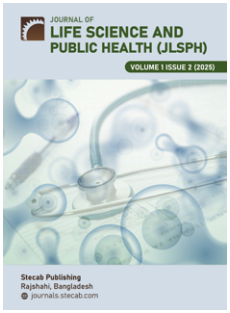

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Research Article

Professional Burnout among Medical Laboratory Workers in Ghana: The Moderating Role of Perfectionism and Psychological Capital

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About Article

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ABSTRACT

This research examines the correlation between perfectionism, psychological capital (PsyCap), and burnout in medical laboratory personnel in Ghana, employing the Job Demands-Resources (JD-R) paradigm. A descriptive cross-sectional design was utilised, involving a convenience sample of 253 medical laboratory personnel. Data were gathered through an online questionnaire evaluating burnout, perfectionism, and psychological capital (PsyCap). The research indicated that perfectionism served as a substantial job requirement, positively correlated with emotional weariness and disengagement—two fundamental aspects of burnout. Psychological capital was identified as a job resource that strongly regulated the connection between perfectionism and burnout, indicating that elevated levels of PsyCap mitigated the adverse impacts of perfectionism. A surprising inverse correlation between perfectionism and fatigue was discovered in certain subgroups, potentially suggesting the adaptive characteristics of perfectionism in high-precision occupations. The results emphasise the significance of psychological capital in alleviating burnout and stress the necessity for focused interventions at the institutional, governmental, and individual levels. Recommendations encompass the establishment of PsyCap training programs, the adoption of workload management measures, and the formulation of mental health policies to assist medical laboratory staff in Ghana. Subsequent study ought to investigate the causal links among these variables utilising longitudinal designs and more representative populations.

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1. INTRODUCTION

Burnout is a well-documented phenomenon among healthcare professionals, particularly those in high-stress environments such as hospitals, clinics, and laboratories. Characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment, burnout can lead to decreased job satisfaction, poor performance, and increased turnover (Maslach *et al.*, 2001). While burnout has been extensively studied in physicians, nurses, and other healthcare workers, there remains a significant research gap concerning medical laboratory workers, a crucial but often overlooked group within the healthcare sector (Robakowska *et al.*, 2021).

Medical laboratory professionals play a critical role in diagnosing and treating diseases by analyzing biological specimens, which provide essential data for patient care. Their work underpins clinical decisions in a wide range of medical fields, making their well-being crucial to the overall effectiveness of healthcare delivery (Koo, 2021). In Ghana, medical laboratory professionals are faced with additional challenges, including limited resources, outdated equipment, and high workload demands. These stressors are particularly prevalent in resource-poor settings, where healthcare systems are often stretched thin, making medical laboratory workers more vulnerable to burnout (Duah *et al.*, 2022).

Despite the significant challenges they face, medical laboratory professionals in Ghana have received little attention in burnout research. In a country where the healthcare system struggles with staff shortages, lack of training, and poor working conditions, the well-being of laboratory workers directly impacts the quality of diagnostics and, ultimately, patient care. Burnout in this population could exacerbate the already significant pressures on the healthcare system and lead to high turnover, potentially diminishing the effectiveness of diagnostic services (Adu-Gyasi *et al.*, 2022).

Furthermore, individual characteristics such as perfectionism—often seen as a double-edged sword—may interact with burnout. In high-pressure work environments like those in medical laboratories, perfectionistic tendencies can amplify stress, leading to higher burnout levels (D'souza *et al.*, 2011). On the other hand, psychological capital, which encompasses hope, efficacy, resilience, and optimism, has been suggested as a potential moderator that may protect against burnout (Peterson *et al.*, 2011). However, the role of psychological capital in mitigating the effects of perfectionism on burnout among medical laboratory workers remains largely unexplored, particularly in the context of Ghana.

This study, therefore, aims to fill this research gap by investigating the relationship between perfectionism and burnout among medical laboratory professionals in Ghana, focusing on the moderating role of psychological capital. By examining these factors, the study seeks to provide insights into the psychological well-being of this critical workforce and propose interventions to alleviate burnout and improve healthcare delivery in Ghana's medical laboratories.

2. LITERATURE REVIEW

The conceptual framework (Figure 1) of our study is based on the Job Demands-Resources (JD-R) model (Demerouti *et al.*, 2010), which seeks to explain occupational stress and motivation. According to the JD–R model, job demands initiate a health disorder phase, and job resources initiate a motivational process (Taris & Schaufeli, 2015). Moreover, the model defines how demands and resources interconnect and forecasts significant organizational results. This is because the model also defines how job demands take a strain on the personal (and even work) resources of professionals, forming the basis of understanding how interventions could improve resources or reduce the impact of job demands on professionals (Taris & Schaufeli, 2015)

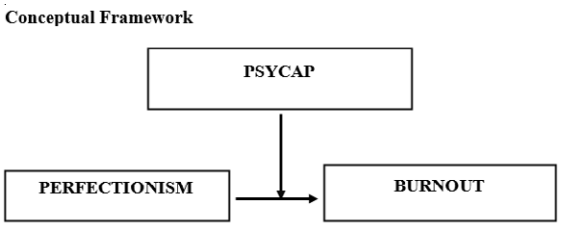

Figure 1. Conceptual framework

Based on the model, we predict that medical laboratory work's job demands, favoring a pathological preference for high-quality, routinely reproducible results (perfectionism), will lead to professional burnout. However, having a high psychological capital will help reduce this significantly.

2.1. Burnout in healthcare professions

Burnout is a psychological syndrome characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. It is most common in high-stress professions, particularly in healthcare settings, where workers are exposed to heavy workloads, emotional demands, and the pressure of making life-altering decisions (Maslach *et al.*, 2001). In the healthcare sector, burnout has been widely studied among physicians and nurses, with studies showing high levels of burnout leading to decreased job satisfaction, lower quality of care, and higher turnover rates (Rotenstein *et al.*, 2018; Moghaddasi *et al.*, 2013). However, there is a noticeable research gap regarding burnout among medical laboratory professionals, a critical group within the healthcare system that contributes directly to patient diagnosis and care (Robakowska *et al.*, 2021).

2.2. Perfectionism as a job demand

Perfectionism, often regarded as a personality trait, can also be conceptualized as a job demand within the framework of the Job Demands-Resources (JD-R) model (Demerouti *et al.*, 2010). In the context of medical laboratory work, perfectionism involves setting excessively high standards and striving for flawless results in every task. This drive for perfection can increase stress levels, as workers feel pressure to meet these demanding expectations without error. In medical laboratories, where the accuracy and reliability of diagnostic tests are paramount, perfectionism can lead to excessive self-imposed demands. This makes medical laboratory workers highly susceptible to burnout (Robakowska *et al.*, 2021). The JD-R model suggests

that high job demands, such as perfectionism, contribute to emotional exhaustion and burnout when the available resources are insufficient to cope with the pressure.

2.3. Psychological capital as a job resource

In contrast, psychological capital (PsyCap) serves as a job resource in the JD-R model. PsyCap is a positive psychological state characterized by hope, self-efficacy, resilience, and optimism (Luthans *et al.*, 2007). These qualities enable individuals to navigate job demands effectively and to recover from stress. In the case of medical laboratory professionals, PsyCap acts as a buffer against the negative effects of high demands like perfectionism. When faced with stressful work conditions, professionals with higher PsyCap are more likely to remain resilient, optimistic, and hopeful, reducing the likelihood of burnout (Moyer *et al.*, 2017). Thus, PsyCap not only helps workers manage job-related stress but also enhances their capacity to engage with their work despite challenges.

The Job Demands-Resources (JD-R) Model and Its Application

The JD-R model is widely used to understand how job demands and resources interact to affect employee well-being (Bakker & Demerouti, 2017). Job demands, such as perfectionism in this study, require sustained physical or mental effort, which can lead to stress and burnout. However, the availability of job resources, such as psychological capital, can mitigate the negative effects of these demands. Psychological capital plays a critical role in buffering the impact of perfectionism on burnout. The higher the level of psychological capital, the better equipped workers are to handle the emotional and psychological demands of their job, leading to lower burnout levels.

In the context of this study, perfectionism represents a significant job demand, creating pressure on medical laboratory workers to meet high standards of performance. Psychological capital, conversely, serves as a job resource that can help mitigate the emotional exhaustion associated with perfectionism. The moderating role of psychological capital suggests that even in environments where perfectionism is prevalent, individuals with high psychological capital are less likely to experience burnout (Peterson *et al.*, 2011).

2.4. Gaps in research and relevance to ghana

Despite the critical role that medical laboratory professionals play in the healthcare system, especially in resource-limited settings like Ghana, there has been limited research on burnout within this population. Given the demanding nature of their work and the challenges posed by under-resourced healthcare systems in sub-Saharan Africa, medical laboratory professionals in Ghana are especially vulnerable to burnout. In addition, Ghana's healthcare system faces significant challenges, including limited training opportunities, outdated equipment, and high turnover rates among healthcare workers (Duah *et al.*, 2022). This makes understanding the factors that contribute to burnout among medical laboratory professionals crucial for improving workforce retention and healthcare outcomes in Ghana.

2.5. Conclusion of literature review

This literature review highlights the importance of the JD-R model in understanding burnout among medical laboratory professionals. By conceptualizing perfectionism as a job demand and psychological capital as a job resource, the study provides a framework for understanding how these factors interact to influence burnout. The research gap in understanding burnout among medical laboratory professionals in Ghana underscores the importance of exploring how job demands and resources affect worker well-being in this critical sector of the healthcare system.

3. METHODOLOGY

3.1. Study design

This study utilized a descriptive cross-sectional design to explore the relationship between perfectionism, psychological capital (PsyCap), and burnout among medical laboratory professionals in Ghana. The primary aim was to assess the extent to which perfectionism contributes to burnout and whether psychological capital serves as a protective factor, moderating this relationship. This design allowed for a snapshot of the current state of burnout, perfectionism, and PsyCap within this population, which is crucial for informing future interventions (Demerouti *et al.*, 2010).

3.2. Study population and sampling method

The research focused on medical laboratory personnel in Ghana, a demographic vital to the healthcare system yet sometimes neglected in burnout studies (Robakowska *et al.*, 2021). Participants were selected from a convenience sample of medical laboratory personnel registered in a national database including 3,998 laboratory experts throughout Ghana. These professionals were identified via their participation in the national network of healthcare workers, and invitations to partake in the study were disseminated by emails and shared links on professional social media platforms, including WhatsApp and Facebook.

The initial objective was to intentionally sample this group; however, it was ultimately categorised as a convenience sample, as participation depended on the availability of individuals willing to reply (Baker, 2015). Participants were solicited to take an online survey evaluating burnout, perfectionism, and psychological capital.

A total of 253 replies were obtained, yielding a response rate of roughly 6.3%. This response rate, albeit relatively low, aligns with typical difficulties encountered in securing extensive responses in resource-constrained environments, especially within professional networks that may resist engagement in research (Duah *et al.*, 2022).

3.3. Sampling limitations

The convenience sampling strategy utilised in this study, although practical and accessible, restricts the sample's representativeness. The low response rate (~6.3%) constitutes a substantial restriction, indicating that the sample may not adequately represent the diversity of experiences among the wider population of medical laboratory personnel in Ghana. This non-representative sampling technique may result in sampling bias, hence impacting the generalisability of the study results. Subsequent research should prioritise more

rigorous sampling methodologies, such as random sampling or stratified sampling, to enhance the representativeness and generalisability of the results (Creswell, 2014).

3.4. Inclusion and exclusion criteria

To ensure the sample was homogenous and relevant to the research objectives, several inclusion and exclusion criteria were applied:

• Inclusion criteria: All medical laboratory professionals actively working in Ghana who had provided consent to participate in the study.

• Exclusion criteria: Participants who were not licensed medical laboratory professionals, those who had been unemployed for over a year, and those who were working in professions outside of medical laboratory science (e.g., those who had transitioned into teaching or other healthcare fields) were excluded from the study. These exclusions were necessary to ensure the sample's relevance to the research question and to avoid confounding factors that might distort the findings.

3.5. Data collection

Data were collected using an online questionnaire administered via Google Forms, which was accessible to participants through the provided links. The questionnaire assessed three key variables:

i. Burnout: Assessed via the Oldenburg Burnout Inventory (OLBI), a 16-item instrument that evaluates burnout through two subscales: weariness and disengagement (Halbesleben & Demerouti, 2005).

ii. Perfectionism: Evaluated with the Big Three Perfectionism Scale-Short Form (BTPS-SF), which assesses inflexible, self-critical, and narcissistic perfectionism (Feher *et al.*, 2020).

iii. Psychological capital: Assessed by the Psychological Capital (PsyCap) Questionnaire, which examines the four elements of PsyCap: hope, self-efficacy, resilience, and optimism (Luthans *et al.,* 2007).

The questionnaire was disseminated and gathered from March to May 2022. Participants were guaranteed secrecy and advised that their involvement was optional, with the right to withdraw at any time. Informed consent was secured prior to participants commencing the questionnaire.

3.6. Data analysis

Data were analyzed using SPSS (Statistical Package for the Social Sciences) software. The following steps were performed:

i. Descriptive statistics were calculated for all variables, including means, standard deviations, frequencies, and percentages. This provided a general overview of the levels of burnout, perfectionism, and psychological capital within the sample.

ii. Inferential statistics: Independent samples t-tests and one-way ANOVAs were used to explore potential differences in burnout levels based on demographic factors, such as gender and professional cadre.

iii. Moderation analysis: Hayes' Process Macro (model 1) was used to test whether psychological capital moderated the relationship between perfectionism and burnout. This analysis helped assess whether higher levels of psychological capital reduced the negative effects of perfectionism on burnout (Hayes, 2013).

3.7. Ethical considerations

The study adhered to ethical guidelines set by the Institutional Review Board (IRB). Informed consent was obtained from all participants, and confidentiality was maintained throughout the data collection and analysis process. Participants were assured that their responses would be anonymized, and no identifiable data would be shared or published. The study also followed ethical practices by informing participants of their right to withdraw from the study at any point without penalty.

4. RESULTS AND DISCUSSION

Table 1. Participants' Demographics (n=253)

	Mean	**SD**	**Min**	**Max**
Years of Service	6.18	5.25	1	31
Age	31.36	5.96	22	55
	Frequency	**Percentage**		
<30	119	47.0		
30-39	110	43.5		
40+	24	9.5		
Gender				
Male	192	75.9%		
Female	61	24.1%		
Cadre Type				
Assistant	16	6.3%		
Technician	59	23.3%		
Scientist	178	70.4%		

Relationship Status		
Single	135	53.4%
Married/Cohabiting	116	45.8%
Divorced/Widowed	2	8%

Table 1 includes the demographics of the participants. Most participants were male (75.9%) and scientists (70.4%). About 23% of the participants were technicians, with only 6.3% being assistants. More than half of the respondents were single (53.4%), nearly half were married or cohabiting (45.8%), and a few were divorced (8.0%). Participants ages 22 through 55 had worked between 1 and 31 years (M = 6.18, SD = 5.25).

Table 2. Level of burnout, perfectionism, and psychological capital among medical laboratory scientists

Construct	Range		
	Low Frequency (percentage)	**Moderate Frequency (percentage)**	**High Frequency (percentage)**
Burnout			
Total Burnout	21 (8.3)	188 (74.3)	12 (4.7)
Disengagement	24 (9.5)	185 (73.1)	22 (8.7)
Exhaustion	49 (19.4)	174 (68.8)	15 (5.9)
Perfectionism			
Total Perfectionism	44 (17.4)	137 (54.2)	40 (15.8)
Rigid Perfectionism	21 (8.3)	65 (25.7)	156 (61.7)
Self-perfectionism	80 (31.6)	119 (47.0)	36 (14.2)
Narcissistic perfection	116 (45.8)	104 (41.1)	15 (5.9)
Psychological Capital			
Total Psychological capital	3 (1.2)	35 (13.8)	191 (75.5)
Efficacy	8 (3.2)	35 (13.8)	199 (78.7)
Hope	5 (2.0)	42 (16.6)	191 (75.5)
Resilience	4 (1.6)	53 (20.9)	177 (70.0)
Optimism	10 (4.0)	44 (17.4)	186 (73.5)

Most of the respondents (74.3%) reported a moderate level of burnout among medical laboratory professionals (Table 2). Disengagement (73.1%) and exhaustion (68.8%) were also moderate. Results from an independent samples t-test indicated that females had significantly higher levels of total burnout than males (p = 0.003). Females had an average of 2.74 overall burnout scores higher than males.

The total level of perfectionism (54.2%) and the level of self-critical perfectionism (47.0%) among medical laboratory professionals were found to be moderate among respondents (Table 2). The level of rigid perfectionism was high (61.7%), whereas the level of narcissistic perfectionism was low (45.8%). Table 2 shows that the total level of psychological capital among medical laboratory professionals was high among respondents (75.5%). The levels of efficacy (78.7%), hope (75.5%), resilience (70.0%), and optimism (73.5%) were all high.

A one-way ANOVA was conducted to compare the effect of medical laboratory workers' cadre on their overall burnout scores. The results of the analysis showed that there was a statistically significant difference between at least two of the work cadre groups (F (2, 218) = [3.29], p = 0.04). Tukey's HSD Test for multiple comparisons (Table 3) found that the total burnout for medical laboratory assistants (M = 42.84, SD = 6.36) and medical laboratory scientists (M = 38.85, SD = 5.92) was significantly different (p = 0.04, 95% C.I = [0.97, 7.89]). Medical laboratory assistants had, on average, 3.99 total burnout scores higher than scientists, suggesting significantly more burnout. There were no statistically significant differences between the total burnout scores of medical laboratory assistants and technicians (p = 0.23) nor between the total burnout scores of medical laboratory technicians and scientists (p = 0.47).

Table 3. Post hoc tests

Multiple Comparisons

Dependent Variable: Total Burnout

Tukey's HSD

(I) Cadre type	(J) Cadre type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Medical Lab Assistant	Medical Lab Technician	2.91	1.78	0.23	-1.30	7.11
	Medical Lab Scientist	3.99*	1.65	0.04	0.10	7.89
Medical Lab Technician	Medical Lab Assistant	-2.91	1.78	0.23	-7.11	1.30
	Medical Lab Scientist	1.09	0.93	0.47	-1.10	3.28
Medical Lab Scientist	Medical Lab Assistant	-3.99*	1.65	0.04	-7.89	-0.10
	Medical Lab Technician	-1.09	0.93	0.47	-3.28	1.10

** The mean difference is significant at the 0.05 level.*

Table 4. The moderating role of psychological capital in the relationship between perfectionism and burnout

	Coeff (b)	BootSE	t-value	BLLCI	BULCI
Constant	39.17	0.40	99.22	38.39	39.95
Perfectionism	-0.160	0.04	-4.40	-0.23	-0.09
Psychological capital	0.169	0.04	4.12	0.09	0.25
Perfectionism* Psychological capital	0.01	0.00	1.92	0.00	0.01

Criterion: Burnout

Notably, psychological capital moderated the relationship between perfectionism and burnout among medical laboratory professionals (Table 4). Perfectionism was the predictor variable in the analysis, burnout was the criterion variable, and psychological capital was the moderator. The analysis was conducted using the Hayes Process with 5000 bootstrap samples.

The results showed that psychological capital was a significant moderator in the relationship between perfectionism and burnout ($b = 0.01$, $t = 1.92$, CI [0.00, .012], $p < 0.05$).

4.1. Discussion

4.1.1. Perfectionism and Burnout in the JD-R Framework

This study sought to investigate the correlation between perfectionism and burnout among medical laboratory professionals in Ghana, while simultaneously assessing the moderating influence of psychological capital (PsyCap). The results offer significant insights into the interplay between perfectionism and psychological capital within the framework of the Job Demands-Resources (JD-R) paradigm (Demerouti *et al.*, 2010).

In the JD-R paradigm, job demands are characterised as elements of the job necessitating continuous effort, which may result in strain, whereas job resources are those that assist employees in attaining work objectives and alleviating stress (Bakker & Demerouti, 2017). This study revealed that perfectionism may serve as a job requirement in medical laboratory work, where the pressure to achieve high standards of accuracy and precision can elevate the risk of burnout. Perfectionism had a positive correlation with emotional tiredness and disengagement, two fundamental characteristics of burnout (Maslach *et al.*, 2001). This corresponds with prior research that has emphasised the detrimental effects of perfectionism in high-pressure work settings (D'souza *et al.*, 2011; Robakowska *et al.*, 2021).

Conversely, psychological capital (PsyCap), as a job resource, was identified as a key moderator of the association between perfectionism and burnout. Elevated levels of Psychological Capital—comprising hope, self-efficacy, resilience, and optimism—correlated with less burnout, especially among individuals demonstrating high perfectionism. This corroborates the buffering theory of the JD-R model, which posits that resources might mitigate the adverse impacts of job demands (Luthans *et al.*, 2007). PsyCap serves as a protective factor, aiding medical laboratory personnel in coping with the stress and pressure linked to perfectionistic impulses.

4.1.2. Negative relationship between perfectionism and burnout

An intriguing and somewhat unexpected discovery was the inverse correlation between perfectionism and burnout in some subgroups of the sample. Although most studies indicate a positive association between perfectionism and burnout (D'souza *et al.*, 2011), this research revealed that certain participants exhibited a relationship where elevated

perfectionism correlated with diminished burnout levels. This paradoxical outcome can be elucidated by the distinctive characteristics of the medical laboratory profession, wherein perfectionistic features are regarded as advantageous, particularly in contexts demanding precision and accuracy.

According to the JD-R model, this adverse correlation may signify the adaptive dimensions of perfectionism. For certain employees, elevated standards and perfectionistic inclinations may function as internal motivation, improving performance and resulting in a sense of achievement and personal satisfaction. This may diminish the probability of burnout, especially if the individual regards their efforts as significant and congruent with their values (Hill & Curran, 2016). This finding is tentative and requires additional investigation. The dual nature of perfectionism, serving as both a demand and a motivational impetus, necessitates further exploration in subsequent research.

This conclusion may also indicate a selection bias in our sample, as workers better equipped to handle perfectionism's demands would have been more inclined to engage in the study, resulting in a distorted view of the link between these characteristics.

4.1.3. Psychological capital as a moderator

The moderating effect of psychological capital was one of the most significant outcomes of this study. In accordance with the JD-R paradigm, PsyCap served as a vital resource that mitigated the adverse impacts of perfectionism on burnout. Medical laboratory specialists exhibiting elevated levels of hope, self-efficacy, resilience, and optimism were more adept at managing the substantial demands of their work, irrespective of their perfectionistic inclinations. This aligns with findings from past research that have shown PsyCap's protective effect in alleviating occupational stress and burnout (Moyer *et al.*, 2017). This implies that therapies designed to improve PsyCap may effectively mitigate burnout in medical laboratory specialists. Training programs aimed at enhancing resilience, optimism, and self-efficacy may assist employees in effectively navigating the psychological challenges of perfectionistic work contexts, resulting in enhanced well-being and diminished turnover rates.

4.1.4. Implications for practice and future research

The results of this study hold significant significance for practice, especially in mitigating burnout among medical laboratory personnel in Ghana. Interventions designed to enhance psychological capital may be integrated into professional development programs, emphasising the cultivation of resilience and self-efficacy. Considering the substantial impact of perfectionism as a job demand, it is advantageous to implement support systems that assist employees in managing their perfectionistic inclinations without jeopardising their well-being.

The study revealed gender and cadre-specific disparities in burnout levels, with female professionals and medical laboratory assistants exhibiting elevated burnout rates. different findings underscore the necessity for customised interventions that cater to the distinct requirements of different subgroups. For instance, female professionals may gain from support networks that tackle gender-specific stresses, whilst medical laboratory assistants may necessitate specialised programs aimed at alleviating workload stress and enhancing job happiness.

Subsequent research should endeavour to replicate these findings through longitudinal designs to ascertain causal links among perfectionism, PsyCap, and burnout. Moreover, employing more diversified sampling techniques, such as stratified random sampling, would enhance the representativeness of the findings for the wider community of medical laboratory workers in Ghana and other sub-Saharan African nations.

4.1.5. Study limitations

The research possesses numerous shortcomings that require acknowledgement. The limited response rate (~6.3%) and the convenience sample technique constrain the generalisability of the results. The sample may not accurately represent the broader population of medical laboratory professionals in Ghana, and the findings may be influenced by response bias. The cross-sectional methodology also hinders the development of causal links among perfectionism, PsyCap, and burnout. Future research utilising larger, more heterogeneous samples and longitudinal methodologies is essential for a comprehensive understanding of these linkages.

4.2. Practice Implications

Dynamic work environments and increased technical and occupational knowledge highlight negative workplace features and offer guidance for future interventions. Stress and burnout are recurring features in many healthcare professions (Ibikunle *et al.*, 2016; Kamal *et al.*, 2016; Hilton, 2017).

Two conclusions are notable from the present study. The first relates to the need for specific research regarding perfectionism among medical laboratory workers. Robakowska *et al.* (2021) reported a negative relationship between a low level of 'maladaptive' perfectionism and exhaustion, meaning that individuals displaying high levels of 'maladaptive' perfectionism were less likely to develop burnout. This information suggests the importance of promoting healthier workplace habits, better-coping mechanisms, and improving overall organizational culture.

Second, although more focus is typically drawn to the profession at large, we must consider the inequitable distribution of burnout among the profession's demographic layers. Notably, female professionals have repeatedly reported more psychological stress and burnout (Patel *et al.*, 2021; Youssef *et al.*, 2022), which is concerning if progressive empowerment of the overall task force is to be pursued. Findings from our study also suggest that lower cadres of medical laboratory professionals (i.e., assistants) may report higher levels of burnout. Thus, managers should consider implementing organizational change equitably. This may include increasing or reducing job demands (hence addressing burnout more directly), investing in occupational endeavors to increase psychological capital and reduce burnout more indirectly, or a combination of both efforts. Permanent results would require collaboration from many stakeholders, including educators, human resource personnel, managers, administrators, and policymakers (Fagbenle, 2025; Lawal *et al.*, 2025).

4.3. Study limitations

Limitations should be considered when interpreting the study results. The cross-sectional design does not allow causality to be deduced. It must be noted that there was an overrepresentation of males and medical laboratory scientists, which might impact the study's generalizability. All data gathered were self-reported, which could be affected by social desirability. Future research should conduct longitudinal studies to follow burnout and the nature of perfectionism among medical laboratory workers over time.

5. CONCLUSIONS

This study emphasises the pressing concern of burnout among medical laboratory professionals in Ghana, illustrating the substantial influence of perfectionism as a workplace demand, while psychological capital (PsyCap) serves as a protective employment resource. To alleviate burnout and improve the well-being of these professions, many concrete advice are offered at the institutional, policy, and individual levels.

RECOMMENDATIONS

Institutional-level recommendations

i. Psychological capital training initiatives: Institutions ought to establish training programs aimed at augmenting psychological capital (PsyCap), specifically resilience, hope, self-efficacy, and optimism. This can be achieved through workshops and online courses that assist medical laboratory specialists in developing emotional resilience to manage the significant demands of their career. These seminars could be integrated into current continuing education initiatives for laboratory personnel.

ii. Workload administration and task reorganisation: Medical laboratory facilities ought to implement measures for workload management, including job redesign to optimise task distribution, especially for lower-tier professionals such as assistants. This may entail task rotation to mitigate burnout from monotonous and difficult duties, while also facilitating greater autonomy in decision-making.

iii. Employee wellness initiatives: Initiatives for employee well-being should be implemented, emphasising stress management and mental health assistance. This may involve granting access to Employee Assistance Programs (EAPs) that provide counselling services and mental health resources, in addition to implementing regular stress-relief seminars (e.g., mindfulness, time management, physical wellness exercises).

Policy-level recommendations

i. National mental health framework for healthcare professionals: Policymakers must formulate national policies to provide mental health support for healthcare professionals, especially in resource-constrained environments. This may involve establishing standards for mental health practices in healthcare facilities and requiring the incorporation of mental health days and burnout prevention methods in healthcare worker contracts. The Ministry of Health might lead these attempts by including mental health treatment into national health policy frameworks.

ii. Policy for regulating workload and staff distribution: Policymakers at the national level should implement legislation concerning workload management and staff-to-patient ratios. This can be accomplished by ensuring healthcare facilities maintain appropriate staffing levels and that medical laboratory personnel are not overwhelmed by excessive demands. Implementing work hour restrictions and advocating for job rotation might mitigate burnout by ensuring equitable distribution of responsibilities and providing employees with sufficient recuperation time.

iii. Financial support for research on burnout in healthcare: Policymakers ought to designate resources for national research concentrating on burnout among healthcare workers, especially medical laboratory experts. This study should investigate the determinants of burnout, its effects on healthcare provision, and the efficacy of possible remedies. Funding may be allocated to universities and research institutions to perform longitudinal studies examining burnout and job satisfaction over time.

Individual-level recommendations

i. Self-care and mental health strategies: Medical laboratory staff must prioritise self-care and mental health strategies. They can integrate activities such as regular exercise, mindfulness meditation, and stress-relief strategies into their daily routines. Promoting the disconnection of laboratory personnel from work beyond business hours and fostering engagement in personal activities can aid in mitigating burnout.

ii. Professional advancement and colleague assistance: Professionals should pursue professional development activities, such conferences, workshops, or mentorship programs, to increase their abilities and foster peer support. Peer support networks can function as essential resources, providing emotional assistance, pragmatic guidance, and a feeling of community, all of which help mitigate the adverse consequences of occupational stress.

iii. Establishing boundaries and achieving work-life equilibrium: Laboratory personnel must to be urged to delineate distinct boundaries between their working and personal life. This can be accomplished by honing time management skills and mastering the ability to decline excessive work demands. Advocating for a healthy work-life balance is essential to avert the emotional fatigue that results in burnout.

LIMITATIONS AND FUTURE RESEARCH

This study offers significant insights, although it is crucial to recognise its limits. The low response rate (~6.3%) and the convenience sampling technique restrict the generalisability of the results. The sample may not adequately represent the wider community of medical laboratory experts in Ghana, and the cross-sectional design of the study prevents causal inferences. Future study should pursue bigger, more representative samples and longitudinal designs to investigate the causal links among perfectionism, PsyCap, and burnout across time. Furthermore, investigating the dual aspects of perfectionism—as both a requirement and a source of motivation—should be emphasised in forthcoming research.

REFERENCES

Adu-Gyasi, D., Bayong, A. R., Atuahene, O. O. D., Adedze-Kpodo, R. K., Omari, M. A., Amewonye, M., Degenu, V.A., Armah, J. K., Adam, A. L., Amuzu, P. S., Gyampomah, T. K., & Awinibuno, I. A. N. (2022). The practice of Medical Laboratory Science Post-Act 857 era: Perceived role conflicts with 'Laboratory Physicians' and other scientists in Ghana. *Annals of Medical Laboratory Science, 2*(2), 1–11. 10.51374/annalsmls.2022.2.2.0059

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications. https://doi.org/10.4135/9781483385686

D'souza, F., Egan, S. J., & Rees, C. S. (2011). The relationship between perfectionism, stress and burnout in clinical psychologists. *Behaviour Change, 28*(1), 17–28. https://doi.org/10.1375/bech.28.1.17

Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: a thorough investigation of the independency of both constructs. *Journal of Occupational Health Psychology, 15*(3), 209–222. https://psycnet.apa.org/doi/10.1037/a0019408

Duah, E., Amoah, S., Addy, N. A., & Ephraim, R. K. (2022). Factors affecting job satisfaction and retention of Medical Laboratory Professionals in Ghana. *African Journal of Management Research, 29*(1), 2–24.

Fagbenle, E. (2025). Leveraging predictive analytics to optimize healthcare delivery, resource allocation, and patient outcome forecasting systems. *International Journal of Research Publication and Reviews, 6*(4), 6224–6239. https://doi.org/10.55248/gengpi.6.0425.14143

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* Guilford Press. https://doi.org/10.1111/j.1744-6570.2011.01215.x

Hill, A. P., & Curran, T. (2016). Multidimensional perfectionism and burnout: A meta-analysis. *Personality and Social Psychology Review, 20*(3), 269–288. https://doi.org/10.1177/1088868315596286

Hilton, T. (2017). Study Results: Effect of Burnout on Clinical Lab Turnover Intention. *MedicalLab Management, 6*(5).

Ibikunle, P., Amah, E., & Useh, U. (2016). Prevalence and pattern of burnout syndrome among healthcare professionals in a university teaching hospital. *Tropical Journal of Medical Research, 19*(2), 144.

Kamal, A. H., Bull, J. H., Wolf, S. P., Swetz, K. M., Shanafelt, T. D., Ast, K., Kavalieratos, D., Sinclair, C. T., & Abernethy, A. P. (2016). Prevalence and Predictors of Burnout Among Hospice and Palliative Care Clinicians in the U.S. *Journal of Pain and Symptom Management, 51*(4), 690–696. https://doi.org/10.1016/j.jpainsymman.2015.10.020

Koo, B. K. (2021). Position of laboratory scientist, analyst, and technologist in standard occupation classification. *International Journal of Biomedical Laboratory Science, 10*, 75–85.

Lawal, O., Oyebamiji, H. O., Kelenna, I. J., Chioma, F. J., Oyefeso, E., Adeyemi, B. I., Foster-Pagaebi, E., & Moses, E. F. (2025). A review on usage of digital health literacy to combat antibiotic misuse and misinformation in Nigeria: Review article. *Journal of Pharma Insights and Research, 3*(2), 258–269. https://doi.org/10.69613/dja1jc18

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). Psychological capital: Investing and developing positive organizational behavior. *Positive Organizational Behavior, 1*(2), 9–24. http://digital.casalini.it/9781847878342

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397–422. https://doi.org/10.1146/annurev.psych.52.1.397

Moghaddasi, J., Mehralian, H., Aslani, Y., Masoodi, R., & Amiri, M. (2013). Burnout among nurses working in medical and educational centers in Shahrekord, Iran. *Iranian Journal of Nursing and Midwifery Research, 18*(4), 294.

Moyer, F., Aziz, S., & Wuensch, K. (2017). From workaholism to burnout: psychological capital as a mediator. *International Journal of Workplace Health Management, 10*(3), 213-227. https://doi.org/10.1108/IJWHM-10-2016-0074

Patel, B. R., Khanpara, B. G., Mehta, P. I., Patel, K. D., & Marvania, N. P. (2021). Evaluation of perceived social stigma and burnout, among health-care workers working in covid-19 designated hospital of India: A cross-sectional study. *Asian Journal of Social Health and Behavior, 4*(4), 156. https://doi.org/10.4103/shb.shb_54_21

Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., & Zhang, Z. (2011). Psychological capital and employee performance: A latent growth modeling approach. *Personnel Psychology, 64*(2), 427–450. https://doi.org/10.1111/j.1744-6570.2011.01215.x

Robakowska, M., Tyrańska-Fobke, A., Walkiewicz, M., Tartas, M., Ślęzak, D., Tomczak, W., ... & Jałtuszewska, S. (2021). Perfectionism and burnout in health care professionals. *EmErgEncy mEdical SErvicE, 8*(4), 219–224. https://doi.org/10.36740/EmeMS202104103

Rotenstein, L. S., Torre, M., Ramos, M. A., Rosales, R. C., Guille, C., Sen, S., & Mata, D. A. (2018). Prevalence of burnout among physicians: a systematic review. *Jama, 320*(11), 1131–1150. https://doi.org/10.1001/jama.2018.12777

Taris, T. W., & Schaufeli, W. B. (2015). The job demands-resources model. *The Wiley Blackwell handbook of the psychology of occupational safety and workplace health* (pp. 155-180). https://doi.org/10.1002/9781118979013.ch8

Youssef, D., Youssef, J., Abou-Abbas, L., Kawtharani, M., &

Hassan, H. (2022). Prevalence and correlates of burnout among physicians in a developing country facing multi-layered crises: A cross-sectional study. *Scientific Reports, 12*(1), 1–17. https://doi.org/10.1038/s41598-022-16095-5