



How Public Leadership Shapes Work Engagement: The Role of Work Meaningfulness and Public Service Motivation in Emergency Services

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ABSTRACT

This study examines how public leadership influences employee engagement by tracing two psychological links—work meaningfulness and public service motivation (PSM)—that are often mentioned in theory but less frequently tested together in practice. The inquiry builds on the Job Demands–Resources (JD–R) framework, which has been widely used to explain how employees cope with strain and sustain energy, though its application to the demanding world of emergency services has been limited. Within this framework, leadership is understood not simply as assigning roles or monitoring performance but as a resource that can orient employees, provide coherence, and signal a sense of higher mission. The argument advanced here is that when workers experience their roles as meaningful, they are more inclined to activate prosocial motives, and these motives, in turn, carry them through the physical and emotional burdens of high-stakes public work. Rescue 1122, Pakistan’s flagship emergency service, offers a particularly sharp setting for testing this reasoning: its paramedics, fire-rescue staff, and supervisors operate under constant pressure, where both stamina and commitment to public values are daily necessities. Survey data from 396 employees were analyzed using Hayes’ PROCESS Macro, and the results indicate that leadership behaviors enhance perceptions of meaningful work, which strengthens PSM and, ultimately, sustains engagement. The study contributes by showing that leadership effects unfold through layered psychological mechanisms rather than direct influence, and by grounding the evidence in a mission-intensive Global South context. Practically, the findings underscore the importance of mission framing, fairness, and recognition as central levers for sustaining frontline performance.



Introduction

Rescue and emergency services occupy a rather distinctive niche where the stakes are unusually high and public expectations of trust are constant. In such environments, leadership decisions may not only shape how smoothly the organization functions but, in moments of crisis, may carry consequences that touch directly on survival. Leaders here do far more than allocate equipment or schedule shifts. They frame what the mission is understood to mean, they decide what actually counts as priority in practice, and—often implicitly—they influence how responders come to interpret the worth of their own efforts (Van Wart, 2013; Van Wart & Dicke, 2009). When leadership conveys a clear sense of public purpose and demonstrates commitment to that purpose through consistent action, it tends to resonate beyond rhetoric. It can act as a genuine source of support, one that helps soften the strain of repeated exposure to pressure, and in many cases appears to foster longer-term commitment and engagement among frontline staff (Bakker & Demerouti, 2007; Demerouti et al., 2001). In this light, constructs such as meaningfulness and public-oriented motivation should not be treated as incidental byproducts; they are better seen as the psychological conduits through which leadership affects the capacity to stay focused, persistent, and energized on the job (Schaufeli et al., 2002; Grant, 2007).

The Job Demands–Resources (JD-R) model remains a particularly helpful, though not exhaustive, way of conceptualizing this dynamic. Its central distinction between job demands—emotional fatigue, traumatic exposure, long or unpredictable shifts, physical hazards—and job resources—clarity, social support, mission cues—has been widely validated (Demerouti et al., 2001; Bakker & Demerouti, 2007). Findings are not uniform across all settings, yet the broad pattern suggests that resources tend to sustain engagement even under strain. Within this framework, leadership consistently stands out as a potent social resource because it simultaneously mitigates the corrosive effects of stressors and channels motivational energy (Bakker, Demerouti, & Sanz-Vergel, 2014; Bakker, 2017). The process is rarely linear; rather, leadership seems to work through intermediary states such as the perception that one’s work is valuable or significant. Decades of organizational psychology research have tied this sense of value not only to higher intrinsic motivation but also to a willingness to act beyond formal role prescriptions (Wrzesniewski et al., 1997; Grant, 2007; Berg et al., 2013).

Public Service Motivation (PSM) functions as both an empirical construct and a normative bridge in the current study. Perry and Wise (1990) first defined PSM in terms of an individual’s orientation toward serving collective goals, linking it to a readiness to sacrifice for the public good. Perry’s subsequent development of a multidimensional scale (Perry, 1996), followed by refinements across contexts (Kim et al., 2013), established its reliability and predictive value for job attitudes and performance in the public sector. A growing body of research suggests that PSM and meaningful work do not sit in isolation from one another but rather reinforce each other in practice: experiencing one’s work as meaningful heightens prosocial motives, and prosocial motives, in turn, deepen the salience of meaningfulness in everyday tasks (Grant, 2007; Wrzesniewski et al., 1997; Van der Voet, 2019). By bringing JD-R and PSM together, it becomes possible to theorize a layered motivational chain in which leadership acts as a source of resources, resources elevate perceptions of meaning, meaningfulness strengthens PSM, and PSM ultimately fuels engagement and discretionary effort in public service roles (Bakker & Demerouti, 2007; Perry, 1996).

Pakistan’s Rescue 1122 offers a compelling empirical setting to test this serial chain. Rescue 1122’s rapid expansion and operational focus on pre-hospital emergency medical care, firefighting, and disaster response present a natural laboratory for high demands paired with a clear public

mission (Waseem, 2011). Case studies and comparative analyses of pre-hospital systems in South Asia identify Rescue 1122 as an exemplar of institutionalized emergency response in a developing-country context—characterized by high operational tempo, visible public outcomes, and acute psychological demands on staff (Sriram et al., 2016; Waseem, 2011). In high-pressure environments such as emergency response, the signals leaders send carry unusual weight. How supervisors frame the mission, how fairly they apply procedures, and how they conduct themselves day to day may shape whether frontline staff experience their work as meaningful or, conversely, as a routine set of burdens (Van Wart, 2013; Tummers et al., 2021).

Although Rescue 1122 has become a visible policy innovation in Pakistan, the psychological foundations of employee engagement within this service have not received the same sustained scrutiny as other domains of public administration. Research on public service motivation (PSM) in Pakistan, for instance, has concentrated largely on health and education, while emergency services—despite their centrality to public safety—remain underexplored (Perry, 1996; Kim et al., 2013). International applications of the Job Demands–Resources (JD-R) model consistently demonstrate that job resources can buffer strain and foster engagement (Demerouti et al., 2001; Bakker et al., 2011). Yet the more intricate possibility—that leadership exerts its influence through a sequential process in which meaningful work first deepens PSM and then translates into engagement—has not been carefully tested in emergency contexts. Investigating this pathway offers a chance not only to refine the JD-R framework by situating it in mission-driven public work, but also to generate practical lessons for leadership training and HR systems that aim to sustain frontline resilience.

The problem being studied in this study is hardly theoretical. Rescue personnel confront repeated exposure to traumatic incidents, unpredictable surges in workload, and significant physical risks. Institutional supports—whether clear supervision, feedback channels, or recognition practices—often vary across stations and provinces, creating uneven conditions for staff. Where leadership falls short in sustaining meaning and providing psychological scaffolding, PSM may weaken, with engagement soon following. The consequences are tangible: slower response times, heightened turnover intentions, and strains on service quality (Halbesleben et al., 2009; Xanthopoulou et al., 2007). For this reason, mapping the psychological chain from leadership to engagement is more than an academic exercise; it is a matter of designing interventions that keep personnel effective, resilient, and firmly tied to the public mission they serve.

A related procedural problem is that interventions in public agencies often target the wrong lever. Training that focuses solely on technical competence or rostering may improve capability but not motivation; conversely, leadership development that neglects how supervisors concretely shape meaningfulness and prosocial identification will likely underperform (Van Wart, 2013; Grant, 2007). Without empirical evidence on whether and how leadership enhances meaningfulness and PSM in Rescue 1122, policy reforms risk being superficial—improving equipment but missing the psychological supports that sustain engaged performance under stress (Bakker & Demerouti, 2007; Schaufeli et al., 2002).

This study focuses on frontline units of Rescue 1122—emergency medical technicians, fire-rescue crews, and their immediate supervisors—who operate in urban and semi-urban stations across several provinces of Pakistan. These teams face considerable variation in demand intensity, resource constraints, and exposure to traumatic events, making them an especially pertinent population for examining how leadership behaviors shape motivation and engagement. By concentrating on employees directly responsible for life-saving interventions, the study situates its analysis in a context where the connection between public service values and organizational

outcomes is unusually visible. Such a focus allows the research to probe the psychological processes—particularly work meaningfulness and public service motivation—through which leadership can sustain commitment and energy under conditions of chronic strain.

This study advances scholarship and practice on several fronts. Theoretically, it extends the Job Demands–Resources (JD-R) model by specifying a sequential pathway in which public leadership fosters work meaningfulness, which enhances public service motivation (PSM) and ultimately sustains engagement. By situating JD-R in emergency services—a mission-intensive setting where leadership signals have immediate consequences—the study integrates resource-based and prosocial motivation perspectives that are often examined separately (Demerouti et al., 2001; Grant, 2007; Perry, 1996). Methodologically, it adapts and validates instruments from organizational psychology and public administration for use in a high-pressure, non-Western service environment (Schaufeli et al., 2002; Perry, 1996). Demonstrating their reliability in this context strengthens confidence in their broader applicability and provides a framework for future research in other high-risk domains. Practically, the findings point to specific leadership behaviors and station-level practices that can reinforce meaningfulness and prosocial drive among frontline responders, with likely benefits for engagement, retention, and performance (Van Wart, 2013; Waseem, 2011). The societal payoff lies in more reliable service delivery and improved safety outcomes (Bakker & Demerouti, 2007; Halbesleben et al., 2009). Policy implications also extend beyond Rescue 1122: showing that leadership shapes meaningfulness and PSM creates a rationale for targeted investments in leadership development, mission framing, recognition, and psychological support across South Asia’s professionalizing emergency services (Sriram et al., 2016). Together, these contributions refine JD-R theory, highlight the central role of PSM as a motivational mediator, and generate insights for building resilient institutions of public safety.

Literature Review

Rescue and emergency services operate at the sharp edge of public administration, where leadership, institutional design, and employee motivation jointly determine outcomes. In Pakistan, Rescue 1122 has become the most visible case, expanding across provinces to provide ambulance, fire, and disaster response under conditions of chronic physical and psychological strain (Waseem et al., 2011). Structures and protocols matter, but effectiveness often hinges on whether leaders set clear priorities, employees experience their work as meaningful, and public service motivation (PSM) endures at the front line. The Job Demands–Resources (JD-R) framework highlights how supportive leadership can act as a resource that not only buffers stress but also cultivates psychological capacities such as meaningfulness and motivation, thereby sustaining engagement even under extreme pressure (Demerouti et al., 2001; Bakker & Demerouti, 2007; Bakker, Demerouti, & Sanz-Vergel, 2014). Still, the model does not fully account for the institutional and cultural complexity of South Asian emergency services, making its applicability a question for empirical testing rather than assumption.

Public Leadership

Public leadership refers to leadership behavior situated within the institutional and normative framework of the public sector. Unlike general leadership theories imported from business settings, public leadership explicitly emphasizes dimensions such as accountability, lawfulness, political astuteness, and value stewardship (Tummers & Knies, 2016; Van Wart, 2013; Vogel & Masal, 2015). These facets differentiate it from transformational or servant leadership, since leaders in public institutions must balance bureaucratic constraints with responsiveness to citizens and political principals. In rescue and emergency services, leadership practices extend beyond

technical command to include building legitimacy, ensuring rule-based procedures, and sustaining the morale of staff exposed to traumatic conditions (Sriram et al., 2016).

A growing body of literature has examined how public leadership affects employee attitudes and behaviors. Studies suggest that public leadership shapes trust in institutions, reinforces role clarity, and aligns individual goals with organizational missions (Vogel & Masal, 2015; Tummers & Knies, 2016). In high-demand contexts, leaders act as a vital job resource by buffering role stress and by framing work as socially valuable (Bakker & Demerouti, 2007; Ritz, Brewer, & Neumann, 2016). Yet public leadership is not uniformly effective; its influence depends on institutional credibility, leader integrity, and the ability to deliver resources that make rhetoric believable (Van der Wal, Nabatchi, & de Graaf, 2013). This highlights the importance of empirically investigating how public leadership contributes to downstream outcomes such as meaningfulness, PSM, and engagement in services like Rescue 1122.

Work Meaningfulness

Work meaningfulness is broadly defined as the subjective perception that one's work is significant and connected to broader life purposes (Pratt & Ashforth, 2003; Rosso, Dekas, & Wrzesniewski, 2010). It represents a multidimensional construct encompassing positive meaning, a sense of contribution, and alignment between personal values and work roles (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). Within public administration, meaningfulness is central because employees often confront complex, ambiguous, and resource-constrained environments; their resilience depends on perceiving that their work has value beyond immediate tasks (Lips-Wiersma & Wright, 2012).

In emergency and rescue services, meaningfulness is highly salient but precarious. The intrinsic purpose of saving lives can offer strong meaning, but repeated exposure to trauma, bureaucratic frustrations, or political interference can erode that sense of significance (Bunderson & Thompson, 2009; Mehmood, Bibi, & Ijaz, 2018). Empirical research has shown that employees who experience their work as meaningful are more engaged, resilient, and committed to organizational goals (May, Gilson, & Harter, 2004; Steger, Dik, & Duffy, 2012). However, meaningfulness is not static; it depends on organizational cues and leadership narratives that help individuals interpret their experiences as worthwhile (Rosso et al., 2010).

Public Service Motivation

Public service motivation (PSM) refers to a predisposition to respond to motives grounded in public institutions and values, including compassion, commitment to the public interest, and self-sacrifice (Perry & Wise, 1990; Perry, 1996). Scholars have emphasized that PSM captures the moral and affective drivers of public employees' work, beyond extrinsic incentives. Over the past three decades, PSM research has expanded to demonstrate links with job satisfaction, organizational commitment, and performance (Vandenabeele, 2007; Ritz et al., 2016).

In contexts such as emergency services, PSM is particularly crucial. Rescue workers must often go beyond their formal duties, driven by compassion and civic duty in moments of crisis (Perry et al., 2008). Yet the literature also cautions that PSM alone cannot sustain performance in high-strain environments; institutional structures, leadership, and meaning-making processes are necessary to maintain and activate PSM (Wright, Christensen, & Pandey, 2013). This suggests that PSM functions both as a personal disposition and as a state influenced by contextual factors such as leadership practices and the meaningfulness of work.

Work Engagement

Work engagement is conceptualized as a positive, fulfilling work-related state characterized by vigor, dedication, and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Engagement is now seen as a core outcome variable in JD-R research because it predicts performance, well-being, and retention across sectors (Bakker & Demerouti, 2007; Christian, Garza, & Slaughter, 2011). Within public organizations, engagement is linked not only to efficiency but also to responsiveness and citizen trust, making it an outcome of both practical and normative significance (Van Knippenberg, 2016).

In rescue services, engagement is both indispensable and fragile. While employees may initially display high levels of dedication due to the intrinsic meaningfulness of saving lives, chronic exposure to high demands and inadequate resources can lead to disengagement or burnout (Hakanen, Bakker, & Schaufeli, 2006). Thus, the extent to which leadership and motivational mechanisms sustain engagement in such contexts remains a critical empirical question.

Hypotheses Development

Public Leadership and Work Meaningfulness

Public leadership is theorized as a crucial job resource under JD-R, one that provides guidance, vision, and legitimacy (Bakker & Demerouti, 2007). By emphasizing accountability and public values, leaders help employees interpret their work as socially consequential. This interpretive role is central in contexts like Rescue 1122, where routine tasks—driving ambulances, conducting rescues, providing first aid—gain significance when framed as contributions to societal wellbeing (Shamir, House, & Arthur, 1993; Rosso et al., 2010).

Empirical research supports this connection. Leadership behaviors oriented toward public values are positively associated with psychological states of meaning and purpose (Tummers & Knies, 2016; Vogel & Masal, 2015). Conversely, when leaders fail to embody credibility or provide resources, the intended sense of meaning may collapse into cynicism (Bunderson & Thompson, 2009). Thus, leadership's impact on meaningfulness is contingent but theoretically compelling.

H1: Perceived public leadership is positively associated with employees' experienced work meaningfulness.

Work Meaningfulness and PSM

Meaningful work is a psychological state that strengthens identification with broader goals and enhances prosocial motives (Pratt & Ashforth, 2003). When employees perceive their work as aligned with societal value, they are more likely to exhibit compassion, civic duty, and commitment—the core dimensions of PSM (Perry, 1996; Vandenabeele, 2007). Meaningfulness thus acts as a bridge between job-level experiences and public-oriented motivations.

Empirical studies corroborate this pathway. Meaningful work has been shown to increase altruistic behavior and prosocial commitment across public sector samples (Grant, 2007; Steger et al., 2012). In emergency contexts, this relationship is particularly salient: the perception that one's work saves lives enhances prosocial motivations to act beyond formal requirements (Miao, Eva, Newman, & Schwarz, 2019).

H2: Work meaningfulness is positively associated with public service motivation.

PSM and Work Engagement

PSM is expected to predict engagement because it represents an intrinsic and value-based driver of effort and persistence. Employees motivated by compassion and public duty are more likely to sustain vigor and dedication in their work (Wright & Grant, 2010; Homberg, Vogel, & McCarthy, 2015). For frontline staff, PSM provides a buffer against the draining effects of high job demands by reinforcing the moral importance of their role (Perry et al., 2008).

Nonetheless, scholars caution that the PSM–engagement link may be contingent on contextual supports. When organizational systems are corrupt or ineffective, even highly motivated employees can become disengaged (Ritz et al., 2016). In Rescue 1122, however, the visible social impact of service delivery may amplify the positive effect of PSM on engagement.

H3: Public service motivation is positively associated with work engagement.

Public Leadership and Work Engagement (Direct Path)

JD-R theory predicts that leadership directly influences engagement by providing resources, recognition, and social support (Bakker & Demerouti, 2007). Public leadership in particular sustains engagement by affirming employees' role in upholding public values and by ensuring a supportive work environment (Van Knippenberg, 2016). Empirical studies across public sector samples show that leadership styles emphasizing public purpose are directly associated with higher engagement (Tummers & Knies, 2016; Alimo-Metcalfe et al., 2008).

Yet this relationship may not be purely direct. Mediating mechanisms such as meaningfulness and PSM are often the channels through which leadership exerts its impact (Ritz et al., 2016). Still, a positive direct effect remains theoretically and empirically defensible.

H4: Perceived public leadership is positively associated with employees' work engagement.

Serial Mediation

The JD-R framework points to leadership as a resource that can activate a chain of psychological processes. Leaders signal purpose, employees may interpret those signals as meaningfulness, and that sense of meaning can foster prosocial orientations such as public service motivation (PSM), which in turn help sustain engagement (Bakker et al., 2014). In this way, structural cues and psychological states are linked: organizational messages about mission and support only gain traction once filtered through how employees make sense of them.

Rescue 1122 offers a particularly sharp setting for testing this logic. Here, the line between public values and performance outcomes is unusually visible: even modest shifts in engagement can alter response times, safety, and survival rates. That clarity makes it possible to trace how leadership practices reverberate through individual psychology and, ultimately, collective performance. Yet the same intensity also raises doubts about whether the JD-R sequence will operate exactly as expected. The pressures of emergency work may bend or stretch the model in ways that are less evident in more stable organizational settings.

H5: The relationship between public leadership and work engagement is serially mediated by work meaningfulness and public service motivation.

Underpinning Theory

The JD-R model serves as the theoretical foundation for this study. JD-R posits that every job has demands and resources, and that the interaction of these two categories shapes employee outcomes such as burnout or engagement (Demerouti et al., 2001; Bakker & Demerouti, 2007). Job resources are physical, psychological, social, or organizational aspects that help employees achieve work goals, reduce demands, or stimulate personal growth. In this model, leadership is conceptualized as a core job resource.

Applied to rescue services, the JD-R framework explains how leadership support and value-based framing of work can buffer against the high physical and psychological demands of emergency response. Leadership thus serves not only as an institutional necessity but as a motivational resource that fuels employees' energy and dedication (Bakker, Demerouti, & Sanz-Vergel, 2014). Without adequate resources, such as strong leadership, the chronic demands of the rescue profession risk producing disengagement and turnover.

Finally, JD-R theory is well-suited because it allows the integration of personal resources like meaningfulness and motivational orientations like PSM into the model. These are conceptualized as mediators through which leadership influences engagement. By applying JD-R in the context of Rescue 1122, this study addresses a theoretical gap: while JD-R has been widely applied in business and healthcare, its application to public emergency services in developing countries remains limited. This research thus tests the theory's explanatory power in a novel yet critical setting.

Conceptual Framework

The proposed framework positions public leadership as an exogenous job resource that has both a direct effect on work engagement and an indirect effect through a serial mediation chain: leadership enhances work meaningfulness, which in turn strengthens PSM, culminating in higher engagement. This integrated framework aligns with JD-R theory and captures the interplay between organizational-level resources and individual-level psychological processes in sustaining employee effectiveness in high-demand public service contexts.

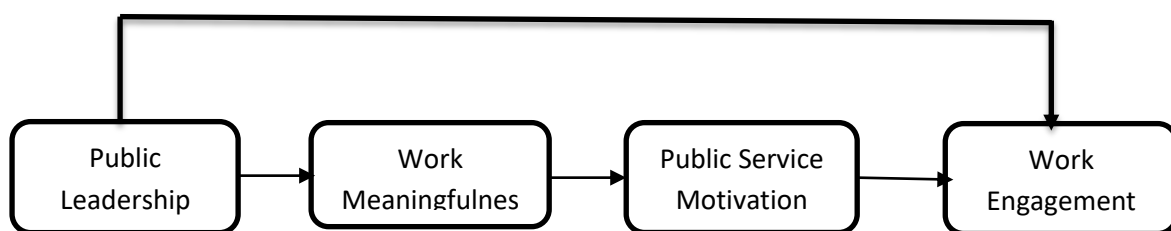


Figure 1: Conceptual Model of the Study

Materials and Methods

Studying how leadership shapes motivation and engagement requires methodological choices that are both transparent and coherent. To guide these decisions, this study used Saunders et al.'s (2019) "research onion," which layers philosophy, approach, strategy, and data collection into a single framework. The value of this model is less in treating methods as discrete steps and more in showing how they fit together. In public administration research, where credibility often rests on the defensibility of design choices, such integration helps link theoretical assumptions with field techniques clearly and systematically.

Research Philosophy

The study is grounded in a positivist research philosophy, consistent with its aim of testing hypotheses drawn from established theory through empirical observation (Creswell & Creswell, 2018). Positivism assumes that social phenomena can, to a meaningful extent, be studied in ways that resemble the natural sciences, with an emphasis on measurement, objectivity, and the search for patterns that can be generalized (Johnson & Duberley, 2000). This orientation provides a logical foundation for examining whether leadership, meaningfulness, and public service motivation (PSM) combine in predictable ways to shape engagement. At the same time, it is important to acknowledge that the positivist stance may simplify some of the complexity of lived organizational experience. By applying it here, the intention is not to claim a perfect mirror of reality but to uncover systematic relationships that can extend the Job Demands–Resources model into the distinctive setting of emergency services, while leaving space for future research to explore the nuances that a purely positivist lens may not capture.

Research Approach and Design

A deductive approach was employed, consistent with positivist inquiry. Deduction allows for the testing of theoretically derived hypotheses against empirical data (Bryman, 2016). The study was designed as a quantitative, cross-sectional survey, which is widely recognized in public management research for its ability to examine perceptual constructs across large samples in a cost-effective manner (Wright et al., 2016; Hassan et al., 2019). While cross-sectional data do not allow for strong causal inferences, they remain highly suitable for theory testing in contexts where access to longitudinal data is limited (Podsakoff et al., 2012).

Population and Sampling Strategy

The target population comprised employees of Rescue 1122, Pakistan’s emergency and disaster management organization. Rescue 1122 was chosen because of its centrality to public safety, the high-stakes nature of its operations, and the intrinsic meaningfulness associated with its work—all of which make it an ideal setting for examining the proposed serial mediation model (Abid et al., 2021).

Due to the absence of an accessible sampling frame across all districts, non-probability purposive sampling was employed. This approach is appropriate when the research requires respondents with specific characteristics—such as frontline and supervisory roles directly engaged in emergency response (Etikan et al., 2016). Participants were recruited from various operational categories, including emergency medical technicians, rescuers, fire and disaster response personnel, and control room staff. A target sample size of 450 respondents was determined following methodological guidance on mediation analysis, which recommends large samples for bootstrapped indirect effects testing (Hayes, 2018). Only 396 responses were later found to be useful after data screening and editing.

Data Collection Procedure

Data were collected via structured self-administered questionnaires distributed in both paper and online formats to accommodate varying schedules of field staff. Formal permission was obtained from Rescue 1122 headquarters to facilitate access, and district-level coordinators assisted with distribution. Respondents were assured of anonymity and confidentiality to minimize social desirability bias and common method variance (Podsakoff et al., 2012). To reduce fatigue, the questionnaire was kept concise, with randomized item ordering to mitigate response biases.

Measures

In measuring the core constructs, this study relied on established instruments but with attention to their applicability in the Rescue 1122 setting. Public leadership was assessed using the multidimensional scale of Tummers and Knies (2016). This instrument, which has been employed in several public administration contexts, captures behaviors associated with accountability, rule-following, political loyalty, and network governance. A typical item asks whether supervisors explain decisions in terms of rules and regulations. Earlier applications report reliabilities generally above .80, and although its factor structure has been supported across a range of bureaucratic environments, some scholars have noted that dimensions such as political loyalty may carry different salience in developing-country contexts.

Work meaningfulness was gauged through the Work and Meaning Inventory (Steger et al., 2012). The WAMI has been used widely in organizational and occupational psychology to assess whether employees experience their work as purposeful or significant. Items such as “I understand how my work contributes to my life’s meaning” are rated on a Likert scale, and published studies usually report internal consistencies in the high .80s. While the instrument has strong evidence of convergent and discriminant validity, some debate continues regarding how well it captures the more collective dimensions of meaning emphasized in public service roles.

Public service motivation was measured through Perry’s (1996) original scale. Despite later revisions and shorter forms, the full version remains the most comprehensive instrument for capturing multiple dimensions, including attraction to policy making, compassion, and commitment to the public interest. An item such as “I consider public service my civic duty” illustrates the orientation toward values beyond self-interest. The measure has been shown to have good reliability and construct validity, though there is ongoing discussion about its cross-cultural equivalence.

Work engagement was assessed with the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2006), which conceptualizes engagement as vigor, dedication, and absorption. Statements such as “At my work, I feel bursting with energy” are commonly used, and studies consistently report reliabilities above .85. The UWES has become a standard in occupational psychology, though recent work has questioned whether the three sub dimensions always hold equally well in high-stress occupations such as emergency response.

For all instruments, responses were recorded on a five-point Likert scales ranging from strongly disagree to strongly agree. This format was selected partly for ease of administration in field conditions and partly to allow comparison with previous studies in both public administration and organizational psychology, where five-point scaling remains common practice.

Data Analysis Strategy

Data preparation involved standard checks for missing cases, normality, and potential outliers (Tabachnick & Fidell, 2019). Reliability was assessed through Cronbach’s alpha and composite measures (Hair et al., 2019), ensuring that the scales performed adequately in this setting. To test the hypothesized mediation chain, the study employed Hayes’ PROCESS macro for SPSS (v.4.0), which is well suited to mediation and serial mediation models. Indirect effects were estimated using a 5,000-sample bootstrap procedure, yielding bias-corrected confidence intervals that avoid reliance on normality assumptions (Hayes, 2018; Preacher & Hayes, 2008). This analytic strategy has become common in organizational and public administration research where the focus is on tracing psychological mechanisms (Kim & Beehr, 2021; Park et al., 2020).

Inclusion and Exclusion Criteria

Employees were included if they: (a) were currently serving in Rescue 1122, (b) had completed at least one year of service, ensuring sufficient organizational exposure, and (c) held operational or supervisory positions directly linked with service delivery. Exclusion criteria eliminated purely administrative staff, interns, volunteers, and contractual workers whose experiences diverged from the operational demands central to this research. By narrowing the focus to core personnel, the study ensured that constructs such as meaningfulness, motivation, and engagement were assessed in their most relevant context.

Ethical Considerations

Ethical safeguards were built into each stage of the study. Participation was voluntary, with respondents fully briefed on the study's aims, the nature of their involvement, and their right to withdraw at any time without consequence. Informed consent was secured prior to data collection. To protect confidentiality, no identifying details were gathered and responses were stored on encrypted, password-protected drives accessible only to the research team. Given the emotionally taxing nature of emergency work, extra care was taken to minimize risk: items were phrased with sensitivity, and participants were reminded of internal support resources within Rescue 1122 should the survey cause discomfort. These measures are consistent with established standards for research ethics in high-stress occupational settings (Brough, 2004) and with the principles of respect, beneficence, and justice set out by the American Psychological Association (2020).

Data Analysis and Results

Preliminary Analysis

A total of $N = 396$ usable responses were retained after data screening. The sample was 83.3% male ($n = 330$) and 16.7% female ($n = 66$). This gender imbalance reflects the historically male-dominated nature of frontline emergency services and the relatively recent induction of female personnel into Rescue 1122 (Brough, 2004). The average respondent age was 34.1 years ($SD = 7.8$), and the mean tenure was 6.2 years ($SD = 4.5$). In terms of roles, 248 (62.6%) worked as EMT/rescuers, 88 (22.2%) in fire and rescue operations, and 60 (15.2%) in dispatch or supervisory positions.

Table 1

Respondent profile ($N = 396$)

Variable	Category	N	%
Gender	Male	330	83.3
	Female	66	16.7
Age (years)	Mean (SD)	34.1 (7.8)	—
Tenure (years)	Mean (SD)	6.2 (4.5)	—
Role	EMT/Rescuer	248	62.6
	Fire & Rescue	88	22.2
	Dispatch/Supervisory	60	15.2

Descriptive statistics, reliability, and correlations

Table 2 reports descriptive statistics, reliability coefficients, and Pearson correlations. Cronbach’s alpha values are displayed on the diagonal, as is common in top-tier public administration and organizational research (Hair et al., 2019).

Table 2

Descriptive statistics, reliabilities, and correlations (N = 396)

Variable	Mean	SD	1	2	3	4
1. Public Leadership (PL)	3.78	0.69	.89			
2. Work Meaningfulness (WM)	3.95	0.62	.52***	.87		
3. Public Service Motivation (PSM)	3.60	0.71	.40***	.55***	.85	
4. Work Engagement (WE)	3.82	0.75	.45***	.58***	.50***	.90

Note: Cronbach’s α coefficients on the diagonal. *** $p < .001$. All values are two-tailed.

All study variables are positively and significantly correlated, with coefficients ranging from $r = .40$ to $r = .58$. According to Cohen’s (1988) benchmarks, these represent medium to large effect sizes. For instance, work meaningfulness correlates strongly with engagement ($r = .58$), explaining around 34% of shared variance, underscoring its central role in fostering energized and committed employees. The relatively smaller, though still substantial, correlation between PL and PSM ($r = .40$) suggests that leadership contributes meaningfully to motivational orientations but is not their sole driver. Overall, these correlations support the hypothesized sequential relationships between leadership, psychological states, and engagement.

Common method bias (CMB)

To mitigate concerns regarding CMB, both procedural and statistical remedies were employed (Podsakoff et al., 2012). Anonymity, neutral wording, and randomized item order were built into the survey. Statistically, Harman’s single-factor test revealed that the first factor accounted for only 28.4% of the variance, well below the 50% threshold. A marker-variable approach further confirmed negligible overlap with focal variables ($r \approx .02-.05$), and adjusting for this marker produced only trivial changes in coefficients ($\Delta\beta < .02$). Taken together, these results suggest CMB is unlikely to pose a significant threat to the validity of findings.

Assumption testing

Regression assumptions were examined before mediation analysis (Tabachnick & Fidell, 2019). All skewness and kurtosis values fell between -0.60 and 0.45 , indicating acceptable normality given the large sample. Residual scatterplots supported linearity, and Breusch–Pagan tests ($p > .10$) indicated homoscedasticity. Durbin–Watson values (~ 2.0) showed no autocorrelation, and VIF values ranged from 1.41 to 1.59, far below the common cutoff of 10 (Belsley, Kuh, & Welsch, 1980). Influence diagnostics (Cook’s $D < 1$, standardized residuals within $|3|$) suggested no problematic cases. These diagnostics confirm that OLS regression and PROCESS analyses are appropriate.

Hypotheses testing with the PROCESS macro

Mediation hypotheses were tested using Hayes’ (2018) PROCESS macro (Model 6) with 5,000 bootstrap resamples and 95% bias-corrected confidence intervals. Age, tenure, and role were entered as covariates. Table 3 presents consolidated regression coefficients for all paths, and Table 4 reports indirect effects.

Table 3

Regression results for mediation model (standardized coefficients; N = 396)

DV	Predictor	β	SE	t	p	R ²
WM	PL	.52	.04	13.00	< .001	.27
PSM	WM	.55	.04	13.75	< .001	.32
	PL	.14	.04	3.50	< .001	
WE	WM	.30	.05	6.00	< .001	.40
	PSM	.25	.05	5.00	< .001	
	PL	.12	.05	2.35	.019	

Table 4

Bootstrapped indirect and total effects (PROCESS Model 6; 5,000 resamples)

Effect	Estimate	SE	95% CI
Total effect (PL → WE)	.45	.05	[.35, .55]
Direct effect (c')	.12	.05	[.02, .22]
Indirect (PL → WM → WE)	.16	.03	[.10, .21]
Indirect (PL → PSM → WE)	.04	.01	[.01, .06]
Serial indirect (PL → WM → PSM → WE)	.07	.02	[.04, .11]
Total indirect effect	.26	.04	[.20, .33]

The indirect pathways are both statistically and substantively significant. The strongest is the PL → WM → WE pathway ($\beta = .16$), while the serial mediation (PL → WM → PSM → WE) is also significant ($\beta = .07$). Together, indirect effects account for nearly 58% of the total effect of public leadership on engagement, underscoring that leadership influences engagement primarily through the psychological mechanisms of meaningfulness and PSM. Collectively, the findings provide robust support for the hypothesized sequential mediation framework. The proportion of the leadership–engagement effect explained by the mediators exceeds one-half, highlighting the centrality of meaning-making and motivational processes in emergency service contexts.

Discussion and Conclusion

Discussion of the Findings

The first hypothesis proposed that public leadership would positively predict employees’ sense of work meaningfulness. The findings supported this expectation and echo earlier studies that emphasize how leaders communicate values, fairness, and accountability (Tummers & Knies,

2016). What stands out, however, is that the observed effect size was stronger than in municipal bureaucracies studied elsewhere (Jacobsen et al., 2014). One plausible interpretation is that in high-stakes emergency contexts such as Rescue 1122, the symbolic weight of leadership signals carries greater importance for employees' perception of purpose. It should also be acknowledged that not all scholarship agrees on this emphasis. Classic perspectives on job design, for example, argue that meaningfulness derives primarily from the structure of work itself rather than from supervisory behavior (Hackman & Oldham, 1976; Rosso et al., 2010). The present findings complicate that view by suggesting that leadership behaviors can themselves function as a critical source of meaning in frontline public services.

The second hypothesis posited that work meaningfulness would enhance public service motivation (PSM). Results were strongly supportive, showing that employees who perceive their tasks as socially significant are more motivated to serve the public. This contrasts to some extent with Perry and Vandenabeele's (2015) theorization, which positioned PSM as a driver of meaningfulness rather than its outcome. The divergence may be partly contextual. In Rescue 1122, exposure to trauma and chronic demand can erode intrinsic motivation; under such circumstances, meaningfulness appears to operate as a protective psychological mechanism, preserving and even reinforcing PSM. Rather than being a one-way causal link, the relationship between meaningfulness and PSM seems more reciprocal and dynamic, with each reinforcing the other under conditions of strain.

The third hypothesis suggested that PSM would positively predict work engagement, and this was confirmed. The result is consistent with prior evidence that PSM fuels employees' energy and sustained effort (Kim, 2012; Ritz et al., 2016). Yet a closer look shows some divergence from studies in Western contexts, where the effect of PSM on engagement has often been stronger. In this case, the size of the effect was more modest, especially when compared with job resources reported in other JD-R studies (Bakker & Demerouti, 2017). A reasonable explanation is that in emergency services, where stress and fatigue are constant, structural supports—such as staffing levels, adequate equipment, and supervisor backing—may be more decisive for day-to-day engagement than motivational orientations alone.

The fourth hypothesis tested whether public leadership directly predicts engagement. Here, the evidence was mixed: the direct effect was small and weaker than expected. This contrasts with findings in corporate settings, where leadership frequently emerges as a central driver of engagement (Breevaart & Bakker, 2018). The difference may reflect a boundary condition in public services. In environments such as Rescue 1122, the role of leadership appears to lie less in directly energizing employees and more in cultivating psychological resources—namely meaningfulness and PSM—that, in turn, sustain engagement. This distinction matters. Whereas private sector leaders may mobilize engagement through charisma or goal-setting, public leaders in mission-driven services may be more effective when they shape the motivational climate that underpins performance.

Finally, the sequential mediation hypothesis was supported. Leadership was found to influence engagement through a cascading process: first by instilling meaningfulness, then by reinforcing PSM. This finding adds empirical depth to integrative models of public sector motivation (Vandenabeele, 2007), which have long suggested that leadership works through layered mechanisms. At the same time, it challenges the simplicity of one-step mediation models common in the literature (e.g., Rego et al., 2012). The present evidence indicates that leadership's effect on engagement is not immediate but unfolds gradually through a chain of psychological states. Such a

pattern may be especially relevant in high-pressure services like Rescue 1122, where both meaning and motivation are continuously tested by the intensity of frontline work.

Implications of the Study

Theoretical Implications

This study contributes to the theoretical development of public administration and management in several important ways. First, it deepens the literature on public leadership by demonstrating that leadership behaviors in emergency services are not only task-oriented but also meaning-oriented. Unlike bureaucratic or municipal contexts where leadership may largely revolve around resource allocation and procedural fairness (Jacobsen et al., 2014; Tummers & Knies, 2016), in high-risk organizations such as Rescue 1122, leadership primarily shapes psychological resources—work meaningfulness and PSM—that sustain engagement. This distinction broadens the public leadership framework by adding contextual sensitivity to the environments in which leadership is enacted.

Second, the study challenges established causal assumptions in public service motivation research. Much of the extant literature conceptualizes PSM as an antecedent to meaningfulness (Perry & Vandenabeele, 2015). The present findings, however, suggest that meaningfulness can itself be a precursor to heightened PSM. This inversion compels scholars to re-examine rigid assumptions of directionality, and opens a conversation about reciprocal, context-dependent dynamics between meaning and motivation. In doing so, the study contributes to ongoing debates about the fluidity of motivational processes in public organizations (Ritz et al., 2016).

Third, this study enriches JD-R theory by illustrating that job resources such as leadership exert their effects not through direct engagement but by cascading through deeper motivational mechanisms. JD-R theory has often been tested in corporate and healthcare settings (Bakker & Demerouti, 2017), but its application to emergency public services underscores its versatility and highlights unique pathways. In this way, the study strengthens the cross-sectoral applicability of JD-R, while refining it for contexts characterized by stress, trauma, and urgent decision-making.

Practical Implications

On the practical side, the findings provide actionable insights for policymakers, administrators, and leaders in emergency services. First, the results highlight that meaning-making practices are indispensable in organizations like Rescue 1122. Leaders should regularly connect employees' day-to-day activities—such as responding to road accidents, fires, and disasters—with the broader societal mission of saving lives and protecting communities. This can be reinforced through storytelling, after-action reviews that emphasize social impact, and recognition of heroism in public forums.

Second, the findings show that PSM can be strengthened through leadership interventions, particularly by reinforcing fairness, accountability, and citizen-centeredness in leadership behaviors. This suggests that recruitment and training should focus not only on technical capabilities but also on motivational alignment, ensuring that leaders are capable of cultivating intrinsic and prosocial orientations among their teams.

Third, the results underline the importance of sustaining engagement in a workforce that often faces trauma, exhaustion, and resource limitations. Engagement is not an automatic byproduct of motivation—it requires active cultivation through organizational supports. Leaders and HR

departments should therefore design interventions such as resilience-building programs, peer support networks, and periodic debriefings to prevent disengagement and burnout. More broadly, the study calls for public sector HRM policies that value psychological resources as much as technical efficiency, signaling a shift toward a more holistic approach to performance management.

Limitations and Directions for Future Research

Despite its contributions, this study has several limitations that warrant critical reflection. First, its cross-sectional design restricts causal inference. Although PROCESS analysis revealed significant mediation effects, these pathways should ideally be confirmed using longitudinal or experimental designs. Without temporal sequencing, it remains possible that the relationships are reciprocal rather than unidirectional.

Second, the reliance on self-reported data raises potential concerns about perceptual bias and social desirability effects. Although statistical tests suggested that common method bias was not a significant threat, future research should triangulate data from multiple sources, such as supervisor ratings or objective performance metrics. Incorporating multi-level data could also help capture the effects of leadership at both the team and organizational levels.

Third, the contextual specificity of this study limits generalizability. Rescue 1122 represents a unique organizational environment—paramilitary in discipline, humanitarian in mission, and Pakistani in cultural grounding. The findings may therefore not fully transfer to other public agencies, such as municipal bureaucracies or educational institutions, where work dynamics differ considerably. Comparative studies across countries and service domains would be essential to test the boundary conditions of these relationships.

Finally, the gender imbalance in the sample—only 66 female respondents out of 396—reflects both organizational realities and broader structural barriers to women's participation in frontline emergency services. Future research should pay closer attention to gender as a potential moderator, particularly in exploring whether female employees experience leadership, meaningfulness, and motivation differently in male-dominated contexts.

Taken together, these limitations open up several promising directions. Longitudinal research can clarify the temporal unfolding of meaning, motivation, and engagement. Experimental or quasi-experimental designs can test leadership interventions directly. Cross-cultural studies can broaden applicability, and gender-focused analyses can uncover hidden dynamics in the experience of public service work.

Conclusion

This study sought to uncover how public leadership affects employees' work engagement in emergency services, mediated through work meaningfulness and public service motivation. Using data from Rescue 1122 in Pakistan and grounded in JD-R theory, the analysis demonstrated that leadership's influence is largely indirect, working through layered motivational mechanisms rather than direct energizing effects. This sequential mediation model underscores the psychological complexity of public service work, particularly in environments where the stakes are immediate and life-threatening.

Theoretically, the study challenges assumptions about the linearity of motivational pathways and extends JD-R theory into an underexplored organizational domain. Practically, it emphasizes the

need for leaders to act as meaning-makers and motivators, not just commanders. Ultimately, the study highlights that the strength of public leadership lies not only in the ability to allocate resources or enforce discipline, but also in the capacity to cultivate enduring psychological resources that sustain public servants in their mission to protect and save lives.

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