

Gender Differences in Self-Efficacy and Coping Strategies among Public Sector Paramedics: Implications for Stress Management in High-Risk Healthcare Settings

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ABSTRACT

Paramedics operate in high-risk healthcare environments that demand strong psychological resilience. This study examined gender differences in self-efficacy and coping strategies among public sector paramedics and explored their relationship with perceived stress. A cross-sectional comparative design was employed with a sample of 200 paramedics (121 males, 79 females) from public healthcare facilities in Khyber Pakhtunkhwa, Pakistan. Participants completed standardized measures of self-efficacy, coping strategies, emotional regulation, and perceived stress. Independent samples t-tests revealed significant gender differences in self-efficacy and coping strategies, with male paramedics reporting higher levels of both variables. No significant gender difference was observed in perceived stress. Correlation analysis indicated that self-efficacy was positively associated with coping strategies and negatively associated with perceived stress. Regression analysis demonstrated that coping strategies significantly predicted lower perceived stress levels. Findings suggest that gender-based psychological differences may influence stress management patterns in high-risk healthcare settings. Organizational interventions targeting self-efficacy enhancement and adaptive coping skills may strengthen resilience among paramedic professionals.

Keywords: gender differences, self-efficacy, coping strategies, paramedics, occupational stress

INTRODUCTION

Paramedics are often at the front lines of healthcare systems, and they often face life-threatening emergencies, traumatic situations, and emotionally charged situations. The unpredictable and high-risk nature of emergency medical services (EMS) requires the skills of quick clinical judgement, emotional composure and sustained psychological resilience. Exposure to such stressors over a long period of time puts paramedics at high risk for emotional exhaustion, burnout, and psychological distress (Alexander & Klein, 2001; Bentley et al., 2013). In the high-pressure medical world, the psychological factors affecting stress management are critically important can be understood.

Among the psychological constructs related to adaptive functioning in high-risk occupations, self-efficacy and coping strategies are of great importance. Self-efficacy, which is defined as an individual's belief in their ability to organize and carry out actions needed to manage prospective situations (Bandura, 1997) has impacts on cognitive appraisals, emotional reactions, and persistence of behavior. People with high self-efficacy are more likely to see stressful situations as challenges that can be managed instead of being so overwhelming that they are intimidating (Schwarzer, 1999). In healthcare settings, self-efficacy has been associated with better clinical decision making, resilience and less vulnerability to burnout (Brouwers & Tomic, 2000; Stewart & Barr, 2000).

Coping strategies, which are conceptualized as cognitive and behavioral attempts to cope with either internal or external stressors (Folkman & Moskowitz, 2004), are the behavioral manifestation of stress

adaptation. Coping may be problem-focused, emotion-focused, or avoidance-based, and adaptive strategies are generally related to better psychological outcomes (Maslach et al., 2001). In emergency professions, the ability to cope is critical in order to sustain performance under pressure and to reduce the long-term psychological effects.

While self-efficacy and coping mechanisms are both independent contributing factors to the management of stress, their expression in individuals may not be homogenous. Gender differences in psychological functioning have been widely reported in occupational and health psychology literature. Gender Role Theory involves the idea that sociocultural expectations contribute to emotional expression, coping behaviors and feelings of competence (Eagly, 1987). Men are often socialized to exhibit confidence, assertiveness, and problem-solving behaviors in the tasks they perform at work, while women may be encouraged to exhibit relational and emotion-focused coping styles (Tamres et al., 2002).

Empirical research have indicated that there are gender differences in coping patterns with men more likely to engage in the problem-focused coping whereas women more likely report of the emotion-focused or support seeking strategies (Tamres et al, 2002). As well, a few studies have indicated that men report greater generalized self-efficacy, especially in occupational situations with high levels of autonomy and authority structures (Scholz et al., 2002). However, these findings are not consistently found across all studies and there may be contextual factors that influence these patterns, such as occupational environment, cultural norm and organizational structure.

In paramedic and emergency healthcare populations, issues of gender might be especially complex. Historically, emergency medical services have been male-dominated professions where hierarchical structures and performing physically demanding work are common. Women entering such environments may face other occupational stressors, such as role strain, underrepresentation in the leadership position, and sociocultural barriers (Vigil et al., 2019). These contextual factors could affect the perceived self-efficacy as well as coping behaviors.

Despite increased focus on the issue of occupational stress in healthcare workers, very little research has been conducted on gender differences in self-efficacy and coping among paramedics in the public sector, in particular in areas of recurring crises and resource limitations. Khyber Pakhtunkhwa (KP), Pakistan, is such a scenario where the healthcare professionals have to work under increased pressure due to natural calamities, emergencies arising from conflict and public health challenges. Understanding psychological gender differences in this context is important for designing specific stress management interventions.

The Job Demands-Resources (JD-R) and the Job Demands-Resources (JD-R) model intentionally highlights the role of personal resources in dealing with occupational strain (Bakker & Demerouti, 2007). Within this framework, self-efficacy serves as a personal resource which promotes adaptive coping and moderates the effects of job demands on outcomes of stress. Exploring the existence of differences between genders in such personal resources helps to understand how stress management strategies may be best maximized across diverse groups in the workforce.

Therefore, the present study seeks to investigate gender differences in self-efficacy and coping strategies among the paramedics in the public sector and to investigate the relationship between these variables and perceived stress. By identifying possible gender-based variations, the research aims to inform organizational policies and intervention programs aimed to build the resiliency and psychological well-being in high-risk healthcare environments.

Hypotheses

H1: Male and female paramedics will significantly differ in self-efficacy levels.

H2: Male and female paramedics will significantly differ in coping strategy utilization.

H3: Self-efficacy will be positively associated with coping strategies.

H4: Self-efficacy will be negatively associated with perceived stress.

H5: Coping strategies will negatively predict perceived stress.

LITERATURE REVIEW

Occupational Stress in Paramedic Professionals

Paramedics operate in high-risk and high-demand occupational environments of unpredictability, exposure to trauma, and time-sensitive decision-making. Repeated exposure to situations that are life threatening and situations that are emotionally intense contribute to high levels of stress, burnout, anxiety and depression in emergency healthcare professionals (Alexander & Klein, 2001; Bentley et al., 2013). Chronic occupational stress not only occurs at the psychological level but may also lead to clinical performance impairment and altered decision-making ability.

The Job Demands-Resources (JD-R) model is a useful model for understanding these dynamics (Bakker & Demerouti, 2007). According to the JD-R model, high job demands lead to increased strain, and personal resources buffer stress and burnout. Self-efficacy and adaptive coping strategies have been recognized as being important personal resources that buffer the negative outcomes of occupational stress.

Self-Efficacy in High-Risk Occupations

Self-efficacy, which is grounded on the Social Cognitive Theory (Bandura, 1986, 1997), is understanding the beliefs of individuals about their ability to cope with difficult situations. It relates to motivation, resilience, emotional responses and persistence in stressful situations. Individuals with greater levels of self-efficacy are more likely to enter challenging situations with confidence and effective ways of coping (Schwarzer, 1999).

In healthcare settings, self-efficacy has been linked to better clinical judgment, reduced emotional exhaustion and greater job satisfaction (Brouwers and Tomic, 2000; Stewart and Barr, 2000). Higher self-efficacy helps healthcare workers to appraise stressors as controllable and manageable, as opposed to overwhelming.

However, self-efficacy may not be equally distributed between male and female groups. Research has proposed that the effect of sociocultural factors on perceived competence and confidence level (Scholz et al., 2002). Occupational environments traditionally dominated by men might differentially influence efficacy beliefs in men and women.

Gender Differences in Self-Efficacy

Gender differences in self-efficacy have been found in a variety of areas. While conclusions are mixed, some studies indicate that men report greater generalized self-efficacy especially in situations that demand autonomy, control and technical aptitude (Scholz et al., 2002). Gender socialization processes may influence confidence expression where men are encouraged towards assertiveness and self-assurance (Eagly, 1987).

In occupational settings, women may encounter other structural and cultural barriers, which may affect efficacy beliefs, such as reduced leadership representation, role strain, and scrutiny. However, research

on the other hand shows little or contextual differences, implying that the environment plays a significant role in influencing gender patterns.

Coping Strategies and Gender

Coping strategies are behavioral and cognitive reactions to stress (Folkman & Moskowitz, 2004). Gender differences in coping have been extensively examined with meta-analytic findings indicating that men more likely adopt a problem-focused coping strategy while women are more likely to adopt an emotion-focused and social support strategy (Tamres et al., 2002).

In such high-stress occupations, problem-focused coping tends to be related to good performance and low burnout. However, emotion-focused coping is not necessarily maladaptive and may be useful in uncontrollable stress situations. The effectiveness of coping strategies is in large part dependent on the contextual demands.

Within emergency medical professions, there has been limited research looking at whether these gender patterns still exist under high-risk public healthcare. Cultural context may also play a role in the preferences for coping and responses to stress.

Coping and Perceived Stress

Adaptive coping strategies are related to decreased perceptions of stress and psychological adjustment (Maslach et al., 2001). Individuals who use active coping strategies exhibit higher resiliency and lower levels of risk for burnout. In turn, maladaptive coping (avoidance and disengagement) is associated with increased psychological distress.

Given the challenges that paramedics encounter, it is important to understand gender-based differences in coping strategies so that they can be used in specific stress management interventions.

Although the relationship between occupational stress and self-efficacy and coping among healthcare professionals has been extensively investigated, empirical studies involving the specific issues of gender differences in self-efficacy and coping among paramedics in the public sector context are relatively scarce. Moreover, there are few contextual studies in high stress areas like Khyber Pakhtunkhwa.

The current study fills this gap by examining gender-based differences in self-efficacy and coping strategies as well as gender-based differences in the relationship between self-efficacy and coping strategies and perceived stress.

METHODOLOGY

Research Design

The present study used a cross sectional comparative research design that explored the gender differences in self-efficacy and coping strategies among public sector paramedics. The design also examined whether the levels of perceived stress varied by gender and how coping strategies operated in terms of stress management in high risk healthcare settings. A quantitative approach was taken with standardized psychological scales to assess study variables.

Participants

The sample consisted of 200 public sector paramedics recruited from hospitals and healthcare facilities in Peshawar, Khyber Pakhtunkhwa (KP), Pakistan.

Demographic Characteristics

- **Gender:**
 - Male: 121 (60.5%)
 - Female: 79 (39.5%)
- **Age Range:** 20–65 years
- **Professional Roles:**
 - Nurses: 85 (43.1%)
 - Technicians: 112 (56.9%)
- **Education Level:**
 - BS Degree: 95 (47.5%)
 - Diploma: 105 (52.5%)
- **Work Experience:**
 - 1–5 years: 61.7%
 - 5–10 years: 38.3%

Participants were selected using convenience and snowball sampling techniques due to accessibility constraints and demanding work schedules.

Inclusion Criteria

- Currently employed in public sector healthcare facilities
- Minimum one year of professional experience
- Provided informed consent

Measures

General Self-Efficacy Scale (GSE)

Self-efficacy was measured using the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). The scale consists of 10 items assessing generalized confidence in handling difficult situations.

- Response format: Likert-type scale
- Cronbach's α (current study): .74
- Higher scores indicate stronger self-efficacy beliefs.

Coping Strategies Scale (CSS)

Coping mechanisms were assessed using the Coping Strategies Scale (Hamby et al., 2013), a 13-item instrument measuring adaptive coping responses.

- Cronbach's α (current study): .81
- Higher scores reflect greater use of coping strategies.

Perceived Stress Scale (PSS-10)

Perceived stress was assessed using the 10-item Perceived Stress Scale (Cohen et al., 1983).

- Cronbach's α (current study): .71
- Higher scores indicate higher perceived stress levels.

Emotional Regulation Questionnaire (ERQ) (Control Variable)

Although not central to the gender comparison model, emotional regulation was measured using the ERQ (Gross & John, 2003) to control for emotional regulation tendencies.

- Cronbach's α (current study): .69

Procedure

Before data were collected, institutional permission was sought from pertinent healthcare facilities. Participants were approached at scheduled visits and given information about the purpose of the study.

Written informed consent was established for all of the participants. Confidentiality and anonymity were guaranteed. Participation was voluntary and the respondents were told of their right to withdraw at any time.

Data were collected by self-administered questionnaires completed in a controlled setting in order to minimize response bias.

RESULTS

Descriptive Statistics by Gender

Table 1: Descriptive Statistics of Study Variables by Gender (N = 200)

Variable	Gender	M	SD
Self-Efficacy	Male (n = 121)	19.88	4.91
	Female (n = 79)	18.49	4.91
Coping Strategies	Male	25.64	5.73
	Female	23.96	6.11
Perceived Stress	Male	17.17	3.95
	Female	18.09	3.39
Emotional Regulation	Male	17.07	5.38
	Female	15.44	6.75

Table 2: Independent Samples t-Test for Gender Differences in Self-Efficacy

Variable	t	df	p	Mean Difference	95% CI
Self-Efficacy	1.95	198	.05	1.39	[-0.02, 2.78]

Results indicated a statistically significant difference in self-efficacy between male and female paramedics ($p = .05$). Male paramedics reported higher levels of self-efficacy than female paramedics.

Effect Size

Cohen's $d = 0.28$ (small effect size)

Table 3: Independent Samples t-Test for Gender Differences in Coping Strategies

Variable	t	df	p	Mean Difference	95% CI
Coping Strategies	1.98	198	.05	1.68	[0.01, 3.36]

Male paramedics reported significantly higher coping strategy utilization compared to female paramedics ($p = .05$).

Effect Size

Cohen's $d = 0.29$ (small effect size)

Table 4: Independent Samples t-Test for Gender Differences in Perceived Stress

Variable	t	df	p
Perceived Stress	-1.69	198	.09

No statistically significant gender difference was found in perceived stress levels.

Table 5: Correlation Matrix of Study Variables (N = 200)

Variable	1	2	3
1. Self-Efficacy	—		
2. Coping Strategies	.55**	—	
3. Perceived Stress	-.22**	-.16*	—

$p < .05$, ** $p < .01$

Self-efficacy was positively associated with coping strategies and negatively associated with perceived stress. Coping strategies were negatively correlated with perceived stress.

Table 6: Regression Analysis Predicting Perceived Stress from Coping Strategies

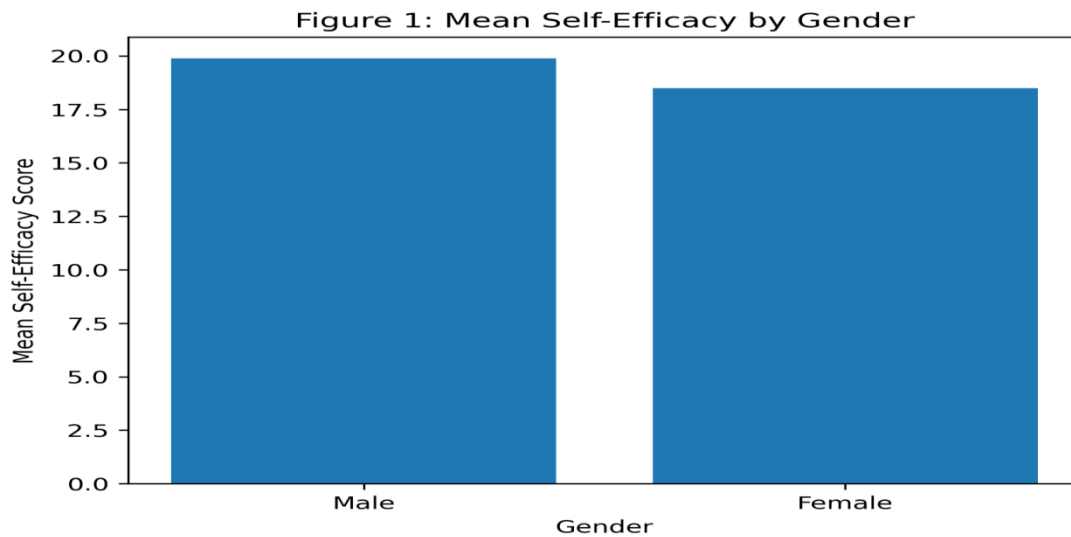
Predictor	B	SE	t	p	R ²
Coping Strategies	-0.10	—	-2.30	.02	.03

Coping strategies significantly negatively predicted perceived stress, explaining 3% of the variance.

Figure 1

Mean Differences in Self-Efficacy by Gender

(Bar chart displaying mean self-efficacy scores for male and female paramedics.)

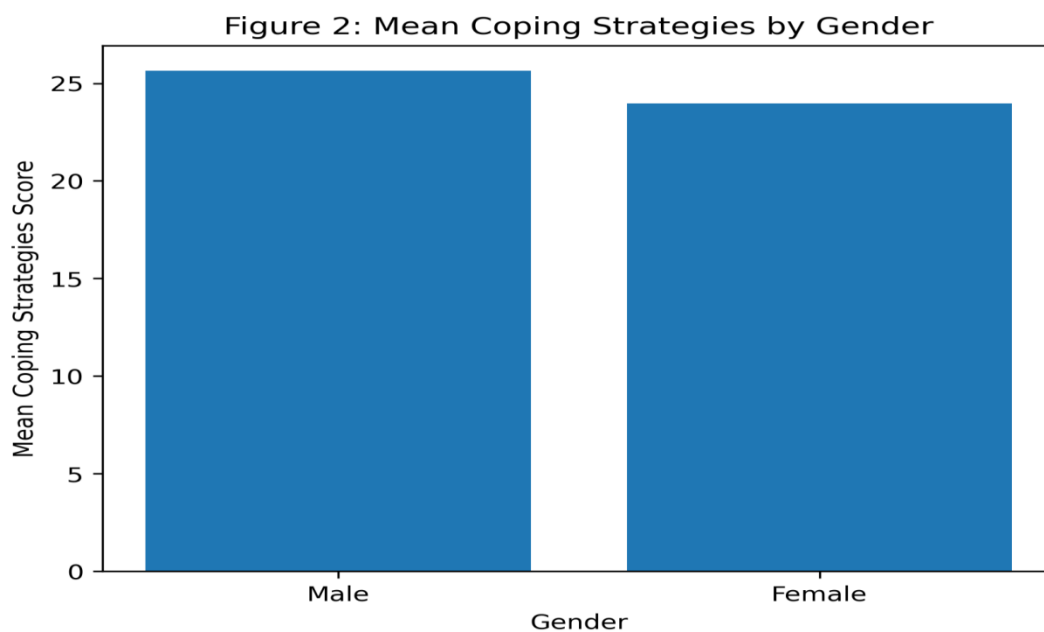


Interpretation: Male paramedics show higher mean self-efficacy scores compared to females.

Figure 2

Mean Differences in Coping Strategies by Gender

(Bar chart showing mean coping strategy scores for males and females.)



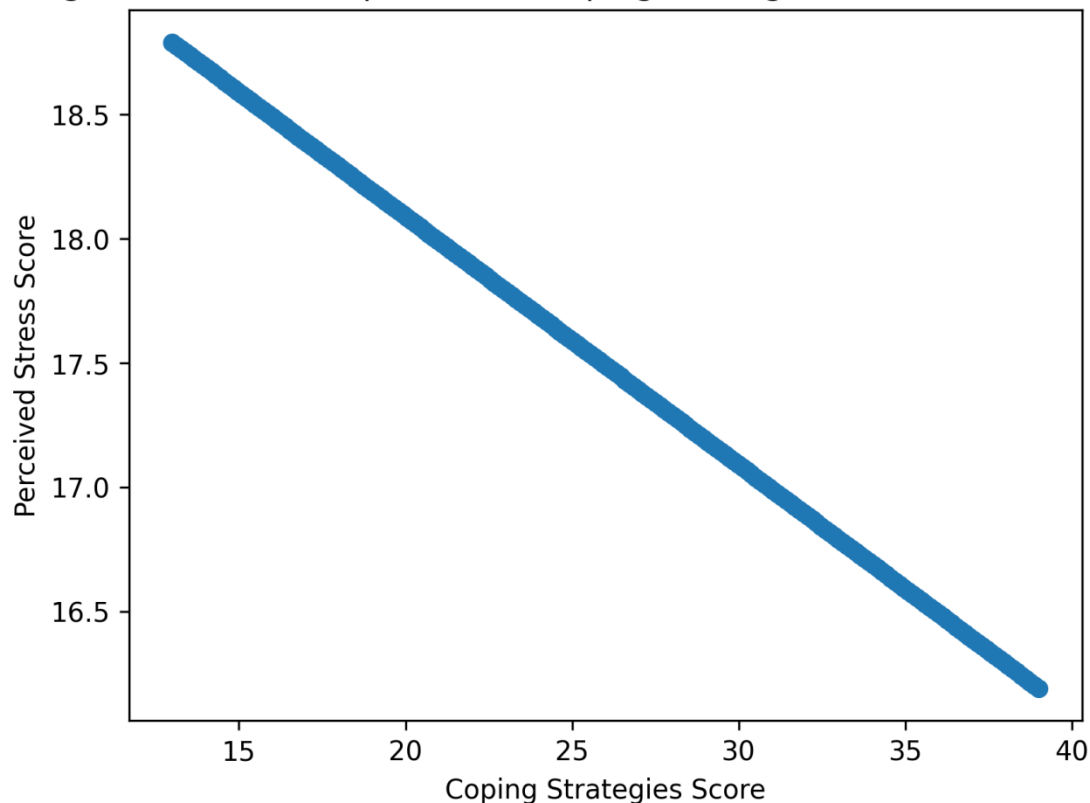
Interpretation: Male paramedics report greater coping strategy utilization.

Figure 3

Relationship between Coping Strategies and Perceived Stress

(Scatter plot with regression line showing negative relationship between coping and stress.)

Figure 3: Relationship Between Coping Strategies and Perceived Stress



Interpretation: Increased coping strategy use is associated with lower perceived stress.

DISCUSSION

The current study addressed the gender differences in self-efficacy and coping strategies among public sector paramedics and explored the associations between these variables and perceived stress in high-risk workplaces in healthcare settings. The results showed statistically significant gender differences in self-efficacy and coping strategies with the male paramedics showing higher levels of self-efficacy and coping strategies. However, no significant gender difference was found in perceived stress. Additionally, self-efficacy was also found to be positively associated with coping strategies and found to be negatively associated with perceived stress, and coping strategies significantly predicted lower levels of perceived stress.

These findings provide significant theoretical and practical information about the topic of gender-based psychological functioning in emergency healthcare settings.

The results showed that male paramedics reported much higher self-efficacy than female paramedics but the difference was small. This finding is in accordance with literature hypotheses that processes involved with the socialization of gender might affect perceptions on the categories of competence and confidence, especially in traditionally male-dominated professions (Eagly, 1987; Scholz et al., 2002).

Emergency medical services have been historically built on hierarchical and physically demanding jobs, and are often culturally linked to masculine qualities such as assertiveness, autonomy and decisiveness. Within such environments, men may get more reinforcement of agency and professional confidence which may contribute to stronger generalized SCE beliefs. Conversely, female paramedics may be faced with other structural or sociocultural barriers such as limited leadership representation, subtle bias, or role strain that may affect the expression of confidence.

However, it is important not to take these findings too seriously. The small effect size means that although statistically significant, the size of difference is small. This suggests that both genders of paramedics exhibit high levels of self-efficacy in general which is reflective of the demanding training and professional requirements that are imposed by emergency healthcare careers.

Male paramedics also indicated significantly more use of coping strategies than female paramedics. This result is consistent with meta-analytic findings that suggest the existence of gender differences in coping patterns, with men being more likely to report problem-focused coping strategies (Tamres et al., 2002).

In high stress occupations such as paramedicine, problem-focused coping may be particularly salient as many of the stressors involve situations that require quick action, technical intervention and direct problem resolution. Male paramedics may be more likely to report such strategies because of occupational norms of task-oriented performance.

However, coping strategies tend to be multidimensional. Women have been found to use more emotion-focused or social support forms of coping strategies (Tamres et al., 2002), and these might not always appear in generalized assessments of coping strategies. Additionally, the cultural context is an important factor in coping behavior. In collectivist societies, gender norms may shape the mode of expression/reporting of coping strategies.

The rather small effect size means that differences, although statistically meaningful, are not so great as to point towards fundamentally divergent capacities to cope. Instead they may reflect slight differences in coping style preference rather than coping effectiveness.

Interestingly, in spite of differences between groups in self-efficacy and coping strategies, there were no significant differences between genders in perceived stress. This finding could indicate that both male and female paramedics are exposed to similar levels of occupational stress.

This result may show that the demands of paramedic work place a uniformly high level of stress irrespective of gender. Emergency healthcare environments entail standardized role expectations, comparable workloads and exposure to trauma which might override gender-based differences in stress appraisal.

Alternatively, it is possible that while coping styles vary, overall stress levels are similar because the male and female genders use coping strategies that are adequate to effectively cope with occupational demands. This interpretation is consistent with the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007), which can be described as having personal resources that buffer the effects of the job demands, although that the levels of job demands can produce degrees of strain that cut across populations.

Consistent with the Social Cognitive Theory (Bandura, 1997), self-efficacy was found to be positively related to coping strategies and negatively related to perceived stress. It is also true that individuals with stronger efficacy beliefs have been more likely to engage in proactive and adaptive coping behaviors, as well as less likely to appraise stressors as overwhelming (Schwarzer, 1999).

The above mentioned negative relationship between coping strategies and perceived stress is further evidence of a protective function of adaptive coping. Paramedics reporting higher levels of coping strategies showed lower levels of perceived stress, however, the variance explained was low. This implies that coping plays a role in reducing stress but is not the only determinant of perceived stress, which may also depend on organizational factors such as workload, shift patterns and administrative support.

PRACTICAL IMPLICATIONS

The results carry several practical implications for healthcare management:

Gender-Sensitive Training Programs

Organizations should consider developing resilience-building programs that account for gender-specific experiences in emergency healthcare settings.

Self-Efficacy Enhancement

Mentorship programs, simulation-based mastery experiences, and leadership development initiatives may strengthen self-efficacy among paramedics, particularly female professionals.

Coping Skills Workshops

Structured stress management training can enhance adaptive coping strategies for both genders.

Organizational Support Systems

Because stress levels were similar across genders, institutional interventions addressing workload, scheduling, and supervisory support remain critical.

Limitations

Several limitations should be acknowledged:

- The cross-sectional design limits causal inference.
- Self-report measures may introduce response bias.
- The sample was geographically limited to public sector paramedics in one region.
- Cultural influences on gender roles may limit generalizability to other contexts.

Future research may employ longitudinal designs, explore qualitative gender experiences in paramedicine, and examine moderating variables such as organizational climate or leadership style.

CONCLUSION

The present study shows that males' paramedics report higher levels of self-efficacy and coping strategy utilization than females paramedics, however, the levels of stress do not show any difference significantly. Self-efficacy and coping are important psychological resources that are related to reduce perceived stress. These findings should highlight that individual resources should be strengthened in parallel with addressing structural stressors at work. Gender-informed resilience strategies may contribute to improved occupational well-being and sustainability in the context of high risk healthcare work environments.

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