading current literature. Hence, the nurses send patients to the secondary healthcare provider anytime peripartum issues arise. Moreover, the expecting woman develops any complications while travelling, the nurse is held responsible by the family (Islamuddin, 2022a).

Similarly, another study (Gulzar et al., 2013a) conducted in remote regions of Pakistan in which nurses explained that the community struggled to access services because of a lack of healthcare facilities in their region. Thus, traveling from remote locations to access the advanced facility resulted in care delays, raised expenses, and presented challenges for ill individuals navigating tough roads in severe weather.

The Gap Analysis

Despite the importance of registered nurses in providing healthcare services in public primary health centres in countries with low or middle income like Pakistan, a limited study has been conducted on the role and challenges they face. The existing literature suggests that registered nurses working in primary health centres play a critical role in patient education, disease prevention, and health promotion, but they face significant challenges such as staff shortages, limited resources, cultural barriers, lack of professional development training, security concerns, and lack of support from the healthcare system.

Yet, a notable deficiency exists in the research when discussing the viewpoints of registered nurses and patients in public primary health centres in rural Pakistan. While some studies have examined the experiences of healthcare providers in general, including nurses, in low- and middle-income countries, only a small number of individuals have solely concentrated on registered nurses and their challenges in public primary health centres (PHCs) Pakistan healthcare services. Thus, a research endeavour could inform the development of strategies to address the challenges faced by registered nurses and improve the quality of healthcare services provided in these settings.

The Conclusion

In conclusion, this literature review examined the experiences, role and challenges of registered nurses while providing healthcare services in public primary health centres. The findings of this literature review displayed that nurses play a crucial role in improving the accessibility of healthcare services. Nurses can provide education, counselling, follow-up care, contribute to quality improvement, provide patient centred care, and reduce health

disparities. However, nurses face many challenges in providing quality care to patients such as lack of resources, lack of government support, cultural barriers, and security issues.

On the other hand, nurses must receive sufficient training and education to enhance their abilities in delivering healthcare services. Likewise, policy makers and stakeholders need to prioritise nurses' role in improving access to health and to facilitate their challenges to make certain that patients and communities receive high quality health care services at their doorstep. Moreover, the review also highlighted the importance of addressing these challenges to improve the quality of healthcare services provided by registered nurses in primary health care centres.

Lastly, the results of this literature review also have a significant impact on enhancing healthcare services in low- and middle-income nations, especially in regions facing constraints in resources and a high burden of disease.

The Summary

This chapter covered an introduction to the topic, provided a detailed overview of the literature search strategy, then it shared the prima flow chart table. Next, the chapter provided the detail of literature on primary healthcare in rural centres and registered nurses' role in primary health care globally as well as in Pakistan. It also addressed the obstacles that registered nurses encounter in rural primary health settings. Towards the research gap analysis was highlighted, and finally, it ended with sharing the conclusion and the summary of the chapter.

Chapter Three Methodology

The aim of this chapter is to elucidate the methodology used in examining the experiences of registered nurses working at rural public health centres in the district Bajaur. The chapter includes the study design, the study setting, the study duration, the study population, the sampling technique, the inclusion and exclusion criteria, sample size, the study guide, the data collection procedure, the semi-structured interviews and recorded interviews. Moreover, the chapter also describes the pilot testing phase, the data analysis and content analysis, the study's rigour, and the key ethical considerations.

The Study Design

This study intended to investigate the experiences of the role and challenges of registered nurses working in rural public primary health setups in the district Bajaur. Explorative descriptive qualitative design has been used to inquire the research questions, and to get rich data, Moreover, the study focused on all those nurses who were working in the primary health care domain for more than one year to become familiarised with the culture and demography, one must work at least one year in the same area.

Furthermore, this design is chosen because qualitative research is the collection and analysis of actual materials from the real world, like case studies, personal experiences, self- reflection, life stories, interviews, artifacts, cultural texts, observations, historical records, interactions and visual materials, to provide detailed descriptions of everyday and challenging situations (Johnson et al., 2020). Moreover, the qualitative exploratory research method enables the researcher to investigate into a topic that has limited existing literature while also giving the study participants the opportunity to help in creating new knowledge in that field (Hunter et

al., 2019). Furthermore, qualitative research provides insight and comprehension into experiences, as well as reveal the meaning and interpretations associated with them (Denny & Weckesser, 2018). Currently, no study has been found in the Pakistani context that offers a comprehensive insight into the subject being examined.

The Study Setting

This section describes the setting in which the research was conducted:

Geographical location of District Bajaur (Study Setting)

Bajaur is one of the districts in the Khyber Pakhtunkhwa province of Pakistan. It is located in the northwest region of Pakistan, bordering Afghanistan on the Northwest, Lower Dir on Northwest, and Malakand division on the Southeast, and Mohmand district on the South west. Bajaur is divided into seven tehsils, as depicted in Figure 3.1. It has Utman Khel and Tarkani tribes with subtribes namely Mamund, Salarzai, Kakazai, and Wur. Bajaur has two subdivision: Khar and Nawagai (Rehman, 2019).



Figure 3.1 The Map of the district Bajaur adapted from FATA

Facebook (Sanaullah & Pervaiz, 2019)

The district is known for its rugged terrain, mountains and valleys. Until 2018, it was an agency of the federally administered tribal areas.

Moreover, agriculture is a significant part of the local economy in Bajaur. Hence, the residents

engage in farming, primarily growing crops like wheat, maize and barley.

Bajaur has faced security challenges in the past due to its proximity to Afghanistan. Access to healthcare and education services in remote areas like Bajaur has historically been limited. For instance, according to the Bureau of Statistics, Khyber-Pakhtunkhwa (Bureau of Statistics, Khyber Pakhtunkhwa, 2023), there were only three boys and one girls higher secondary school, one government college of management, and one technical college, thus resulting in a literacy rate of 30% in Bajaur. According to the same statistics, approximately, 575 beds are available for 1.2 million population. Moreover, there are one secondary hospital (DHQ Khar) and three primary category D hospitals (Category D hospital Mamund, Nawagai and Pashat) in the district Bajaur. Besides these hospitals, there are basic healthcare units and community health centres on the community level.

Primary Health Centres in Bajaur (The Study Setting)

The study was carried out in three public primary health centres namely, Type D Hospital Pashat, Type D Hospital Nawagai, and Type D Hospital Mamund. Moreover, there are 42 bed hospital located in Tehsil Mamund, Tehsil Nawagai, and Tehsil Salarzai of the district Bajaur. Each hospital is providing 24 hours emergency services, has a well-established specialties like Gynaecology and Obstetrics, Medical, Surgical, and paediatrics. In addition, the hospital also provides outpatient services coverage to nearly 100 patients on daily basis. Meanwhile, the hospital has qualified physicians, registered nurses and health care technicians and lady health visitors. These health task forces work in three regular shifts routinely, under the supervision of District Health Officer (DHO) and Medical Superintendent (MS). The hospital has also a nutrition department which looks after the nutritional status of children's and antennal women, and it also provide regular vaccination services to children.

The Study Duration

The study was conducted between June and July 2024, after the ethical approval from the ERC-

AKUH. Moreover, official permission was taken from the head of mentioned hospitals.

The Study Population

The study population comprised all those nurses having at least one year of experience in any of these hospitals; Type D hospital Pashat, Type D hospital Nawagai, and Type D hospital Mamund).

The Sampling Technique

To achieve the aim of the study, this qualitative study used a purposeful sampling approach to recruit suitable study participants (Campbell et al., 2020). In qualitative research, the researcher's goal is to delve deeply into the phenomenon of interest rather than to generalise (Burns, Grove, & Gray, 2013). Therefore, regardless of the sample size, importance was placed on thoroughly investigating the phenomenon based on real-life experiences. Hence, purposive sampling techniques were used in the study to recruit registered nurses working in public primary health centres in the District Bajaur. Thus, participants who could provide thorough and detailed information about the phenomenon being investigated were chosen. In addition, before recruiting the participants, their willingness and ability to take part in the study were taken into consideration.

The Eligibility Criteria

The following criteria were applied to recruit the participants:

The Inclusion Criteria

The inclusion criteria comprised the following:

- Registered nurses (RNs) who were working in primary health care for more than one year in the district Bajaur.
- RNs who were willing to participate in study.
- Both male and female RNs having valid PNC license.

The Exclusion Criteria

The exclusion criteria comprised the following:

- RNs who were working in tertiary healthcare settings in the district Bajaur.
- RNs who were currently on leave or on leave for more than six months.

The Sample Size

The sample size was determined by reaching data saturation, with saturation being reached with 10 participants. Two additional interviews were conducted to confirm saturation. When the researcher reached data saturation, he stopped further data collection process.

The Study Guide

The study guide comprised different steps that were followed in a systematic manner:

- Firstly, a study guide was used to collect data both in English and Urdu (Appendix D and E).

This was a detailed interview questionnaire with open-ended and semi-structured questions to gather comprehensive information from the participants. Hunter et al. (2019) recommended ensuring that the interview time and location are convenient for participants before scheduling.

- Before conducting the interview, the researcher received consent from each participant and assessed their level of comfort (location, timing, and method; in-person) for the interview. Consent form was also translated to Urdu language for better understanding of the participants.

- These interviews were conducted either in English or in Urdu language, depending upon the preference of the participants.

- During the interview, the participants' experiences, perspectives, and insights regarding their roles, responsibilities and the challenges they face were explored.

- The researcher used open-ended questions to allow for eliciting detailed responses.

Moreover, consent in written form was taken from the participants and a brief overview of the study was also given to the participants. In research ethics, informed consent is often considered the cornerstone. The goal is for individuals to willingly participate in the study and comprehend the significance of their role in it (Xu et al., 2020).

- This consent form was in English or in Urdu language, so the participants (nurses) were able to read, write and understand the content in consent form.

- The reason for providing the option

of interview in Urdu, along with English, was for the comfort of the participants, as most of their interaction with patients and family members was not in English but rather in the local language. On the other hand, all of them could fluently speak and understand the Urdu language.

The Data Collection Process

The researcher received approval from the Ethical Review Committee at The Aga Khan University (Appendix A), as well as received official permission from the District Health Officer, Medical Superintendent of the Category D hospital Mamund, Nawagai, and Pashat respectively (Appendix B and C1, C2, and C3).

After the approval from ERC-AKU, the researcher visited each hospital and met the head of the department and exchanged greetings with them. Following the salutations, the researcher elaborated on the objective of the study. Next, the researcher toured both the inpatient and outpatient sections. Next, the researcher approached the nurses, introduced himself, and explained the study goal. Following this, the study participants were requested to take part in an interview. Two female nurses refused to take part in the study due to their busy duty schedule. However written informed consent was shared with participants who were willing to participate in the study.

After the participants agreed for participation, then in-depth interviews were initiated in the conference room. In-depth interviewing is a complex and resource-intensive process that necessitates the researcher's expertise in designing ethical protocols and extracting meaningful insights from complex data (Osborne & Grant-Smith, 2021). Each interview lasted for 30 -50 minutes with average interview time of 36 minutes.

Moreover, the participants were requested to introduce themselves at the start of the interview to validate their verbal consent, but this was not part of the transcription. Later on, pseudonyms were used in place of these names. In addition, the study participants were encouraged to speak in either English or Urdu language as per their convenience and comfort. Moreover, to secure the data, all the interviews were recorded after taking written informed consent from the participants. For analysis, the interview recorded audios were transcribed into English.

Furthermore, the researcher transcribed the audio recording of the interview. In order to guarantee precision, the transcribed information was provided to both the supervisor and the committee members, and the researcher listened to it as well repeatedly to ensure accuracy and consistency.

The Demographic Data Form

The demographic data form (Appendix I) comprised components that help to collect information about the characteristics of study participants. The participants filled the form and returned it to the researcher. The reason for utilising this tool was to incorporate demographic information of the participants such as their gender, age, professional qualifications, and years of working experience.

Semi-Structured Interviews

The interview guide facilitated the process of conducting in-depth semi-structured interviews in order to gather data. Semi-structured interviews enable the researcher to pose predetermined questions, while also ensuring that participants cover topics they consider important (Gill & Baillie, 2018). Moreover, semi-structured interviews help researchers gather comprehensive information and evidence from participants, while considering the specific objective of the study. Additionally, semi-structured interviews also provide researchers with the necessary flexibility and adaptability to remain focused (Ruslin et al., 2022).

Furthermore, the interview guide consisted of 20 questions, divided in five sections, which was prepared from the researcher's prior knowledge regarding the experiences of registered nurses working in rural areas and the literature review related to the phenomenon of interest and finalised after review of thesis team. The participants were then prompted with open-ended questions during the data collection process to elicit meaningful responses for the study. Hence, the aim of this exercise was to gain responses from the participants that were self-explanatory and yet contained enriched information.

The Pilot Testing Phase

Pilot testing was exercised on two participants that was 10% of the study sample.

Conducting a pilot test can identify any weaknesses or constraints in the interview structure, thus enabling essential modifications for the main research (Majid et al., 2017). Moreover, a pilot study can assist researchers prepare and conduct their primary study by allowing them to practice and enhance their skills prior to the larger investigation (Shakir & ur Rahman, 2022). The findings of the pilot were shared with the supervisor and committee members for seeking any amendments in the study guide. However, the pilot results were excluded from the study's findings.

After the pilot testing phase, data collection was initiated in the study setting. After selecting a particular time and venue, the researcher introduced himself to the participants and proceeded to outline the study's objectives. After a detailed discussion, the researcher asked for written informed consent (Appendix F and G) from the participants and then scheduled the interview and then started detailed interviews according to the agreed upon schedule.

Recording the Interviews

All the interviews were recorded which made it easy for the interviewer to focus on content efficiently. Audio recordings of the interviews are essential for all interviews, regardless of the medium, as they enable accurate transcription with the participant's permission (Gill & Baillie, 2018). In addition, audio, as well as video recordings, are valuable tools for researchers to retain records of interviews and analyse data (Al-Yateem, 2012).

Meanwhile, after finishing the recorded interview, the researcher transcribed and translated it into English, which was then reviewed by the primary investigator and committee members for accuracy. The information was communicated without bias, taking care to keep the same meaning intact. Furthermore, data were collected from the participants until meaningful information was obtained according to research questions.

The Data Analysis Plan

Creswell's (2014) qualitative analysis approach was utilised for analysing the data. Qualitative research involves a structured process of gathering, recording, and analysing the data. Furthermore, the transcript was interpreted using Creswell's participant analysis steps

(Creswell, 2014). The following steps were used for the analysis

The Content Analysis

The researcher analysed the data through the use of "content analysis". Guest, Namey, and Mitchell state that content analysis is the most commonly used method of analysis in qualitative research (Guest et al., 2013). Content analysis focuses on identifying, assessing, and documenting patterns or themes present in data. Moreover, content analysis involves six stages: becoming acquainted with the content, creating initial codes, identifying themes, reviewing themes, defining and labeling themes, and ultimately providing a description.

Following the same pattern, the researcher in this study immersed himself in the acquired information, carefully reviewing and rereading the data to gain a deep understanding of it.

Moreover, to keep the intended meaning intact during the translation, the interview guidelines and transcripts were translated from Urdu to English language and then back to Urdu language. Where there were no exact English equivalents, Urdu phrases were used to communicate the appropriate meanings.

Once all the information was gathered and organised into a unified narrative, the researcher then scrutinised the specific narrative associated with each theme and assessed whether any of these themes had underlying subthemes. The final stage comprised writing the report and doing the final analysis, during which the researcher used persuasive examples from the acquired data to justify each subject.

The details related to the subsequent steps are as follows:

The Data's Organisation

The process of analysing data started by organising the gathered information through the help of thorough interviews and field notes. Firstly, each participant was given a pseudo identification number in order to maintain data organisation ethics. Moreover, the participant identities, audiotapes, the researcher's field notes, and comments were stored in a secure computer file with restricted access to authorised individuals. Furthermore, the audiotapes were listened to multiple times to fully comprehend the participants' points of view before being transcribed and finally

translated into English (Creswell, 2014). The initial six interviews transcripts were shared with the participants for conformation of data.

The Data Coding Process

In this step, the researcher studied both the Urdu and English versions of the transcripts individually to become acquainted with the data and grasp the meaning of the transcripts. A common code was assigned to the text that has similar meanings. Throughout this procedure, the researcher was connected back and forth to the audiotapes as needed (Creswell, 2014).

The Data Categorisation and Theme Generation

In this step, the researcher and the other team members collaborated with one another to establish agreement on the commonalities and distinctions combining similar and contrasting codes to generate fresh categories. Likewise, similar identical categories were consolidated into distinct themes, thus enhancing the data's significance and conciseness (Creswell, 2014).

The Data's Interpretation

The data's interpretation took place after the categories and themes were established.

During this step, the researcher interpreted the data to pinpoint the necessary findings with the help of his supervisor and committee members.

The Data's Presentation

During this phase of the data analysis, the researcher displayed the results in a tabular format that included themes, categories and highlighted the quotes from the participants. This stage assisted the researcher in organising and presenting the study's results.

The Validation of the Findings

The final step was to validate the findings through audit trials, triangulation methods, and members checking. The themes and categories were then shared with the supervisor and thesis committee members who are experts in qualitative research. Additionally, the study findings were shared with participants for validation.

The Study's Rigour

The quality of the participant data collected by the researcher was ensured through various measures. Rigour is the state of being very

precise, cautious, or following strict standards of accuracy and thoroughness. There are four trustworthiness requirements that must be met in order to fully understand the data's quality (Cypress, 2017; Ghafouri & Ofoghi, 2017), (Lincoln & Guba, 1986).

Credibility

Building relationships with the participants takes time and effort, and this establishes credibility. Over time, rapport and trust are built, which are crucial for getting participants to be honest and open with you. This is because participants could feel reluctant to give the researcher their personal information if they don't feel trusted. Therefore, building rapport and trust are the key factors that contribute to credibility. The researcher has to thus ensure that the participants understand the purpose of the research and the types of questions that will be posed by taking necessary precautions.

Dependability

Dependability involves the joint examination of data by a separate individual and the researcher in order to identify themes. In the case of this research, the coder independently recognised the primary theme, sub-themes and categories without any impact from the researcher. Subsequently, the independent coder and the researcher compared and discussed their respective themes with each other, eventually reaching an agreement on the final themes.

Confirmability

Confirmability involves making sure that the data results and analysis are not influenced by the researcher's bias. In order to accomplish this in this research, the transcriptions were cross-checked against the analysed notes for any lapse and for confirming the data accuracy. Furthermore, the researcher reviewed the codes, categories and themes with the supervisor, committee members, and peers.

Transferability

Transferability, also referred to as external validity, pertains to how much the results of a study can be extended to different populations or situations. Researchers can assist in applying or generalising study findings to various contexts by offering a thorough and detailed study description.

The Ethical Considerations

The study made sure to address ethical concerns by guaranteeing anonymity, autonomy, and confidentiality for the participants. Before collecting data, the participants gave their written consent, and the confidentiality of their information was maintained accordingly.

They were also given the choice of abstaining from participation or withdrawing from the study at any time. A psychologist was also hired to provide psychological support to a participant in the case of an emotional outbreak, however, no such event occurred that required psychological support during the interviews and all of them went smoothly and according to the plan. Thus, the interview was continued based on the participant's comfort. In order to preserve anonymity, the identities of the participants were kept confidential during the entire duration of the study. Moreover, as a replacement for the names, specific code numbers were allocated. The researcher further assured the participants that their names would be kept confidential in any quotes or publications from the study. Furthermore, both soft and hard data were kept securely in a safe with a lock and key. In addition, the soft data was password-protected on the researcher's machine. To clarify, the researcher and thesis team have access to the data. If necessary, ERC-AKU will have access to it for monitoring and evaluation purposes. Lastly, according to AKU's policy of disposability, both forms of data will be discarded after seven years of the study's completion.

The Summary

The methodology chapter concluded with a description of the study design, population, settings and the methods utilised in the study. The study utilised a qualitative exploratory design. The study was conducted in three public primary hospitals. Purposive sampling was used to select 12 individuals for the study, continuing until data saturation was reached. Moreover, semi-structured interviews and a demographic data form were used for data collection. Additionally, the data analysis process by using Creswell's steps for analysing the data has also been discussed in the chapter. Meanwhile, the study's rigour was preserved by adhering to Lincoln and Guba's trustworthiness criteria. Trustworthiness is assessed based on credibility,

dependability, confirmability, and transferability. At last ethical considerations according to AKUH’s policy and international research standards regarding confidentiality, anonymity and privacy were discussed.

Chapter Four Results

This chapter has focused on the demographic data of the participants, the data presentation, a description of the study findings, and the data analysis. In addition, an analysis of semi-structured in-depth interviews has also been presented through the relevant themes, sub-themes and categories.

The Demographic Data of the Participants

The study sample consists of twelve registered nurses from three public primary health centres in the district Bajaur. Age-wise, the participants were between 24 years and 34 years; thus, their mean age was 27.83 years. On an average, the majority of the participants belonged to the 26 years of age cadre.

Next, the study participants had different experiences varying, from 2 to 7 years, while the mean of the experience was 3.25 years. none of the participant had a master’ degree. Tables 4.1 and 4.2 show the demographic profile of the participants.

Moreover, all the participants 100% (n=12) were male, the reason for only male nurses’ participation in interviews was there were only three onboard female nurses in study settings. One was on a one month leave. Meanwhile, the other two refused to participate in the study due to their busy duties.

Moreover, among the participants, most 58.33% (n=7) had undergraduate degree in nursing; BScN or Post-RN BScN (BScN is a four-year degree education, followed by one year of mandatory internship to obtain a license from the Pakistan Nursing and Midwifery Council (PNMC) to practice as a registered nurse [RN]). Further, Post-RN BScN is a two- year programme for those nurses who have completed a Diploma in General Nursing (which is a three-year programme), and a one-year Diploma in a speciality (e.g., cardiac nursing, midwifery, mental health) and license by the Pakistan Nursing and Midwifery Council (PNMC) which enables them to practice as a registered nurse (RN). On the other hand, the other 41.6% (n=5) participants were with General Nursing Diploma in Nursing. However,

Table 4.1 Demographic Characteristics of the Participants

Descriptive Characteristics	N	Percentage %
Gender		
Male	12	100%
Female	0	0.00%
Qualification		
General Nursing Diploma	5	41.66%
Bachelors (BScN and post-RN, BScN)	7	58.33%
MScN	0	0.00%
Total	12	100%

Table 4.2 Demographic Characteristics of Participants

Descriptive Characteristics	Mean (in Years)	Age
in Years		27.83
Experience as a Registered Nurse		3.25

By reading multiple times (3-4) the transcripts of interviews, the study findings revealed numerous challenges experienced by registered nurses working in the rural primary health centres in the district Bajaur, Khyber Pakhtunkhwa, Pakistan. The challenges have been grouped into one major theme and five sub-themes and categories under these sub-themes. These are presented in the table 4.3 given below:

Table 4.3 Theme, Sub- Themes and Categories

Theme	Sub-themes	Categories
Challenges experienced by nurses	1. Shortage of workforce and other resources	1. Shortage of Registered nurses 2. Shortage of medicines 3. Medical and surgical supplies
	2. Patient care and clinical challenges	1. Emergency management 2. Patient referral difficulties 3. Cultural barriers 4. Challenges in operating the NICU
	3. Security and safety concerns	1. Security threats 2. Verbal and physical abuse 3. Political instability
	4. Climate change	
	5. Strategies to improve primary healthcare	1. Resource optimisation and human resource development 2. Strengthening healthcare infrastructure

Theme- Challenges faced by Registered Nurses in Providing Healthcare Services in Rural Primary Health Centres of the District Bajaur The district Bajaur is a remote rural region of the Khyber Pakhtunkhwa province where there are many challenges faced by the registered nurses working in the primary health care setups. For instance, nurses are deprived of resources

including electricity, technology, medical equipment, and medicines. They also face a shortage of human resources, specially the shortage of female staff nurses and support staff with expertise like biomedical engineers. In addition, other challenges described by the participants were related to security,

transportation (lack of hospital's own transport as well as local public transport issues), and lack of ongoing professional training. One of the participants affirmed that,

If we want to improve the health system of the district of Bajaur, the government should hire female nurses, provide us proper electric supply, provide sufficient oxygen cylinders and other supplies required to manage the mass casualties, and build the infrastructure. We also need biomedical employees. This is particularly important for biomedical equipment required for patient care. We need proper security. We need ongoing training to provide quality care and for our personal safety and security. (Participant A010)

Another participant stated that "Mostly, we do not have our own transport system, therefore, we are facing problems. It takes many hours from our home to reach the hospital" (Participant A010). Another participant shared his experience with transportation-related issues as follows:

There are a lot of challenges when we leave for duty from home, one is the issue of transport because it's not available every time, and our home is away from the hospital, it's a big problem, the second issue is that the road infrastructure is very bad, due which it is difficult to reach on time for duty. (Participant A004)

Moreover, another participant gave suggestions about in-service training and education, If the hospital will provide the required resources, we [nurses] can provide proper care to patients. We would feel relaxed and not stressed out. Secondly, if we provide more education and training to our staff, then our staff will be more educated and will provide better care to the patient. (Participant A004)

Sub-Theme One - Shortage of Workforce and Other Resources

The district Bajaur's primary healthcare system is experiencing difficulties as a result of a lack of staff and necessary resources. This theme has been elaborated further as underneath:

Category One - Shortage of Registered Nurses.

The finding of the study shows a shortage of workforce, specially registered nurses in rural primary health centres. Most of the participants shared that they were doing double or triple shifts to overcome the staff needs, as there was a

shortage of nurses. This meant that in each hospital, the number of on-board nurses was less than the required number of nurses. One of the participants highlighted the issue in the following way:

The shortage of staff is like this that when patients come to the emergency, we have two staff in morning shifts and one staff in the evening and night shift. The challenge is that when we have a mass emergency or casualty or RTA [road traffic accident] case, then one nurse cannot handle it. Then we call the helper, the radiology department and the pharmacy technician, and we solve the problem. (Participant A003)

Furthermore, the study findings revealed that many nurses resign from the hospital because of unavailability of resources and not receiving their salaries on time, as the hospitals do not tend to give salaries regularly every month.

We have a shortage of male as well as female nurses in our hospitals. We have a lot of problems due to the shortage because many of our nurses have left due to specific reasons and issues like the unavailability of resources, late payment of salaries, etc. We are facing many problems due to the shortage, specially, due to the shortage of female nurses. (Participant A007)

Hence, due to the shortages of registered nurses, the staff workload increases, thus leading to compromised patient care and emotional distress for the staff. One of the participants explained that the government is not hiring the new nurses due to which there is more workload and patient care is compromised.

In our hospital, we are also facing the shortage of nurses regularly because the government is not hiring nurses, we have only six staff and no female staff is available in the hospital.

This overloads the on-duty staff and makes it impossible to provide proper care to the patient. (Participant A004)

Category Two - Shortages of Medicines. The hospitals often faced shortages of medicines, specially the vaccines like anti-rabies, tetanus vaccines, and vaccines for snake bites. For instance, one of the participants specified that at his hospital, the number of dog bite cases is very high, and for its treatment, vaccines are required. However, due to a shortage of supply, patients are not provided the required doses. One of the participants explained, "We have a

lot of challenges with medication. Many required medicines are not available. Like we don't have diclofenac, avil injection, midazolam, anti-rabies vaccines and tetanus vaccines. We have a shortage of drugs [medicine]" (Participant A012).

Another participant said:

We have no anti-rabies vaccine in our hospitals. As well as another issue nowadays is the tetanus toxoid vaccine's unavailability in our hospitals. So, yes, of course, we are facing such types of shortages, and many times, we are facing the problem due to the unavailability of vaccines in our hospital. (Participant A007).

Another participant explained that We have deficiency of vaccines for the last 8 months. The anti-rabies vaccine has not been available for almost a year. We have many cases like this [needing anti-rabies vaccine] because we have patients from all over the area. When the patient comes here, then we tell the patient to go to the DHQ [district headquarter] hospital and receive it. (Participant A003)

Category Three - Shortage of Medical and Surgical Supplies. There is shortage of oxygen cylinders in study settings, they do not have a proper oxygen plant in the hospital, and nurses manage the patient with oxygen cylinders which are not enough to manage the mass causality.

One of the participants explained that, We don't have oxygen cylinders in our hospital. We don't have a proper supply of oxygen. There is a shortage. When there is a mass emergency, we don't have a proper supply of oxygen. Sometimes, we use oxygen concentrators. But if there are more causalities and we need oxygen, then we refer to DHQ hospital. (Participant A004)

Another participant affirmed that they do not retain patients who require long-term oxygen care. They manage it for a short time and then refer them to another healthcare facility, We don't have many oxygen cylinders, we have only two or three. In the emergency department, patients come to us, with asthma or neonates with low oxygen saturation, but we don't have oxygen cylinders at that time. We have oxygen concentrators. We don't retain critical patients; we give them first aid and then we refer them [to another hospital]. (Participant A009)

Moreover, there is also lack of equipment and machinery required for patient care therefore, patients suffer. One of the participants said:

We don't have all the equipment. We don't have updated technology. The equipment that we have is useless, as there is no electricity for their functioning. Also, there are a few machines for which there is no trained staff, so they are of no use. So, electricity, not trained to use, and non-functioning equipment are some of the major issues. We attend to the causalities with the available resources, if we cannot manage them, we refer them to DHQ hospital. (Participant A014)

Another participant further explained the situation as follows:

The issue with technology is that we do not have any machine in our lab to perform all the laboratory tests of the patient. So, we refer the patient in our DHQ hospital. We do not have an ultrasound machine. (Participant A004)

Another participant further added that, We have a shortage of some technologies. Sometimes, we have no internet, we have no Wi-Fi

access, as well as we do not have mechanical ventilators. We have a defibrillator, but due to the unavailability of electricity, we cannot operate it. (Participant A007)

Sub-Theme Two - Patient Care and Clinical Challenges

Nurses in District Bajaur encounter considerable obstacles in primary healthcare, such as lack of resources, inadequate staffing, and limited training options, lack of proper NICU, cultural barriers, and referral challenges. Hence, these problems obstruct their capacity to offer efficient and high-quality care to patients. Furthermore, under this sub-theme four categories emerged these are emergency management, patient referral difficulties, cultural barriers, and challenges in operating the NICU.

Category One - Emergency Management. Nurses felt significantly restricted by the shortage of essential emergency supplies, medications, and equipment. Consequently, managing critical situations, such as trauma, severe infections, or life-threatening conditions, used to become challenging as a result of this. One of the participants explained to the researcher that they manage emergency cases through teamwork; for instance, when there is major causality, they obtain help from all the

hospital staff including paramedics and medical officers.

We have a staff shortage, but we still work as RNs. We have a large catchment population. So, we have casualties. If we have such an incident in our catchment population, they come to us first and we manage it as a team. We have MOs [medical officers] available and paramedics. So, we manage the incident as a team. (Participant A014)

Another participant affirmed that they were managing emergencies by calling all the on-floor staff and all those staff members who have off duties and living near the hospital. "In terms of emergencies, we work here like a team and in emergency, we call our nursing staff from home. So this is the way we manage" (Participant A013).

gCategory Two - Patient Referral Difficulties.

There were a lot of challenges for patient referrals, due to bad infrastructure, improper roads and not having an ambulance service for transferring patients to higher facilities. One of the participants explained that There is no smooth referral because we have no ambulance, we have bad infrastructure, and roads are uneven. So, we are facing problems with the referral system, when we want to refer a patient from our hospital to a tertiary care hospital. We face a problem because we do not have a smooth referral system. (Participant A007)

Another participant explained that there were transportation hurdles which caused slow referrals. Consequently, patients suffer because it takes a lot of time to reach the facility. The availability of transport and the problem of referral is very common in our areas, if we want to refer a critical patient, then we have to travel a long distance to reach the hospital, so we face a lot of issues like transportation, traffic and the road is also not good. Due to all these problems, it is difficult for us to transfer the patient smoothly. When it is a critical patient then we face more problems. (Participant A009)

Another participant explained,

We have a lot of logistical problems when we refer the patient. When we call the ambulance, it takes more than one hour to reach. We also have broken and uneven roads with huge pits and big holes. Sometimes, there is a bomb blast on the road and requires clearing of the roads. There are a lot of problems with the ambulance. There are two or three markets on the road.

There is a lot of rush. The ambulance arrives late because of the rush. (Participant A012).

Category Three - Cultural Barriers. There are cultural barriers while providing care to patients, particularly to female patients. Cultural traditions and societal customs in Bajaur frequently limit women's ability to obtain healthcare. Apparently, the people of Bajaur are very sensitive regarding their females' veil, and do not allow any male health care worker to provide care to their females. Hence, they prefer to get female health care workers for their female patients. That's why, due to the shortage of female nurses in the study setting, patient care is mostly compromised. For instance, one of the participants shared his views,

We have a culture because we have a lot of people who think that we cannot send our women to the hospital. Even if we send them to the hospital, we cannot allow male nurses to provide them the care. Moreover, there are many myths about vaccination in the public. So, the culture is a barrier. (Participant A014)

Similarly, another participant elucidated further about culture as a barrier in providing care to patient as follows,

We have a shortage of nurses, specially female nurses, we have cultural barriers and most of the patients do not want to receive care for their female patient through male nurses. So, the reason is that we are facing problem due to the unavailability of our female nurses, which negatively affect our health system. (Participant A007)

Moreover, another participant said that

Culture norms and beliefs are very important in our area. Thus, the perceptions influence our care a lot. For instance, people in our area [Bajaur] take women's privacy very seriously. Moreover, we do not have a female staff. Sometimes, we get a patient who is a female having serious health conditions, but the attendant tells us to call a female. If we don't have a female, relatives get angry. Thus, the patient's care is affected. (Participant A004)

Category Four - Challenges in Operating the Neonatal Intensive Care Unit (NICU). In the study setting, the registered nurses tried their best to provide quality care to patients according to the available resources. Despite many challenges in the NICU, they provide the initial care to the neonates and stabilise the critical patients and then refer them to the upper health

care facility for further treatment. One of the participants explained the procedure followed as,

When we get a neonatal case, we are putting neonate for a period of time, for two hours, for three hours. When we get to know that the baby is okay, then we can refer them to another tertiary hospital after contacting them. After that, we can console the attendant/ patient relatives and we transfer or refer that baby to the other tertiary care hospital which we have at the district headquarters. (Participant A007)

Another participant affirmed that, When a preterm baby comes to us, if the baby is stable, we have to keep it for observation. We put the baby in the warmer. We provide oxygen to it. If there is a need for suctioning, we do it. We have to follow the protocol. But if we have a patient who needs to be resuscitated, we have to give CPR (Cardio pulmonary Resuscitation), then it's a little difficult. We resuscitate and facilitate it. We stabilise it a little and then refer it to the DHQ (District headquarter hospital) because we have issues with incubators [it is not available]. (Participant A009)

Similarly, another participant attempted to shed light on the situation as follows:

We do not have a proper NICU and ICU. If we have a baby, we give him primary care. For example, we wrap the baby in a warm cloth. Or if there is an airway obstruction, we clean it with a suction machine. Since we do not have a nursery for proper care for 24 hours, we shift the baby. In this way, we clean the baby's airway. We give primary care and then we refer. (Participant A004)

Sub-Theme Three - Security and Safety Concerns
The district Bajaur is located in the border region with Afghanistan. Since 2001, the security conditions of Bajaur is not satisfactory, there are terrorist attacks on a daily basis. Also, there is target killing of all the people, even the healthcare workers were gunshot many times, specially the polio workers are targeted many times. Hence, all the sectors are affected due to security threats. Likewise, the health sector also faces challenges due to a lack of peace in the area. One of the participants shared the concerns regarding security as follows: Terrorism is a big problem for us. This is a big challenge for us. In addition to the night duty, there are problems in the day duty as well. People are always living in fear. People think that these

people [hospital staff] are government officials. We are afraid that these people will target us as we are the government officials and hospital staff. So, this is a big challenge for us. (Participant A011)

Category One - Security Threats. Healthcare services in Bajaur are disrupted by security challenges caused by militant activities and military operations. Consequently, healthcare workers often encounter threats while trying to deliver reliable care, as health facilities are frequently attacked, one of the participants shared views that they faced many security threats while doing their duties,

In our area, the fear of terrorism is high. Because its borders are attached with Afghanistan, it is common in our area. It has a lot of impact on our duty as well. If I share my experience, I was on duty during the local election and my hospital was used as a facility for vote casting. There was a bomb blast in our market. So many patients came to our hospital.

There are a lot of security threats. There are explosions outside our hospital as well. When we go for vaccination, there are a lot of security issues as well. (Participant A004)

Likewise, another participant further explained the security threats as, "We are having an immunization centre, and that has been threatened quite often and that is one of our basic threats in this hospital" (Participant A013). Another participant shared with the researcher that, "When we go for outreach for vaccination, we are very concerned about the security. Because there is already a general threat that health staff, polio related staff, and vaccination related staff face. Consequently, we live with constant anxiety" (Participant A014).

Category Two - Verbal and Physical Abuse. Nurses working in public primary health centres in the District Bajaur frequently experienced verbal and physical mistreatment from patients or their family members, particularly when medical results were not satisfactory according to their expectation levels. This mismatch consequently create an unfriendly work atmosphere and discourage employees from wanting to work there. One of the participants shared,

We face violence and aggression all the time because we are unable to meet the patients' expectations all the time. This is because we do

not have the resources to provide the patient with proper care, so we have to face the aggression as a result. (Participant A004)

Another participant explained the situation as, "When there is a situation of the patients, like there is any referral of the patient and rescue ambulance (1112) does not reach timely. So, the attendants start violence" (Participant A010).

Similarly, another participant shared his views that,

Sometimes, people abuse us and make noise. They make our videos. We have a shortage of staff, if three or four patients come together, we can take care of one patient and make the rest come later. So that's why people misbehave and abuse us or make our videos that these people are not working, not doing this, not doing that, etc. (Participant A012)

Furthermore, nurses in the District Bajaur frequently experience emotional stress from violence and misbehaviour from the patients' attendants. This stress subsequently not only has an impact on the nurses' mental health and well-being but also influences the overall quality of patient care. For example, one of the participants shared his experience that, "Emotionally, we get very worried. Because we don't have the resources to provide the patient with proper care and meet their expectations" (Participant A004).

Furthermore, another participant further explained that the gravity of the situation as follows:

The impact of attendant's violence is like what we have studied as post-traumatic stress disorder. So, most of the employees experience post-traumatic stress disorder. Most of them are on antidepressants as a result. Because in these situations, we need a calm mind-set.

Also, we need peaceful surroundings to give proper care to the patients. (Participant A010)

Category Three - Political Instability. Bajaur has faced substantial political instability for many years due to various reasons. Firstly, the area has seen a surge in militant operations, specially by the Taliban and other radical organisations. Hence, this concern has been a central focus in Pakistan's fight against terrorism, resulting in frequent clashes and military actions, consequently causing political unrest.

Moreover, because of its close distance to the Afghanistan border, Bajaur has experienced insurgence from cross-border attacks and the presence of militants. This has worsened security concerns and created difficulties in governance. Thus, due to the political instability, the health system also suffered. One of the participants explained that "There is a lot of terrorism and fear in our area. It is common in our area because it is a tribal area. Thus, the situation has a lot of impact on our duty as well" (Participant A004).

Similarly, another participant affirmed that "It's a security risk area, and we faced a lot of threats during Talibanisation and when there was a military operation in our district. There is a bomb blast almost every other day in our area and in our district. So, you can say that this is a security compromise district and security compromise area in which we are performing duty." (Participant A007)

Moreover, another participant further stated that, "The situation in Bajaur is out of control. We are facing a lot of problems regarding terrorism in our area. So that's a big challenge for us. Firstly, we are facing security challenges from our security forces. For instance, whenever there is any incident, they move to that area, and they block the roads. The second reason, just like in previous years, we have been facing a lot of problems like the air bombings from the Pak army, air force, etc." (Participant A010)

Sub-theme Four - Climate Change

There are many challenges to registered nurses in Bajaur due to climate change, like most of times, there are heavy rains in district Bajaur, specially in the summer season and snowfall during winter. Hence, when there is heavy rainfall, it is difficult for the staff members to attend to their duties because there are canals in between the roads that cut off the population's link with the hospital. So, the staff has to wait for many hours to cross the roads. But they cannot cross them due to the canals. This issue causes delays for them in reaching their duty, or they are unable to attend the duty altogether. As a result, they have to call their colleagues in the hospital to do double duty in exchange for their absence. One of the participants shared the experience as,

There are a lot of climate changes. There is a lot of rain too. So, the canal is full of water. We

experience this issue frequently. Moreover, there is a big drain in the middle of our hospital. When it rains a lot, water comes out. And when it comes out, it becomes very difficult for us to go there. We have to wait for hours. If it stops, only then we are able to go. But if it doesn't stop, then we ask our colleagues to do double duty in lieu. (Participant A004)

Similarly, another participant added to this issue as follows:

I had an experience that there was a canal in the middle of the road. Because of this, there was a flood. The road was also damaged. There was no chance of coming to duty. Once, we got another staff to do the duty. He did the duty for 24 hours. The second time, we went a long way. It was about 10-15 km from here. So we came from the other road. (Participant A006)

Likewise, another participant shared his experience that,

In the winter, there are a lot of changes, and a lot of climate change occurs in our district. Consequently, these changes can destroy the roads or the way from which we are coming to the hospital. When there is a flood in our area, we wait for hours to reach our duty. So, it can affect our commute because there are very few bridges on the roads for the purpose of travel. So, we face problems frequently due to the climate, as well as from the weather changes, when we come to our duty. (Participant A007)

Sub-Theme Five - Strategies to Improve Primary Healthcare

Enhancing primary healthcare in District Bajaur necessitates a comprehensive strategy targeting the area's distinct obstacles, such as inadequate infrastructure, lack of healthcare personnel, and cultural factors.

Category One - Resource Optimisation and Human Resource Development. Most of the participants suggested some recommendations to enhance the quality of care in public primary health settings in the district Bajaur. Firstly, they demanded the high authority to provide resources to the hospitals like oxygen cylinders, electricity, technology, equipment, medicines; fulfill staff shortages, specially female staffs; increase salaries of all the employees; start regular training for nurses and other staffs; increase the security of the settings; provide ambulance to transfer patients who need

referrals to another hospital; and prevent manmade disasters in the region like bomb blasts. One of the participants explained that, In my opinion, there should be continuous professional training for the staff to manage disasters and similar challenges, as our hospital is surrounded by the neighbour countries and tribal areas. Moreover, resources like electricity should be provided because it is very important to maintain the cold chain of medicine. Furthermore, for the staff, they should be provided salaries on time. Also, there should be proper security for their safety. Likewise, resources should be available. In addition, I would also like to share that we must have proper staff, i.e., the male and female staff ratio needs to increase. Similarly, the facility of ambulance should be arranged. I strongly suggest these. (Participant A003)

Similarly, another participant described that, If we want to improve the health system, mainly in the district Bajaur, there are a lot of things to be done. The working condition for nurses should be improved in the entire health set-up. Like, hiring female nurses, providing them resources to manage mass casualties, including safeguarding the staff. (Participant A010)

Moreover, another participant explained that, There are many strategies to overcome these challenges like if providing basic facilities at the BHU [Basic Health Unit] level of our healthcare system, increasing the staff, improving the transport system, solving the security-related issues, only then we can overcome many challenges. If we provide basic facilities at the basic level of our healthcare system, i.e., increase the female staff to overcome the cultural barriers. Similarly, mother and childcare need to be improved because our females and neonates face more challenges regarding their care. Therefore, it would be better to work on this more. (Participant A009)

Category Two - Strengthening the Healthcare Infrastructure. Improving the healthcare infrastructure in the District Bajaur is crucial for enhancing the quality and accessibility of primary healthcare services. One of the participants explained that, We need biomedical employees [engineers]. If there is any out-of-working device, the biomedical department should be there to troubleshoot it, but we don't have biomedical departments. Thus, the biomedical department

is needed for managing the biomedical equipment, and technologies, which is a major requirement in the healthcare setting. They will maintain and repair equipment; consequently, we would be able to improve the health system. Thus, it is quite important to improve the working condition of the nurses. (Participant A010)

The Summary

This chapter covered the demographic data of the participants, participants' descriptions under one theme and its corresponding sub-themes and categories.

The study findings revealed challenges faced by registered nurses in rural primary health centres in district Bajaur, grouped into one major theme and five sub-themes with categories. The challenges highlighted included the shortage of workforce and resources, patient care and clinical challenges, security and safety concerns, climate change, and strategies to improve primary healthcare.

Subsequently, the strategies to improve primary healthcare in Bajaur include resource optimisation and human resource development, as well as strengthening healthcare infrastructure. Moreover, the participants suggested providing resources, increasing staff, improving security, and enhancing mother and childcare services to overcome the existing challenges. Overall, improving the healthcare infrastructure, working conditions and the security situation were highlighted as essential for enhancing the health system.

Chapter Five Discussion

This chapter discusses the findings of the study in light of relevant literature, followed by the study's strengths, limitations, and recommendations. Finally, the chapter ends with presenting the conclusion of the study.

This research explored the experiences of registered nurses working in the primary health centres in the public health care setting in the rural areas in the district Bajaur, Khyber Pakhtunkhwa, Pakistan.

For the purpose of research analysis, the data collected through the participants' in-depth interviews was analysed and extracted. The data extraction led to one theme 'The Challenges Experienced by Nurses' and five sub-themes that were: (i) Shortage of workforce and other

resources; (ii) Patient care and clinical challenges; (iii) Security and safety concerns; (iv) Climate change; and (v) Strategies to improve primary healthcare. Each of these sub-themes was then analysed further into categories. These have been discussed in this chapter, including the citation of the published literature that supports or provides different viewpoints about these findings.

The Shortage of Workforce and Other Resources in the Rural Primary Health Centres The participants described the shortage of workforce and resources in the rural primary health centres and its negative impact on their work. The dearth of the workforce and the resources highlighted was categorised into the shortage of the following in the context:

(a) registered nurses, (b) medicines, and (c) medical and surgical supplies.

The Shortage of Registered Nurses

Most of the participants shared that due to the shortage of nurses in the context, they were required to double and triple shifts, extending to 12 to 24 hours. This study finding is consistent with the findings of Perez (2021) who affirmed that the United States faces significant deficiencies in its healthcare workforce, particularly in the rural areas, lacking proper service. One challenge of a poorly supported health systems is the struggle to hire and retain healthcare workers, especially in rural areas. In addition, inadequate wages, substandard working environment, inadequate support system, and insufficient equipment and infrastructure contribute to staffing status, contribute to shortage of nurses. These findings correspond to the findings of a research by Mafhungo (2022) which stated that nurses in the Msukaligwa Sub-district of South Africa were encountering difficulties due to a lack of staff and other resources.

Similarly, Islamuddin (2022) reported a shortage of nursing staff in Chitral, which since the country's independence in 1947 till 2018, was a district in the Malakand Division of the Pakistani province of Khyber Pakhtunkhwa. Further, the lack of nurses in the workforce in the primary healthcare setting is an obstacle leading to a significant decline in healthcare service quality. This shortage is also hindering the efforts to enhance the vision of global

well-being and impeding the world's progress towards universal health coverage (Tamata & Mohammadnezhad, 2022). Likewise, Kovacs and Lagarde (2022) also reported that in low- and middle-income nations, it is commonly believed that inadequate staffing results in high workload, which negatively impacts the healthcare quality as a consequence.

Moreover, the participants also reported that due to inadequate and low pay scale, the retention of staff is quite a challenge. This also correlates with a study conducted by Ahmed et al. (2020) in Mali, West Africa, which reported that one of the reasons for the lack of staff is that they are generally not attracted to rural placements. This reluctance is due to their individual reasons such as family situation and age and other reasons include unsatisfactory living and working conditions, an unfavourable recruitment/allocation process, and inadequate financial rewards.

The Shortages of Medicines

The goal of universal health coverage is not achievable if there is a lack of adequate medicines (Damian et al., 2018). This stance is supported by the participants' claim there were shortages of medicines in their setups. Most of the participants asserted that the shortage was due to a lack of supply by the district health office (DHO). The participants further reported that they had demanded from the high authority multiple times, but they still were unable to receive the sufficient supply required to meet the needs. That's why due to the shortage of medicines, most of the patients could not receive the essential medicines.

Likewise, a similar study conducted in Indonesia stated that supply issues are mainly because providing medicines in healthcare settings is not a priority in the rural parts of Indonesia (Fanda et al., 2024). This finding is also supported by a study conducted in India, which explained that limited access to treatment is mainly hindered by inadequate availability, expensive medication, and unaffordable prices, particularly in numerous low- and middle-income nations (Tripathi et al., 2018). Moreover, in Nepal, delays in acquiring supplies and managing the pharmaceutical supply chain were found to be crucial factors causing shortages of essential medicines at the service delivery points (Adhikari et al., 2024; Denu et al., 2023).

The Shortage of Medical and Surgical Supplies

This study identified that the study settings lacked essential equipment like some participants reported that they even had a shortage of oxygen cylinders and machinery in the laboratory and defibrillators. Hence, due to lack of equipment, nurses cannot give adequate care to the patients.

Similarly, a study by Masuwa (2022) correlates with this finding. It states that issues arising from a lack of medical equipment and supplies were recognised, thus leading to an inability to deliver high-quality nursing care. Therefore, a lack of resources not only hampers nurses' performance but also negatively impacts their personal lives. Likewise, another study conducted in a rural hospital in South Africa by Moyimane et al (2017) stated that the hospital faced a critical lack of medical equipment in the form of equipment being unavailable or of low quality, and poorly maintained. Hence, the findings revealed that the lack of supply had a detrimental effect on nursing care, the nursing field, and the hospital as a whole.

The Patient Care and Clinical Challenges

Registered nurses working in the primary healthcare facilities in the District Bajaur face a variety of patient care and clinical obstacles, such as issues with handling emergencies, difficulty in making patient referrals, challenges in running the NICU, and cultural barriers.

Each of the challenges has been described further as under:

Emergency Management

From the study's findings, it has been identified that nurses face difficulties in offering efficient care during a major causality or critical situations, as they have limited resources. Nevertheless, they still managed to take care of the patients for a short time. Meanwhile, if there was a need of a longer stay, then they used to refer the patient to the upper-level health facility. This finding is consistent with a study conducted by Shah et al. (2020), the results of which indicate that rural health centres do not have enough resources to adequately serve local communities during disasters, and there are notable deficiencies in all three aspects of their emergency readiness. Specifically, rural health centre employees are inadequately trained, and

the facilities do not have enough space, beds, and equipment to provide relief services in general.

Patient Referral Difficulties

Most of the participants share their concerns about the poor infrastructure, uneven roads and transportation problems for both the employees, as well as for patients, thus making it difficult to reach the healthcare facility. The participants explained that whenever they refer patients to the secondary or tertiary level care setting, it takes the patients a long time to reach there. This observation correlates with the study conducted by Dassah et al. (2018) which found that patients had to cover large distances in order to access a facility.

Moreover, the substandard quality of roads in many rural areas was also highlighted by the participants as an impediment faced by patients in seeking quality care, besides the long distances. Hence, these roads presented a significant obstacle for people seeking healthcare services. Furthermore, another study in Brazil affirms this study's findings by sharing the observation that rural areas in many countries struggle with transport and communication challenges, and limited and unevenly distributed healthcare workers catering to patients, consequently resulting in poor working conditions (Franco et al., 2021b).

Likewise, this finding is similar to a study conducted in Pakistan by Gulzar et al. (2013) which stated that travelling from remote locations to access the advanced facility resulted in care delays, raised expenses, and presented challenges for ill individuals forced to navigate tough roads in severe weather.

The Cultural Barriers

From the result section, it has been identified that there are cultural barriers in providing care to patients, specially when a male health worker provides care to female patients. This finding also correlates with a study conducted in Nigeria by Philip and Chima (2017) which identified that cultural elements such as behaviours, beliefs, and traditions are believed to impact the acceptance, use, or refusal of healthcare services. These findings corroborate with a study conducted in Afghanistan by Samar et al. (2014) which explored how cultural norms impose

strict limitations on a woman's autonomy to access healthcare.

However, another study suggested that while there are obstacles in offering culturally sensitive care, it is crucial to enhance awareness of cultural competence in order to create effective education and training methods for improved nursing practice with diverse populations (Young & Guo, 2016).

The Challenges in Operating the NICU

From the study's findings, it was found that there was no proper NICU and new-born nursery in the district Bajaur. Most of the participants affirmed that they provided the initial care to the neonates and then referred them to a higher health facility for further treatment.

This observation is also consistent with a study conducted in West Africa by Addy et al. (2023) which explained that the quality of neonatal care is influenced by the presence and convenience of resources and infrastructure. Moreover, scarce resources like medical equipment, medications, and skilled healthcare staff can impede the delivery of top-quality care for new-born babies. Consequently, insufficient resources frequently result in ineffective monitoring and treatment for new-borns, thus leading to compromised health outcomes.

Likewise, another study conducted by Sumankuuro et al. (2018) has similar findings, results indicate substantial obstacles impacting the quality and suitability of maternal and neonatal health services in rural areas. Moreover, the challenges included insufficient medical supplies and necessary medications, problems with infrastructure, a lack of trained personnel, expensive informal expenses for medications, and the overall limited ability to deliver care.

The Security and Safety Concerns

Bajaur is located in the border region with Afghanistan due to which its security is compromised and people, including health care workers, continually face security and safety concerns. Additionally, in the past, Bajaur has experienced insurgent activities. That's why these continuous security risks prevent healthcare professionals from practicing effectively in the region and hinder the movement of health workers. Therefore, these

issues related to the socio-political environment and geographic obstacles are specially important and need to be effectively dealt with because of their negative implications for the healthcare system in the region.

Security Threats

Most of the participants revealed that they felt insecure in the hospital, as the government did not provide proper security for the safety of their employees. Therefore, due to the lack of proper security, most of the staff members were leaving the hospital specially those employees who were non-local (Not the residents of the district Bajaur).

Furthermore, the concerns about personal safety have also been discussed in a study conducted in Australia by Wright et al. (2024) which stated that inadequate personal safety can result in burnout among staff and eventually a higher rate of turnover. The finding is also consistent with a study by Bidwell et al. (2014) which reported that insecurity and elevated crime rates were a significant problem within and beyond the workplace in South Africa. So every instance of insecurity was documented occurring in public health facilities, particularly in the rural areas.

One study conducted by Okeke and Mabuza (2017) showed results different from the study that is, the majority of participants stated that they felt safe. Meanwhile, more than half of them mentioned that they felt secure when there were increased numbers of security staff present in the hospital. However, it is pertinent to note that this difference in results is due to the geography, as Bajaur is attached with Afghanistan; therefore, this area is considered as a war zone.

Similarly, most of the participants asserted that they often encounter security threats while performing their duty, particularly when they go out in the community to conduct outreach campaigns for mass vaccination. Moreover, through giving specific examples, the participants reported that polio workers were targeted multiple times.

This finding is consistent with a study conducted in Afghanistan by Shoib et al. (2022) which showed that healthcare workers, including those at the renowned maternity hospital, were victims of brutal attacks that resulted in the loss of many lives. Additionally, a prominent doctor in Afghanistan while

returning home from his work was kidnapped by armed individuals.

Verbal and Physical Abuse

From the study finding, it has been identified that most of the time, nurses face verbal abuse and sometimes experience physical violence in their workplace during duty hours, notably when they deal with emergency patients. The reason is that although the team works with all of their efforts, the staff is not able to fulfil patients' and their attendants' expectations due to the shortage of workforce and other resources.

Moreover, a study conducted in Hong Kong by Cheung and Yip (2017) is consistent with the findings of this study which showed that 44.6% of nurses had encountered workplace violence within a year. Furthermore, male nurses tend to experience a higher rate and level of workplace violence as compared to female nurses. Moreover, verbal abuse and bullying were the most frequent types of workplace violence, accounting for 39.2% of cases, followed by physical assault at 22.7% and sexual harassment at 1.1%.

Furthermore, this finding is also cognizant of the findings of another study conducted by Lu et al. (2020) which showed that out of 44 studies that provided data, the total incidence of workplace violence among health care professionals was found to be 62.4%. Specifically, physical violence was estimated to be 13.7%, psychological violence at 50.8%, verbal abuse at 61.2%, threats at 39.4%, and sexual harassment at 6.3%. Moreover, men were more prone to experiencing workplace violence compared to women.

Political Instability

The district Bajaur is facing political instability for many years due to its location bordering Afghanistan. Hence, military operations are frequent there. Thus, most of the participants highlighted that they worked in an area with a security risk and faced the fear and stress of working in the border region.

Moreover, due to the prevalent political instability, patient care was compromised, as the government was constantly preoccupied with countering the militants' activities and could not focus on the upliftment of the health sector. This finding further correlated with a study

conduct by Abasse et al. (2021), where the analysis of the study revealed the negative impact of political instability on different health indicators such as leadership and governance, health financing, human resources, and the quality of health services.

Likewise, another study conducted by Spiegel et al. (2024) also supported this finding, which showed that conflict and political instability impact the health system in various ways, thus leading to challenges in accessing and delivering healthcare services. These challenges include attacks on health facilities, the scarcity of resources, limited access to healthcare, lack of data, and inadequate coordination and leadership.

The Climate Change

From the study, it has been identified that most of the participants raised their concern about climate change and its severity in the district Bajaur, due to which they were not able to reach the hospital during health emergencies. The participants described that due to impeding factors like the harsh weather, heavy rains, floods, and roads block, they were often unable to reach their duty places. Consequently, they were compelled to request their colleagues to continue their shifts and stay back until the alternate staff was able to reach the hospital. As a result of the severe weather conditions, patients' care often gets compromised, as the staff's timely arrival on the service site gets delayed, or they end up becoming absent altogether from their duty. These observations corroborate with the findings reported by a study which stated that severe weather conditions impact health outcomes globally (Codjoe et al., 2020). Similar findings were also presented by another study that found climate change not only impacts the lives of healthcare professionals but also complicates their work, thereby increasing their likelihood of burnout. Likewise, it's not just severe weather conditions but natural disasters like floods, wildfires, and other extreme incidents that frequently hinder their ability to reach medical facilities (Seervai et al., 2022).

The Strategies to Improve Primary Healthcare
Enhancing primary healthcare in District Bajaur, which faces security challenges, lacks infrastructure, and is geographically isolated, necessitates a comprehensive strategy. Hence, to

mitigate the challenges, the participants suggested key strategies that could improve healthcare delivery in the district.

Resource Optimisation and Human Resource Development

Most of the participants in this study asserted that there should be resource optimisation and strengthening of the healthcare infrastructure to enhance the quality health care in public primary healthcare. They further shared that there should be opportunities for continuous professional training for nurses to enhance their skills. Moreover, this study's findings are consistent with a study conducted by Suprpto et al. (2023) which found that nurses' satisfaction is greatly influenced by the training factor. Thus, nurses in hospitals must enhance their skills and expertise to enhance the quality of nursing care as healthcare providers.

Strengthening the Healthcare Infrastructure

Most of the participants suggested that improving the health infrastructure is important for delivering the quality of primary healthcare services. This finding is supported by a study conducted in Tanzania which stated that the development of infrastructure is a crucial aspect of an efficiently operating healthcare system. Therefore, health facilities must be designed to meet healthcare needs, provided with essentials like electricity and water, staffed with skilled health professionals, and upgraded to ensure the provision of quality services for universal health coverage (Kapologwe et al., 2020).

The Strengths of the Study

The following aspects have been identified as the strengths of this research:

Context Specific Insights

To the best of the researcher's knowledge, probably this is the first study conducted in the district Bajaur. Thus, the research offers valuable, detailed perspectives on the experiences of nurses in rural primary health centres in the District Bajaur, an area frequently overlooked in healthcare studies. Moreover, this data specific to the context points out distinct obstacles and possibilities important for remote, underserved communities.

Policy and Practice Relevance

The findings of this study provided the baseline data about experiences and challenges nurses face in public primary health centres which can be used for future research studies. It further provides suggestions for various areas (education, research, policy, and practice), ensuring that its results can benefit not just academics but also policymakers, healthcare leaders, and nursing instructors. More importantly, the findings of the study have attempted to connect research with practical applications in the real world.

A Contribution to the Rural Healthcare Knowledge

This study attempts to add to the existing information by examining the rural primary health centres. In addition, it offers strategies that can help in shaping the landscape of healthcare policy and make the necessary provision for health care facilities in rural regions, specifically in developing nations.

Identifying Key Challenges and Solutions

The study offers practical suggestions to enhance healthcare delivery and improve working conditions for nurses in remote areas, addressing issues like resource limitations, cultural obstacles, security issues and workload.

Qualitative Depth

Face-to-face interviews provided the researcher a better understanding of the situation and enabled him to gather detailed information on the personal experiences, perspectives, and obstacles faced by nurses which could not have been understood while using other mediums.

Limitations of the Study

The following points highlight certain areas that this study could not be covered per the set scope of the study:

Short Time Frame

Due to time constraints, low budget, and the defined scope of the master thesis, this study was conducted only in one district of the Khyber Pakhtunkhwa province. However, an extended period could have offered more in-depth insights.

Lack of Comparative Data

Drawing conclusions about the distinct challenges faced by rural primary health centres

is difficult without examining the experiences of nurses in rural areas when compared to those in urban settings. Hence, this limitation could restrict the ability of the researcher to determine if the identified problems are specific to the rural areas only or if they are experienced in the urban healthcare centres also.

Lack of Gender Diversity

The researcher conducted interviews with male nurses only and failed to capture the perspectives of female nurses as the study settings had three nurses, one was on leave and the other two nurses refused to participate due to their busy duty schedule.

The Recommendations

Based on the research findings, the following are some of the recommendations for improving universal healthcare generally at different levels in a rural setting:

At the Policy Level

The following recommendations are being given at the policy level:

Recruitment for Rural Areas. The Khyber Pakhtunkhwa government's health department needs to create strategies for hiring and retaining employees to prevent high turnover. Similarly, the health department needs to hire additional nurses and support staff in order to even out the nurse-to-patient ratio, thereby easing the workload and avoiding burnout.

Enhancing Policy Support for Nurses in Rural Areas. There is a need to put in place policies to enhance the working environment for nurses in rural healthcare facilities, like offering nurses suitable housing, transportation benefits, and extra allowances for working in challenging conditions.

Nurses' Autonomy in Decision-making. Support policy reforms are needed that provide registered nurses with more autonomy in making decisions about patient care, particularly in the underprivileged and isolated regions.

Infrastructure Development. There is a need to advocate for policy measures designed to enhance healthcare infrastructure in rural regions, such as increased availability of medical supplies, equipment, and facilities. Similarly, an uninterrupted supply of essential medical equipment should be ensured in the hospital in collaboration with global bodies like WHO, UN and UNICEF to overcome the scarcity. Likewise,

policymakers and programme managers should invest in fulfilling the requirements of the healthcare system such as providing oxygen supply to the patients.

Security Enhancement. There is a need to provide adequate security to all employees working in public primary health centres in the Bajaur district to ensure a safe working environment.

The Practice Level

The following recommendations are being given at the practice level:

Multidisciplinary Collaboration. There is a need to encourage collaboration among nurses, community health workers, and healthcare professionals to ensure holistic care for rural populations. Additionally, it is imperative to create united and balanced work environments through solid teamwork, backing from co-workers, effective supervision and support from leadership and management to facilitate communication throughout the organisations, as well as offer practical and competitive pay to the nursing staff (Jongen et al., 2019).

Community-based Health Interventions. There is a need to enhance nurse-run community programmes that emphasise health education, and immunisation campaigns, and provide care to mothers and children. Also, communities need to be actively involved to lessen the impact of avoidable illnesses, lower cultural obstacles, and enhance the comprehension of the nurses' responsibilities. Moreover, primary health care must be more responsive towards the changing requirements of the population. These measures will, in turn, enhance the patient-focused aspect and adaptability of healthcare systems (Langlois et al., 2020).

Nurse Role Expansion. There is a need to empower registered nurses to assume broader responsibilities in primary care settings, such as identifying common illnesses, providing treatments, and overseeing chronic conditions.

Telemedicine Utilisation. It is imperative to promote the utilisation of telemedicine to connect rural health facilities with tertiary care hospitals, thus enhancing the community's accessibility to specialist advice and ensuring ongoing medical training for nurses.

At the Educational Level

The following recommendations are being given at the educational level:

Improve Nursing Education in Remote Areas. It is imperative to create rural nursing education initiatives that concentrate on primary healthcare, community health nursing, and cultural competence.

Continual Professional Development. It is important to create organised programmes for ongoing training and mentoring to improve clinical expertise and leadership skills. Likewise, nurses should receive frequent in-service training and professional development opportunities to stay updated on the latest practices and technologies. Moreover, the main focus should be towards transforming the primary health care system into a learning platform that leverages digital data and innovative technologies for staff training, decision support, and quality control (Li et al., 2020).

Distance Learning Opportunities. Online education platforms and certification programmes for nurses in distant locations should be offered to enhance their skills and expertise.

Rural Nursing Curriculum. There is a need to incorporate rural health challenges, telenursing, and limited resource utilisation modules into nursing programmes to better equip students for serving in rural healthcare environments.

At the Research Level

The following recommendations are being given at the research level:

Context-Specific Research. More research should be conducted in the remote areas of Pakistan to explore the challenges specific to the context. Specifically, there is a need to encourage studies on health issues specific to the District Bajaur, such as disease trends, cultural traditions, and patient requirements.

Nurse-led Research. There is a need to encourage and support nurses in rural healthcare to take on and lead research projects and engage in developing evidence-based practices.

The Workplace Environment Research. Explore how working conditions, staffing levels, and job satisfaction affect the retention of nurses and the quality of care in rural areas.

There is also a need to explore the perceptions of stakeholders regarding the challenges nurses face in the primary health setups in the remote areas to have a better understanding and whether the registered nurses' needs and requirements were felt or understood at a higher level or not.

A Summary of the Chapter

This chapter discussed the key findings of the study and cited the published literature.

Most of the findings about the experiences and challenges experienced by nurses in the primary health centres were consistent with the observations made in the relevant literature. Besides, the relevant literature provided different points of views, which added to the study's depth. Finally, the chapter ended with sharing the strengths and limitations of the study and also provided certain recommendations for initiatives for the betterment of nursing care.

The Conclusion

This study probably is a ground-breaking study in the district Bajaur in Pakistan which explored the experiences of registered nurses working in the public primary health setups. The study concluded that nurses face many challenges working in primary health centres like they experience a shortage of workforce, shortages of resources, workload, security issues, cultural barriers, referral and transportation difficulties, and challenges related to climate change. However, there are some recommendations to handle these challenges; for example, the government should prepare proper recruitment policies for rural health setups, fulfil the needs to overcome the shortage of resources, develop infrastructure, and make certain the safety and security of the staff working in these setups.

REFERENCES

- Abasse, K., Kassim, said abasse, Abbas, M., Nasiru Sintali, D., Baig, M. M. F. A., & Côté, A. (2021). An Overview of Healthcare Systems in Comoros: The Effects of Two Decades of Political Instability. *Annals of Global Health*.
- Abdullah, Z., Abdul Aziz, S. H., Sodri, N. A., Mohd Hanafiah, A. N., Ibrahim, N. I., & Johari, M. Z. (2020). Issues and Challenges in Implementing Care Coordinator in Primary Healthcare in Malaysia: A Qualitative Study. *Journal of Primary Care & Community Health*, 11, 2150132720956478. <https://doi.org/10.1177/2150132720956478>
- Addy, A., Opuni Frimpong, P., Kwakye, H., Otoo, J., & Benneh Mensah, G. (2023). Challenges Faced By Healthcare Providers in Delivering High-Quality Care to Neonates in Ghana and West Africa. *International Journal For Multidisciplinary Research*, 5, 1-35. <https://doi.org/10.36948/ijfmr.2023.v05i05.6881>
- Adhikari, B., Ranabhat, K., Khanal, P., Poudel, M., Marahatta, S. B., Khanal, S., Paudyal, V., & Shrestha, S. (2024). Procurement process and shortages of essential medicines in public health facilities: A qualitative study from Nepal. *PLOS Global Public Health*, 4(5), e0003128. <https://doi.org/10.1371/journal.pgph.0003128>
- Ahmed, M. A. A., Diakite, S. L., Sissoko, K., Gagnon, M.-P., & Charron, S. (2020). Factors explaining the shortage and poor retention of qualified health workers in rural and remote areas of the Kayes, region of Mali: A qualitative study. *Rural and Remote Health*, 20(3), 1-9. <https://doi.org/10.3316/informit.492916640290875>
- Alshawish, E., & Naerat, E. (2020). Burnout and psychological distress among nurses working in primary health care clinics in West Bank-Palestine. *International Journal of Mental Health*, 49, 1-15. <https://doi.org/10.1080/00207411.2020.1752064>
- Al-Yateem, N. (2012). The effect of interview recording on quality of data obtained: A methodological reflection. *Nurse Researcher*, 19(4), 31-35. <https://doi.org/10.7748/nr2012.07.19.4.31.c9222>
- Bain, L. E., & Adeagbo, O. A. (2022). There is an urgent need for a global rural health research agenda. *The Pan African Medical Journal*, 43, 147. <https://doi.org/10.11604/pamj.2022.43.147.38189>

- Bauer, L., & Bodenheimer, T. (2017). Expanded Roles of Registered Nurses in Primary Care Delivery of the Future. *Nursing Outlook*, 65. <https://doi.org/10.1016/j.outlook.2017.03.011>
- Beks, H., Clayden, S., Shee, A. W., Binder, M. J., O'Keeffe, S., & Versace, V. L. (2023). Evaluated nurse-led models of care implemented in regional, rural, and remote Australia: A scoping review. *Collegian*, 30(6), 769–778. <https://doi.org/10.1016/j.colegn.2023.05.004>
- Bidwell, P., Laxmikanth, P., Blacklock, C., Hayward, G., Willcox, M., Peersman, W., Moosa, S., & Mant, D. (2014). Security and skills: The two key issues in health worker migration. *Global Health Action*, 7(1), 24194. <https://doi.org/10.3402/gha.v7.24194>
- Bureau of Statistics, Khyber Pakhtunkhwa. (2023). Bureau of Statistics | Khyber Pakhtunkhwa. <http://kpbos.gov.pk>
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652–661.
- Cassiani, S. H. D. B., & Silva, F. A. M. da. (2019). Expanding the role of nurses in primary health care: The case of Brazil. *Revista Latino-Americana De Enfermagem*, 27, e3245. <https://doi.org/10.1590/1518-8345.0000.3245>
- Cheung, T., & Yip, P. S. F. (2017). Workplace violence towards nurses in Hong Kong: Prevalence and correlates. *BMC Public Health*, 17(1), 196. <https://doi.org/10.1186/s12889-017-4112-3>
- Codjoe, S. N. A., Gough, K. V., Wilby, R. L., Kasei, R., Yankson, P. W. K., Amankwaa, E. F., Abarike, M. A., Atiglo, D. Y., Kayaga, S., Mensah, P., Nabilse, C. K., & Griffiths, P. L. (2020). Impact of extreme weather conditions on healthcare provision in urban Ghana. *Social Science & Medicine*, 258, 113072. <https://doi.org/10.1016/j.socscimed.2020.113072>
- Creswell, J. W. (2014). *A Concise Introduction to Mixed Methods Research*. SAGE Publications.
- Cypress, B. S. (2017). Rigor or Reliability and Validity in Qualitative Research: Perspectives, Strategies, Reconceptualization, and Recommendations. *Dimensions of Critical Care Nursing*, 36(4), 253–263. <https://doi.org/10.1097/DCC.0000000000000253>
- Damian, R., Bana, B., & Kessy, A. (2018). Essential medicine stock-outs in rural primary health care-exploring the contribution of politics and resulting perceptions in Kasulu District, Tanzania. 7, 2486–2513.
- Dassah, E., Aldersey, H., McColl, M. A., & Davison, C. (2018). Factors affecting access to primary health care services for persons with disabilities in rural areas: A “best-fit” framework synthesis. *Global Health Research and Policy*, 3(1), 36. <https://doi.org/10.1186/s41256-018-0091-x>
- De Oliveira, A., De Sousa, Y., Alves, J., De Medeiros, S., Martiniano, C., & Alves, M. (2019). Satisfaction and limitation of primary health care nurses' work in rural areas. *Rural and Remote Health*. <https://doi.org/10.22605/RRH4938>
- Denny, E., & Weckesser, A. (2018). Qualitative research: What it is and what it is not. *BJOG: An International Journal of Obstetrics and Gynaecology*. Denu, Z. A., Yassin, M. O., Azale, T., Biks, G. A., & Gelaye, K. A. (2023). Insufficient Supply, Diagnostic Services, and Lack of Trained Personnel in Primary Hospitals in North-West Ethiopia Worsened Trauma Care: A Mixed-Method Study. *Disaster Medicine and Public Health Preparedness*, 17, e135. <https://doi.org/10.1017/dmp.2022.44>

- Endalamaw, A., Khatri, R. B., Erku, D., Zewdie, A., Wolka, E., Nigatu, F., & Assefa, Y. (2024). Barriers and strategies for primary health care workforce development: Synthesis of evidence. *BMC Primary Care*, 25(1), 99. <https://doi.org/10.1186/s12875-024-02336-1>
- Fanda, R. B., Probandari, A., Yuniar, Y., Hendarwan, H., Trisnantoro, L., Jongeneel, N., & Kok, M. O. (2024). The availability of essential medicines in primary health centres in Indonesia: Achievements and challenges across the archipelago. *The Lancet Regional Health - Southeast Asia*, 22. <https://doi.org/10.1016/j.lansea.2023.100345>
- Ferreira, S. R. S., Périco, L. A. D., & Dias, V. R. F. G. (2018). The complexity of the work of nurses in Primary Health Care. *Revista Brasileira De Enfermagem*, 71(suppl 1), 704-709. <https://doi.org/10.1590/0034-7167-2017-0471>
- Franco, C. M., Lima, J. G., & Giovanella, L. (2021a). Primary healthcare in rural areas: Access, organization, and health workforce in an integrative literature review. *Cadernos de Saúde Pública*, 37, e00310520.
- Franco, C. M., Lima, J. G., & Giovanella, L. (2021b). Primary healthcare in rural areas: Access, organization, and health workforce in an integrative literature review. *Cadernos de Saude Publica*, 37(7), e00310520. <https://doi.org/10.1590/0102-311x00310520>
- García Vera, M., Aparecida Barbosa Merighi, M., Aparecida Conz, C., da Silva, M. H., Pinto de Jesus, M. C., & Muñoz González, L. A. (2018, January 2). Primary health care: The experience of nurses. | *Revista Brasileira de Enfermagem* | EBSCOhost. <https://doi.org/10.1590/0034-7167-2016-0244>
- Ghafoor, Y., Yaqoob, Mr. A., Bilal, Mr. A., & Ghafoor, Ms. S. (2021). Impact of Nurse Shortage on Patient Care. *Saudi Journal of Nursing and Health Care*, 4(4), 114-119. <https://doi.org/10.36348/sjnhc.2021.v04i04.003>
- Ghafouri, R., & Ofoghi, S. (n.d.). Trustworth and Rigor in Qualitative Research.
- Gill, P., & Baillie, J. (2018). Interviews and focus groups in qualitative research: An update for the digital age. *British Dental Journal*, 225(7), 668-672. <https://doi.org/10.1038/sj.bdj.2018.815>
- Gizaw, Z., Astale, T., & Kassie, G. M. (2022). What improves access to primary healthcare services in rural communities? A systematic review. *BMC Primary Care*, 23(1), 313. <https://doi.org/10.1186/s12875-022-01919-0>
- Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting Qualitative Data: A Field Manual for Applied Research*. SAGE.
- Gulzar, S., Khoja, S., & Sajwani, A. (2013a). Experience of nurses with using eHealth in Gilgit-Baltistan, Pakistan: A qualitative study in primary and secondary healthcare. *BMC Nursing*, 12(1), 6. <https://doi.org/10.1186/1472-6955-12-6>
- Gulzar, S., Khoja, S., & Sajwani, A. (2013b). Experience of nurses with using eHealth in Gilgit-Baltistan, Pakistan: A qualitative study in primary and secondary healthcare. *BMC Nursing*, 12, 6. <https://doi.org/10.1186/1472-6955-12-6>
- Halcomb, E., Stephens, M., Bryce, J., Foley, E., & Ashley, C. (2016). Nursing competency standards in primary health care: An integrative review. *Journal of Clinical Nursing*, 25(9-10), 1193-1205. <https://doi.org/10.1111/jocn.13224>
- Hunter, D., McCallum, J., & Howes, D. (2019). Defining exploratory-descriptive qualitative (EDQ) research and considering its application to healthcare. *Journal of Nursing and Health Care*, 4(1).

- Islamuddin, S. (2022a). Nursing Challenges in Karimabad Valley, Chitral, Pakistan. *Journal of the College of Physicians and Surgeons-Pakistan: JCPSP*, 32(8), 1098-1099. <https://doi.org/10.29271/jcpsp.2022.08.1098>
- Islamuddin, S. (2022b). Nursing Challenges in Karimabad Valley, Chitral, Pakistan. *Journal of the College of Physicians and Surgeons-Pakistan: JCPSP*, 32(8), 1098-1099. <https://doi.org/10.29271/jcpsp.2022.08.1098>
- Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A Review of the Quality Indicators of Rigor in Qualitative Research. *American Journal of Pharmaceutical Education*, 84(1), 7120. <https://doi.org/10.5688/ajpe7120>
- Jongen, C., McCalman, J., Campbell, S., & Fagan, R. (2019). Working well: Strategies to strengthen the workforce of the Indigenous primary healthcare sector. *BMC Health Services Research*, 19(1), 910. <https://doi.org/10.1186/s12913-019-4750-5>
- Kagi, E., Rasiah, R., & Moran, M. (2023). Experiences of primary health care nurses advancing their careers in a remote Western Australian location. *Australian Journal of Rural Health*, 31(1), 41-51. <https://doi.org/10.1111/ajr.12904>
- Kapologwe, N. A., Meara, J. G., Kengia, J. T., Sonda, Y., Gwajima, D., Alidina, S., & Kalolo, A. (2020). Development and upgrading of public primary healthcare facilities with essential surgical services infrastructure: A strategy towards achieving universal health coverage in Tanzania. *BMC Health Services Research*, 20(1), 218. <https://doi.org/10.1186/s12913-020-5057-2>
- Khan, S. J., Asif, M., Aslam, S., Khan, W. J., & Hamza, S. A. (2023a). Pakistan's Healthcare System: A Review of Major Challenges and the First Comprehensive Universal Health Coverage Initiative. *Cureus*, 15(9). <https://doi.org/10.7759/cureus.44641>
- Khan, S. J., Asif, M., Aslam, S., Khan, W. J., & Hamza, S. A. (2023b). Pakistan's Healthcare System: A Review of Major Challenges and the First Comprehensive Universal Health Coverage Initiative. *Cureus*. <https://doi.org/10.7759/cureus.44641>
- Khan, S. U., & Hussain, I. (2020). Inequalities in health and health-related indicators: A spatial geographic analysis of Pakistan. *BMC Public Health*, 20(1), 1800. <https://doi.org/10.1186/s12889-020-09870-4>
- Khowaja-Punjwani, S. (2020). Nursing in Pakistan: Issues and challenges. *Eubios Journal of Asian & International Bioethics*, 30(5).
- Kovacs, R., & Lagarde, M. (2022). Does high workload reduce the quality of healthcare? Evidence from rural Senegal. *Journal of Health Economics*, 82, 102600. <https://doi.org/10.1016/j.jhealeco.2022.102600>
- Lalani, N., & Cai, Y. (2022). Palliative care for rural growth and wellbeing: Identifying perceived barriers and facilitators in access to palliative care in rural Indiana, USA. *BMC Palliative Care*, 21(1), 25. <https://doi.org/10.1186/s12904-022-00913-8>
- Langlois, E. V., McKenzie, A., Schneider, H., & Mecaskey, J. W. (2020). Measures to strengthen primary health-care systems in low- and middle-income countries. *Bulletin of the World Health Organization*, 98(11), 781-791. <https://doi.org/10.2471/BLT.20.252742>
- Lateef, A., & Mhlongo, E. M. (2021). Nurses' Encountered Challenges with Patient-centered Care in Rural Primary Health Care Centers: A Case Study of Nigeria. <https://doi.org/10.21203/rs.3.rs-144186/v1>
- Li, X., Krumholz, H. M., Yip, W., Cheng, K. K., Maeseneer, J. D., Meng, Q., Mossialos, E., Li, C., Lu, J., Su, M., Zhang, Q., Xu, D. R., Li, L., Normand, S.-L. T., Peto, R., Li, J.,

- Wang, Z., Yan, H., Gao, R., ... Hu, S. (2020). Quality of primary health care in China: Challenges and recommendations. *The Lancet*, 395(10239), 1802–1812. [https://doi.org/10.1016/S0140-6736\(20\)30122-7](https://doi.org/10.1016/S0140-6736(20)30122-7)
- Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Program Evaluation*, 1986(30), 73–84. <https://doi.org/10.1002/ev.1427>
- Lu, L., Dong, M., Wang, S.-B., Zhang, L., Ng, C. H., Ungvari, G. S., Li, J., & Xiang, Y.-T. (2020). Prevalence of Workplace Violence Against Health-Care Professionals in China: A Comprehensive Meta-Analysis of Observational Surveys. *Trauma, Violence, & Abuse*, 21(3), 498–509. <https://doi.org/10.1177/1524838018774429>
- Lukewich, J., Allard, M., Ashley, L., Aubrey-Bassler, K., Bryant-Lukosius, D., Klassen, T., Magee, T., Martin-Misener, R., Mathews, M., Poitras, M.-E., Roussel, J., Ryan, D., Schofield, R., Tranmer, J., Valaitis, R., & Wong, S. T. (2020). National Competencies for Registered Nurses in Primary Care: A Delphi Study. *Western Journal of Nursing Research*, 42(12), 1078. <https://doi.org/10.1177/0193945920935590>
- Mafhungo, T. C. (2022). Challenges experienced by professional nurses at the rural primary health care facilities in Msukaligwa Sub-District of Mpumalanga Province, South Africa. <https://univendspace.univen.ac.za/handle/11602/2266>
- Majid, M. A. A., Othman, M., Mohamad, S. F., Lim, S. A. H., & Yusof, A. (2017). Piloting for interviews in qualitative research: Operationalization and lessons learnt. *International Journal of Academic Research in Business and Social Sciences*, 7(4), 1073–1080.
- Malakoane, B., Heunis, J. C., Chikobvu, P., Kigozi, N. G., & Kruger, W. H. (2020). Public health system challenges in the Free State, South Africa: A situation appraisal to inform health system strengthening. *BMC Health Services Research*, 20(1), 58. <https://doi.org/10.1186/s12913-019-4862-y>
- Mamalelala, T. T., Holzemer, W., Seloilwe, E. S., Iwu, E., & Kamienski, M. (2023). Experiences of rural nurses with emergency patient transport in a resource limited setting. *International Emergency Nursing*, 71, 101379. <https://doi.org/10.1016/j.ienj.2023.101379>
- Manda, K., Silumbwe, A., Kombe, M. M., & Hangoma, P. (2022). Motivation and retention of primary healthcare workers in rural health facilities: An exploratory qualitative study of Chipata and Chadiza Districts, Zambia. <https://doi.org/10.21203/rs.3.rs-1676139/v1>
- Manda, K., Silumbwe, A., Mupeta Kombe, M., & Hangoma, P. (2023). Motivation and retention of primary healthcare workers in rural health facilities: An exploratory qualitative study of Chipata and Chadiza Districts, Zambia. *Global Public Health*, 18(1), 2222310. <https://doi.org/10.1080/17441692.2023.2222310>
- Mangundu, M., Roets, L., & Janse van Rensburg, E. (2020). Accessibility of healthcare in rural Zimbabwe: The perspective of nurses and healthcare users. *African Journal of Primary Health Care & Family Medicine*, 12(1), e1–e7. <https://doi.org/10.4102/phcfm.v12i1.2245>
- Masuwa, R. (2022). Lived experiences of nurses regarding shortage of medical equipment and supplies in primary healthcare facilities in Makhado Municipality [Thesis]. <https://univendspace.univen.ac.za/handle/11602/2367>

- McCullough, K., Andrew, L., Genoni, A., Dunham, M., Whitehead, L., & Porock, D. (2023). An examination of primary health care nursing service evaluation using the Donabedian model: A systematic review. *Research in Nursing & Health*, 46(1), 159-176. <https://doi.org/10.1002/nur.22291>
- McCullough, K., Bayes, S., Whitehead, L., Williams, A., & Cope, V. (2021). We say we are doing primary health care but we're not: Remote area nurses' perspectives on the challenges of providing primary health care services. *Collegian*, 28(5), 534-540. <https://doi.org/10.1016/j.colegn.2021.02.006>
- McCullough, K., Bayes, S., Whitehead, L., Williams, A., & Cope, V. (2022). Nursing in a different world: Remote area nursing as a specialist-generalist practice area. *The Australian Journal of Rural Health*, 30(5), 570-581. <https://doi.org/10.1111/ajr.12899>
- McCullough, K., Whitehead, L., Bayes, S., Williams, A., & Cope, V. (2020). The delivery of Primary Health Care in remote communities: A Grounded Theory study of the perspective of nurses. *International Journal of Nursing Studies*, 102, 103474. <https://doi.org/10.1016/j.ijnurstu.2019.103474>
- McElroy, M., Wicking, K., Harvey, N., & Yates, K. (2022). What challenges and enablers elicit job satisfaction in rural and remote nursing in Australia: An Integrative review. *Nurse Education in Practice*, 64, 103454. <https://doi.org/10.1016/j.nepr.2022.103454>
- McFarlane, K. A., Judd, J., Wapau, H., Nichols, N., Watt, K., & Devine, S. (2018). How primary health care staff working in rural and remote areas access skill development and expertise to support health promotion practice. *Rural and Remote Health*, 18(2), 4413. <https://doi.org/10.22605/RRH4413>
- Moreira, R. L. S. F., Fontes, W. D. de, & Barboza, T. M. (2014). Difficulties of the man in primary healthcare: The speech of nurses. *Escola Anna Nery*, 18, 615-621. <https://doi.org/10.5935/1414-8145.20140087>
- Moyimane, M. B., Matlala, S. F., & Kekana, M. P. (2017). Experiences of nurses on the critical shortage of medical equipment at a rural district hospital in South Africa: A qualitative study. *Pan African Medical Journal*, 28(1), Article 1. <https://doi.org/10.11604/pamj.2017.28.100.11641>
- Muhammad, Q., Eiman, H., Fazal, F., Ibrahim, M., Gondal, M. F., Muhammad, Q. U. A., Eiman, H., Fazal, F., Ibrahim, M., & Gondal, M. F. (2023). Healthcare in Pakistan: Navigating Challenges and Building a Brighter Future. *Cureus*, 15. <https://doi.org/10.7759/cureus.40218>
- Mukhtar, M. (2016). ROLE OF NURSES AND OTHER HEALTH CARE PROVIDERS IN PROMOTION OF HEALTH IN PAKISTAN. <https://www.semanticscholar.org/paper/ROLE-OF-NURSES-AND-OTHER-HEALTH-CARE-PROVIDERS-IN-Mukhtar/25901848d42686d237e7ac9341446f297296d010>
- Murphy, P., Burge, F., & Wong, S. T. (2019). Measurement and rural primary health care: A scoping review. *Rural and Remote Health*, 19(3), 4911. <https://doi.org/10.22605/rrh4911>
- National Academies of Sciences, E., Medicine, N. A. of, Nursing 2020-2030, C. on the F. of, Flaubert, J. L., Menestrel, S. L., Williams, D. R., & Wakefield, M. K. (2021). The Role of Nurses in Improving Health Care Access and Quality. In *The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity*. National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK573910/>
- Nora, C. R. D., & Beghetto, M. G. (2020). Patient safety challenges in primary health care: A scoping review. *Revista Brasileira De Enfermagem*, 73(5), e20190209. <https://doi.org/10.1590/0034-7167-2019-0209>

- Norful, A., Martsolf, G., de Jacq, K., & Poghosyan, L. (2017). Utilization of registered nurses in primary care teams: A systematic review. *International Journal of Nursing Studies*, 74, 15–23. <https://doi.org/10.1016/j.ijnurstu.2017.05.013>
- Okeke, S. O., & Mabuza, L. H. (2017). Perceptions of health care professionals on the safety and security at Odi District Hospital, Gauteng, South Africa. *African Journal of Primary Health Care & Family Medicine*, 9(1), 1–7. <https://doi.org/10.4102/phcfm.v9i1.1441>
- Oliveira, A. R. de, Sousa, Y. G. de, Silva, D. M. da, Alves, J. P., Diniz, Í. V. A., Medeiros, S. M. de, Martiniano, C. S., & Alves, M. (2020a). Primary Health Care in the rural context: The nurses' view. *Revista Gaúcha de Enfermagem*, 41, e20190328. <https://doi.org/10.1590/1983-1447.2020.20190328>
- Oliveira, A. R. de, Sousa, Y. G. de, Silva, D. M. da, Alves, J. P., Diniz, Í. V. A., Medeiros, S. M. de, Martiniano, C. S., & Alves, M. (2020b). Primary Health Care in the rural context: The nurses' view. *Revista Gaúcha de Enfermagem*, 41, e20190328. <https://doi.org/10.1590/1983-1447.2020.20190328>
- Osborne, N., & Grant-Smith, D. (2021). In-Depth Interviewing. In S. Baum (Ed.), *Methods in Urban Analysis* (pp. 105–125). Springer. https://doi.org/10.1007/978-981-16-1677-8_7
- Panezai, S., Ahmad, M., & Saqib, S. E. (2017). Factors affecting access to primary health care services in Pakistan: A gender-based analysis. *Development in Practice*, 27. <https://doi.org/10.1080/09614524.2017.1344188>
- Panezai, S., Ahmad, M., & Saqib, S. E. (2020). EXPLORING THE REASONS FOR UNDERUTILIZATION OF PRIMARY HEALTH CARE SERVICES IN PAKISTAN: A QUALITATIVE ANALYSIS. *Il Ponte*, 76. <https://doi.org/10.21506/j.ponte.2020.12.19>
- Perez, C. (2021). U.S. Rural Healthcare Shortage: A Review of Strategies in the U.S., Canada, and Colombia. *Public Health Capstone Projects*. <https://doi.org/10.57709/23206423>
- Philip, D., & Chima, P. (2017). Social-Economic and Cultural Barriers and Primary Health Care Service Delivery in Rural Communities in Abuja, Nigeria. *Journal of Social Sciences (COES&RJ-JSS)*, 6, 413–423. <https://doi.org/10.25255/jss.2017.6.2.413.423>
- Rehman, G. (2019). FATA MERGER WITH KHYBER PAKHTUNKHWA: PROSPECTS AND OPPORTUNITIES FOR DISTRICT BAJAUR.
- Riley, K., Wilson, V., Middleton, R., & Molloy, L. (2024). Examining the roles of rural nurses in resuscitation care: An ethnographic study. *International Emergency Nursing*, 73, 101404. <https://doi.org/10.1016/j.ienj.2023.101404>
- Roger Strasser & Sarah Strasser. (2020). Reimagining Primary Health Care Workforce in Rural and Underserved Settings. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/304851606975759118/reimaging-primary-health-care-workforce-in-rural-and-underserved-settings>
- Rose, H., Skaczkowski, G., & Gunn, K. M. (2023). Addressing the challenges of early career rural nursing to improve job satisfaction and retention: Strategies new nurses think would help. *Journal of Advanced Nursing*, 79(9), 3299–3311. <https://doi.org/10.1111/jan.15636>
- Ruslin, R., Mashuri, S., Sarib, M., Alhabsyi, F., & Syam, H. (2022). Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research Instrument in Educational Studies *Ruslin*. Vol. 12, 22–29. <https://doi.org/10.9790/7388-1201052229>

- Russell, D., & Humphreys, J. (2016). Meeting the primary healthcare needs of small rural communities: Lessons for health service planners. *Rural and Remote Health*.
<https://doi.org/10.22605/RRH3695>
- Samar, S., Aqil, A., Vogel, J., Wentzel, L., Haqmal, S., Matsunaga, E., Vuolo, E., & Abaszadeh, N. (2014). Towards gender equality in health in Afghanistan. *Global Public Health*, 9(sup1), S76-S92.
<https://doi.org/10.1080/17441692.2014.913072>
- Sanauallah, S., & Pervaiz, U. (2019). An Effectiveness of Extension Trainings on Boosting Agriculture in Federally Administered Tribal Areas (FATA) of Pakistan: An Evidence from Bajaur Agency. *Sarhad Journal of Agriculture*, 35(3).
<https://doi.org/10.17582/journal.sja/2019/35.3.890.895>
- Shah, A. A., Abid, M., & Jingzhong Ye. (2020). An Assessment of Primary Health Care Facilities and Their Preparedness Level in Khyber Pakhtunkhwa Province of Pakistan: Strengths, Weaknesses, Opportunities, and Threats (SWOT). In E. Y. Y. Chan & R. Shaw (Eds.), *Public Health and Disasters: Health Emergency and Disaster Risk Management in Asia* (pp. 245-264). Springer.
https://doi.org/10.1007/978-981-15-0924-7_16
- Shah, S., Khan, I. H., & Mehboob, G. R. (2020). Catastrophic Health Expenditures and Its Socio-economic Consequences: A Case Study of Tehsil Utman Khel Tribal District, Bajaur. *Pakistan Journal of Economic Studies (PJES)*, 3(1), Article 1.
- Shakir, M., & ur Rahman, A. (2022). Conducting pilot study in a qualitative inquiry: Learning some useful lessons. *Journal of Positive School Psychology*, 6(10), 1620- 1624.
- Shanoor Seervai, Lovisa Gustafsson, & Melinda K. Abrams. (2022, May 4). The Impact of Climate Change on Our Health and Health Systems.
<https://doi.org/10.26099/49re-ky81>
- Shi, L. (2012). The Impact of Primary Care: A Focused Review. *Scientifica*, 2012(1), 432892.
<https://doi.org/10.6064/2012/432892>
- Shoib, S., Saleem, S. M., Essar, M. Y., & Armiya'u, A. Y. (2022). Challenges faced by healthcare workers in Afghanistan amidst the COVID-19 pandemic and political instability: A call for action. *Clinical Epidemiology and Global Health*, 15.
<https://doi.org/10.1016/j.cegh.2022.101050>
- Smith, J. G., Plover, C. M., McChesney, M. C., & Lake, E. T. (2019). Isolated, small, and large hospitals have fewer nursing resources than urban hospitals: Implications for rural health policy. *Public Health Nursing (Boston, Mass.)*, 36(4), 469-477.
<https://doi.org/10.1111/phn.12612>
- Smith, S., Sim, J., & Halcomb, E. (2019). Nurses' Experiences of Working in Rural Hospitals: An integrative review. *Faculty of Science, Medicine and Health - Papers: Part B*, 482-490.
<https://doi.org/10.1111/jonm.12716>
- Soesanto, E., Yanto, A., Irani, N., Pranata, S., Rejeki, S., & Sasmito, P. (2022). Job satisfaction among primary health care nurses. *International Journal of Public Health Science (IJPHS)*, 11, 1416-1423.
<https://doi.org/10.11591/ijphs.v11i4.21529>
- Spiegel, P., Abraham, O., Altare, C., & Rajashekharaiyah, H. (2024). 4—Public Health in Settings of Conflict and Political Instability. In J. Farrar, P. Garcia, P. Hotez, T. Junghanss, G. Kang, D. Lalloo, & N. White (Eds.), *Manson's Tropical Diseases (Twenty-Fourth Edition)* (pp. 25-32). Elsevier.
<https://doi.org/10.1016/B978-0-7020-7959-7.00004-X>

- Sumankuuro, J., Crockett, J., & Wang, S. (2018). Perceived barriers to maternal and newborn health services delivery: A qualitative study of health workers and community members in low and middle-income settings. *BMJ Open*, 8(11), e021223. <https://doi.org/10.1136/bmjopen-2017-021223>
- Suprpto, S., Lalla, N., Cahya Mulat, T., & Arda, D. (2023). Human resource development and job satisfaction among nurses. *International Journal of Public Health Science (IJPHS)*, 112, 1056–1063. <https://doi.org/10.11591/ijphs.v12i3.22982>
- Swanson, M., Wong, S. T., Martin-Misener, R., & Browne, A. J. (2020). The role of registered nurses in primary care and public health collaboration: A scoping review. *Nursing Open*, 7(4), 1197–1207. <https://doi.org/10.1002/nop2.496>
- Tamata, A. T., & Mohammadnezhad, M. (2022). A systematic review study on the factors affecting shortage of nursing workforce in the hospitals. *Nursing Open*, 10(3), 1247–1257. <https://doi.org/10.1002/nop2.1434>
- Tripathi, N., Kerketta, F., Chatterjee, P., Raman, V. R., John, D., & Jain, K. (2018). Access and availability of essential medicines in Chhattisgarh: Situation in public health facilities. *Journal of Family Medicine and Primary Care*, 7(1), 152. https://doi.org/10.4103/jfmpc.jfmpc_78_17
- Ullah, I., Jan, R., Mubeen, K., Begum, D., & Amir, L. (2023). Harvesting health: Indigenous mothers' resilience in the face of climate change and maternal nutrition challenges in Rural Bajaur, Pakistan: A Study Protocol. *Journal of Asian Midwives*, 10(1), 18–32.
- Ullah, K., Jan, A., Rani, M., Ahmad, M., & Khan, I. U. (2021). FACTORS AFFECTING THE FEMALE EDUCATION IN THE NEWLY MERGED DISTRICT BAJAUR OF KHYBER PAKHTUNKHWA, PAKISTAN. *PalArch's Journal of Archaeology of Egypt / Egyptology*, 18(4), Article 4.
- UNDP Pakistan. (2021, March). Merged Areas Governance Project. UNDP.

<https://www.undp.org/pakistan/projects/merged-areas-governance-project>

- Vera, M. G., Merighi, M. A. B., Conz, C. A., Silva, M. H. D., Jesus, M. C. P. D., & González, L. A. M. (2018). Primary health care: The experience of nurses. *Revista drgfg*

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Declaration

I hereby declare that the thesis entitled “**The Experiences of Registered Nurses working in Rural Public Primary Health Centres of District Bajaur, KPK, Pakistan: A Qualitative Study**” is the result of my own work and research. It has been completed under the supervision of **Dr. Salma Rattani**, and has not been submitted previously, in whole or in part, to any other academic institution for the award of any degree or diploma.

All the sources of information, including data and literature consulted during the course of this research, have been acknowledged appropriately in the text and listed in the references section. I further declare that the work complies with ethical guidelines and standards, and any assistance or collaboration in conducting this research has been clearly stated.



(Signature of Candidate)

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- Brasileira de Enfermagem, 71(suppl 1), 531-537. <https://doi.org/10.1590/0034-7167-2016-0244>
- Wakefield, M. K., Williams, D. R., Menestrel, S. L., & Flaubert, J. L. (Eds.) (with Committee on the Future of Nursing 2020-2030, National Academy of Medicine, & National Academies of Sciences, Engineering, and Medicine). (2021). *The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity*. National Academies Press. <https://doi.org/10.17226/25982>
- WHO. (2024a). Primary and secondary health care. World Health Organization - Regional Office for the Eastern Mediterranean. <http://www.emro.who.int/pak/programmes/primary-a-secondary-health-care.html>
- WHO, E. (2020). Competencies for nurses working in primary health care (WHO/EURO:2020-6958-46724-68019). Article WHO/EURO:2020-6958-46724-68019. <https://iris.who.int/handle/10665/365607>
- WHO, E. (2023, November 1). Primary health care. <https://www.who.int/health-topics/primary-health-care>
- WHO, E. (2024b). Health service delivery. World Health Organization - Regional Office for the Eastern Mediterranean. <http://www.emro.who.int/pak/programmes/service-delivery.html>
- WHO, P. (2018, May 10). Expanding the Roles of Nurses in Primary Health Care—World | ReliefWeb. <https://reliefweb.int/report/world/expanding-roles-nurses-primary-health-care>
- Wright, L. K., Jatrana, S., & Lindsay, D. (2024a). Remote area nurses' experiences of workplace safety in very remote primary health clinics: A qualitative study. *Journal of Advanced Nursing*. <https://doi.org/10.1111/jan.16028>
- Wright, L. K., Jatrana, S., & Lindsay, D. (2024b). Remote area nurses' experiences of workplace safety in very remote primary health clinics: A qualitative study. *Journal of Advanced Nursing*, 80(8), 3298-3308. <https://doi.org/10.1111/jan.16028>
- Xu, A., Baysari, M. T., Stocker, S. L., Leow, L. J., Day, R. O., & Carland, J. E. (2020). Researchers' views on, and experiences with, the requirement to obtain informed consent in research involving human participants: A qualitative study. *BMC Medical Ethics*, 21(1), 93. <https://doi.org/10.1186/s12910-020-00538-7>
- Yeater, M. L. P. (2014). Strategies for Retaining Nurses in Rural Healthcare Settings. Young, S., & Guo, K. L. (2016). Cultural Diversity Training: The Necessity of Cultural Competence for Health Care Providers and in Nursing Practice. *The Health Care Manager*, 35(2), 94. <https://doi.org/10.1097/HCM.0000000000000100>
- Zeng, W., Shang, S., Fang, Q., He, S., Li, J., & Yao, Y. (2021). Health promoting lifestyle behaviors and associated predictors among clinical nurses in China: A cross-sectional study. *BMC Nursing*, 20(1), 230. <https://doi.org/10.1186/s12912-021-00752-7>

Appendix A ERC Approval letter



آغا خان یونیورسٹی

THE AGA KHAN UNIVERSITY

23-Feb-2024

Submission Document Date

25-Dec-2023

25-Dec-2023

26-Dec-2023

25-Dec-2023

Submission Document Version

1

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AminullahcitiCompletionCertificate_12110019_54941781 25-

Dec-2023 Nimira Asif- GCP Certificate 25-

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Dec-2023 Khairunnissa Hooda CITI Completion Certificate

1

KH 25-Dec-2023Appendix B (DHO Permission letter) 25-

1

Dec-2023Appendix C1 (MS Cat D hospital Mamund) 25-

1

Dec-2023Appendix C2 (CAT D hospital Nawagai) 25-

1

Dec-2023

1

Appendix C3 (CAT D hospital Pashat) 25-

Dec-2023

1

Appendix D interview guide English (1) 21-

1

Jan-2024

Any changes in the protocol or extension in the period of study should be notified to the Committee for prior approval. All informed consents should be retained for future reference.

Please ensure that all the national and institutional requirements are met. Thank you. Sincerely,



Dr. Shabina Ariff Chairperson
Ethics Review Committee

Appendix B

District Health Officer Permission letter



آغا خان یونیورسٹی

THE AGA KHAN UNIVERSITY
Faculty of Health Sciences
School of Nursing & Midwifery

Dated: August 17, 2023 Dr. Faisal Kamal.
The District Health Officer Bajaur, KPK, Pakistan.
Subject: Permission for conducting MScN Thesis Research Work

Respected Sir,
I (Aminullah) a student of Master of Science in Nursing (MScN) at the Aga Khan University School of Nursing and Midwifery, Pakistan (AKUSONAM, P). As part of my Master's program requirements, I am conducting a research study titled "The Experiences of Registered Nurses Working in Rural Public Primary Health Centre's of district Bajaur, KPK Pakistan". These health centers are category D Hospital Mamund, category D Hospital Pashat, and category D hospital Nawagai. The supervisor of this study is Dr. Salma Rattani. Assistant Professor at AKUSONAM, P.

The purpose of this research is to explore the experiences of registered nurses and the challenges they face in primary healthcare settings. Participants in this research are Registered Nurses who possess more than one year of working experience in a primary healthcare setting, who are willing to participate in the study. If you agree, then the Registered Nurses at your institutions will be approached and after they sign a consent form, they will be interviewed for 45- 60 minutes face to face, these interviews will be audio recorded and analyzed and presented at scientific forums including thesis defense. The individuals' identity (name of the institution/name of the Nurse) will not be disclosed but a code will be used to present the research report; oral and written.

There are no known or possible risks for participation in this study. The participants will not be forced to share any information that they do not wish to share. This study may benefit the nursing care system and overall healthcare in the defined healthcare setting.

ACCEPTANCE FORM

I am accepting your request and you are permitted to collect your data from our institution.

Name and designation: Dr. Faisal Kamal Dr. Salma Rattani

Signature: [Signature]

Date: 22/8/2023

Official stamp: **District Health Officer
Bajaur**

sonam.pk@aku.edu; www.aku.edu

Appendix C1
Medical Superintendent Permission Letter (Type D Mamund Hospital)



THE AGA KHAN UNIVERSITY

Faculty of Health Sciences

School of Nursing & Midwifery

Dated: August 17, 2023

Dr. Faisal Kamal.

The District Health Officer Bajaur, KPK, Pakistan.

Subject: Permission for conducting MScN Thesis Research Work

Respected Sir,

I (Aminullah) a student of Master of Science in Nursing (MScN) at the Aga Khan University School of Nursing and Midwifery, Pakistan (AKUSONAM, P). As part of my Master's program requirements, I am conducting a research study titled "The Experiences of Registered Nurses Working in Rural Public Primary Health Centre's of district Bajaur, KPK Pakistan". These health centers are category D Hospital Mamund, category D Hospital Pashat, and category D hospital Nawagai. The supervisor of this study is Dr. Salma Rattani. Assistant Professor at AKUSONAM, P.

The purpose of this research is to explore the experiences of registered nurses and the challenges they face in primary healthcare settings. Participants in this research are Registered Nurses who possess more than one year of working experience in a primary healthcare setting, who are willing to participate in the study. If you agree, then the Registered Nurses at your institutions will be approached and after they sign a consent form, they will be interviewed for 45- 60 minutes; either face to face or by telephone, these interviews will be audio recorded and analyzed and presented at scientific forums including thesis defense. The individuals' identity (name of the institution/name of the Nurse) will not be disclosed but a code will be used to present the research report; oral and written.

There are no known or possible risks for participation in this study. The participants will not be forced to share any information that they do not wish to share. This study may benefit the nursing care system and overall healthcare in the defined healthcare setting.

In view of the above information, I request you to permit me to conduct research in primary healthcare settings which are under your supervision. I will be thankful to you for your cooperation. The acceptance form is provided below.

Sincerely,

Aminullah MScN Student

School of Nursing and Midwifery, Pakistan Aga Khan University

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan M. +92 302 3885692

Email address: aminullah.zahir@scholar.aku.edu

Dr. Salma Rattani, PhD, MScN, BScN, RN, RMAssociate Professor

School of Nursing and Midwifery, Pakistan Aga Khan University

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan T. +92 21 3486-5256 | M.

+92 345 234178

Email address: salma.rattani@aku.edu , rattani@ualberta.ca

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan

Tel: +92 21 3493 0051 Ext. 5400; Direct: +92 21 3414 6880; Fax: +92 21 3493 4294, 3493 2095sonam.pk@aku.edu; www.aku.edu



ACCEPTANCE FORM

I am accepting your request and you are permitted to collect your data from our institution.

Name and designation: Rahman ullah (MS)

Signature: [Signature]

Date: 21/Aug/2023

Official stamp:

Medical Superintendent
Category -D Hospital
Mamund Dist. 21.8.17

LT. Panha
[Signature]
21.8.2023

Appendix C2

Medical Superintendent Permission Letter (Category D Hospital Nawagai)



آغا خان یونیورسٹی

THE AGA KHAN UNIVERSITY

Faculty of Health Sciences

School of Nursing & Midwifery

Dated: August 17, 2023

Dr. Faisal Kamal.

The District Health Officer Bajaur, KPK, Pakistan.

Subject: Permission for conducting MScN Thesis Research Work

Respected Sir,

I (Aminullah) a student of Master of Science in Nursing (MScN) at the Aga Khan University School of Nursing and Midwifery, Pakistan (AKUSONAM, P). As part of my Master's program requirements, I am conducting a research study titled "The Experiences of Registered Nurses Working in Rural Public Primary Health Centre's of district Bajaur, KPK Pakistan". These health centers are category D hospital Mamund, category D hospital Pashat, and category D hospital Nawagai. The supervisor of this study is Dr. Salma Rattani. Assistant Professor at AKUSONAM, P.

The purpose of this research is to explore the experiences of registered nurses and the challenges they face in primary healthcare settings. Participants in this research are Registered Nurses who possess more than one year of working experience in a primary healthcare setting, who are willing to participate in the study. If you agree, then the Registered Nurses at your institutions will be approached and after they sign a consent form, they will be interviewed for 45- 60 minutes, either face to face or by telephone, these interviews will be audio recorded and analyzed and presented at scientific forums including thesis defense. The individuals' identity (name of the institution/name of the Nurse) will not be disclosed but a code will be used to present the research report; oral and written.

There are no known or possible risks for participation in this study. The participants will not be forced to share any information that they do not wish to share. This study may benefit the nursing care system and overall healthcare in the defined healthcare setting.

In view of the above information, I request you to permit me to conduct research in primary healthcare settings which are under your supervision. I will be thankful to you for your cooperation. The acceptance form is provided below.

Sincerely,

Aminullah MScN Student

School of Nursing and Midwifery, Pakistan Aga Khan University

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan M. +92 302 3885692

Email address: aminullah.zahir@scholar.aku.edu



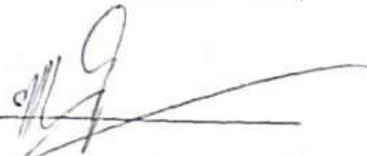
Dr. Salma Rattani, PhD, MScN, BScN, RN, RMAssociate Professor
School of Nursing and Midwifery, Pakistan Aga Khan University
Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan T. +92 21 3486-5256 | M.
+92 345 234178
Email address: salma.rattani@aku.edu , rattani@ualberta.ca

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan
Tel: +92 21 3493 0051 Ext. 5400; Direct: +92 21 3414 6880; Fax: +92 21 3493 4294, 3493 2095
sonam.pk@aku.edu; www.aku.edu

ACCEPTANCE FORM

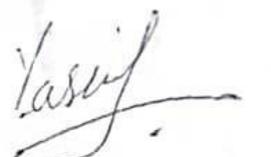
I am accepting your request and you are permitted to collect your data from our institution.

Name and designation: Dr. A. B. B. B.

Signature: 

Date: 22/08/23

Medical Superintendent
Gal-D Hospital Nawagai
Official stamp:

22/08/23
Dr. Yasir


Appendix C3

Medical Superintendent Permission Letter (Category D Hospital Pashat)



THE AGA KHAN UNIVERSITY

Faculty of Health Sciences

School of Nursing & Midwifery

Dated: August 17, 2023

Dr. Faisal Kamal.

The District Health Officer Bajaur, KPK, Pakistan.

Subject: Permission for conducting MScN Thesis Research Work

Respected Sir,

I (Aminullah) a student of Master of Science in Nursing (MScN) at the Aga Khan University School of Nursing and Midwifery, Pakistan (AKUSONAM, P). As part of my Master's program requirements, I am conducting a research study titled "The Experiences of Registered Nurses Working in Rural Public Primary Health Centers of district Bajaur, KPK Pakistan". These health centers are category D Hospital Mamund, category D Hospital Pashat, and category D hospital Nawagai. The supervisor of this study is Dr. Salma Rattani. Assistant Professor at AKUSONAM, P.

The purpose of this research is to explore the experiences of registered nurses and the challenges they face in primary healthcare settings. Participants in this research are Registered Nurses who possess more than one year of working experience in a primary healthcare setting, who are willing to participate in the study. If you agree, then the Registered Nurses at your institutions will be approached and after they sign a consent form, they will be interviewed for 45- 60 minutes, either face to face or by telephone, these interviews will be audio recorded and analyzed and presented at scientific forums including thesis defense. The individuals' identity (name of the institution/name of the Nurse) will not be disclosed but a code will be used to present the research report; oral and written.

There are no known or possible risks for participation in this study. The participants will not be forced to share any information that they do not wish to share. This study may benefit the nursing care system and overall healthcare in the defined healthcare setting.

In view of the above information, I request you to permit me to conduct research in primary healthcare settings which are under your supervision. I will be thankful to you for your cooperation. The acceptance form is provided below.

Sincerely,

Aminullah MScN Student

School of Nursing and Midwifery, Pakistan Aga Khan University

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan M. +92 302 3885692

Email address: aminullah.zahir@scholar.aku.edu

Dr. Salma Rattani, PhD, MScN, BScN, RN, RMAssociate Professor
School of Nursing and Midwifery, Pakistan Aga Khan University
Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan T. +92 21 3486-5256 | M.
+92 345 234178
Email address: salma.rattani@aku.edu , rattani@ualberta.ca

ACCEPTANCE FORM

I am accepting your request and you are permitted to collect your data from our institution.

Name and designation: Dr Tajammul Hussain . MS.

Signature

Date 21/8/23.

Official stamp:

Stadium Road, P.O. Box 3500, Karachi 74800, Pakistan
Tel: +92 21 3493 0051 Ext. 5400; Direct: +92 21 3414 6880; Fax: +92 21 3493 4294, 3493 2095
sonam.pk@aku.edu; www.aku.edu

Appendix D Study Guide (English)

Appendix D. Interview Guide

Experiences of Registered Nurses working in rural primary health centres of district Bajaur, KPK Pakistan.

Research Investigator:

Aminullah

MScN Student

Aga Khan University School of Nursing & Nursing & Midwifery.

aminullah.zahir@scholar.aku.edu

Supervisor:

Dr. Salma Rattani,

Associate Professor

Aga Khan University School of Midwifery

salma.rattani@aku.edu

General Guidelines for In-depth Interviews

The researcher will formally greet and address the participant and will introduce himself and his role in the study. After introducing myself, the participant will be invited to introduce himself or herself and provide informed consent before starting the formal interview. The participant's contribution to the discussion will be voluntary; if they do not want to participate in this discussion, they will not be forced to participate. The discussion will be audio-recorded with the participant's permission. The interviewer will explain the purpose of the study to the participants in detail. Moreover, the interviewer will not give a comment on whether the participant is right or wrong. The interviewer will also refrain from blaming things and engaging in conflicts.

Participants

In-depth interviews (IDI) will be conducted with the registered nurses working in public primary health centres (Type D hospital Mamund, Type D hospital Pashat, and Type D hospital Nawagai) in district Bajaur KPK, upon achieving saturation further IDI will be stopped.

Venue for IDI

An appropriate place and time will be decided for conducting the IDI after taking consent from the participant.

Data Collection

The researcher will be collecting data through IDI using a study guide by asking open-ended questions to the participants. The pilot testing of the study will be done before conducting the formal IDI in a similar setting.

Pre-requisites for the IDI

All the prerequisites will be arranged before initiating the IDI. This will include, the interview guide, consent forms, tape recorder, batteries, additional tape recorder, additional batteries, adequate stationery, and ensuring that all the equipment is working.

Introductory Scripts As-salamu Alaykum!

I am thankful to you for your time; I am a graduate student at Aga Khan University, School of Nursing and Midwifery. I am conducting a research study on the experiences of registered nurses working in rural primary health centres in KPK. I will take your time for asking some questions regarding registered nurses experiences, while taking the interview I will also take some notes.

This is a qualitative study and the purpose of this discussion is to identify the experiences of nurses, their role and the challenges they face while working in rural primary

health centres in district Bajaur, KPK Pakistan. The information gathered from this conversation will assist the decision-makers in developing plans to deal with the key concerns.

I will discuss my questions related to nurse's experiences, role and challenges they face in rural primary health centres. I would like to spend around 45 minutes to 60 minutes with you today. I might not be able to write down all you said, therefore with your permission, I would like to record the conversation on audio so that I can write down everything you said and not forget anything. After the study is finished, all the recorded data will be deleted and destroyed, and I'll make sure you're satisfied with the process.

Study Guide Questions

Section A: Resources constraint as a hindrance in care

1) As a Registered Nurse working in rural primary health centres of district Bajaur, KPK what is your experience about the staff shortage in your setting.

Probe:

- How did you manage staff shortage?

2) Can you share your experiences managing patient care in situations where electricity and technology were unavailable?

Probe:

- How did you address these challenges to ensure adequate care for your patients?

3) Could you share your experiences and strategies for caring for preterm babies when faced with challenges related to the availability of a proper neonatal ICU and nursery?

4) Can you describe challenges to vaccination administration or availability?

Probe: How you manage challenges related to rabies, snake bite, and tetanus vaccines in your nursing practice?

5) Can you share any challenges you've faced in maintaining the cold chain for fridge items, drugs, or vaccines that require 24-hour refrigeration?

Probe:

- How did you manage these challenges to ensure the effectiveness and safety of the items in your care?

6. Have you experienced any shortages of oxygen cylinders for emergency patients?

Probe:

- How did you address these challenges?

Section B: challenges in Access and referral to upper level health care facility

7.

8. **What logistical challenges exist in facilitating smooth referrals from primary health centres to higher level health facility in district Bajaur?**

Probe:

- How do you handle challenges related to patient referrals in your practice?

9. In your experience, how does the availability and condition of transportation affect the success and outcomes of patient referrals in Bajaur?

Probe:

- What are the main challenges you face when traveling to primary healthcare centers for duty in Bajaur?

10. Have you experienced roadblocks caused by heavy snow or floods in small canals due to climate change while performing your duties?

Probe:

- How do you manage your duties during heavy rainfall or adverse weather conditions?

Section C: Security and Threat challenges

11. **Have you experienced any instances of threat or anxiety related to terrorism in your professional environment?**

Probe:

- In what ways do security concerns affect your daily work and interactions with patients?
- How do you typically manage and address these challenges?

12. Have you ever experienced the loss of a patient in the emergency room due to severe shortages of facilities or resources?

Probe:

- How did you manage that situation and what impact did it have on you professionally and emotionally?

Section D: Cultural as a Barriers in care

13. **How do cultural norms and beliefs influence the acceptance and utilization of primary health care services provided by nurses in your hospital?**

Probe:

- How does cultural diversity impact the provision of patient centre care by nurses in your hospital?
- Did you experience culture as barriers, while providing care to rural women's?
- What strategies can be implemented to bridge the cultural gap and enhance the effectiveness of nursing care in the primary health care setting?

Section F: Recommendations and a way forward

14. **What strategies or initiatives have you found effective in overcoming the challenges you face in your role as a registered nurse?**

Probe:

• What changes or improvements would you recommend to enhance the working conditions for nurses in primary health centres?

15. Is there anything else you would like to share about your experiences, challenges, or suggestions related to your role as a registered nurse in primary health facility in district Bajaur?

Thank you for participating in this research questionnaire. Your insights will contribute to a better understanding of the experiences and challenges faced by registered nurses in providing healthcare services in primary healthcare setting in district Bajaur.

Your responses will remain confidential and will be used solely for research purposes.

Appendix E Study Guide (Urdu)

ضمیمہ E. انٹرویو گائیڈ

ضلع باجوڑ، کے پی کے پاکستان کے دیہی بنیادی مراکز صحت میں کام کرنے والی رجسٹرڈ نرسوں کے تجربات۔

ایسوسی ایٹ پروفیسر
سپروائزر:

ڈاکٹر سلمیٰ رتانی،
تحقیقی تفتیش کار: امین اللہ
MScN طالب علم



آغا خان یونیورسٹی سکول آف نرسنگ اینڈ

آغا خان یونیورسٹی سکول آف نرسنگ اینڈ

مٹوائفری

مٹوائفری۔

salma.rattani@aku.edu

aminullah.zahir@scholar.ak

u.edu

گہرائی سے انٹرویو کے لیے عمومی رہنما خطوط

محقق باضابطہ طور پر شریک کو سلام اور خطاب کرے گا اور مطالعہ میں اپنا اور اپنے کردار کا تعارف کرائے گا۔ اپنا تعارف کرانے کے بعد، شرکت کنندہ کو اپنا تعارف کرانے اور باضابطہ انٹرویو شروع کرنے سے پہلے باخبر رضامندی فراہم کرنے کے لیے مدعو کیا جائے گا۔ بحث میں شریک کی شراکت رضاکارانہ ہوگی؛ اگر وہ اس

بحث میں حصہ نہیں لینا چاہتے تو انہیں شرکت کرنے پر مجبور نہیں کیا جائے گا۔ گفتگو کو شرکاء کی اجازت سے اڈیو ریکارڈ کیا جائے گا۔ انٹرویو لینے والا مطالعہ کا مقصد شرکاء کو تفصیل سے بتائے گا۔ مزید یہ کہ انٹرویو لینے والا اس بارے میں کوئی تبصرہ نہیں کرے گا کہ آیا شریک صحیح ہے یا غلط انٹرویو لینے والا بھی چیزوں پر الزام

لگانے اور تنازعات میں ملوث ہونے سے گریز کرے گا۔ شرکاء ضلع باجوڑ کے پی کے میں پبلک پرائمری ہیلتھ سینٹرز (ٹائپ ڈی ہسپتال ماموند، ٹائپ ڈی ہسپتال پشاور، اور ٹائپ ڈی ہسپتال نواگنی) میں کام کرنے والی رجسٹرڈ نرسوں کے ساتھ گہرائی سے انٹرویوز (آئی ڈی آئی) کیے جائیں گے، سیچوریشن حاصل کرنے پر مزید آئی ڈی آئی کو روک دیا جائے گا۔

IDI کے لیے جگہ

شرکت کنندہ کی رضامندی کے بعد IDI کے انعقاد کے لیے مناسب جگہ اور وقت کا فیصلہ کیا جائے گا۔

ٹیٹا اکٹھا کرنا

محقق ایک اسٹڈی گائیڈ کا استعمال کرتے ہوئے شرکاء سے کھلے عام سوالات پوچھ کر IDI کے ذریعے

ٹیٹا اکٹھا کرے گا۔ مطالعہ کی پائلٹ جانچ اسی طرح کی ترتیب میں رسمی IDI کرنے سے پہلے کی جائے گی۔

IDI کے لیے پیشگی شرائط

IDI شروع کرنے سے پہلے تمام شرائط کا بندوبست کیا جائے گا۔ اس میں انٹرویو گائیڈ، رضامندی کے

فارم، ٹیپ ریکارڈر، بیٹریاں، اضافی ٹیپ ریکارڈر، اضافی بیٹریاں، مناسب سٹیشنری، اور اس بات کو یقینی بنانا کہ

تمام آلات کام کر رہے ہیں شامل ہوں گے۔ تعارفی اسکرپٹس
السلام علیکم!

میں آپ کے وقت کے لئے آپ کا شکر گزار ہوں؛ میں آغا خان یونیورسٹی، سکول آف نرسنگ اینڈ

مٹوانفری میں گریجویٹ طالب علم ہوں۔ میں KPK میں دیہی بنیادی مراکز صحت میں کام کرنے والی رجسٹرڈ

نرسوں کے تجربات پر ایک تحقیقی مطالعہ کر رہا ہوں۔ میں رجسٹرڈ نرسوں کے تجربات سے متعلق کچھ سوالات

پوچھنے کے لیے آپ کا وقت نکالوں گا، انٹرویو کے دوران میں کچھ نوٹس بھی لوں گا۔

یہ ایک معیاری مطالعہ ہے اور اس بحث کا مقصد اس کی شناخت کرنا ہے۔ نرسوں کے تجربات، ان کے کردار اور وہ چیلنجز جن کا انہیں ضلع باجوڑ، کے پی کے
پاکستان میں دیہی بنیادی مراکز صحت میں کام کرتے
ہوئے سامنا کرنا پڑتا ہے۔ اس گفتگو سے اکٹھی کی گئی معلومات فیصلہ سازوں کو کلیدی خدشات سے نمٹنے کے
لیے منصوبے تیار کرنے میں معاون ثابت ہوں گی۔

میں نرسوں کے تجربات، کردار اور دیہی بنیادی مراکز صحت میں درپیش چیلنجوں سے متعلق اپنے سوالات پر بات کروں گا۔ میں آج آپ کے ساتھ تقریباً 45 منٹ
سے 60 منٹ گزارنا چاہتا ہوں۔ میں آپ کی کہی ہوئی
تمام باتوں کو شاید لکھ نہ سکوں، اس لیے آپ کی اجازت سے، میں گفتگو کو آڈیو پر ریکارڈ کرنا چاہوں گا تاکہ میں

آپ کی کہی ہوئی ہر بات لکھ سکوں اور کچھ بھی نہ بھول سکوں۔ مطالعہ مکمل ہونے کے بعد، تمام ریکارڈ شدہ ٹیٹا کو حذف اور تباہ کر دیا جائے گا، اور میں
اس بات کو یقینی بناؤں گا کہ آپ اس عمل سے مطمئن ہیں۔

مطالعہ گائیڈ کے سوالات

سیکشن A: دیکھ بھال میں رکاوٹ کے طور پر وسائل کی رکاوٹ

6) ضلع باجوڑ، کے پی کے کے دیہی بنیادی مراکز صحت میں کام کرنے والی ایک رجسٹرڈ نرس کی حیثیت سے آپ

کی سینگ میں عملے کی کمی کے بارے میں آپ کا کیا تجربہ ہے۔

تحقیقات:

آپ نے عملے کی کمی کو کیسے سنبھالا؟

7) کیا آپ ایسے حالات میں مریضوں کی دیکھ بھال کا انتظام کرنے کے اپنے تجربات شیئر کر سکتے ہیں جہاں بجلی

اور ٹیکنالوجی دستیاب نہیں تھی؟

تحقیقات:

آپ نے اپنے مریضوں کی مناسب دیکھ بھال کو یقینی بنانے کے لیے ان چیلنجوں سے کیسے نمٹا؟

8) کیا آپ قبل از وقت نوزائیدہ بچوں کی دیکھ بھال کے لیے اپنے تجربات اور حکمت عملی بنا سکتے ہیں جب مناسب

نوزائیدہ ICU اور نرسری کی دستیابی سے متعلق چیلنجوں کا سامنا ہو؟

9) کیا آپ ویکسینیشن انتظامیہ یا دستیابی کے چیلنجوں کی وضاحت کر سکتے ہیں؟

تحقیقات: آپ اپنی نرسنگ پریکٹس میں ریویز، اسپیک بائٹ، اور ٹینٹس کی ویکسین سے متعلق چیلنجوں کا کیسے

انتظام کرتے ہیں؟

10) کیا آپ فرج کی اشیاء، ادویات، یا ویکسین کے لیے کولڈ چین کو برقرار رکھنے میں درپیش کسی چیلنج کا اشتراک

کر سکتے ہیں جن کے لیے 24 گھنٹے ریفریجریشن کی ضرورت ہوتی ہے؟

تحقیقات:

آپ نے اپنی دیکھ بھال میں موجود اشیاء کی تاثیر اور حفاظت کو یقینی بنانے کے لیے ان چیلنجوں کا انتظام کیسے کیا؟



6. بے کیا آپ کو ہنگامی مریضوں کے لیے آکسیجن سلنڈر کی کمی کا سامنا ہے؟

تحقیقات:

|| آپ نے ان چیلنجوں سے کیسے نمٹا؟

سیکشن B: رسائی میں چیلنجز اور اوپری سطح کی صحت کی دیکھ بھال کی سہولت کے حوالے

7. ضلع باجوڑ میں بنیادی مراکز صحت سے اعلیٰ سطح کی صحت کی سہولت تک ہموار حوالہ جات کی سہولت میں کیا لاجسٹک چیلنجز موجود ہیں؟
تحقیقات:

|| آپ اپنی مشق میں مریض کے حوالہ جات سے متعلق چیلنجوں سے کیسے نمٹتے ہیں؟

8. آپ کے تجربے میں، آمدورفت کی دستیابی اور حالت باجوڑ میں مریضوں کے حوالہ جات کی کامیابی اور

نتائج کو کیسے متاثر کرتی ہے؟

تحقیقات:

|| باجوڑ میں ٹیوٹی کے لیے بنیادی صحت کی دیکھ بھال کے مراکز کا سفر کرتے وقت آپ کو کن اہم چیلنجوں کا سامنا کرنا پڑتا ہے؟

9. کیا آپ نے اپنے فرائض کی انجام دہی کے دوران موسمیاتی تبدیلیوں کی وجہ سے شدید برفباری یا چھوٹی
نہروں میں سیلاب کی وجہ سے رکاوٹوں کا سامنا کیا ہے؟ تحقیقات:

|| شدید بارش یا موسم کی خراب صورتحال کے دوران آپ اپنے فرائض کو کیسے نبھاتی ہیں؟



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سیکشن C: سیکورٹی اور خطرے کے چیلنجز

10. کیا آپ نے اپنے پیشہ ورانہ ماحول میں دہشت گردی سے متعلق کسی خطرے یا پریشانی کے واقعات کا

تجربہ کیا ہے؟ تحقیقات:

- سیکورٹی خدشات آپ کے روزمرہ کے کام اور مریضوں کے ساتھ بات چیت کو کن طریقوں سے متاثر کرتے ہیں؟
- آپ عام طور پر ان چیلنجوں کا انتظام اور ان سے نمٹنے کے طریقے کیسے کرتے ہیں؟

11. کیا آپ نے کبھی ایمرجنسی روم میں سہولیات یا وسائل کی شدید کمی کی وجہ سے مریض کے کھو جانے کا

تجربہ کیا ہے؟ تحقیقات:

- آپ نے اس صورتحال کو کیسے سنبھالا اور اس کا آپ پر پیشہ ورانہ اور جذباتی طور پر کیا اثر پڑا؟

سیکشن D: دیکھ بھال میں رکاوٹوں کے طور پر ثقافتی

12. ثقافتی اصول اور عقائد آپ کے ہسپتال میں نرسوں کی طرف سے فراہم کی جانے والی بنیادی صحت کی

دیکھ بھال کی خدمات کی قبولیت اور استعمال کو کیسے متاثر کرتے ہیں؟ تحقیقات:

- ثقافتی تنوع آپ کے ہسپتال میں نرسوں کے ذریعے مریضوں کے مرکز کی دیکھ بھال کی فراہمی کو کیسے متاثر کرتا ہے؟
- کیا آپ نے دیہی خواتین کی دیکھ بھال کرتے ہوئے ثقافت کو رکاوٹوں کے طور پر تجربہ کیا؟
- بنیادی صحت کی دیکھ بھال کی ترتیب میں ثقافتی فرق کو پر کرنے اور نرسنگ کیئر کی تاثیر کو بڑھانے کے لیے کن حکمت عملیوں پر عمل کیا جا سکتا ہے؟

سیکشن F: سفارشات اور آگے کا راستہ

13. رجسٹرڈ نرس کے طور پر اپنے کردار میں آپ کو درپیش چیلنجوں پر قابو پانے کے لیے آپ نے کون سی حکمت عملی یا اقدامات کو موثر پایا ہے؟ تحقیقات:

بنیادی مراکز صحت میں نرسوں کے کام کے حالات کو بہتر بنانے کے لیے آپ کن تبدیلیوں یا بہتری کی سفارش کریں گے؟

14. کیا ضلع باجوڑ میں بنیادی صحت کی سہولت میں رجسٹرڈ نرس کے طور پر آپ کے کردار سے متعلق اپنے

تجربات، چیلنجز، یا تجاویز کے بارے میں آپ کچھ اور بتانا چاہیں گے؟



اس تحقیقی سوالنامے میں شرکت کے لیے آپ کا شکریہ۔ آپ کی بصیرتیں ضلع باجوڑ میں پرائمری ہیلتھ کیئر سیکٹنگ میں صحت کی دیکھ بھال کی خدمات فراہم کرنے میں رجسٹرڈ نرسوں کو درپیش تجربات اور چیلنجوں کو بہتر طور پر سمجھنے میں معاون ثابت ہوں گی۔ آپ کے جوابات خفیہ رہیں گے اور صرف تحقیقی مقاصد کے لیے استعمال کیے جائیں گے۔

Appendix F Informed Consent (English)

Project information

Project Title: The Experiences of Registered Nurses Working in Rural Public Primary Health Centres of District Bajaur, KPK Pakistan.	Version & Date: Version: 1 Date: October 26, 2023
ERC Project No: 9572	Sponsor:
Principal Investigator: Dr. Salma Rattani	Organization: School of Nursing and Midwifery, Aga Khan University
Location: AKUSONAM	Phone: 03452341738
Other Investigators: Aminullah	Organization: School of Nursing and Midwifery, Aga Khan University
Location: AKUSONAM	Phone: 03023885692

I **Aminullah** a student of Master of Science in Nursing (MScN) at the Aga Khan University School of Nursing and Midwifery (AKU-SONAM). As part of my thesis, I am interested in conducting a study to determine the **Experiences of Registered Nurses while providing healthcare in public primary care setting in district Bajaur** By gaining insights into the nurses' viewpoints, the study seeks to identify the experiences and potential barriers to registered nurses providing healthcare services in primary setting of remote area accessing primary care services, understand the factors that influence the quality of care provided, and propose recommendations to enhance the delivery of primary care within the facility.

1. PURPOSE OF THIS RESEARCH STUDY

The aim of this study is to explore and analyze the nurses' perspectives regarding their experiences and the challenges they face while providing healthcare services in primary healthcare facility. Through in-depth investigation and qualitative research methods, the study aims to uncover the role, challenges and overall experiences that Nurses encounter when providing health care to patients within the context of the primary care setting. By gaining insights into the nurses' viewpoints, the study seeks to identify potential barriers to accessing health care services, understand the factors that influence the quality of care provided and the suggested recommendations to enhance the delivery of health care within the facility.

2. PROCEDURES

As a participant, your interview will be conducted and you are requested to answer the questions. The questions are divided into two parts: **Demographic** details and the questions about **Nurses' Experiences and challenges they face at a primary care facility**. Your participation in this research is voluntary. If you consent to participate then the date, time, and venue for the interview will be decided based on your availability and convenience. The interview will be conducted in Urdu/ English. The interview time is expected to be 45-60 minutes. Simultaneously, the interview will be recorded.

The secrecy of your responses will be maintained as your data will be assigned a code number and your employee numbers will not be used as an identifier. Also, throughout the process your anonymity will be maintained; the research report will be disseminated through oral defence of the thesis, oral presentation at scientific forums, and publication in scientific journals.

3. POSSIBLE RISKS OR DISCOMFORT

There are no potential harms, risks, or threats to any participants associated with this study. You might feel a sense of distress from being interviewed. To relieve your discomfort and to enhance your comfort you will be allowed to ventilate about it. Also, you have the right to refuse to answer any question that you are not comfortable answering. You can also refuse to continue with the interview.

4. POSSIBLE BENEFITS

There will be no monetary compensation provided to you for your participation. This study is for academic purposes only.

5. FINANCIAL CONSIDERATIONS

There is no payment to participate in this study and will not receive any payment for participation.

6. CONFIDENTIALITY

Your privacy will be ensured throughout the duration of the study. Moreover, all the collected data will be kept in locked cabinets, and data in soft copies will be secured by a password. The data will only be accessible to the principal investigator and thesis committee. However, the monitoring and evaluation team of the human ethics committee, AKU may review the data for quality assurance.

7. RIGHT TO REFUSE OR WITHDRAW

You do not have to take part in this study if you do not wish to do so and choosing to participate will not affect your carrier. You may stop participating in the interview at any time you wish. If you are

uncomfortable answering any question, you have the right to refuse.

8. AVAILABLE SOURCES OF INFORMATION

Any further questions you have about this study will be answered by the Investigator:

Name: Aminullah

Phone Number: 03023885692

9. AUTHORIZATION

I have read and understand this consent form, and I volunteer to participate in this research study. I understand that I will receive a copy of this form. I voluntarily choose to participate, but I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved in this study.

Name of participant:

Signature of participant:

Date:

Signature of Principal Investigator:

Date:

Name and Signature of the person obtaining consent:

Date:

For Participants unable to read

Witness:



I have witnessed the accurate reading of the consent form to the potential participants, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Witness Name: _____ Participant's Thumb Print: _____

Signature: _____

Date: _____

Appendix G Informed Consent (Urdu)

پروجیکٹ کی معلومات
G: باخبر رضامندی۔
ضمیمہ

پروجیکٹ کا عنوان: ضلع باجوڑ، کے پی کے پاکستان کے دیہی بنیادی مراکز صحت میں کام کرنے والی رجسٹرڈ نرسوں کے تجربات۔	ورژن اور تاریخ: ورژن: 1 تاریخ: 26 اکتوبر 2023
ERC پروجیکٹ نمبر: 9572	اسپانسر:
مرکزی تحقیق کار: ڈاکٹر سلمیٰ رتانی	تنظیم: اسکول آف نرسنگ اینڈ مڈوائفری، آغا خان یونیورسٹی
مقام: AKUSONAM	فون: 03452341738
دیگر تفتیش کار: امین اللہ	تنظیم: اسکول آف نرسنگ اینڈ مڈوائفری، آغا خان یونیورسٹی
مقام: AKUSONAM	فون: 03023885692



میں امین اللہ ظاہر آغا خان یونیورسٹی سکول آف نرسنگ اینڈ مڈوائفری (AKU-SONAM) میں ماسٹر آف

سائنس ان نرسنگ (MScN) کا طالب علم ہوں۔ اپنے مقالے کے ایک حصے کے طور پر، میں ضلع باجوڑ میں

پبلک پرائمری کینز سیٹنگ میں صحت کی دیکھ بھال فراہم کرنے کے دوران رجسٹرڈ نرسوں کے تجربات کا تعین کرنے کے لیے ایک مطالعہ کرنے میں دلچسپی رکھتا ہوں۔

بنیادی دیکھ بھال کی خدمات تک رسائی حاصل کرنے والے دور دراز کے علاقے کی بنیادی ترتیب میں صحت کی دیکھ بھال کی خدمات فراہم کرنے والی رجسٹرڈ نرسوں

کے لیے، فراہم کردہ دیکھ بھال کے معیار کو متاثر کرنے والے عوامل کو سمجھیں، اور سہولت کے اندر بنیادی دیکھ بھال کی فراہمی کو بڑھانے کے لیے سفارشات تجویز کریں۔

1. اس تحقیقی مطالعہ کا مقصد

اس مطالعہ کا مقصد نرسوں کے اپنے تجربات اور بنیادی صحت کی دیکھ بھال کی سہولت میں صحت کی دیکھ بھال کی خدمات فراہم کرنے کے دوران درپیش چیلنجز کے بارے میں ان کے نقطہ نظر کو تلاش کرنا اور ان

کا تجزیہ کرنا ہے۔ گہرائی سے تحقیقات اور کوالٹیٹیو ریسرچ کے طریقوں کے ذریعے، اس مطالعے کا مقصد بنیادی

نگہداشت کی ترتیب کے تناظر میں مریضوں کو صحت کی دیکھ بھال فراہم کرنے کے وقت نرسوں کے کردار، چیلنجوں اور مجموعی تجربات سے پردہ اٹھانا ہے۔ نرسوں کے نقطہ نظر کے بارے میں بصیرت حاصل کر کے، مطالعہ

صحت کی دیکھ بھال کی خدمات تک رسائی میں ممکنہ رکاوٹوں کی نشاندہی کرنا، فراہم کردہ دیکھ بھال کے معیار

کو متاثر کرنے والے عوامل کو سمجھنے اور سہولت کے اندر صحت کی دیکھ بھال کی فراہمی کو بڑھانے کے لیے تجویز کردہ سفارشات کو سمجھنا چاہتا ہے۔
2. طریقہ کار

ایک شریک کے طور پر، آپ کا انٹرویو لیا جائے گا اور آپ سے سوالات کے جوابات دینے کی درخواست

کی جائے گی۔ سوالات کو دو حصوں میں تقسیم کیا گیا ہے: ڈیموگرافک تفصیلات اور نرسوں کے تجربات اور

چیلنجوں کے بارے میں سوالات جن کا انہیں بنیادی دیکھ بھال کی سہولت میں سامنا کرنا پڑتا ہے۔ اس تحقیق میں آپ

کی شرکت رضاکارانہ ہے۔ اگر آپ شرکت کے لیے رضامندی دیتے ہیں تو انٹرویو کے لیے تاریخ، وقت اور مقام کا

فیصلہ آپ کی دستیابی اور سہولت کی بنیاد پر کیا جائے گا۔ انٹرویو اردو میں لیا جائے گا۔ انٹرویو کا وقت 60-45

منٹ تک متوقع ہے۔ ساتھ ہی انٹرویو بھی ریکارڈ کیا جائے گا۔

آپ کے جوابات کی رازداری برقرار رکھی جائے گی کیونکہ آپ کے ڈیٹا کو ایک کوڈ نمبر تفویض کیا جائے گا اور آپ کے ملازم کے نمبروں کو شناخت کنندہ کے طور پر استعمال نہیں کیا جائے گا۔ اس کے علاوہ،

پورے عمل کے دوران آپ کا نام ظاہر نہ کیا جائے گا۔ تحقیقی رپورٹ تھیسس کے زبانی دفاع، سائنسی فورمز پر

زبانی پیشکش، اور سائنسی جراند میں اشاعت کے ذریعے پبلیائی جائے گی۔



3. ممکنہ خطرات یا تکلیف

اس مطالعے سے وابستہ کسی بھی شرکاء کے لیے کوئی ممکنہ نقصانات، خطرات یا خطرات نہیں ہیں۔ آپ کو انٹرویو ہونے سے تکلیف کا احساس ہو سکتا ہے۔ آپ کی تکلیف کو دور کرنے اور آپ کے آرام کو بڑھانے کے

لیے آپ کو اس کے بارے میں ہوا دینے کی اجازت ہوگی۔ اس کے علاوہ، آپ کو کسی ایسے سوال کا جواب دینے

سے انکار کرنے کا حق ہے جس کا جواب دینے میں آپ آرام سے نہیں ہیں۔ آپ انٹرویو جاری رکھنے سے بھی انکار کر سکتے ہیں

4. ممکنہ فوائد

آپ کی شرکت کے لیے آپ کو کوئی مالی معاوضہ فراہم نہیں کیا جائے گا۔ یہ مطالعہ صرف تعلیمی مقاصد کے لیے ہے۔

5. مالی تحفظات

اس مطالعہ میں حصہ لینے کے لیے کوئی ادائیگی نہیں ہے اور شرکت کے لیے کوئی ادائیگی نہیں ملے گی۔

6. رازداری

مطالعہ کی پوری منت میں آپ کی رازداری کو یقینی بنایا جائے گا۔ مزید برآں، تمام جمع کیے گئے ڈیٹا کو

بند کینٹ میں رکھا جائے گا، اور سافٹ کاپیز میں موجود ڈیٹا کو پاس ورڈ کے ذریعے محفوظ کیا جائے گا۔ ڈیٹا

صرف پرنسپل تحقیق کار اور مقالہ کمیٹی کے لیے قابل رسائی ہو گا۔ تاہم، بیومن اینتھکس کمیٹی کی مانیٹرنگ اور

ایوبیلوایشن ٹیم، AKU کوالٹی ایسورنس کے لیے ڈیٹا کا جائزہ لے سکتی ہے۔

7. انکار یا واپس لینے کا حق

اگر آپ ایسا نہیں کرنا چاہتے ہیں تو آپ کو اس مطالعہ میں حصہ لینے کی ضرورت نہیں ہے اور اس میں حصہ لینے کا انتخاب آپ کے کیریئر کو متاثر نہیں کرے گا۔ آپ جب چاہیں انٹرویو میں حصہ لینا بند کر سکتے ہیں۔
اگر آپ کسی بھی سوال کا جواب دینے میں بے چین ہیں، تو آپ کو انکار کرنے کا حق ہے۔

8. معلومات کے دستیاب ذرائع

کوئی بھی اس مطالعہ کے بارے میں آپ کے مزید سوالات کا جواب تفتیش کار دے گا:

نام: امین اللہ ظاہر

فون نمبر: 03023885692

9. اجازت

میں نے رضامندی کے اس فارم کو پڑھ اور سمجھ لیا ہے، اور میں اس تحقیقی مطالعہ میں حصہ لینے کے لیے رضاکارانہ طور پر تیار ہوں۔ میں سمجھتا ہوں کہ مجھے اس فارم کی ایک کاپی مل جائے گی۔ میں رضاکارانہ طور پر حصہ لینے کا انتخاب کرتا ہوں، لیکن میں سمجھتا ہوں کہ میری رضامندی اس مطالعے میں شامل کسی بھی شخص کی غفلت یا دیگر قانونی غلطی کی صورت میں کوئی قانونی حق نہیں چھینتی ہے۔

شریک کا نام: شریک کے دستخط: تاریخ:

پرنسپل تفتیش کار کے دستخط: تاریخ:

رضامندی حاصل کرنے والے شخص کا نام اور دستخط:

تاریخ:

پڑھنے سے قاصر شرکاء کے لیے

گواہ:

میں نے ممکنہ شرکاء کو رضامندی کے فارم کو درست پڑھتے ہوئے دیکھا ہے، اور فرد کو سوالات پوچھنے کا موقع

ملا ہے۔ میں تصدیق کرتا ہوں کہ فرد نے آزادانہ طور پر رضامندی دی ہے۔

گواہ کا نام: _____ حصہ لینے والے کے انگوٹھے کا نشان:

دستخط:



Appendix H Affidavit of Translation _____ تاریخ:

I Aminullah Zahir fluent in English and in Urdu

To the best of my knowledge, I certify that the documents listed below and attached to this affidavit is a true and accurate translation of the original document in English into Urdu.

Name of Original Document in English	Version
Consent Form for Registered Nurses	1
Experiences of Registered Nurses working in rural primary health Centers of district Bajaur, KPK Pakistan.	1

Name of Original Document in English	Version
رجسٹرڈ نرسوں کے لیے رضامندی کا فارم	1
ضلع باجوڑ، کے پی کے پاکستان کے دیہی بنیادی مراکز صحت میں کام کرنے والی رجسٹرڈ نرسوں کے تجربات۔	1

Aminullah Zahir

aminullah.zahir@scholar.aku.edu

Printed name of Translator

Email address of Translator



29 August, 2023

Signature of Translator

Date

Dr. Salma Rattani



Printed Name of Principal Investigator

Signature of Principal Investigator

Salma.rattani@aku.edu

15/11/2023

Email Address of Principal Investigator

Date

Appendix I Demographic Tool (English)

Title: The Experiences of Registered Nurses working in Rural Public primary health centres of district Bajaur, KPK Pakistan.

Section One: Socio-demographic Data:

1. Gender:

Male

Female

2. Age in years:

3. Professional Qualification:

General Nursing Diploma (RN)

Bachelor (BSN)

Post RN BSN

Master (MSN)

4. Years of Experience

Appendix I Demographic Tool (Urdu)



اپنیٹکس I. آبادیاتی ٹول

عنوان: ضلع باجوڑ، کے پی کے پاکستان کے بنیادی مراکز صحت میں کام کرنے والی رجسٹرڈ نرسوں کے تجربات.

سیکشن ایک: سماجی آبادیاتی ڈیٹا:

عورت

1. صنف:

مرد

2. سال میں عمر:



بيچلر (BSN)



3. پیشہ ورانہ اہلیت:

جنرل نرسنگ ڈپلومہ)

پوسٹ آر این BSN م (MSN)

4. برسوں کا تجربہ

Appendix J

COREQ (Consolidated criteria for Reporting Qualitative research) Checklist

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International Journal for Quality in Health Care. 2007. Volume 19, Number 6: pp. 349 - 357

Topic	Item No.	Guide Questions/Description	Reported on Page No
Domain 1: Research team and reflexivity			
Personal Characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	Aminullah conducted the interviews
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	Aminullah: BScN, MScN student, Salma Rattani PhD, MScN, BScN, RN, RM Nimira Asif: MEd, BScN Khairunnissa Hooda: Master in Advance Nursing Studies, BScN.
Occupation	3	What was their occupation at the time of the study?	Aminullah MScN Student Aga Khan University School of Nursing and Midwifery, Pakistan Salma Rattani PhD, MScN, BScN, RN, RM Associate Professor Aga Khan University School of Nursing and Midwifery, Pakistan Nimira Asif Assistant Professor, and Assistant Dean Teaching Learning, Aga Khan

			University School of Nursing and Midwifery, Pakistan Khairunnissa Hooda Chief Nursing Officer Aga Khan University Hospital, Pakistan
Gender	4	Was the researcher male or female?	All interviews were conducted by a male researcher Aminullah
Experience and training	5	What experience or training did the researcher have?	The primary investigator Aminullah is an MScN student at The Aga Khan University School of Nursing and Midwifery.
Relationship with Participants			
Relationship established	6	Was a relationship established prior to study commencement?	A rapport was built with the participants during the demographic data collection and informed consent was signed before data collection.
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were provided with a consent form which gave them an understanding of the objectives, outcomes, and details about the study.
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Research/thesis is an important component of the graduate program, and the first author was a student in the program. There is no specification for the selection of thesis but having an interest in the field the author/student selected this research and read more about it to justify/defend his interest and need for this research for approval by the research team and ethics review committee. Feedback/review received by the team and committee enhanced the research processes. Research rigor was maintained and reported on pages 51 and 52.
Domain 2: Study design			
Theoretical framework			

Methodological Orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	It was a qualitative study, and Content analysis was conducted for the analysis. Page no 40.
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Purposive sampling was done to recruit participants; refer to page 36.
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, Email	The participants were approached face-to-face. Refer to page no 39.
Sample size	12	How many participants were in the study?	12 participants were included in the study. Refer to page no 35.
Non-participation	13	How many people refused to participate or dropped out? Reasons?	2 Participants refused to participate in the study. Refer to page no 45.
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	Interviews were conducted at different venues in three Category D hospitals in District Bajaur, KPK. Refer to page no 33.
Presence of non-Participants	15	Was anyone else present besides the participants and researchers?	No
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	Refer to page no 46. Table no 4.1 & 4.2.
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Two pilot interviews were taken, refer to page no 38.
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	No
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	The interviews were audio recorded. Refer to page no 40.

Field notes	20	Were field notes made during and/or after the interview or focus group?	Field notes observation was taken during and after the data collection process. Refer to page no 37.
Duration	21	What was the duration of the interviews or focus group?	Duration of the interviews were 30-50min, On an average 36 minutes. Refer to page no 37.
Data saturation	22	Was data saturation discussed?	Yes, refer to page 35.
Transcripts returned	23	Were transcripts returned to participants for comment and/or correction?	Refer to page 42.
Domain 3: analysis and findings			

Data analysis			
Number of data coders	24	How many data coders coded the data?	It was done by initial independent coding by the researcher; later rechecking was done by the whole research team. Refer to page no 42.
Description of the coding Tree	25	Did authors provide a description of the coding tree?	Yes, mentioned in the Results chapter on pages 47. Table No 4.3.
Derivation of themes	26	Were themes identified in advance or derived from the data?	Themes were derived from the data. Refer to page no 47.
Software	27	What software, if applicable, was used to manage the data?	Microsoft Word and Excel.
Participant checking	28	Did participants provide feedback on the findings?	Yes. Please refer to page 42.
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	An anonymous number was given to each participant.
Data and findings consistent	30	Was there consistency between the data presented and the findings?	Yes
Clarity of major themes	31	Were major themes clearly presented in the findings?	Yes
Clarity of minor themes	32	Is there a description of diverse cases or a discussion of minor themes?	Yes, subthemes were also mentioned on page no 49.