



A Qualitative Exploration on Psychological Stressors and Coping Mechanisms in Medical Laboratory Personnel

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Abstract: Healthcare professionals, particularly those working in high-stress environments like hospitals, are frequently exposed to significant psychological challenges. This study explores the psychological stressors and coping mechanisms of medical laboratory personnel at the People's Hospital of Keyouqianqi, Inner Mongolia, China. Using a qualitative research design, data was collected through semi-structured interviews with 10 participants, focusing on their experiences of stress and the strategies they use to manage it. The findings reveal that the most significant stressors include high workloads, time pressure, the responsibility for diagnostic accuracy, and interpersonal conflicts within the workplace. Additionally, personal and social stressors, such as balancing work with family responsibilities, further compounded their stress levels. Participants employed a variety of coping mechanisms, both problem-focused and emotion-focused, with effective strategies including building strong professional relationships, engaging in physical activities, and practicing mindfulness. However, some participants resorted to ineffective coping strategies, such as avoidance behaviors and unhealthy habits, which often exacerbated their stress. This study highlights the complex interplay between individual coping strategies and the cultural and institutional context in which these professionals operate. The findings have important implications for practice and policy, offering insights into how healthcare institutions can better support the mental health and well-being of their staff.

Keywords: Psychological stressors; Coping mechanisms; Medical laboratory personnel; Healthcare professionals; Workplace stress

Introduction

1.1 Background of the Study

Healthcare professionals, particularly those operating in high-stress environments such as hospitals, are routinely exposed to significant psychological challenges. The demanding nature of their work, characterized by long hours, high patient loads, and the necessity to make critical decisions quickly, creates an environment ripe for stress and burnout. The emotional toll of caring for patients, especially in acute or life-threatening situations, further exacerbates the psychological strain. These challenges are not confined to any single role within the healthcare system but are pervasive across all levels, from physicians and nurses to medical laboratory personnel and administrative staff [1], [2]. Studies consistently demonstrate that the high-pressure environments in which these workers operate can lead to a spectrum of mental health issues, including anxiety, depression, and burnout. Burnout, specifically, is marked by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment [3]. These psychological stressors do not merely impact the mental well-being of healthcare workers but can also manifest in physical health problems such as hypertension, chronic fatigue, and other stress-related conditions [4]. The interplay between mental and physical health in this context is complex, with stress often leading to a decline in overall well-being, which in turn can impair a healthcare worker's ability to deliver quality care [5].

Over the years, recognition of these issues has grown, prompting increased attention to the specific stressors healthcare workers face. Factors such as workload, administrative burdens, lack of support, and the emotional demands of patient care are now understood to be significant contributors to stress [6], [7]. In response, there has been a concerted effort within the healthcare community to explore and understand the coping mechanisms that workers use to manage these challenges. These mechanisms can vary widely, from formal institutional support systems like counseling services and peer support programs to personal strategies such as mindfulness, exercise, and social support [8]. Understanding these coping mechanisms is crucial, as they play a vital role in mitigating the negative effects of stress and improving both the mental health of healthcare workers and the quality of care they provide [9]. As research in this area continues to evolve, it becomes increasingly clear that supporting the psychological well-being of healthcare workers is not only a matter of individual health but also a critical component of ensuring the effectiveness and sustainability of healthcare systems worldwide [10].

In China, the healthcare system has witnessed rapid modernization and expansion, bringing both tremendous opportunities and significant challenges [11]. Medical professionals across various regions, including the culturally rich area of Inner Mongolia, face distinctive stressors shaped by cultural, social, and institutional dynamics. While considerable attention



has been given to frontline medical staff, the critical contributions of medical laboratory personnel, who work tirelessly behind the scenes, often go unnoticed in research related to occupational stress [12].

1.2 Rationale for the Study

The motivation behind this study arises from the pressing need to better understand the psychological well-being of medical laboratory personnel. These individuals play an indispensable role in the healthcare system, yet they frequently receive less attention in discussions about occupational stress. Their work is complex and demanding, requiring a high level of precision and responsibility, often under time pressure. It is therefore essential to identify the specific stressors they face and the strategies they use to cope with these challenges. Understanding these aspects is crucial for developing tailored interventions that can support their mental health, enhance job satisfaction, and improve overall performance. The People's Hospital of Keyouqianqi presents an ideal context for this investigation. As a prominent institution in the region with a long history and a comprehensive range of medical services, it offers a unique environment to study these issues within a localized setting. The hospital's diverse and dynamic medical landscape makes it an exemplary site for exploring the intricate interplay between stress, coping mechanisms, and the cultural and institutional factors that influence them.

1.3 Research Questions

This study is guided by the following research questions:

What are the primary psychological stressors experienced by medical laboratory personnel at the People's Hospital of Keyouqianqi, Inner Mongolia?

What coping mechanisms do these personnel employ to manage their stress?

How do cultural and institutional factors shape the stress and coping strategies of these workers?

What are the broader implications of these findings for enhancing mental health support for medical laboratory personnel?

1.4 Objectives of the Study

The objectives of this study are:

- (1) To identify and understand the psychological stressors faced by medical laboratory personnel at the People's Hospital of Keyouqianqi.
- (2) To explore the coping mechanisms these personnel use to manage stress.
- (3) To examine the influence of cultural and institutional factors on stress and coping strategies.
- (4) To provide informed recommendations for mental health interventions and policies aimed at supporting medical laboratory personnel.

1.5 Significance of the Study

This study holds significant value as it addresses a critical gap in the literature concerning the psychological well-being of medical laboratory personnel in China. By honing in on a specific hospital in Inner Mongolia, this research offers insights that are not only locally relevant but also potentially applicable to similar settings across the country and beyond. The findings from this study will contribute to a deeper understanding of the mental health challenges faced by these vital healthcare workers and provide practical recommendations for improving their work environment and overall well-being. Additionally, the results may serve as a foundation for policy development and the creation of support programs within the broader healthcare system.

1.6 Overview of the People's Hospital of Keyouqianqi, Inner Mongolia, China

The People's Hospital of Keyouqianqi, located in Horqin Town on Zhasakutuxi Street North, Inner Mongolia, was established in 1947, paralleling the founding of the Inner Mongolia Autonomous Region. As the oldest hospital in the Hinggan League, it has evolved significantly over the decades, becoming a comprehensive secondary general hospital. The hospital integrates medical treatment, education, research, prevention, rehabilitation, and healthcare, serving as a cornerstone of regional medical services. The hospital employs 968 staff members, including 120 with senior professional titles and 188 with intermediate titles, spread across 29 clinical departments, 11 medical technology departments, and 18 administrative units. Covering 74,327 square meters, with a built-up area of 55,026 square meters, it offers 600 standard beds and 736 open beds. Equipped with state-of-the-art medical technology, including advanced CT scanners, MRI machines, and digital angiography equipment, the hospital maintains high standards in medical care. Specialized departments such as obstetrics, gynecology, cardiology, neurology, and pediatrics are highly regarded. The hospital continues to expand, adding centers for oncology, interventional therapy, and reproductive services, alongside a nationally compliant Infectious Diseases Department and a 45-bed dialysis center. This makes it an ideal site for studying psychological stressors and coping mechanisms among medical laboratory personnel.

2. Literature Review

2.1 Psychological Stressors in Healthcare Professionals

Healthcare professionals worldwide are subjected to numerous psychological stressors stemming from the demanding nature of their work. These stressors include long working hours, high patient acuity, emotional engagement with patients, and the constant pressure to make critical decisions under time constraints. Research has shown that these factors significantly contribute to the development of burnout, anxiety, depression, and other mental health issues among healthcare workers [13]. Additionally, the hierarchical structure of many healthcare settings can exacerbate stress, particularly for those in junior or supportive roles, who may feel undervalued or unsupported [14].

In addition to the immediate stressors of their work environment, healthcare professionals are also affected by broader systemic issues such as staffing shortages, inadequate resources, and the increasing bureaucratic demands of modern healthcare [15]. These factors combine to create a work environment that is inherently stressful and can have long-term detrimental effects on the mental and physical health of healthcare workers.

2.2 Coping Mechanisms among Medical Personnel

Coping mechanisms are crucial for healthcare professionals to manage the stress inherent in their work. These strategies can be broadly categorized into problem-focused and emotion-focused coping. Problem-focused coping involves addressing the source of stress directly, such as improving time management skills or seeking support from colleagues. Emotion-focused coping, on the other hand, includes strategies aimed at managing emotional responses to stress, such as mindfulness, relaxation techniques, and seeking social support [16].

Studies have found that the effectiveness of these coping mechanisms can vary depending on the individual and the context. For example, social support from colleagues has been identified as a crucial factor in mitigating stress and preventing burnout among healthcare workers [17]. In contrast, maladaptive coping strategies, such as avoidance or substance use, can exacerbate stress and lead to more severe mental health issues [18]. Therefore, promoting healthy coping mechanisms and providing institutional support are essential for the well-being of healthcare professionals.

2.3 Previous Studies on Stress and Coping in Medical Laboratory Personnel

Medical laboratory personnel, who often work behind the scenes, are a group that has received less attention in research on occupational stress compared to other healthcare workers. However, the limited studies that do exist indicate that these professionals experience significant stress due to the precision required in their work, the pressure to deliver results quickly, and the high stakes associated with diagnostic accuracy [19]. Additionally, the repetitive and often isolating nature of laboratory work can contribute to feelings of monotony and burnout [20].

Coping strategies among medical laboratory personnel have been less studied, but available research suggests that they employ a range of both problem-focused and emotion-focused coping mechanisms. For example, some laboratory workers report using humor and peer support to alleviate stress, while others may engage in more solitary activities, such as hobbies or exercise, outside of work [21]. Despite the importance of these strategies, there is a need for more targeted research to understand the unique stressors and coping mechanisms of this group.

3. Methodology

3.1 Research Design

This study adopts a qualitative research design to explore the psychological stressors and coping mechanisms among medical laboratory personnel at the People's Hospital of Keyouqianqi, Inner Mongolia, China. The qualitative approach is chosen for its ability to provide in-depth insights into participants' lived experiences and perceptions, which are crucial for understanding the complex and nuanced nature of stress and coping in this specific context. Semi-structured interviews will be the primary method of data collection, allowing for flexibility in probing participants' responses while maintaining a focus on the key research questions.

3.2 Participant Selection

The study will involve a purposive sampling technique to select participants who are most likely to provide relevant and rich data on the topic. The participants will be medical laboratory personnel currently employed at the People's Hospital of Keyouqianqi. Given the qualitative nature of the study, a sample size of 10 participants is deemed sufficient to achieve data saturation, where no new themes are expected to emerge from additional interviews.

3.2.1 Inclusion Criteria

Participants will be selected based on the following inclusion criteria:

Currently employed as medical laboratory personnel at the People's Hospital of Keyouqianqi.

Have a minimum of one year of work experience in the laboratory setting.

Willingness and ability to participate in an in-depth interview conducted in Mandarin or Mongolian, as per the participant's preference.

Provide informed consent to participate in the study.

3.2.2 Exclusion Criteria

The following exclusion criteria will be applied:

Individuals who are currently on leave or have been away from work for more than three months due to medical or personal reasons.

Individuals who have a history of psychiatric illness that may affect their ability to participate in the interview process.

Participants who have less than one year of experience working in a laboratory setting.

3.3 Data Collection Methods

Data will be collected through semi-structured interviews, which will be conducted in a private setting within the hospital to ensure confidentiality and minimize disruptions. Each interview will last approximately 45 to 60 minutes and will be audio-recorded with the participants' consent. The interview guide will be developed based on the research questions and will include open-ended questions designed to elicit detailed responses about the participants' experiences with stress and the coping mechanisms they employ. The interviews will be conducted in either Mandarin or Mongolian, depending on the participant's preference, and will later be transcribed and translated into English for analysis.

3.4 Data Analysis

Thematic analysis will be employed to analyze the interview data. This method involves identifying, analyzing, and reporting patterns (themes) within the data. The analysis will be conducted in several stages: initial coding of data, searching for themes among codes, reviewing themes, defining and naming themes, and finally, producing the report. NVivo software will be used to assist in managing and coding the qualitative data. The themes will be developed inductively, allowing them to emerge naturally from the data, while also considering the theoretical framework guiding this study. The analysis will focus on understanding the types of stressors encountered by the participants, the coping

strategies they use, and how these are influenced by cultural and institutional factors.

3.5 Ethical Considerations

This study will adhere to strict ethical standards to protect the rights and well-being of participants. Ethical approval will be obtained from the appropriate ethics committee at the People's Hospital of Keyouqianqi prior to the commencement of the study. Informed consent will be obtained from all participants before their involvement in the study, ensuring that they understand the purpose of the research, the procedures involved, their rights as participants, and the measures taken to protect their confidentiality.

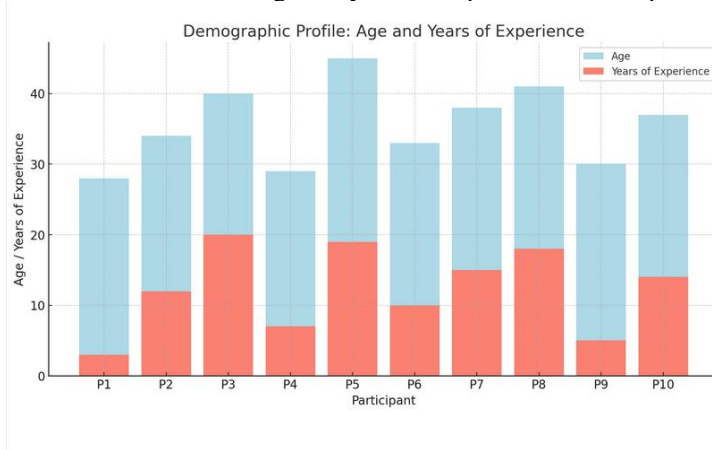
Participants will be informed that their participation is voluntary and that they can withdraw from the study at any time without any repercussions. All data collected will be kept confidential, and pseudonyms will be used in all transcripts and reports to protect participants' identities. The audio recordings and transcripts will be securely stored, and access will be limited to the research team. Data will be retained for a period of five years following the study, after which it will be securely destroyed. The study will also ensure cultural sensitivity by respecting the linguistic and cultural preferences of participants, conducting interviews in the language they are most comfortable with.

4. Findings

4.1 Demographic Profile of Participants

The study involved 10 participants, all of whom are medical laboratory personnel employed at the People's Hospital of Keyouqianqi, Inner Mongolia. The participants' ages ranged from 28 to 45 years, with an average age of 36 years. The gender distribution included 6 females and 4 males. The participants had varying levels of experience in the field, ranging from 3 to 20 years, with an average of 12 years of experience. All participants held positions as either laboratory technicians or senior technicians. The majority of participants were native to Inner Mongolia, and all were fluent in Mandarin, with 4 participants also fluent in Mongolian. This diverse demographic profile provided a broad perspective on the psychological stressors and coping mechanisms within the hospital's laboratory environment.

The chart below illustrates the age and years of experience of each participant:



4.2 Identified Psychological Stressors

Through the thematic analysis of the interview data, several key psychological stressors were identified among the participants. The most commonly reported stressors included high workload, time pressure, the responsibility for diagnostic accuracy, and the emotional burden of working in a high-stakes environment. Participants also highlighted the stress associated with interpersonal conflicts within the workplace, particularly with management and other healthcare professionals.

Additionally, some participants expressed concerns about job security and career progression, which contributed to their overall stress levels.

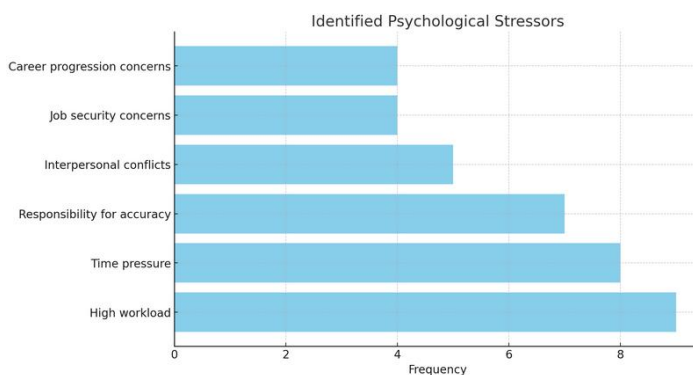
The following chart highlights the frequency of these identified psychological stressors:

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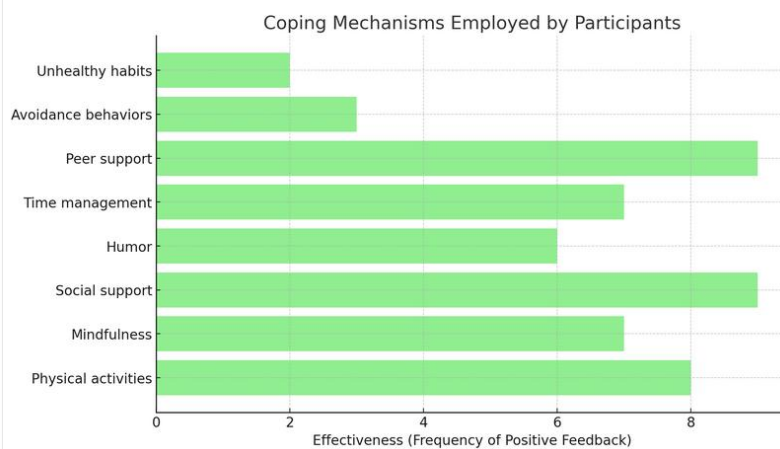


Coping Mechanisms Employed by Participants

Participants reported using a variety of coping mechanisms to manage their stress. These mechanisms were broadly categorized into problem-focused and emotion-focused strategies. Problem-focused strategies included seeking support from colleagues, improving management skills, and participating in continuous professional development to enhance their competence and confidence. Emotion-focused strategies included engaging physical activities such as exercise, practicing mindfulness and relaxation techniques, and relying on social support from family and

friends. Some participants also reported using humor and maintaining a positive outlook as ways to cope with the daily stressors of their job.

The chart below illustrates the effectiveness of various coping mechanisms as reported by the participants:



4.4 Emerging Themes

The thematic analysis revealed several emerging themes related to the psychological stressors and coping mechanisms of the participants. These themes were grouped into four categories: work-related stressors, personal and social stressors, effective coping strategies, and ineffective coping strategies.

4.4.1 Work-Related Stressors

Work-related stressors were the most prominent theme identified in the study. Participants frequently mentioned the pressure to meet tight deadlines while ensuring the accuracy of their work as a significant source of stress. The high volume of tests and the demand for quick turnaround times often left participants feeling overwhelmed and exhausted. Additionally, the need to stay updated with rapidly advancing medical technologies and procedures added to the stress, particularly for those with longer tenure in the profession.

4.4.2 Personal and Social Stressors

In addition to work-related stressors, participants also reported personal and social stressors that impacted their psychological well-being. These included balancing work with family responsibilities, managing relationships with colleagues, and dealing with the social expectations within their cultural context. Some participants mentioned feeling isolated due to the nature of their work, which often involved long hours in the laboratory with limited interaction with other healthcare professionals or patients. The cultural emphasis on maintaining harmony and not showing weakness also contributed to their stress, as they felt pressured to cope with their difficulties in silence.

4.4.3 Effective Coping Strategies

The study identified several coping strategies that participants found to be effective in managing their stress. Building strong professional relationships with colleagues was frequently cited as a crucial support mechanism. Participants who felt supported by their peers and supervisors reported lower levels of stress and higher job satisfaction. Engaging in physical activities, such as regular exercise, was another effective strategy that helped participants manage both their physical and mental health. Additionally, practicing mindfulness and relaxation techniques, such as deep breathing exercises, were mentioned as valuable tools for reducing stress and maintaining focus during challenging workdays.

4.4.4 Ineffective Coping Strategies

While many participants employed effective coping strategies, the study also identified several ineffective coping mechanisms that exacerbated their stress. Some participants reported resorting to avoidance behaviors, such as procrastination or disengagement from work, which ultimately increased their stress levels. Others mentioned that they relied on unhealthy habits, such as excessive consumption of caffeine or alcohol, to cope with stress. These strategies provided temporary relief but often led to a cycle of increased stress and decreased well-being. The findings highlight the need for targeted interventions to promote healthier coping mechanisms and reduce reliance on ineffective strategies.

In summary, the findings from this study provide a comprehensive understanding of the psychological stressors faced by medical laboratory personnel at the People's Hospital of Keyouqianqi and the coping mechanisms they employ. The insights gained from this research can inform the development of interventions aimed at improving the mental health and well-being of these essential healthcare workers.

5. Discussion

5.1 Interpretation of Findings

The findings from this study highlight the significant psychological stressors faced by medical laboratory personnel at the People's Hospital of Keyouqianqi, Inner Mongolia. The most prominent stressors identified include high workload, time pressure, responsibility for diagnostic accuracy, and interpersonal conflicts within the workplace. These stressors are exacerbated by cultural and institutional factors unique to the region, such as the cultural emphasis on maintaining harmony and avoiding the expression of personal difficulties. Participants also reported that the lack of career progression and job security concerns further contributed to their stress levels.

In terms of coping mechanisms, the study revealed that participants employed both problem-focused and emotion-focused strategies. Effective coping strategies included building strong professional relationships, engaging in physical activities, and practicing mindfulness. However, some participants also resorted to ineffective coping strategies, such as avoidance behaviors and unhealthy habits, which exacerbated their stress. These findings suggest a complex interplay between individual coping strategies and the cultural and institutional context in which these professionals operate. The reliance on effective coping mechanisms was associated with better mental health outcomes and job satisfaction, while ineffective strategies often led to a cycle of increased stress and decreased well-being.

5.2 Comparison with Existing Literature

The findings of this study align with existing literature on psychological stressors and coping mechanisms among healthcare professionals. Similar to previous research, this study confirms that high workload, time pressure, and the emotional burden of ensuring diagnostic accuracy are significant sources of stress for medical laboratory personnel [22],

[23]. The study also supports the notion that both problem-focused and emotion-focused coping strategies are essential for managing stress in healthcare settings [24]. However, the study contributes new insights into the specific stressors and coping mechanisms relevant to medical laboratory personnel in Inner Mongolia, a region that has been underrepresented in existing research.

The cultural context in China, particularly the emphasis on collectivism and maintaining social harmony, plays a critical role in shaping how stress is experienced and managed by healthcare professionals. This study's findings echo previous research that suggests Chinese healthcare workers may internalize stress and avoid expressing their difficulties openly due to cultural norms [25]. Moreover, the study's identification of ineffective coping strategies, such as avoidance behaviors and unhealthy habits, aligns with existing literature that highlights the potential negative consequences of maladaptive coping mechanisms [26]. Overall, this study adds to the body of knowledge by providing a localized understanding of stress and coping among medical laboratory personnel in Inner Mongolia.

5.3 Implications for Practice

The findings of this study have several practical implications for improving the mental health and well-being of medical laboratory personnel at the People's Hospital of Keyouqianqi. First, there is a need to develop targeted interventions that address the specific stressors identified in this study, such as high workload and time pressure. Strategies could include workload management initiatives, such as task delegation and time management training, to help reduce the burden on laboratory personnel.

Second, promoting effective coping mechanisms is crucial. The hospital could implement programs that encourage physical activity, mindfulness practices, and the development of strong professional relationships among staff. Regular workshops and training sessions on stress management techniques could be beneficial in equipping staff with the tools they need to manage stress effectively.

Third, addressing the cultural and institutional factors that contribute to stress is essential. Creating a supportive work environment where staff feel comfortable expressing their difficulties without fear of judgment or repercussions is vital. This could be achieved through initiatives that promote open communication, peer support networks, and access to counseling services.

5.4 Implications for Policy

The findings of this study also have important implications for policy development within the healthcare sector. Policymakers should consider the unique stressors faced by medical laboratory personnel and other behind-the-scenes healthcare workers when designing mental health and wellness programs. Policies that mandate regular mental health check-ins, provide access to mental health resources, and offer support for work-life balance could significantly improve the well-being of these professionals.

Furthermore, institutional policies should be reviewed and revised to reduce unnecessary administrative burdens and create a more supportive work environment. This could include policies that ensure reasonable workloads, provide opportunities for career advancement, and promote job security. Additionally, policies that recognize and address the cultural context in which healthcare professionals operate are essential. Tailoring interventions to align with cultural values and norms can enhance their effectiveness and ensure that they are well-received by the workforce.

In conclusion, this study provides valuable insights into the psychological stressors and coping mechanisms of medical laboratory personnel at the People's Hospital of Keyouqianqi. The findings have important implications for practice and policy, offering a roadmap for improving the mental health and well-being of these essential healthcare workers.

6. Conclusion

6.1 Summary of Key Findings

This study explored the psychological stressors and coping mechanisms of medical laboratory personnel at the People's Hospital of Keyouqianqi, Inner Mongolia, China. The key findings from the study revealed that these healthcare professionals face significant stressors, including high workloads, time pressure, the responsibility for diagnostic accuracy, and interpersonal conflicts within the workplace. Additionally, personal and social stressors, such as balancing work and family responsibilities and managing relationships with colleagues, further compounded their stress levels.

Participants employed a variety of coping mechanisms, both problem-focused and emotion-focused, to manage these stressors. Effective coping strategies included building strong professional relationships, engaging in physical activities, and practicing mindfulness. However, some participants resorted to ineffective coping mechanisms, such as avoidance behaviors and unhealthy habits, which often exacerbated their stress. The study also highlighted the influence of cultural and institutional factors on how stress is experienced and managed, particularly the emphasis on maintaining social harmony and avoiding the expression of personal difficulties.

6.2 Recommendations for Future Research

Based on the findings of this study, several recommendations for future research are proposed:

Future research could expand the scope of the study to include a larger and more diverse sample of medical laboratory personnel across different regions and healthcare settings in China. This would allow for a more comprehensive understanding of the stressors and coping mechanisms across various contexts.

Conducting longitudinal studies to track changes in stress levels and coping mechanisms over time would provide valuable insights into the long-term effects of occupational stress and the effectiveness of different coping strategies.

Future studies could explore the impact of specific interventions designed to reduce stress and promote healthy coping mechanisms among medical laboratory personnel. This could include evaluating the effectiveness of programs such as mindfulness training, peer support networks, and workload management initiatives.

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