



The Psychological Burden of Scabies in Rohingya Refugee Camp

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Abstract

Introduction: Scabies, a contagious skin disease caused by the mite *Sarcoptes scabiei*, is a pressing public health issue, particularly in overcrowded and unsanitary environments like the Rohingya refugee camps in Cox's Bazar, Bangladesh. The dense living conditions, limited access to clean water, and inadequate healthcare infrastructure foster the rapid transmission of scabies, resulting in severe itching, rashes, and secondary infections. Beyond its physical symptoms, scabies imposes significant psychological burdens, including anxiety, depression, sleep disturbances, social stigma, and isolation. These challenges are further intensified by the trauma of displacement, loss, and uncertainty faced by the Rohingya community. Despite its prevalence, the psychological dimensions of scabies remain underexplored. This study addresses this gap by employing a mixed-methods approach to quantify the prevalence of anxiety, depression, and sleep disturbances among individuals with scabies and to understand their lived experiences and coping strategies. The findings aim to highlight the necessity for integrated healthcare strategies that combine dermatological treatment with mental health support, aligning with WHO's call for comprehensive care models in resource-constrained, high-risk settings.

Method: Interview and questionnaires are used to collect structured data from a large sample using pre-designed, standardized questions. This ensures consistency and reliability of responses across participants. These tools are particularly effective for gathering data on attitudes, behaviors, and experiences, enabling numerical analysis to identify patterns, trends, or relationships. Examples include collecting demographic details, assessing the frequency of symptoms, or evaluating mental health indicators.

Results: The study population had a mean age of 21.8 years, ranging from 5 to 70 years, with 54.8% females and 45.3% males, and an average household size of 8.31 members. Psychological impacts were severe, with 87.8% experiencing anxiety (mean score: 1.12, SD: 0.328), 91% suffering from depression (mean score: 1.09, SD: 0.287), and 53.3% frequently feeling hopeless (mean score: 1.53, SD: 0.500). Embarrassment was reported by 33.3% (mean score: 4.00, SD: 0.818), while all participants reported stress (mean level: 7.96/10, SD: 1.44) and restricted psychological well-being due to physical health. Daily activities were disrupted for 94%, with no access to mental health support and 73.4% experiencing moderate-to-severe social isolation. Sleep disturbances were universal, with all 400 participants (100%) reporting impaired sleep quality: 37% had poor sleep, 29.3% very poor, and 33.8% extremely poor. Adolescents, particularly females aged 10–18, faced the greatest burden, experiencing heightened stigma, isolation, and mental health challenges, further exacerbating the profound impact of scabies on overall quality of life.

Conclusion: Scabies imposes a significant psychological, social, and functional burden, disproportionately affecting females and younger individuals. Among the Rohingya refugee population, the condition exacerbates anxiety, depression, sleep disturbances, and stigma, particularly for adolescent females. These findings highlight the urgent need for holistic interventions that address both physical symptoms and mental health, including stigma reduction and targeted support for vulnerable groups. The study advocates for integrated healthcare approaches in refugee settings, prioritizing mental health services alongside physical treatment to improve overall well-being.

Keywords: Scabies; Communicable Diseases; Poor Sanitation; Infectious Diseases; Psychological Burden

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Abbreviations

BPH - Bachelor of Public Health, WHO - World Health Organization, GAD-7 - Generalized Anxiety Disorder-7, PHQ-9 - Patient Health Questionnaire-9, PSQI - Pittsburgh Sleep Quality Index, PRRs - Pattern Recognition Receptors, TLRs - Toll-Like Receptors, IL - Interleukin, IFN- γ - Interferon-Gamma, TNF- α - Tumor Necrosis Factor-Alpha, HPA Axis - Hypothalamic-Pituitary-Adrenal Axis, BBB - Blood-Brain Barrier, CRH - Corticotropin-Releasing Hormone, NTD - Neglected Tropical Disease, RHD - Rheumatic Heart Disease, PSGN - Post-Streptococcal Glomerulonephritis, SD - Standard Deviation, CNS - Central Nervous System, NMDA - N-Methyl-D-Aspartate, PRRs - Pattern Recognition Receptors, ESR - Erythrocyte Sedimentation Rate, NSAIDs - Non-Steroidal Anti-Inflammatory Drugs, WBC - White Blood Cells, RBC - Red Blood Cells, COPD - Chronic Obstructive Pulmonary Disease, CRP - C-Reactive Protein, CVD - cardiovascular disease, RA - Rheumatoid Arthritis, SLE - Systemic Lupus Erythematosus, VEGF - Vascular Endothelial Growth Factor, FGF - Fibroblast Growth Factor, NF- κ B - Nuclear Factor Kappa B, ICAM-1 - Intercellular Adhesion Molecule-1, VCAM-1 - Vascular Cell Adhesion Molecule-1, ECP - Eosinophil Cationic Protein, UNICEF - United Nations International Children's Emergency Fund, SDGs - Sustainable Development Goals, MOH - Ministry of Health, UN - United Nations, PCR - Polymerase Chain Reaction, USG - Ultrasonography, MRI - Magnetic Resonance Imaging, ECG - Electrocardiogram, PET - Positron Emission Tomography, LFT - Liver Function Test

Introduction

Background of the Study

Scabies is a contagious skin condition caused by the parasitic mite *Sarcoptes scabiei*. Characterized by severe itching (pruritus), inflammatory skin lesions, and visible burrows made by the mites, scabies is a common dermatological condition that affects millions of people worldwide. Although primarily affecting the skin, scabies also has significant psychological and social implications. The disease spreads quickly in overcrowded environments such as refugee camps, prisons, and nursing homes, and is often associated with poor hygiene.

The history of scabies dates back to ancient civilizations. Ancient Egyptian texts, written around 1500 BCE, likely refer to skin conditions that resemble scabies, where various remedies were used to alleviate the itching. In ancient Greece, Hippocrates described skin diseases, including those that might have been scabies, though the cause remained unknown. Roman physician Aulus Cornelius Celsus also referenced similar conditions in his writings during the 1st century AD, but again, no link to a parasite was made. It wasn't until the 17th and 18th centuries that the microscope allowed for further investigation into the microscopic nature of the disease. In 1674, Dutch scientist Antonie van Leeuwenhoek became one of the first to observe tiny organisms in the skin of people suffering from scabies, but he did not link them directly to the disease. A few decades later, Giovanni Maria Lancisi, an Italian physician, recognized the parasitic nature of the condition, noting that scabies was more common among the poor and those with poor hygiene. The definitive identification of the mite *Sarcoptes scabiei* came in 1834 when German scientist Adam Johann Hübner used a microscope to discover that the microscopic mites were the causative agents of scabies. This discovery laid the foundation for understanding scabies as an infectious disease. Despite the effectiveness of the immune response in many cases,

scabies remains a significant public health issue. It is recognized by the World Health Organization (WHO) as a neglected tropical disease (NTD) and is most common in low-income populations and areas with poor hygiene. The disease is particularly prevalent in refugee camps, prisons, and nursing homes, where people live in close quarters and have limited access to healthcare. Children and the elderly are especially vulnerable to scabies, with the latter group being at higher risk due to their skin's greater sensitivity. Scabies can also have a profound psychological impact, as the itching and visible skin lesions may lead to social stigma, isolation, and mental health issues such as depression and anxiety.

In conclusion, scabies is a disease with a long history, from ancient Egypt to modern times, with significant advancements made in understanding its pathogenesis, treatment, and global prevalence. The discovery of *Sarcoptes scabiei* and its life cycle revolutionized our understanding of the disease. Despite effective treatments, scabies continues to be a global health challenge, particularly in overcrowded and low-resource settings. Addressing scabies requires not only effective medical treatments but also improved hygiene practices, better access to healthcare, and psychological support for affected individuals.

Transmission of the Disease

Sarcoptes scabiei var. *hominis*, is primarily transmitted through prolonged direct skin-to-skin contact. This mode of transmission is particularly efficient in settings where close physical interaction is frequent, such as within families, childcare facilities, nursing homes, prisons, and refugee camps. Additionally, indirect transmission through fomites, including clothing, bedding, or towels, can occur, particularly in cases of crusted scabies where the high mite burden increases environmental contamination. Understanding the pathways and risk factors of scabies transmission is essential for designing effective prevention and control strategies.

Direct Skin-to-Skin Contact

The predominant mode of scabies transmission is through prolonged skin-to-skin contact. The mites require a warm environment to survive and thrive, making close and sustained physical contact crucial for their transfer from one host to another. Casual touch, such as a handshake, is generally insufficient to transmit scabies, as the mites do not readily leave the skin surface unless the contact is prolonged. Instead, activities involving intimate or prolonged physical contact, such as co-sleeping or caring for an infected individual, pose the highest risk of transmission.

Transmission Dynamics in Vulnerable Populations

Refugee Camps: Refugee camps, such as those housing Rohingya populations in Bangladesh, represent high-risk environments for scabies transmission. Overcrowded living conditions, inadequate sanitation, and limited healthcare access create a perfect storm for the rapid spread of the disease. The close-knit community structure, combined with shared sleeping arrangements, facilitates direct skin-to-skin contact, while limited access to clean clothing and bedding increases the likelihood of indirect transmission. **Institutional Settings:** Nursing homes, hospitals, and prisons are also hotspots for scabies outbreaks. In nursing homes, elderly residents often require physical assistance, leading to frequent skin-to-skin contact with caregivers. Similarly, prisons' high population densities and limited personal space promote transmission. In hospitals, crusted scabies in immunocompromised patients poses a significant risk to healthcare

workers and other patients. **Childcare Settings:** In daycare centers and schools, children's close physical interactions and underdeveloped immune systems contribute to higher transmission rates. The shared use of toys, blankets, and play equipment may also facilitate indirect transmission. **Households:** Within families, scabies often spreads from one infected member to others through close contact. Shared sleeping arrangements, especially in lower-income households, increase transmission risks. Family members with weaker immune systems or pre-existing skin conditions are particularly susceptible.

Treatment of Scabies

Scabies can be effectively treated with topical and systemic medications. Permethrin, a synthetic pyrethroid, is the most commonly used topical treatment and is applied to the entire body. It is effective in killing the mites, and its use has revolutionized the treatment of scabies. Oral ivermectin, an antiparasitic drug, is used in severe cases or when topical treatment fails. It is particularly useful for patients with crusted scabies or those who are immunocompromised. Other treatments include benzyl benzoate, though this is not as commonly used due to its skin irritant properties. Alongside these pharmacological treatments, proper hygiene measures, such as washing clothing and bedding, are essential to prevent reinfestation. Despite the availability of effective treatments, scabies remains a persistent and significant global health problem, particularly in regions where overcrowding and poor hygiene are common. Research continues into better diagnostic methods, as well as more effective treatments, to combat scabies and reduce its global burden. The psychological and social impact of the disease also calls for a more comprehensive approach to treatment, one that not only addresses the physical symptoms but also supports the mental and social well-being of affected individuals.

Prevention of Scabies

Health Education and Awareness

Health education and awareness campaigns are at the heart of scabies prevention in the Rohingya refugee setting. A lack of knowledge about the transmission, symptoms, and treatment of scabies among the refugee population contributes to its spread. Many individuals may not recognize the symptoms or understand how the disease is transmitted. Thus, education programs are essential to curb the rate of transmission. Health education initiatives should aim to provide clear and accessible information on the nature of scabies, its symptoms, and how it spreads. Community leaders, health workers, and volunteers can play pivotal roles in disseminating this information in a culturally sensitive manner. These campaigns can take various forms, including community meetings, door-to-door outreach, distribution of informational pamphlets and posters, and the use of local radio broadcasts. In addition to traditional media, digital platforms, such as mobile phone apps or text messages, can be utilized to reach larger numbers of refugees, especially those with limited access to in-person education sessions. The educational content should emphasize preventive behaviors, such as the importance of regular bathing, avoiding skin-to-skin contact with infected individuals, and the necessity of washing clothing, bedding, and towels regularly. Special attention should be given to highlighting how scabies is transmitted, primarily through prolonged skin-to-skin contact and indirect contact with contaminated clothing or bedding.

Personal Hygiene and Sanitation

In refugee camps, where living conditions are often suboptimal,

promoting personal good hygiene practices, which contributes to the spread of the disease. Therefore, interventions aimed at improving hygiene and sanitation are critical components of scabies prevention strategies. Providing access to clean water and adequate bathing facilities is essential for reducing the risk of scabies. Refugee camps should ensure that every household has access to sufficient clean water for drinking, cooking, and personal hygiene. Building more shower facilities or ensuring that existing ones are clean and functional is another step in reducing scabies transmission. Refugees should be encouraged to wash their bodies and their clothes regularly to prevent the buildup of scabies mites, which can survive on clothing for extended periods. Additionally, the promotion of daily hygiene routines, such as washing hands after touching potentially contaminated surfaces or interacting with others, can help break the cycle of transmission. Refugees should be educated about the need to avoid sharing personal items such as towels, blankets, and clothing, as these items can harbor the scabies mite. Hygiene kits, including soap, detergents, and other essential supplies, should be distributed regularly to ensure that refugees have the necessary tools to maintain cleanliness.

Mass Treatment with Scabicides

One of the most effective ways to prevent the spread of scabies in a crowded and resource-limited setting is the implementation of mass treatment campaigns using scabicial medications. The standard treatment for scabies is the application of topical scabicial creams, such as permethrin, which kills the mites and provides relief from the itching. In a refugee camp setting, where the disease is widespread and there is a high likelihood of close contact between individuals, mass treatment programs have proven to be effective in controlling scabies outbreaks. Mass treatment programs should be coordinated by healthcare organizations in collaboration with local authorities, community leaders, and refugee representatives. These programs should target the entire camp population, including individuals who may not yet show symptoms of scabies. Preventive treatment, also known as "mass drug administration," involves treating all individuals in the camp with scabicides, regardless of whether they have been diagnosed with scabies. This approach helps to eliminate the mite population in the community and prevent further transmission. During mass treatment campaigns, healthcare workers should ensure that scabicial treatments are applied correctly, as improper application or incomplete coverage reduce their effectiveness. Training sessions for both healthcare workers and refugees should be conducted to educate the community on how to apply the medication properly, including instructions on how to treat all affected areas of the body and the need to wash off the treatment after a specified period. The effectiveness of mass treatment programs should be regularly monitored, and follow-up treatment should be provided if necessary to ensure that all individuals are adequately treated and that the outbreak is under control. Monitoring also involves checking for new cases and ensuring that individuals who continue to experience symptoms are treated appropriately.

Improving Living Conditions

The spread of scabies in refugee camps is exacerbated by poor living conditions, including overcrowding, inadequate shelter, and limited access to sanitation. In a setting where thousands of individuals are living in close quarters, scabies can spread rapidly through prolonged skin-to-skin contact, which is common due to limited space and shared sleeping arrangements. Improving living

conditions is, therefore, a crucial aspect of any effective scabies prevention strategy. Efforts should be made to reduce overcrowding in the camp by improving shelter arrangements. Providing more spacious shelters, ensuring that there is adequate ventilation, and minimizing the sharing of sleeping spaces can reduce the risk of transmission. In cases where sharing is unavoidable, efforts should be made to educate refugees about minimizing direct skin-to-skin contact and using separate bedding and clothing. Additionally, the refugee camp's infrastructure must be improved to address sanitation issues. The camp should have sufficient latrines and waste disposal systems, as well as regular cleaning and maintenance of shared facilities. Environmental health programs should focus on eliminating standing water and other breeding grounds for insects and parasites, which can facilitate the spread of scabies. Strengthening the infrastructure to ensure that refugees have access to safe and adequate water for drinking and hygiene will also help reduce the spread of scabies. Clean water and proper waste management contribute to a healthier living environment and can help lower the incidence of scabies and other preventable diseases.

Surveillance and Monitoring

Surveillance and monitoring are essential for identifying scabies outbreaks early, tracking the effectiveness of prevention strategies, and targeting resources where they are most needed. Routine surveillance should be conducted to detect new cases of scabies, particularly in high-risk areas of the camp. This can be done through regular screenings by health workers, who can identify individuals with symptoms such as itching, rashes, or crusted skin lesions. In addition to case detection, monitoring systems should assess the impact of mass treatment campaigns and hygiene interventions. Health data collected during these activities should be analyzed to determine whether the prevalence of scabies is decreasing and if preventive measures are being effectively implemented. If new outbreaks occur, swift responses should be initiated, including additional rounds of treatment and community awareness campaigns. Surveillance and monitoring efforts also include tracking the availability and distribution of medical supplies, such as scabicide creams and hygiene kits, to ensure that there are no gaps in the supply chain that might hinder prevention efforts.

Collaboration with health workers and Refugee leaders

Effective scabies prevention in the Rohingya refugee setting requires collaboration between healthcare workers, community leaders, and the refugees themselves. Health workers, particularly those with experience in managing scabies and other infectious diseases, should be trained to recognize the signs and symptoms of scabies and provide effective treatment. Community leaders, including religious leaders, elders, and other trusted figures, can play a key role in encouraging participation in prevention programs. Their involvement helps to foster trust between healthcare providers and the refugee population, increasing the likelihood of cooperation with health initiatives. Refugee leaders can also act as intermediaries, ensuring that information about scabies prevention reaches all community members, including those who may be isolated or have difficulty accessing healthcare services (Figure 1).

Worldwide Statistics

Global Statistics on Scabies is a significant public health concern worldwide, affecting populations in both developed and developing countries. Despite being a preventable and treatable condition, scabies remains a persistent problem, particularly in low-resource

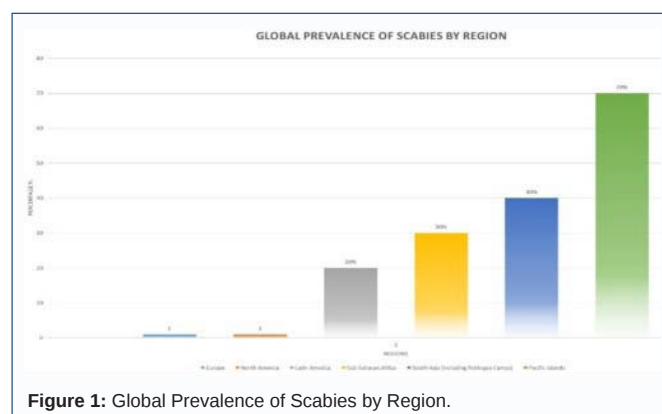


Figure 1: Global Prevalence of Scabies by Region.

settings. This document explores the global statistics on scabies, highlighting its prevalence, distribution, and impact. It includes tables and graphical representations to provide a clear and comprehensive overview. Scabies affects an estimated 200 million individuals globally at any given time, according to the World Health Organization (WHO). The prevalence of scabies varies significantly by region, with the highest burden observed in tropical and subtropical areas. Factors such as overcrowding, poor hygiene, and limited access to healthcare contribute to higher rates of infestation in these regions.

Key Observations

Sub-Saharan Africa and the Pacific Islands have the highest prevalence, with rates exceeding 10% in some areas. Developed countries report lower prevalence, often below 1%, though outbreaks can occur in institutional settings like nursing homes. Scabies is particularly common in refugee camps, prisons, and childcare centers, where close contact and overcrowding facilitate transmission.

Demographic Distribution

Scabies affects individuals across all age groups but disproportionately impacts certain demographics:

Children and Adolescents: Young individuals, particularly those in schools and daycare settings, are at higher risk due to close physical contact.

Elderly: Institutionalized elderly populations are vulnerable, particularly in nursing homes where outbreaks are common.

Marginalized Communities: Refugees, displaced persons, and those in poverty-stricken areas bear the brunt of the scabies burden.

Economic burden of scabies

The economic impact of scabies is substantial, encompassing direct healthcare costs and indirect costs such as lost productivity. A study in Australia estimated the annual economic burden of scabies and its complications at over USD 24 million, primarily due to secondary bacterial infections leading to serious conditions such as rheumatic heart disease and kidney damage (Table 1).

Geographic Hotspots

Scabies is hyperendemic in many low-resource settings. Specific regions and countries report particularly high rates:

Fiji: Studies report prevalence rates as high as 25%, particularly in rural and underserved communities. In Papua New Guinea, Scabies prevalence exceeds 20% in some areas, with high rates of secondary bacterial infections. In India, Prevalence varies widely, with rural

Table 1: The ratio of the economic burden of scabies.

Cost Component	Estimated Contribution (%)
Treatment Costs	40%
Hospitalization (Complications)	35%
Lost Productivity	25%

Table 2: Prevalence of outbreaks in different institutional setting.

Setting	Prevalence of Outbreaks (%)
Nursing Homes	5-20%
Schools	3-10%
Prisons	10-30%

areas reporting higher rates than urban centers. In Ethiopia Scabies outbreaks are common, particularly during humanitarian crises and drought conditions.

Trends Over Time

Scabies prevalence has remained relatively stable over the past decade. However, specific trends are noteworthy:

Urbanization: Rapid urbanization in low- and middle-income countries has created conditions for scabies outbreaks in slums and informal settlements.

Climate Change: Rising temperatures and humidity levels in certain regions may contribute to an increased risk of scabies transmission.

Scabies in Institutional Settings

Outbreaks in institutions such as nursing homes, prisons, and schools are well-documented. In developed countries, these outbreaks account for a significant proportion of scabies cases (Table 2).

Continental Statistics of Scabies

Asia

Scabies is common in both rural and urban settings, especially in tropical and subtropical areas. Prevalence: In Southeast Asia, scabies prevalence ranges from 5% to 19% in certain populations. Scabies is a major issue in refugee camps like the Rohingya refugee camps in Bangladesh, with around 40% of the population affected.

Key Statistics

Bangladesh (Rohingya Refugee Camps): Prevalence rates can go as high as 40–70% in some areas, especially in overcrowded refugee camps.

India: Approximately 3% of the population is affected.

Philippines: Around 9% of the population, particularly among children.

Africa

Scabies is widespread, particularly in low-income regions with inadequate access to healthcare.

Prevalence: The prevalence ranges between 5% and 20% depending on the region. In Southern Africa, Studies show a high prevalence among children, with certain studies reporting rates as high as 20–30% in rural areas. In Ethiopia, A study found scabies to affect up to 18% of children in some regions.

Challenges: Poor living conditions, malnutrition, and limited

access to health services contribute to higher prevalence.

North America

Scabies is less prevalent compared to tropical regions but still poses a public health issue.

Prevalence: Studies estimate about 0.2–1.0% of the general population is affected.

United States: Approximately 1–3 million people are affected annually.

Canada: Around 0.4% of the population is diagnosed with scabies each year.

Higher prevalence in institutional settings: In nursing homes, correctional facilities, and refugee camps, scabies is more common.

South America

Scabies is prevalent in rural and marginalized populations, with outbreaks in urban areas as well.

Prevalence: Estimates suggest that 10–20% of the population in certain regions is affected.

Brazil: A study in 2017 found that 11.5% of children under the age of 5 were infected with scabies.

Chile: Scabies outbreaks have occurred in lower-income communities, with prevalence rates between 5–10%.

Europe

Europe has lower scabies prevalence rates but still faces outbreaks in certain populations. Prevalence: Around 0.1–1% of the population in Western Europe is affected. In the United Kingdom, Studies suggest 1–2% of the population is affected. Northern Europe, Countries like Finland and Sweden report low rates, often under 1%. At-risk groups: Outbreaks are more common in institutional settings, particularly in nursing homes.

Oceania (including Australia and Pacific Islands)

Scabies is a major public health concern in certain regions, especially in remote communities and Pacific Islands. Prevalence: Oceania has the highest reported prevalence rates.

Australia: Around 2–4% of the population is affected, with higher rates observed in Indigenous communities.

Pacific Islands

High rates of scabies are reported, particularly in rural areas and remote islands, with prevalence rates sometimes exceeding 18% in certain populations.

New Zealand: Scabies is more common in Māori and Pacific Island communities, with prevalence rates higher than in the general population.

Antarctica

Scabies is virtually non-existent in Antarctica due to its extreme cold climate and lack of permanent human habitation. Scabies is a global health issue, with prevalence varying widely by continent. Oceania and Africa report the highest rates, particularly in marginalized and rural populations. In Asia, especially in refugee camps, the prevalence is also significant. Europe and North America have lower overall prevalence but still face challenges in specific communities and institutions.

National Statistics of Scabies

Scabies is a common health concern in Bangladesh, particularly in rural and overcrowded areas, including refugee camps where hygiene conditions are poor. The prevalence of scabies in Bangladesh is notably higher in the Rohingya refugee camps and other densely populated areas.

General Population

Prevalence: A study conducted in Dhaka reported that approximately 5–10% of the population in urban areas is affected by scabies. Scabies affects more than 1 million people annually in Bangladesh, with a notable concentration in low-income areas. In rural communities, where healthcare access is limited, prevalence rates may rise to 10–20%.

Children

Scabies is most prevalent among children, particularly in the younger age groups (under 5 years). Poor hygiene and overcrowded living conditions contribute to the higher prevalence in children.

Prevalence: Studies have shown that 15–20% of children in rural areas and slum communities are affected by scabies. In Dhaka city, one study found up to 17% of children under 6 years old were infected with scabies.

Rohingya Refugee Camps

The Rohingya refugee camps in Cox's Bazar have one of the highest prevalence rates of scabies in the world, primarily due to overcrowded living conditions, poor sanitation, and limited healthcare access.

Prevalence: 40–70% of the population in the refugee camps is affected by scabies, with some reports suggesting that nearly 50% of children in the camps have the condition. The prevalence of scabies in the Rohingya refugee population has led to large-scale health interventions, including treatment campaigns using topical permethrin, oral ivermectin, and benzyl benzoate lotion.

Impact in Institutions (Schools, Orphanages, Prisons)

Scabies outbreaks are common in institutional settings due to overcrowded conditions and limited resources for hygiene.

Prevalence in institutions: Schools and orphanages: Around 10–20% of children in some institutions, particularly in areas with high poverty, are affected by scabies.

Prisons: In correctional facilities, scabies outbreaks have been recorded among inmates, with prevalence rates ranging from 5–15%.

Urban vs Rural Prevalence

Urban Areas: Scabies is present in urban slums, with a prevalence of around 5–10% due to poor living conditions and overcrowding.

Rural Areas: In rural areas, scabies is more common, with some studies showing prevalence rates of 10–20% in certain populations.

Literature Review

Scabies is a highly contagious skin infestation caused by the *Sarcoptes scabiei* mite, leading to intense itching, skin rashes, and secondary bacterial infections. Globally, scabies is a public health concern, particularly in impoverished regions with poor hygiene and overcrowded living conditions. The prevalence of scabies has been shown to be particularly high in refugee camps, where populations live in dense, unsanitary conditions, making them highly susceptible to both scabies infestations and subsequent psychological stress. The

Rohingya refugee crisis represents one of the most severe humanitarian emergencies of the 21st century. Over the years, the Rohingya people have faced multiple displacements, and the population now resides primarily in the refugee camps of Cox's Bazar, Bangladesh. A significant proportion of this population is affected by scabies, and recent studies have highlighted the urgent need to understand both the physical and psychological impacts of this disease on refugees.

Scabies is caused by the burrowing of the *Sarcoptes scabiei* mite into the skin. These mites lay eggs, causing irritation, itching, and inflammation. The infestation often leads to severe itching, which is intensified at night and typically worsens over time without treatment. The symptoms of scabies can lead to chronic skin conditions if left untreated, with severe secondary bacterial infections caused by scratching. In refugee camps, the likelihood of untreated scabies increases due to limited access to healthcare, contributing to the long-term consequences for affected individuals. Research has shown that scabies infestations can lead to secondary complications, such as impetigo, cellulitis, and sepsis, all of which can further increase the psychological burden on individuals, particularly in high-risk populations such as refugees. This highlights the importance of effective treatment and control measures to reduce the overall impact of scabies.

The psychological consequences of scabies are often overlooked in the medical literature. However, a growing body of research has started to investigate how chronic, visible skin diseases such as scabies can negatively affect mental health. Psychological distress in individuals suffering from scabies often stems from several factors, including social stigma, constant itching, sleep disruption, and the physical discomfort caused by the disease. In the context of refugee populations, psychological burden is compounded by the stress of displacement, uncertainty about the future, and loss of social support networks. The visible nature of scabies, with its associated skin lesions, can lead to social isolation, embarrassment, and shame, which can severely affect individuals' mental well-being. Self-esteem and quality of life are often significantly reduced in individuals affected by scabies, leading to anxiety, depression, and other mental health disorders. A study conducted by Karakoç et al. (2018) found that scabies-inflicted patients experienced higher levels of stress, particularly in overcrowded settings like refugee camps. The itching caused by scabies was often reported as more distressing than the physical appearance of the lesions, and patients exhibited increased rates of anxiety, insomnia, and depression. These findings are consistent with broader studies on skin diseases such as eczema, which have also shown a clear link between visible skin conditions and mental health issues. Scabies is particularly prevalent in refugee camps where individuals live in extremely overcrowded conditions with inadequate sanitation and healthcare access. Studies have indicated that refugee populations, such as the Rohingya refugees in Bangladesh, face disproportionately high rates of scabies due to these conditions.

A report from Médecins Sans Frontières (MSF) found that nearly 50% of the Rohingya refugee population in Cox's Bazar was affected by scabies, underlining the scale of the issue. The outbreak of scabies in refugee camps exacerbates the already existing physical and mental health vulnerabilities. Refugees often face limited healthcare resources, including insufficient numbers of healthcare workers, lack of medications, and a deficiency in public health interventions, which significantly increases the burden of scabies and its related

psychological impacts. Moreover, the fear of scabies as a sign of poor hygiene and the visible nature of its symptoms contribute to heightened feelings of shame and stigmatization within these communities. Several health interventions are currently being used to control scabies outbreaks in refugee camps. The most commonly used treatments include topical permethrin, oral ivermectin, and benzyl benzoate lotion. These interventions have been widely discussed in medical literature, with studies showing varying levels of effectiveness depending on the setting. In the Rohingya refugee camps, large-scale mass treatment campaigns using permitted scabicides have been initiated to control scabies outbreaks. However, treatment adherence remains a challenge due to the logistical difficulties in delivering medications to large numbers of individuals in overcrowded camps. Moreover, the psychological effects of treatment are often overlooked. The relief from itching and visible skin lesions that accompanies effective treatment may improve psychological well-being, yet the trauma of living in a refugee camp and the stigma of the disease may persist long after the infection is cleared. A study by Nair et al. (2017) found that mass treatment programs in the refugee camps were effective at reducing scabies prevalence, but the psychological recovery of individuals was not as closely monitored. In fact, the long-term mental health outcomes of scabies treatment campaigns remain an understudied aspect of scabies management in refugee settings.

One of the most important psychological factors in individuals affected by scabies is the stigma associated with the disease. Studies have highlighted that scabies-related stigma can lead to social exclusion, embarrassment, and low self-esteem, which in turn exacerbates mental health distress. For refugees, who are already experiencing social displacement, scabies can serve as a visible marker of their marginalized status, reinforcing feelings of inferiority. The concept of stigma in infectious diseases is well-documented in the literature. According to Goffman's (1963) theory of stigma, individuals with visible conditions such as scabies are often treated as "outsiders," leading to discrimination and social exclusion. For refugees, the double burden of being a refugee and having a disease with visible symptoms like scabies can lead to compounded feelings of hopelessness and despair. A recent study by Siddiqi et al. (2020) in the Rohingya refugee camps found that stigma and social exclusion were common among scabies-affected individuals, with many refugees reporting that they felt isolated due to their condition. This further emphasizes the need for mental health interventions alongside physical treatments to ensure the overall well-being of affected populations.

As the literature suggests, scabies in refugee camps, particularly among the Rohingya population, leads to significant psychological distress. Cognitive behavioral therapy (CBT), group counseling, and psychoeducation programs should be incorporated into healthcare interventions to address the mental health needs of individuals affected by scabies. Studies by Roth et al. (2019) have shown that refugee health programs that integrate mental health care alongside disease treatment are more effective at improving the overall health outcomes of refugees.

Research Gap

There is no existing thesis or study found in the literature review addressing the psychological burden of scabies among Rohingya refugees, leaving a critical gap in understanding its mental health and social impacts in this context.

Research Objectives

This research aims to comprehensively understand the psychological, social, and epidemiological burden of scabies in the Rohingya refugee camps in Bangladesh, with a particular focus on the psychological impact of the disease. While scabies is a physical ailment, its psychological and social consequences are often overlooked, especially in refugee settings where mental health challenges are already prevalent. This research will emphasize the mental health consequences of scabies, the stigma associated with the disease, and the broader impact on social cohesion within the refugee community. The research will also evaluate treatment strategies for scabies, their effectiveness, and how these treatments influence the mental well-being of individuals affected by scabies.

1. Psychological Impact of Scabies.
2. Social Impact and Community Dynamics.
3. Long-Term Psychological Outcomes of Scabies in Refugee Camps.
4. Interventions for Addressing the Psychological Burden of Scabies.

Importance of the Study

The significance of this study lies in its holistic approach to understanding scabies within the context of the Rohingya refugee population in Bangladesh, an environment marked by overcrowding, poor sanitation, and limited healthcare access. Scabies, often perceived as merely a dermatological condition, carries profound psychological, social, and economic ramifications that are frequently overlooked. This study seeks to bridge critical gaps in the existing literature by exploring the psychological and social impact of scabies on individuals, particularly within vulnerable populations, while also examining its broader implications for refugee health and well-being. The findings are expected to inform treatment and intervention strategies, reduce stigma, promote social integration, and support the development of policies and healthcare planning tailored to refugee settings.

Limitations of the Study

This study offers important insights into the psychological impact of scabies in the Rohingya refugee camps; however, several limitations must be acknowledged. Limited access to comprehensive psychological data may restrict the depth of understanding of mental health outcomes, while the cross-sectional design of the study precludes long-term follow-up, limiting insights into the chronic effects of scabies. Potential bias in self-reported data poses challenges to the reliability of findings, and the inability to fully isolate the psychological impact of scabies from other stressors in the refugee environment may affect the specificity of conclusions. Additionally, the study's findings may have limited generalizability beyond the Rohingya context, given the unique cultural and environmental factors. Resource constraints and a finite sample size further restrict the scope of analysis, while the complex cultural dynamics of the refugee population may influence both data collection and interpretation, underscoring the need for cautious application of the study's results.

Organization of The Study

The study has been organized into four chapters. Chapter one contains the Introduction. It includes background of the study,

Transmission of, Prevention, worldwide statistics of scabies, continental statistics of scabies, national statistics, review of literature, gaps of the study, objectives, limitation and organization of the study.

Chapter two contains in data and methodology. This includes introduction, selection of the project title and study area, preparation of the questionnaire, method of data collection, time of fieldwork, data processing and analysis, selection of variables, software and technical support, methodology of the statistical analysis, univariate distribution and frequency Analysis, bivariate distribution, graphical representation, contingency, logistic regression and multiple classification analysis.

Chapter three deals with the background characteristics of the respondents related to Percentage distribution of psychological Burden of related variables, Quantitative Analysis of Psychosocial and Behavioral Impacts of Scabies, Impact of Scabies on Sleep Quality, Percentage distribution of the level of Sleep quality, Conclusion with calculated frequency and percentage with necessary bar and pie chart.

Chapter four deals with the association between different selected independent factors and dependent factors. This chapter contains introduction, association and describe the univariate and Bivariate analysis of the psychological and social impact of scabies with multivariate analysis.

Finally, chapter Five contains summary, discussion and conclusion of the findings and some policy implications and recommendations for psychological intervention against scabies in Rohingya camp. Besides that, the references & bibliography, and the questionnaire of this study is attached at last.

Data and Methods

Introduction

Basically, research is a scientific investigation. Research in common parlance refers to a search for knowledge. One can also define research as a scientific and systematic search for pertinent information on a specific topic. In fact, research is an art of scientific investigation. Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. Research methodology is the philosophy of research to systematically solve the research problem. Science based methodology is essential for every kind of research study. The Advanced Learner's Dictionary of Current English lays down the meaning of research as, "a careful investigation or inquiry especially through search for new facts in any branch of knowledge". The term 'research' refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the fact or data, analyzing the data and reaching certain conclusion either in a form of solutions towards the concerned problem or in certain generalizations for some theoretical formulation.

It is most important part for every researcher to understand not only the research methodology but also consider the logic behind the methods that is needed for research study and for explain the research work. In any research work data is an essential element that plays an important role in entire research work. Data source, quality and methodology are the important part for obtaining accurate findings and lastly comment on those findings for any research. Methodology is must for every kind of research problems and execution of research work. Systematically, it is very essential to collect accurate and sufficient data to prepare project report. This chapter provides a brief

description of selection of project title, study area, population and sample, sampling design, questionnaire preparation, data collection and processing, computer application in research, conceptual framework, methodology and limitation of present study.

Selection of the Project Title

According to our syllabus, we have to carry out a project work at the B.Sc. (Hon's) level. For this purpose, our department (Department of Public Health, FCUB) forms several groups and the students of different groups are attached with different teachers. After formation of our groups, we met with our honorable supervisor and discussed with various problems. Among various issues, we selected the most important area of research. Besides, I have a keen interest to do research work in this phenomenon: Infectious diseases Personal hygiene impact against skin diseases, Mental health impact of skin diseases. So, after a long discussion with my supervisor, we selected our project title as "The Psychological Burden of Scabies in Rohingya Camp".

Selection of the Study Area

In any research work, selection of area is an important task. It is necessary to collect subjective and realistic information from the field. So, to collect realistic information easily and cheaply, it is necessary to select a suitable region. As a healthcare provider my working station at the Rohingya refugee camp 2W, Kutupalong, Ukhia, Cox's Bazar, so first I offer my supervisor for collecting data from my professional working place. Dear supervisor permitted me to collect data from camp 2W, Kutupalong, Ukhia, Cox's Bazar. Then I have selected the area for collecting data from my working station after discussion with my dear honorable supervisor. Data were collected from the above-mentioned area. In addition, fruitful discussion was made with the respondents to study several of functional aspects.

Preparation of the Questionnaire

A questionnaire is a set of questions, which are essential for collecting primary data of any research, regarding a specific research study. We know that good research depends on a good form of questionnaire. So, a questionnaire is a keystone of the survey. Language of the questionnaire should be simple. In my questionnaire, every question was relevant to the objective of the survey. At first, I have submitted a questionnaire to my supervisor and the whole questionnaire was pre-tested and reformed. The questionnaire was designed in such a way that maximum information could be obtained within a short time by covering our objects of the study. The questionnaire was designed considering the following characteristics:

- Number of questionnaires in the questions should be limited.
- A respondents should adequately be assumed that his identify will not revealed and information will not be against his interest.
- Avoided long and confusing question and formulate simple and short questions.
- Start with easy questions then slowly put the difficult one. But maintain ones of its sequences in essential in the questionnaire for the research work.
- The respondents were asked questions on the following topics:
- Demographic characteristics of the Individual affected by

scabies (Name, age, sex, Household Number)

- Mental Health Impact of scabies
- Facing any kind of social discrimination.
- Treatment and the healing percentage
- Knowledge and awareness about scabies.

Overall Quality of Life

At first, Bengali version questionnaire was made for the convenience of data collection. Next time, the questionnaire was transformed into English version for analytical purposes. My questionnaire has been fine-tuned in 45 questions.

Method of Data Collection

Data collection is an essential part of any research. The data should be collected keeping in view the objectives of the study. The editing of the completed questionnaires helped in amending and recording errors or eliminating data that are obviously erroneous and inconsistent. In any survey enumerator's role is the most significant with respect to coverage and reliability of data collection. The success and failure of the enumerators in eliciting relevant responses are largely and exclusively dependent on their efficiency, capability and responsibility. We have to make an effort to avoid all kinds of mistakes which were found in our questionnaires and all answers have been observed carefully. As a result, I feel there is no irrelevant information. The tendency should not be collecting too many data, some of which are never subsequently examined and analyzed. The process of data collection depends upon the kind of research. There are several methods of collecting primary data. These include:

- Observation method,
- Interview method,
- Through questionnaire method, and
- Through schedules.

Among these procedures direct interview process is followed here. For the purpose of data collection, personal interview approach was followed. This method relates to the collection of information directly from the individual. We have tried to interview each respondent privately to keep hidden their privacy in order to maintain in most of these cases. A total of 400 respondents' information were collected during the period of December 2024 to January 2025 through purposively.

Instruments Used in Data Collection

We have used some instruments in this study such as:

- Laptop
- Mobile
- Pencil
- Paper

Time of Fieldwork

In 1st January 2024, I started my fieldwork with the collection of data and finished this fieldwork with the submission on 30 June 2024.

Data Processing and Analysis

The easiest procedure of analyzing the data is to use computer program. At present nobody thinks to analyze data without a suitable

computer program. No other alternative is available to analyze the data quickly, easily and correctly. So, I have selected a suitable computer program for data entry and analysis. Technically speaking the processing implies editing, coding, classification and tabulation of collected data so that, they are amenable to analysis. For the data processing and analysis following stages are followed:

Editing

Editing of data is a process of examining the collected raw data, to detect errors and omissions and to correct these when possible. After the collection of data day by day, I carefully checked each schedule of questionnaire. The data were edited rigorously to make correction of any existing inconsistencies in data and to minimize the non-sampling error of the study. I make editing in order to have a complete, consistent, accurate and homogeneous data. During the editing period following considerations were kept in mind:

The data should be completed.

The data should be consistent.

The data should be accurate.

The data should be homogeneous

Coding

Coding refers to the process of assigning numerals or other symbols to answer so that responses can be put into a limited number of categories or classes. The recorded data were coded in code sheets according to an exhaustive code plan. My best effort was to minimize possible bias due to coding of open question.

Computerization

Edited and coded data are next processed in the computer. At present, nobody thinks to analyze the data without a suitable computer program. No other alternative without computer program to analyze the data quickly, easily and correctly. So, I had to select a suitable computer program for data entry and analysis. I selected 'Jamovi' for windows version 2.6.21 program, the most convenient program, very easy and free to use for data analysis. Besides, MS-Word and MS-Excel are used. To analyze the data, I coded the entire quantitative variable.

Tabulation

Tabulation is the process of summarizing raw data and displaying the same in compact form, for further analysis. It is an orderly arrangement of data in columns and rows.

Selection of Variables

Before performing statistical analysis, the quality of the data needs to be examined very carefully. As we know from the literature of statistics, variable refers to those that have variation. Here, in our study we have found several variables, like- Age, Sex, Number of household Members, Number of affected persons etc. Some explanatory and predictor variables are selected in this section. These variables describe into two groups i.e.

Dependent Variables, and Independent Variables

For analysis, some data has been transformed. The original codes of these variables are further coded for our own purposes.

Dependent Variables

In this study, we have considered two dependent variables to serve the purpose of this research namely-

Have you experienced anxiety related to your condition?

Have you been diagnosed with scabies? Both are contained two parts (1 = Yes and 2 = No).

Independent Variables

Questioning collected information on the psychological burden of scabies in the Rohingya refugee camp. The independent variable in this study is the presence of scabies among the respondents. The variables used in the study include the presence of scabies (Yes/No), duration of scabies symptoms (in weeks), and severity of scabies symptoms (measured using a clinical assessment scale). These variables are commonly used to assess the impact of scabies as an independent variable and its association with psychological outcomes such as stress levels, anxiety, and depression among individuals in the camp. By focusing on the presence and severity of scabies, this study aims to evaluate how this physical condition influences mental health outcomes in the refugee population.

Methodology of the Statistical Analysis

Methodology is used in applied research is equally important as the data. Every method is not suitable for analyzing every set of data. Matching of an appropriate methodology for graduating and analyzing a set of data is difficult task for a researcher. For this reason, in most of the times, researchers use alternative methodology to graduate and analyses a set of data. Finally, they compare the finding obtained from different methodology and support logical one as compared with the reality. A brief description of the methods used in this study is given below:

Univariate Distribution: Frequency Analysis

When observations, discrete or continuous are available on single characteristics of a large number of individuals, it becomes necessary to condense the data as far as possible without any information of interest. If the identity of individuals, about whom particular information is taken, is not relevant, nor the order in which the observations raise, then the first real step of condensation is to divide the observed range of variables into a suitable number of class intervals and to record the number of observations in each class. Such a table, showing the distribution of the frequencies in the different classes, is called a frequency table and the manner in which the class frequencies are distributed over the class interval is called the grouped frequency distribution, simply distribution of the variable. We have come across some situation in which each item of a series may have two or more variables. The distribution, in which we consider two variables simultaneously for each item of the series, is known as bivariate distribution or bivariate frequency distribution. The bivariate frequency distribution is performed here in terms of contingency analysis and correlation analysis. Following formula due to Struggles may be used to determine an approximate number of K classes:

$$K = 1.30322 \log_{10} N$$

Where, N is the total frequency

Bivariate Distribution

When the dimension of the frequency distribution is two i.e. when observations are available corresponding to two characteristics and the observations are distributed according to these two characteristics is known as bivariate frequency distribution, simply bivariate distribution. Let us suppose that we have observation x_i and y_i $i = 1, 2, 3, \dots, n$ on X and Y are variables respectively, and then the

structure of the bivariate distribution be as follows:

Graphical Representation

Graphical representation of a frequency is more effective than tabular representation & it is also easily understandable. Diagram is essential to convey the statistical information to the general public. It is also facilitating the comparison of two or more frequency distribution. We consider below some important types of graphical representation, which are necessary for our analysis.

Bar Diagram

In bar diagram, different categories are represented along X-axis and their corresponding values are represented along Y-axis. In our analysis we used bar diagram for comparative variables.

Pie Diagram

Pie diagram represents the variables in a round shape. We consider pie diagram in our study for only single variable.

Contingency Analysis

The contingency analysis is investigated the degree of association between different phenomenon's that could be useful in the analysis. At first, we have constructed some simple cross table and we have examined the association. For contingency analysis, it is assumed that the hypothesis of independence or homogeneity as the null hypothesis. All contingency tables are prepared on the basis of classification of variables or attribute. For each contingency table computing chi-square makes examination of association between the component and the various segments of the components. To test the association between two variables $r \times c$ contingency table is used.

Logistic Regression Analysis

An interesting method that does not require any distribution assumption concerning explanatory variables is Cox's linear logistic regression model (1972). The logistic regression model is widely used in research to identify risk factors and predict the probability of an event occurring. In this study, the model is used to assess the influence of various socio-economic, demographic, and hygiene-related factors on the likelihood of scabies occurrence among the Rohingya refugee population. Several multivariate statistical techniques can be used to predict a binary dependent variable (e.g., presence or absence of scabies) from a set of independent variables. Multiple regression analysis and discriminant analysis require the assumption that variables are normally distributed with equal variances. In contrast, logistic regression does not require these assumptions and allows the prediction of a binary outcome. In this study, scabies occurrence is the dependent variable, coded as follow:

- $Y=1$ if the individual has scabies
- $Y=2$ if the individual does not have scabies

Since logistic regression requires binary coding (0 and 1), we redefine the dependent variable:

$Y^*=1$ if the individual has scabies (Yes)

$Y^*=0$ if the individual does not have scabies (No)

Let Y_i^* denote the recoded dependent variable for the i -th individual, where: $Y_i^* = \{1, 0\}$

$$P(Y_i^* = 1) = 1 + e^{\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik}} / e^{\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik}}$$

where:

$P(Y_i=1)$ is the probability that an individual has scabies.

β_0 is the intercept.

- $\beta_1, \beta_2, \dots, \beta_k$ are the regression coefficients representing the effect of independent variables on scabies occurrence.
- $X_{i1}, X_{i2}, \dots, X_{ik}$ are the predictor variables such as age, gender, overcrowding, hygiene practices, and socio-economic status.

$$\log\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \sum_{j=1}^k \beta_j X_{ij}$$

Instead of directly modeling P_i , we take the logit transformation, which represents the log-odds of having scabies as a linear function of independent variables:

where:

- $P_i/(1-P_i)$ Are the odds of having scabies.
- $P_i/(1-P_i)$ Is called the logit function, which converts probabilities into an unbounded scale.

Odds Representation and Interpretation

The logistic regression equation can also be rewritten in terms of odds:

The term $e^{\beta_j X_{ij}}$ represents the odds ratio associated with the j -th independent variable:

- If $\beta_j > 0$ the odds of scabies occurrence increase as X_j increases.
- If $\beta_j < 0$ the odds of scabies occurrence decrease as X_j increases.
- If $\beta_j = 0$, there is no association between X_j and scabies occurrence.

Software and Technical Support of the Study

In this study entire analysis is done in personal computer which is now one of the most effective and wonderful technological inventions. Different software has been used to complete this study. The entire analysis of the study is done by Jamovi 2.6.21 can take data from almost any type of the file and use them to generate tabulated reports charts and plots of distributions and trends, descriptive statistics and complex analysis. Survey data is input in the Jamovi for windows format. ChatGPT, it is found to be much easier to read the data through this software. Different variables are computed as well as recorded with it. Some firsthand analyses such as frequencies, tests are performed through this software. The binary logistic regression procedure builds logistic regression models which used to analyze the complex relationships of the study is also performed by ChatGPT Version 4. Microsoft Excel 2024 is used to Make Visual Graphs and charts. Microsoft Word 2024 is used to prepare all the outputs that are presented in this study.

Background Characteristics

Introduction

In any research, it is important to know the background characteristics of the study or target population or nature of the data. This assessment leads to the interpretation of results and to examine

any cause-effect relationship among the study variables. In order to study the background characteristics of different variables, it is important to focus on the frequency distribution of the considered variables. This chapter is devoted to make an investigation of demographic characteristics of the respondents (Age, Sex, Number of Household Member), Clinical Intervention, Physical Impact due to scabies, Psychological Impact due to scabies, social Interactions and impact, Health education, Future objectives etc. through some statistical techniques namely frequency distribution, percentage distribution and graphical representation.

Frequency Analysis

Perhaps the most important form of tabulation, from a statistical point of view, which is called a frequency distribution. This is a form of condensing and summarizing long and complex records of quantitative data. In this process raw data are grouped into classes or groups of appropriate size and the number of observations belonging to each class are recorded. This width of the class is called the class interval and the number of observations in a particular class or group is called class frequency or simply frequency. When a set of data is arranged in this way it is called a frequency distribution. This type of arrangement stresses the manner in which the frequencies are distributed over the class intervals and hence the name frequency distribution. Frequency distribution is extremely important in statistics and should be through by familiar with various aspect of this distribution.

Demographic Variables

The variables which depicting the demographic status of the respondents are termed as demographic variables. Demographic characteristics of the respondents have a vital role to play in any field work. Age, Sex, Number on Household member etc. are the example of the Demographic Characteristics (Table 3).

The study analyzed the distribution of respondents based on age, sex, and household size. Among the 400 participants, the majority were children aged 5–12 years (37.8%), followed by adults aged 19–40 years (34.3%), adolescents aged 13–18 years (19.5%), and elderly aged 41–70 years (8.5%). In terms of sex, females accounted for 54.8% of the respondents, while males comprised 45.3%. Household size was categorized into three groups: small households (3–5 members) made up 23.8% of the sample, medium households (6–9 members) represented the largest group at 36.5%, and large households

Table 3: Percentage Distribution of the Demographic Variables.

	Category	Frequency	Percentage
Age (in years)	Children (5–12 years)	151	37.8%
	Adolescents (13–18 years)	78	19.5%
	Adults (19–40 years)	137	34.3%
	Elderly (41–70 years)	34	8.5%
	Total	400	100.0%
Sex	Female (F)	219	54.8%
	Male (M)	181	45.3%
	Total	400	100.0%
Number of Household Members	Small Households (3–5 members)	95	23.8%
	Medium Households (6–9 members)	146	36.5%
	Large Households (10–13 members)	159	39.8%
	Total	400	100.0%

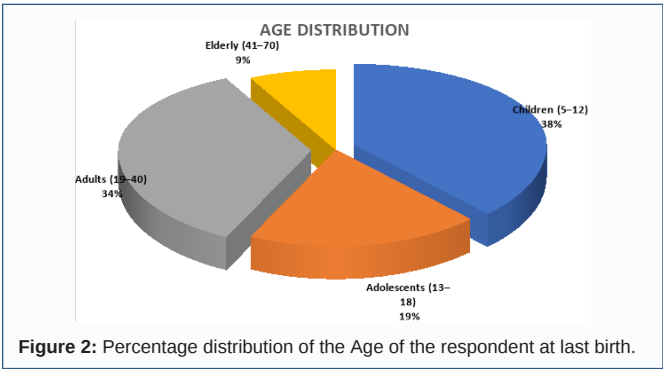


Figure 2: Percentage distribution of the Age of the respondent at last birth.

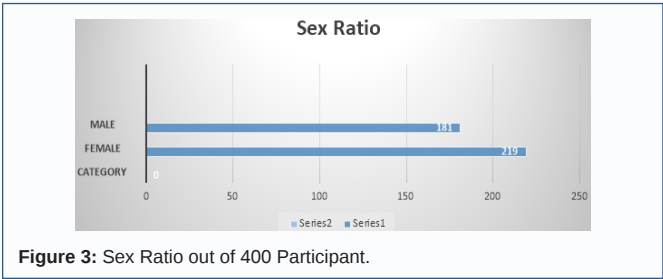


Figure 3: Sex Ratio out of 400 Participant.

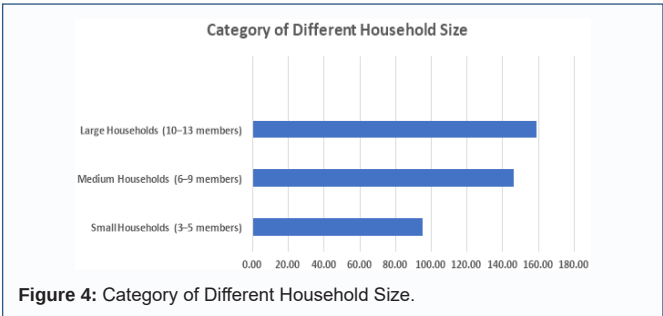


Figure 4: Category of Different Household Size.

(10–13 members) accounted for 39.8%. These findings highlight the demographic and socio-economic characteristics of the study population (Figures 2-4) (Table 4).

Quantitative Analysis of Psychosocial and Behavioral Impacts of Scabies The table provides an insightful breakdown of the psychosocial and behavioral effects of scabies among 400 respondents in the Rohingya refugee camp. A significant proportion (91.0%) reported not feeling depressed since their diagnosis, though anxiety was reported by 12.3% of participants. All respondents (100.0%) acknowledged that scabies affects self-esteem, physical health, and sleep quality, reflecting the profound burden of the condition. Despite these challenges, access to mental health services and engagement in group support activities were nonexistent (0.0%), highlighting critical service gaps. Half (50.0%) of the participants had received scabies education, and 63.7% reported its impact on work or school performance. Social implications included feelings of being perceived differently (52.8%) and discrimination (48.0%). Interestingly, while intrusive thoughts were rare (8.8%), nearly half (54.3%) expressed a need for future mental health support, emphasizing the enduring emotional toll of the disease.

Conclusion

Scabies, though often regarded as a physical health issue, imposes profound psychological, social, and functional burdens on individuals in the Rohingya refugee camp, as revealed by this study.

Table 4: Frequency Analysis of Different variables.

Table 3 Percentage distribution of psychological Burden of related variables	Yes (n, %)	No (n, %)
Have you felt depressed since being diagnosed with scabies?	364 (91.0%)	36 (9.0%)
Have you experienced anxiety related to your condition?	351 (87.8%)	49 (12.3%)
Do you think scabies affects your self-esteem?	400 (100.0%)	0 (0.0%)
Do you feel that your physical health restricts your psychological well-being?	400 (100.0%)	0 (0.0%)
Have your symptoms affected your daily activities?	376 (94.0%)	24 (6.0%)
Have you been able to access mental health services?	0 (0.0%)	400 (100.0%)
Do you seek emotional support from friends or family?	187 (46.8%)	213 (53.3%)
Has scabies caused any changes in how you interact with your family?	183 (45.8%)	217 (54.3%)
Have you experienced any intrusive thoughts about scabies?	35 (8.8%)	365 (91.3%)
Have you engaged in any group support activities?	0 (0.0%)	400 (100.0%)
Have you lost friends or social connections due to your condition?	17 (4.3%)	383 (95.8%)
Do you feel that people see you differently because of scabies?	211 (52.8%)	189 (47.3%)
Do you practice any relaxation techniques (e.g., meditation)?	0 (0.0%)	400 (100.0%)
Have you received any education about scabies from healthcare providers?	200 (50.0%)	200 (50.0%)
Has scabies affected your work or school performance?	255 (63.7%)	145 (36.3%)
Does scabies impact your sleep quality?	400 (100.0%)	0 (0.0%)
Have you faced any discrimination because of your scabies condition?	192 (48.0%)	208 (52.0%)
Do you understand how to prevent the spread of scabies?	0 (0.0%)	400 (100.0%)
Do you feel that you need mental health support against scabies in future?	217 (54.3%)	183 (45.8%)

The psychological toll is significant, with 87.8% of participants reporting anxiety and 91% acknowledging depressive symptoms. Feelings of distress, sadness, and hopelessness are pervasive, severely diminishing the quality of life. Social stigma further aggravates the burden, as 66.6% feel embarrassed by their condition, 73.4% experience social exclusion, and nearly half report discrimination. These effects are particularly severe among women and adolescents, who face additional societal pressures, deepening their isolation and impacting their mental health. Daily life is equally disrupted, with 94% of participants experiencing functional impairments and 100% reporting severe sleep disturbances that intensify their psychological distress. The complete absence of mental health services in the camp leaves these individuals without critical support, amplifying their struggles. Addressing these intertwined challenges demands a comprehensive approach that combines medical treatment, psychological support, and community-based interventions to reduce stigma and empower affected individuals. Programs must prioritize vulnerable groups, such as women and adolescents, while ensuring access to mental health care, education, and preventive measures, enabling this population to regain their dignity, resilience, and overall well-being.

Association Between Different Selected Independent and Dependent Factors

Key Findings on Household Dynamics and Scabies Burden

This part of the study highlights the associations between household demographics and the distribution of scabies-affected

Table 5: Association Between Household Size and Number of Affected Persons in Scabies.

Key Findings	Summary
Total Participants	400 participants analyzed.
Household Member Distribution	The number of household members ranged from 1 to 13.
Most Common Household Size	Households with 4 members (72 participants, 18.0% of total).
Number of Affected Persons	Affected persons ranged from 3 to 13 across households.
Most Common Number of Affected Persons	Households with 4 affected persons (40 participants, 10.0% of total).
Highest Percentage of Affected Persons in a Group	31.0% of households with 5 affected persons reported 6 household members.
Even Distribution of Affected Persons	Count was relatively spread across groups, with no single number dominating significantly.
Correlation Insights	Higher number of household members tended to have slightly more affected persons.

Table 6: Distribution of Sleep Quality Categories by Household Size Among Survey Respondents.

Number of Household Members	Poor (3)	Very Poor (4)	Extremely Poor (5)	Total
3	8	9	9	26
4	15	13	12	40
5	12	7	10	29
6	13	15	11	39
7	10	12	13	35
8	13	7	18	38
9	13	12	9	34
10	10	15	6	31
11	17	7	16	40
12	15	11	16	42
13	22	9	15	46
Total	148	117	135	400

individuals within these households. Key observations include the most common household size (4 members, 18.0%) and the prevalence of affected persons, with households commonly having 4 affected members (10.0%). A notable trend suggests a correlation between larger household sizes and a higher number of affected individuals. The even distribution of affected persons across groups reflects a varied impact, with one-third of households with 5 affected persons reporting 6 total members (Table 5).

Contingency analysis based on different variables

See Table 6.

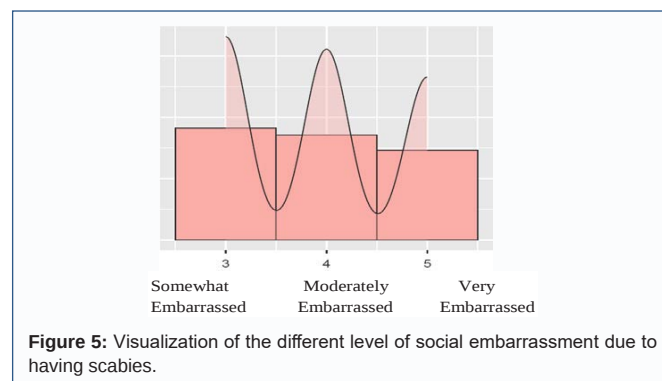
Observations from the Table

Row-Wise Trends: For larger household sizes (e.g., 12 and 13 members), there is a noticeable increase in the total number of individuals reporting very poor and extremely poor sleep quality. For smaller household sizes (e.g., 3 and 4 members), the counts in the “very poor” and “extremely poor” categories are generally lower.

Column Totals: A significant number of individuals report “extremely poor” (135) and “very poor” (117) sleep quality overall, indicating widespread sleep disturbance. The “poor” sleep quality category (148) is the largest, but its distribution doesn’t strongly favor smaller or larger households. While the table suggests some

Table 7: Descriptive Statistics of Embarrassment Due to Scabies.

Variable	Person	Mean	Median	SD	Mode	Skewness	Kurtosis
How embarrassed do you feel about having scabies? Scale it from (1-5)	400	3.93	4.00	0.809	3.00	0.133	-1.46

**Figure 5:** Visualization of the different level of social embarrassment due to having scabies.

association between household size and sleep quality (e.g., higher household sizes have more entries in the “extremely poor” category), this is not conclusive without statistical testing. Statistical analysis given below.

Univariate Analysis

Social Embarrassment Due to Scabies

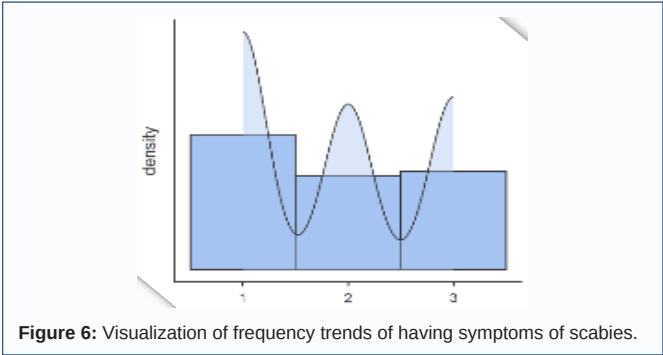
Table 7 and Figure 5 presents the descriptive statistics for the variable assessing embarrassment associated with having scabies among the study participants. Participants rated their embarrassment on a 5-point Likert scale, where 1 = Not at all embarrassed, 2 = Slightly embarrassed, 3 = Somewhat embarrassed, 4 = Moderately embarrassed, and 5 = Very embarrassed. The mean embarrassment score was 3.93 (SD = 0.809), indicating that, on average, respondents reported a moderate to high level of embarrassment. The median score was 4.00, suggesting that at least half of the participants rated their embarrassment as moderate or higher. The most frequently reported score (mode) was 3.00 (Somewhat embarrassed). The distribution exhibited slight positive skewness (0.133), indicating a marginal tendency for lower embarrassment scores to be more frequent, while the kurtosis value of -1.46 suggests a relatively flat distribution compared to a normal distribution.

Frequency of Scabies Symptoms Among Participants

This Table Summarizes the descriptive statistics for the variable assessing how frequently participants experience symptoms of scabies. Responses were categorized into three groups: 1 = Almost every month, 2 = A few times in 6 months, and 3 = Rarely (once in a year). The mean frequency score was 1.89 (SD = 0.838), indicating that, on average, participants reported experiencing symptoms between monthly and a few times in six Table 7 presents the descriptive statistics for the variable assessing embarrassment associated with having scabies among the study participants. Participants rated their embarrassment on a 5-point Likert scale, where 1 = Not at all embarrassed, 2 = Slightly embarrassed, 3 = Somewhat embarrassed, 4 = Moderately embarrassed, and 5 = Very embarrassed. The mean embarrassment score was 3.93 (SD = 0.809), indicating that, on average, respondents reported a moderate to

Table 8: Descriptive Statistics of Scabies Symptom Frequency.

Variable	Mean	Median	SD	Mode	IQR	Variance	Range	Extreme Value
How frequently do you experience symptoms of scabies?	1.89	2.00	0.838	1.00	2.00	0.702	2	Min: 1, Max: 3



high level of embarrassment. The median score was 4.00, suggesting that at least half of the participants rated their embarrassment as moderate or higher. The most frequently reported score (mode) was 3.00 (Somewhat embarrassed). The distribution exhibited slight positive skewness (0.133), indicating a marginal tendency for lower embarrassment scores to be more frequent, while the kurtosis value of -1.46 suggests a relatively flat distribution compared to a normal distribution.

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The median score was 2.00, suggesting that at least half of the participants reported symptoms at least a few times within six months. The most frequently reported response (mode) was 1.00 (Almost every month), with 41.3% of participants selecting this option, followed by 28.7% choosing 2 (A few times in 6 months), and 30.0% selecting 3 (Rarely, once a year).

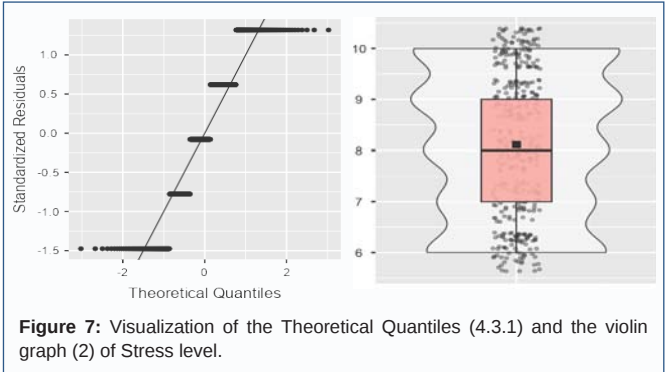
The distribution exhibited slight positive skewness (0.215), indicating a marginal tendency for lower frequency responses to be more common. The kurtosis value of -1.54 suggests a relatively flat distribution compared to a normal distribution. The interquartile range (IQR) was 2.00, reflecting variability in symptom frequency among participants. Additionally, the range of responses was 2 (1 to 3), and extreme values in the dataset were recorded at both the lowest (1) and highest (3) response categories.

Table 9: Descriptive Statistics of Stress Levels Due to Scabies.

Variable	Mean	Median	SD	Mode	IQR	Variance	Range	Extreme Value
How would you rate your level of stress due to scabies (1-10)?	8.11	8.00	1.43	9.00	2.00	2.05	4	Min:6, Max: 10

Table 10: Descriptive Statistics of Quality of Life While Dealing with Scabies.

Variable	Mean	Median	SD	Mode	IQR	Variance	Range	Extreme Value
How would you rate your overall quality of life while dealing with scabies (1-5)?	4.00	4.00	0.823	3.00	2.00	0.677	2	Min: 3, Max: 5



Perceived Stress Levels Due to Scabies

Table 9 presents the descriptive statistics for the perceived stress levels associated with scabies among participants. Responses were measured on a scale from 1 to 10, where the median score was 8.00, indicating that at least half of the participants reported stress levels at or above this value. The most frequently reported score (mode) was 9.00, highlighting that a significant number of participants rated their stress very high. The interquartile range (IQR) in stress levels among participants (Figure 7).

The reported stress levels ranged from 6 (minimum) to 10 (maximum), with extreme values clustered at both ends of the scale. The variance was 2.05, indicating some degree of dispersion in responses. These findings highlight the significant psychological burden associated with scabies among affected individuals.

Perceived Quality of Life While Dealing with Scabies

Table 10 presents the descriptive statistics for participants' self-reported quality of life while 3 dealing with scabies. Responses were measured on a 5-point Likert scale, where 1 = Good, 2 = Normal, 3 = Poor, 4 = Very Poor, and 5 = Extremely Poor.

The mean score was 4.00 (SD =0.823) Table 10 indicating that, on average, participants rated their quality of life as "Very Poor." The median score was also 4.00, confirming that at least half of the participants reported their quality of life at this level or worse. The most frequently reported score (mode) was 3.00 ("Poor"), suggesting that a considerable proportion of respondents experienced a slightly better quality of life than the average.

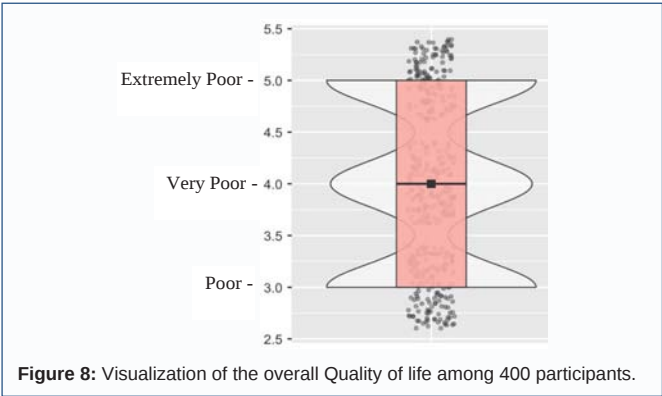
The interquartile range (IQR) was 2.00, indicating moderate variability in responses. The quality-of-life ratings ranged from 3 (Poor) to 5 (Extremely Poor), with no participants reporting a

Table 11: Descriptive Statistics of Sleep Quality After Having Scabies.

Variable	Mean	Median	SD	Mode	IQR	Variance	Range	Extreme Value
How would you rate your sleep quality after having scabies (1-5)?	4.04	4.00	0.842	5.00	2.00	0.710	2	Min:3 Max: 5

Table 12: Descriptive Statistics of the Need for Mental Health Support Due to Scabies.

Variable	Mean	Median	SD	Mode	IQR	Variance	Extreme Value
Do you feel you need mental health support against scabies in the future?	1.49	1.00	0.501	1.00	1.00	0.251	Min: 1 Max: 2



"Good" or "Normal" quality of life. The variance was 0.677, reflecting limited dispersion in responses. The skewness value of 0.00 indicates a symmetrical distribution, while the kurtosis value of -1.52 suggests a flatter-than-normal distribution. These findings highlight the significant negative impact of scabies on individuals' perceived quality of life (Figure 8).

Sleep Quality After Having Scabies

Table 11 presents the descriptive statistics for the self-reported sleep quality after having scabies among the participants. The responses were measured on a 5-point scale, where 1 = Very Poor, 2 = Poor, 3 = Normal, 4 = Good, and 5 = Very Good. The mean score was 4.04 (SD = 0.842), indicating that, on average, participants rated their sleep quality as "Good." The median score was 4.00, confirming that at least half of the participants reported a quality of sleep as Good or better. The most frequently reported score(mode) was 5.00, indicating that a significant portion of participant experienced a very poor Level of sleep quality the interquartile range (IQR) was 2.00, indicating some.

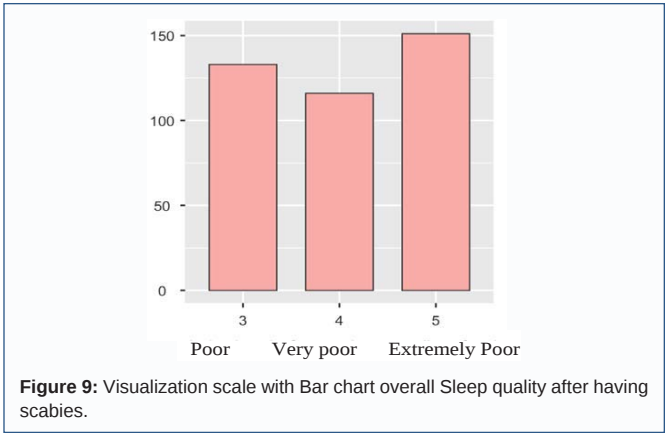
The quality of sleep. The sleep quality scores ranged from 3 (Poor) to 5 (Extremely poor). With no respondents reporting "Good" or "Normal" sleep. The variance was 0.710, reflecting moderate dispersion in responses. The skewness value of -0.0854 suggests that the distribution is slightly negatively skewed, with extremely poor sleep quality ratings being more common. The kurtosis value of -1.59 indicates a flatter-than-normal distribution. Results suggest that, despite scabies, participants generally reported a relatively Poor quality of sleep (Figure 9).

Mental Health Support Needs Due to Scabies

Table 12 presents the descriptive statistics for participants' responses regarding the need for mental health support due to scabies. The mean score was 1.49 (SD = 0.501), indicating most participants did not feel the need for future support. The median and mode were both 1.00, showing that the majority responded "No." The interquartile range (IQR) was 1.00, and the variance was 0.251,

Table 13: Descriptive Statistics of Impact on Family Interaction and Embarrassment.

Variable	Mean	Median	SD	Mode	IQR	Variance	Range
Q27 Impact of scabies on family interaction (1-5)	3.90	4.00	0.781	4.00	2.00	0.610	2
Q34 Embarrassment due to scabies (1-5)	3.95	4.00	0.837	3.00	2.00	0.700	2



reflecting limited variation in responses. The skewness value (0.0402) suggests a symmetric distribution, while the kurtosis value (-2.01) indicates a flatter distribution.

Bivariate Analysis
Impact of Scabies on Family Interaction and Embarrassment

Table 13 presents the descriptive statistics for two variables: Q34, which measures the impact of scabies on family interactions, and Q27, which gauges the level of embarrassment participants feel about having scabies. For Q34 (impact on family interaction), the mean score was 3.90 (SD = 0.781), indicating that, on average, participants reported a moderate change in how they interact with their family. The median and mode were both 4.00, suggesting that most participants indicated a noticeable change in their family interactions. For Q27 (embarrassment), the mean score was 3.95 (SD = 0.837), suggesting that participants generally felt slightly embarrassed about having scabies. The median score was 4.00, and the mode was 3.00, indicating that most participants felt moderately embarrassed.

The interquartile range (IQR) for both variables was 2.00, showing a consistent level of variability across both measures. The variance for Q34 was 0.610, and for Q27 it was 0.700, suggesting moderate dispersion in responses for both questions. The skewness for Q34 (0.176) and Q27 (0.0856) were both positive, indicating a slight tendency toward higher values in responses, though the distributions were relatively symmetrical. These results highlight the emotional and social impact of scabies, with participants reporting moderate

Table 14: Descriptive Statistics of Stress Levels Due to Scabies by Sex.

Variable	Female (F)	Male (M)
Mean	8.15	8.07
Median	8.00	8.00
Mode	9.00	8.00
Standard Deviation	1.45	1.41
Variance	2.10	2.00
IQR	2.00	2.00
Range	4	4
Minimum	6	6
Maximum	10	10
Skewness	-0.175	-0.105
Kurtosis	-1.34	-1.25

changes in family interaction and varying levels of embarrassment.

Level of Stress Due to Scabies by Sex

Table 14 presents the descriptive statistics for Q19, which measures the level of stress due to scabies on a scale of 1 to 10, with data divided by sex (F = Female, M = Male). For both sexes, the mean scores were similar, with females reporting a slightly higher mean (8.15) compared to males (8.07).

The standard deviation was slightly higher for females (1.45) than for males (1.41), indicating slightly more variability in female responses. The median and mode for both groups were 8.00, with females showing a slightly higher mode (9.00), while males had a mode of 8.00.

The skewness values were negative for both groups, with females (-0.175) and males (-0.105) indicating a slight leftward skew. The kurtosis for both sexes was negative, with females (-1.34) and males (-1.25) suggesting that the data distribution for both sexes was flatter than a normal distribution. The interquartile range (IQR) for both sexes was 2.00, and the range was 4, indicating that most responses were concentrated within a limited range of values.

Psychological Impact of Scabies on Sleep and Seeking Mental Health Support

Table 15 presents the descriptive statistics for Q43, which assesses changes in sleep quality after having scabies, and Q45, which evaluates whether participants feel the need for mental health support in the future. For Q43 (sleep quality after scabies), the mean score was

4.04 (SD = 0.842), suggesting that, on average, participants reported a noticeable decline in sleep quality. The median was 4.00, and the mode was 5.00, indicating that most participants rated their sleep disturbance as significant. The interquartile range (IQR) was 2.00, with responses ranging from 3 to 5, highlighting moderate variability in reported sleep disturbances. For Q45 (mental health support needs), the mean score was 1.49 (SD = 0.501), indicating that a substantial portion of participants expressed a need for mental health support. The median and mode were both 1.00, suggesting that many respondents strongly agreed on requiring psychological assistance. The variance was 0.251, indicating lower dispersion in responses. The findings suggest that scabies significantly affects sleep quality, and many participants perceive a need for mental health support to cope with its psychological burden.

Contingency Analysis of quality of life and Scabies Frequency

This contingency table 16 shows that a larger proportion of respondents who experience higher symptom frequencies tend to report a lower quality of life. However, the distributions across the categories suggest a complex relationship that warrants further analysis, potentially using statistical tests like the Chi-Square test to examine whether the relationship between the frequency of symptoms and quality of life is statistically significant.

Social Embarrassment

Participants were asked to rate their level of embarrassment due to scabies on a scale from 1 (not embarrassed at all) to 5 (extremely embarrassed). Descriptive statistics, including measures of central tendency and dispersion, were calculated to summarize the data. Frequencies and percentages were also analyzed to provide a deeper understanding of the distribution of responses. The analysis shows a high mean score of 4.00, indicating that embarrassment is a significant emotional response among participants. The median value of 4.00 aligns with the mean, reinforcing the consistency of responses around this central point. A standard deviation of 0.818 suggests moderate variability, while the range of responses (3 to 5) highlights that all participants reported at least a moderate level of embarrassment.

Frequencies and Distribution

The frequency analysis sheds light on how embarrassment levels are distributed across the population:

Figure 10 shows an almost equal split among participants reporting embarrassment levels of 3, 4, and 5. The cumulative percentage reflects that two-thirds of the participants experience

Table 15: Descriptive Statistics of Sleep Quality and Seeking Mental Health Support.

Variable	Mean	Median	SD	Mode	IQR	Variance	Range	Extreme Values
Sleep quality after scabies (1-5)	4.04	4.00	0.842	5.00	2.00	0.710	2	Min:3, Max: 5
Need for mental health support (1-2)	1.49	1.00	0.501	1.00	1.00	0.251	1	Min:1, Max: 2

Table 16: Contingency Table of Quality of Life and Symptom Frequency in Scabies Patients.

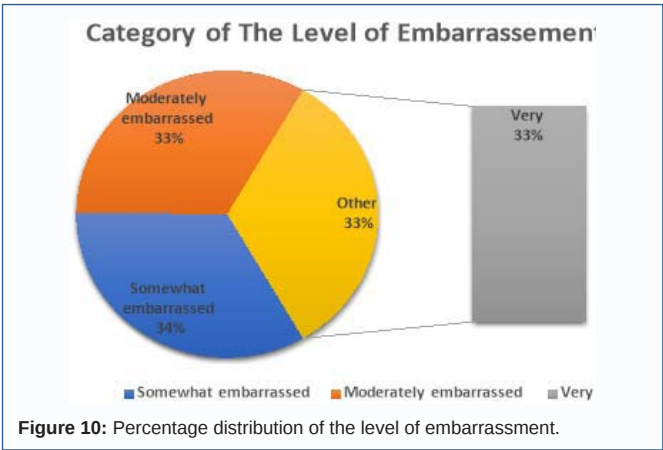
Frequency of Symptoms	Almost every month	In 6 months	In a year	Total
Quality of Life				
1 Poor	57 (42.2%)	46 (35.4%)	62 (45.9%)	165 (41.3%)
2 Very Poor	38 (28.1%)	40 (30.8%)	37 (27.4%)	115 (28.7%)
3 Extremely Poor	40 (29.6%)	44 (33.8%)	36 (26.7%)	120 (30.0%)
Total	135 (33.8%)	130 (32.5%)	135 (33.8%)	400 (100%)

Table 17: Descriptive Percentage% of quantitative data (Level of Embarrassment).

Embarrassment Level	Count	Percentage of Total	Cumulative Percentage
Somewhat embarrassed	134	33.5%	33.5%
Moderately embarrassed	133	33.3%	66.8%
Very embarrassed	133	33.3%	100.0%

Table 18: Participant responded yes about the impact on self-esteem due to Scabies.

Response	Count	Percentage of Total	Cumulative Percentage
Yes	400	100.0%	100.0%



embarrassment levels of 4 or higher.

Self-Esteem (Quantitative Perspective)

See Table 18.

Impact of Scabies on Sleep Quality

The unanimous agreement among respondents can be attributed to several mechanisms through which scabies disrupts sleep. The most prominent factor is nocturnal pruritus (itching), which intensifies during the night due to the increased activity of mites in the skin. This persistent discomfort prevents individuals from falling asleep and staying asleep, leading to fragmented sleep patterns. Additionally, the constant itching prompts scratching, which can cause secondary bacterial infections, further compounding the issue and perpetuating sleep disturbances (Table 19 and 20).

The questionnaire data evaluates the self-reported sleep quality of individuals after experiencing scabies, categorized into three levels: poor (3), very poor (4), and extremely poor (5). Out of 400 participants, the mean score was 3.97, with a median of 4.00 and a standard deviation of 0.842. The minimum score reported was 3, and the maximum was 5, reflecting the range from poor to extremely poor sleep quality (Table 21).

Table 19: Descriptive statistics of quantitative data (impact of scabies on sleep).

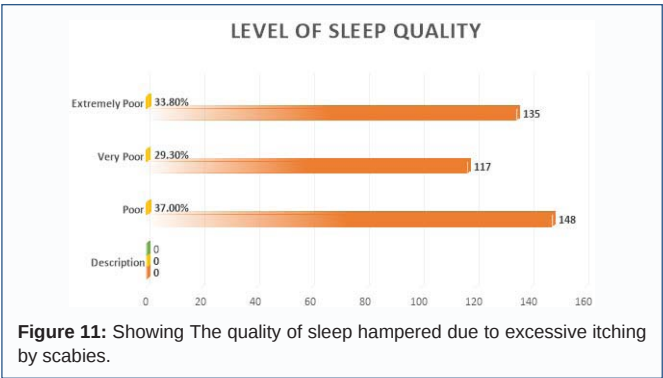
Response Option	Meaning	Count	Percentage (%)	Cumulative Percentage (%)
1 (Impact)	Yes	400	100.0	100.0
2 (Impact)	No	0	0.0	100.0

Table 20: Pittsburgh Sleep Quality Index (Post-Scabies Infection).

1	2	3	4	5
Good	Normal	Poor	Very Poor	Extremely Poor

Table 21: Percentage distribution of the level of Sleep quality.

Sleep Quality Level	Description	Frequency	% of Total	Cumulative %
3	Poor	148	37.0%	37.0%
4	Very Poor	117	29.3%	66.3%
5	Extremely Poor	135	33.8%	100.0%



The frequency distribution shows that 148 individuals (37.0%) rated their sleep quality as poor, 117 individuals (29.3%) as very poor, and 135 individuals (33.8%) as extremely poor. Cumulatively, 66.3% of the participants reported either very poor or extremely poor sleep quality. This distribution highlights a significant impact of scabies on sleep quality, with the majority experiencing sleep disruptions ranging from very poor to extremely poor (Figure 11).

Conclusion

The analysis reveals a moderate association between the number of household members and the number of affected individuals in households experiencing scabies. While the distribution of affected persons was relatively even, with no single number overwhelmingly dominating, households with a higher number of members tended to have slightly more affected persons. This suggests a possible correlation, where larger households might face a greater risk of scabies transmission, though this association remains subtle and does not show a strong linear trend across all household sizes. At face value, the table hints at a potential relationship: larger household sizes seem associated with worse sleep quality. However, this must be statistically tested using a χ^2 test or similar methods to confirm the strength and significance of the association.

Summary and Discussion

This study comprehensively analyzed the psychological burden of scabies in the Rohingya refugee camp, highlighting its profound impact on mental health and social dynamics. Key findings revealed that scabies exacerbates anxiety, depression, and stigma, particularly among adolescent females, with 100% of participants reporting disrupted sleep and reduced self-esteem. Social isolation and embarrassment were significant, affecting community cohesion. The absence of mental health services further intensified these challenges.

The study emphasized the necessity of integrating mental health support with dermatological care, tailored to the unique needs of refugee populations.

The findings align with global literature emphasizing the intertwined relationship between dermatological conditions and mental health, particularly in resource-constrained, high-risk settings. However, this study uniquely focuses on the Rohingya refugee population, a group with compounded vulnerabilities due to displacement, poverty, and limited access to healthcare. The universal impact of scabies on sleep and self-esteem, alongside high rates of anxiety and depression, underscores the need for holistic interventions addressing both physical and psychological dimensions of the disease. The absence of mental health services and the reported stigma highlight critical service gaps, calling for community-based educational campaigns and stigma reduction programs. Comparatively, the data affirm that adolescent females, already at heightened risk of marginalization, experience disproportionate psychological impacts, necessitating targeted interventions. Integrating psychosocial support with mass treatment campaigns and enhancing hygiene awareness can improve outcomes and quality of life for affected individuals.

Major Findings

- **Psychological High Anxiety Prevalence:** 87.8% of participants reported anxiety due to scabies.
- **Significant Depression Levels:** 91% of individuals experienced depressive symptoms.
- **Feelings of Helplessness:** 53.3% of participants felt helpless in managing their condition.
- **Hopelessness:** Persistent feelings of hopelessness were widely reported.
- **Night-Time Itching and Mental Health:** Intense itching disrupted sleep for all participants, exacerbating anxiety and depression.
- **Stigma and Embarrassment:** 66.6% of participants felt embarrassed about their condition.
- **Social Isolation:** 73.4% reported moderate to severe exclusion from social activities.
- **Discrimination:** 48% experienced discriminatory behavior due to their condition.
- **Gendered Stigma:** Women faced more severe stigma compared to men.
- **Adolescent Vulnerability:** Adolescents were particularly impacted by social exclusion and stigma.
- **Severe Daily Life Disruptions:** 94% of participants reported significant difficulties in maintaining daily routines.
- **Sleep Disturbances:** 100% of individuals suffered from poor sleep, significantly affecting overall functioning.

Economic Burden

- Functional impairments indirectly increased financial stress on households.

Gender and Age Disparities

- **Higher Stigma for Women:** Female participants, especially those aged 10–18, reported more significant social challenges.
- **Adolescents at Higher Risk:** Younger individuals showed greater vulnerability to psychological and social impacts.

Access to Healthcare

- **Lack of Mental Health Services:** None of the participants had access to psychological counseling or mental health care.

Policy Implications and Recommendations

- **Need for Integrated Care Models:** Holistic approaches addressing both physical and psychological needs are essential.
- **Education on Scabies:** Public health education campaigns could reduce stigma and encourage timely treatment.
- **Mental Health Awareness:** Community-based mental health programs are urgently needed to address psychological challenges.
- **Policy Changes:** Advocacy for improved healthcare resources in refugee settings is critical to addressing both medical and psychological needs of scabies-affected individuals.

Conclusion

This study was conducted in Rohingya Refugee Camp 2W, Kutupalong, Ukha, Cox's Bazar to identify the Degree of knowledge, Mental health Impact and the practice of counselling among the individuals who are severely affected with scabies. Mental Health Support is an important part besides the physical wellbeing against diseases. After analyzing and interpreting the data, the researcher reached on the following conclusion. The psychological toll is significant, with 87.8% of participants reporting anxiety and 91% acknowledging depressive symptoms. Feelings of distress, sadness, and hopelessness are pervasive, severely diminishing the quality of life. Social stigma further aggravates the burden, as 66.6% feel embarrassed by their condition, 73.4% experience social exclusion, and nearly half report discrimination. These effects are particularly severe among women and adolescents, who face additional societal pressures, deepening their isolation and impacting their mental health. Daily life is equally disrupted, with 94% of participants experiencing functional impairments and 100% reporting severe sleep disturbances that intensify their psychological distress. The complete absence of mental health services in the camp leaves these individuals without critical support, amplifying their struggles. Addressing these intertwined challenges demands a comprehensive approach that combines medical treatment, psychological support, and community-based interventions to reduce stigma and empower affected individuals. Programs must prioritize vulnerable groups, such as women and adolescents, while ensuring access to mental health care, education, and preventive measures, enabling this population to regain their dignity, resilience, and overall well-being.

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