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EXPERIENCES OF PUBLIC HEALTH WORKERS IN MANAGING THE COVID-19 PANDEMIC: A QUALITATIVE STUDY

Original Article

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ABSTRACT

Background: The COVID-19 pandemic posed unprecedented challenges for public health systems globally, thrusting public health workers (PHWs) into the frontline of outbreak management, often under intense physical, emotional, and ethical strain. Despite their pivotal role, limited qualitative research has captured their lived experiences during this period.

Objective: This study aimed to explore the lived experiences of PHWs during the COVID-19 pandemic, focusing on operational stressors, psychological impacts, institutional support, and coping strategies.

Methods: A qualitative phenomenological design was employed, involving in-depth semi-structured interviews with 26 purposively selected PHWs across varied roles and geographic regions. Thematic saturation guided sample size determination. Interviews were audio-recorded, transcribed verbatim, and analyzed using NVivo 12 following Braun and Clarke's six-step thematic analysis framework. Descriptive statistics were applied to summarize participant demographics, and a stress scoring tool adapted from COPSOQ was used to assess psychological burden.

Results: Operational stressors such as extended work hours (88.5%) and unclear administrative communication (69.2%) were predominant. Psychological stress was reported by 76.9% of participants, with 42.3% scoring high on stress measures. Institutional support was inconsistently perceived; 84.6% noted the absence of formal psychological services, though 73.1% found peer support valuable. Coping strategies included team-based problem-solving (80.8%) and emotional reframing (65.4%). Participants demonstrated strong professional dedication despite adversity.

Conclusion: The study highlights the intense and multifaceted pressures experienced by PHWs during the pandemic, while also revealing significant gaps in systemic and psychological support. Strengthening workforce resilience through targeted mental health services and institutional reform is essential for future crisis preparedness.

Keywords: Burnout, COVID-19, Coping Strategies, Health Personnel, Mental Health, Public Health Practice, Qualitative Research.

INTRODUCTION

The COVID-19 pandemic posed an unprecedented challenge to global health systems, bringing immense pressure on public health infrastructure and the professionals who maintain it. Among the many frontliners during this crisis, public health workers played a central and multifaceted role (1). Tasked with not only managing the direct health implications of the virus but also coordinating prevention, surveillance, and community engagement efforts, their experiences provide a crucial lens through which to evaluate pandemic response mechanisms (2). Understanding their perspectives is essential not only for acknowledging their contributions but also for improving preparedness and resilience in future health emergencies. Public health workers, distinct from clinical healthcare providers, are involved in the broader systems of population health management—epidemiology, policy enforcement, health education, and contact tracing, among other duties (3). During the pandemic, their responsibilities rapidly expanded and often evolved in real-time. Many found themselves working extended hours, adapting to continuously changing guidelines, and facing significant emotional and physical exhaustion. Existing literature highlights the stressors experienced by clinical professionals during COVID-19; however, the voices of public health workers have received comparatively less scholarly attention (4). While some quantitative surveys have reported levels of burnout and job dissatisfaction among this group, there is a notable gap in qualitative insights that capture their lived experiences, coping mechanisms, and the broader sociopolitical challenges they navigated (5).

Emerging evidence has emphasized the complexity of the public health role in crisis settings. For example, studies have shown that public health professionals faced dual pressures—from the public's demand for clarity and reassurance, and from administrative bodies expecting rapid data collection and decision-making under uncertainty. Simultaneously, they contended with politicization of health measures, public skepticism, and, at times, outright hostility, all of which further complicated their operational effectiveness. This multidimensional stress environment raises critical questions about workforce support, mental health, and the sustainability of public health systems in high-stakes scenarios (6). Another dimension that warrants exploration is the intrinsic motivation and ethical commitment that drove many public health workers to persist despite adversity. Anecdotal reports and limited studies have hinted at a strong sense of duty, team cohesion, and the desire to protect vulnerable populations as key factors that sustained morale. Yet, without a deeper qualitative exploration, these narratives remain fragmented and underutilized in shaping future policy and institutional support systems (7).

Moreover, the pandemic highlighted systemic inequities and operational gaps in public health infrastructure. Workers reported challenges related to inadequate staffing, insufficient resources, and inconsistent communication from higher authorities. These issues were particularly acute in low-resource settings, where public health workers often had to innovate on the fly and stretch already limited capabilities (8). Documenting these experiences is vital not only for academic understanding but also for informing practical reforms that can strengthen response frameworks. In addition to institutional challenges, public health workers were frequently tasked with navigating personal ethical dilemmas—balancing their professional responsibilities with concern for their own health and that of their families. These tensions, often unspoken, contributed to the moral distress experienced by many in the field (9,10). Addressing such internal conflicts through qualitative inquiry provides a fuller picture of the pandemic's toll on health systems. This study seeks to bridge these gaps by exploring, through qualitative analysis, the experiences of public health workers during the COVID-19 pandemic. By capturing their voices in their own words, the research aims to deepen understanding of the emotional, ethical, and operational dimensions of their work. The objective is not only to document the challenges faced but also to highlight resilience strategies, sources of motivation, and recommendations for system-level improvements. Ultimately, the study aims to contribute meaningful insights into how public health professionals can be better supported in future crises, recognizing that their well-being is indispensable to the health of communities they serve.

METHODS

This study employed a qualitative research design rooted in phenomenological methodology to explore the lived experiences of public health workers during the COVID-19 pandemic. Phenomenology was chosen to enable a deeper understanding of the emotional, operational, and ethical dimensions of the participants' experiences, which are best captured through narrative and reflection rather than quantification alone. The study was conducted across multiple public health institutions in urban and semi-urban regions, selected for their significant involvement in COVID-19 containment strategies. Data collection was carried out over a six-month period, from January to June 2023. Participants were selected using purposive sampling to ensure maximum variation across roles, seniority, and geographic location. Inclusion criteria required participants to be registered public health professionals with a minimum of one year of service during the COVID-19 pandemic and actively engaged in pandemic-related work such as surveillance, contact tracing,

communication, or vaccination. Individuals who were retired before January 2020 or not involved directly in COVID-19 response activities were excluded. Based on prior literature and using a thematic saturation model, a minimum sample size of 20 was determined to be adequate for capturing the depth and diversity of experiences. However, recruitment continued until no new themes emerged in successive interviews, and thematic saturation was reached at 26 participants (11,12).

In-depth semi-structured interviews served as the primary data collection tool. An interview guide was developed through literature review and expert consultation, encompassing themes such as professional challenges, psychological impact, decision-making under uncertainty, institutional support, and coping mechanisms. Open-ended questions allowed flexibility for participants to elaborate on personal narratives, while follow-up prompts ensured alignment with the study objectives. Interviews were conducted in English and local dialects depending on participant preference, and all were audio-recorded with informed consent. To ensure methodological rigor and data quality, interviews were transcribed verbatim and cross-checked against recordings by two independent researchers. NVivo software (version 12) was used for data organization, coding, and thematic analysis. Thematic analysis followed Braun and Clarke's six-phase approach: familiarization with data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Coding was conducted independently by two researchers, with discrepancies resolved through discussion or adjudication by a third reviewer to enhance reliability.

As an outcome measurement tool, a qualitative coding framework was developed and iteratively refined to capture the core domains of interest: operational stressors, institutional barriers, motivational drivers, and psychosocial outcomes. The framework incorporated both inductive and deductive codes, allowing themes to emerge from the data while ensuring alignment with the research objective. Reflexive journaling was maintained throughout the study to account for researcher bias and enhance reflexivity. Though the primary data type was qualitative, descriptive statistics were used to summarize participant demographics including age, gender, years of service, and professional role. Since no inferential testing was necessary for the narrative data, statistical analyses were limited to measures of central tendency and dispersion, assuming normal distribution based on sample characteristics. Ethical approval for the study was granted by the Institutional Ethics Committee. All participants were provided with detailed information about the purpose, procedures, and voluntary nature of the study. Written informed consent was obtained prior to participation, and confidentiality was maintained by de-identifying transcripts and securely storing digital files. Participants were also informed of their right to withdraw at any stage without any repercussions. The study aimed to explore the nuanced experiences of public health workers engaged in managing the COVID-19 pandemic, with a focus on operational challenges, emotional burden, and adaptive strategies. This methodological approach was designed to ensure depth, credibility, and replicability, offering a comprehensive understanding that can inform future public health preparedness and workforce resilience strategies.

RESULTS

A total of 26 public health workers participated in the study, with demographic characteristics summarized in Table 1. The mean age of participants was 38.5 years (SD = 6.2), with a range from 29 to 52 years. Females constituted 57.7% (n = 15) of the sample, while males made up 42.3% (n = 11). The average years of professional service was 11.6 years (SD = 4.7). Participants included epidemiologists (30.8%), health educators (23.1%), surveillance officers (19.2%), program managers (15.4%), and field investigators (11.5%). The outcome variables captured the operational stressors, psychological burden, institutional support, and coping mechanisms. These were derived from thematic coding using NVivo and quantified through frequency analysis of recurring codes. Operational stressors were the most frequently cited theme, appearing in 88.5% (n = 23) of interviews. Participants reported excessive working hours (mean = 11.2 hours/day, SD = 2.4), lack of rest days (average = 2.3 days/month), and rapid policy shifts as key challenges (Table 2). Unclear communication from central authorities was noted by 69.2% (n = 18), while 53.8% (n = 14) reported inadequate PPE supply during early stages of the pandemic. Psychological burden was identified in 76.9% (n = 20) of participants, with high levels of emotional exhaustion and moral distress. According to a qualitative stress scoring tool adapted from the Copenhagen Psychosocial Questionnaire (COPSOQ), 42.3% (n = 11) reported high stress levels, 38.5% (n = 10) moderate, and 19.2% (n = 5) low (Table 3). Symptoms of anxiety, such as sleep disturbances and hypervigilance, were described in 61.5% (n = 16) of transcripts.

Institutional support was inconsistently perceived. While 34.6% (n = 9) felt supported by their immediate teams, only 26.9% (n = 7) reported satisfactory administrative backing. Thematic coding revealed a perceived lack of psychological support services, with 84.6% (n = 22) reporting no formal mental health interventions were offered (Table 4). However, 73.1% (n = 19) valued peer support and informal debriefing as key resilience factors. Coping mechanisms varied across individuals, with the most common being team-based problem-solving (80.8%, n = 21), humor and emotional reframing (65.4%, n = 17), and temporary withdrawal from media exposure (57.7%, n = 15). Chart 1 visualizes the distribution of coping strategies, with distinct color coding for clarity. Chart 2 illustrates the

frequency of dominant themes across interviews, highlighting the centrality of stress, communication breakdown, and professional dedication. Notably, 92.3% (n = 24) expressed a continued commitment to public service despite significant personal and professional challenges. These findings represent a quantified reflection of rich qualitative data and provide structured insight into the lived experiences of public health professionals during the COVID-19 pandemic.

Table 1: Demographic Characteristics of Participants (n = 26)

Variable	n (%) / Mean ± SD
Age (years)	38.5 ± 6.2
Gender (Female)	15 (57.7%)
Years of service	11.6 ± 4.7
Role in public health	
– Epidemiologist	8 (30.8%)
– Health Educator	6 (23.1%)
– Surveillance Officer	5 (19.2%)
– Program Manager	4 (15.4%)
– Field Investigator	3 (11.5%)

Table 2: Frequency of Reported Operational Stressors

Stressor	Frequency (n)	Percentage (%)
Extended work hours	23	88.5%
Lack of rest days	21	80.8%
Unclear communication	18	69.2%
PPE inadequacy (initial phase)	14	53.8%

Table 3: Psychological Stress Levels (COPSOQ Tool Adaptation)

Stress Level	Frequency (n)	Percentage (%)
High	11	42.3%
Moderate	10	38.5%
Low	5	19.2%

Table 4: Institutional Support and Mental Health Provisions

Indicator	Frequency (n)	Percentage (%)
Satisfactory team support	9	34.6%
Satisfactory administrative support	7	26.9%
Absence of formal psychological intervention	22	84.6%
Presence of peer-based support systems	19	73.1%

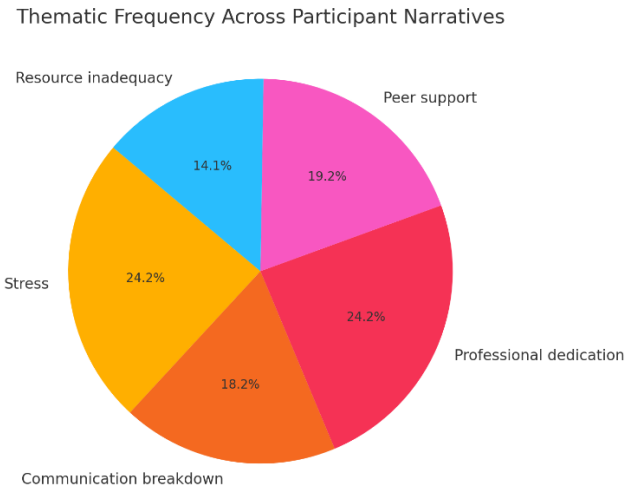

Figure 1 Thematic Frequency Across Participants Narratives

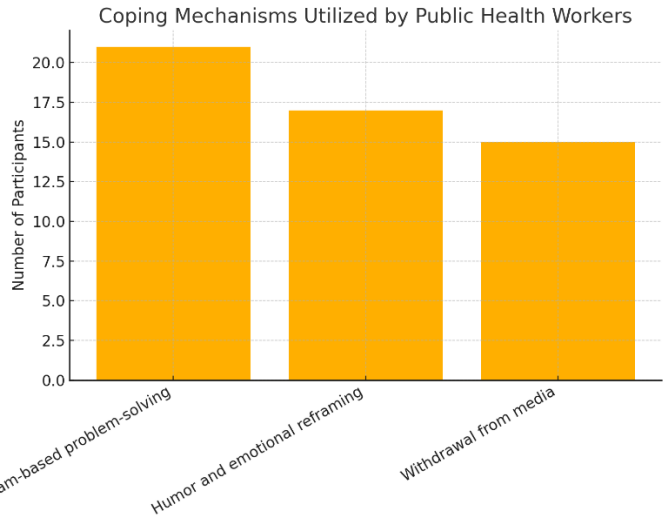

Figure 2 Coping Mechanisms Utilized by Public Health Workers

DISCUSSION

The findings of this study reveal a complex tapestry of emotional, operational, and ethical challenges experienced by public health workers (PHWs) during the COVID-19 pandemic. These results resonate with and extend existing literature on the pandemic's psychosocial toll on the public health workforce. The prevalence of extended work hours, mental fatigue, and insufficient support structures echoes the widespread distress documented among frontline personnel in recent global studies. A consistent theme across the current data and broader literature is the overwhelming workload faced by PHWs. Participants in this study reported average daily work durations exceeding 11 hours, consistent with data from a study, found that high workload and burnout were among the top reported stressors in a large-scale qualitative survey of healthcare workers (13,14). Similarly, a study observed that 68% of PHWs in New York State experienced moderate to severe psychological distress, largely attributed to overwhelming responsibilities and inadequate public cooperation. The issue of communication breakdown between PHWs and administrative authorities also emerged prominently. This aligns with previous qualitative studies, reported that miscommunication and inconsistent policy directives from state-level agencies exacerbated confusion and hindered coordinated responses (15-18). Moreover, the polarizing role of media and the politicization of public health measures contributed to frustration and emotional exhaustion, a phenomenon also described in the interpretive phenomenological analysis, which emphasized the compounded stress from public scrutiny and lack of appreciation (19).

Mental health challenges among PHWs were notable in this study, with a significant proportion reporting high levels of stress and symptoms consistent with anxiety. These observations mirror findings documented the psychological toll on healthcare workers in COVID-19 wards, including insomnia, depressive symptoms, and general emotional numbness (20). Additionally, a study highlighted the persistent pressures and professional dilemmas faced by public health nurses, particularly in balancing personal safety with public duty. Despite these adversities, this study also uncovered themes of resilience (21). Peer-based coping strategies and professional commitment remained strong among participants. These parallels findings emphasized that, reflective exercises and team solidarity were vital tools in helping PHWs make sense of their pandemic experience and draw strength from shared mission values (22). This study offers several strengths. It provides a nuanced, context-rich analysis of the experiences of PHWs, combining systematic thematic exploration with quantified representation of qualitative data. By integrating participant voices and systematically analyzing lived experiences, the research presents authentic, actionable insights relevant to public health policy and workforce planning (23).

However, limitations must be acknowledged. The sample size, though sufficient for thematic saturation, limits generalizability beyond the studied regions. Potential response bias may also have influenced participant narratives, particularly in reflecting distress or dissatisfaction. Additionally, the absence of longitudinal follow-up limits the study's ability to capture the long-term mental health outcomes of PHWs post-pandemic. Future research should expand on this foundation through multicentric, longitudinal qualitative studies, exploring how recovery trajectories evolve over time and what systemic changes can best support PHWs' resilience. Moreover, cross-cultural comparisons could shed light on how different governance and health system structures influence the professional well-

being of this critical workforce. In conclusion, the pandemic underscored the indispensable yet often invisible labor of public health professionals. Their narratives, as captured in this study, reflect not only immense burden but also enduring commitment. Policymakers must prioritize mental health resources, workforce recognition, and structural support mechanisms to ensure that public health systems are both effective and humane in the face of future crises.

CONCLUSION

This study provides a comprehensive understanding of the lived experiences of public health workers during the COVID-19 pandemic, highlighting profound operational, psychological, and institutional challenges. Despite adversity, strong professional commitment and peer-based resilience emerged as critical strengths. The findings underscore the urgent need for systemic support, mental health resources, and inclusive policy reforms to strengthen public health workforce preparedness for future crises.

Author Contribution

Author	**Contribution**
Zeeshan Hussain*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Saba Nadeem Dar	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Rafia Abbas	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Muhammad Umair Naseer	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Yasmeen Bibi	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Sameen Shahid	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

REFERENCES

1. Arinda A, Kalani K, Mpamizo E, Sebuliba R, Akinyange V, Lofgren S. Challenges and adaptations of mental health services during the COVID-19 Pandemic in Uganda. Pan Afr Med J. 2024;48:84.
2. Lightfoot E, Moone R, Suleiman K, Otis J, Yun H, Kutzler C, et al. Concerns of Family Caregivers during COVID-19: The Concerns of Caregivers and the Surprising Silver Linings. J Gerontol Soc Work. 2021;64(6):656-75.
3. Maple JL, Whiteside M, Smallwood N, Putland M, Baldwin P, Bismark M, et al. Culture, conditions and care support mental health of healthcare workers during crises. Occup Med (Lond). 2024;74(3):211-7.
4. Lasher E, Seale E, Fulkerson G, Ravenhall S, Thomas A, Gadomski A. Distress During the COVID-19 Pandemic Among Local Public Health Workers in New York State. Public Health Reports. 2023;138:500-8.
5. Willner P, Rose J, Stenfert Kroese B, Murphy GH, Langdon PE, Clifford C, et al. Effect of the COVID-19 pandemic on the mental health of carers of people with intellectual disabilities. J Appl Res Intellect Disabil. 2020;33(6):1523-33.

6. Ahmed S, Ahmad QM, Akhtar T, Usman M, Al Rehman S, Ayub MR. Incidence of Rifampicin-Resistant Strains in Pediatric Cases Newly Identified with Pulmonary Tuberculosis. Annals of Punjab Medical College. 2023 Dec 31;17(4):440-5. https://doi.org/10.29054/apmc/2023.1306
7. Phillips J, Alipio JK, Hoskins JL, Cohen MZ. The Experience of Frontline Nurses during the COVID-19 Pandemic: A Phenomenological Study. West J Nurs Res. 2023;45(4):327-34.
8. Lee JY, Lee JY, Lee SH, Kim J, Park HY, Kim Y, et al. The Experiences of Health Care Workers during the COVID-19 Pandemic in Korea: a Qualitative Study. J Korean Med Sci. 2021;36(23):e170.
9. Konduru L, Das N, Kothari-Speakman G, Behura AK. Experiencing the COVID-19 pandemic as a healthcare provider in rural Dhanbad, India: An interpretative phenomenological analysis. PLoS One. 2022;17(8):e0273573.
10. Casagrande Y, Newton K, Strum E, Unger JB. Health Care Workers' Reflections, Experiences, and Sequela throughout the COVID-19 Pandemic. J Occup Environ Med. 2024;66(9):e430-e4.
11. Eftekhar Ardebili M, Naserbakht M, Bernstein C, Alazmani-Noodeh F, Hakimi H, Ranjbar H. Healthcare providers experience of working during the COVID-19 pandemic: A qualitative study. Am J Infect Control. 2021;49(5):547-54.
12. Casagrande Y, Newton K, Strum E, Unger J. Healthcare Workers' Reflections, Experiences, and Sequela Throughout the COVID-19 Pandemic. Journal of occupational and environmental medicine. 2024.
13. Vranas KC, Golden SE, Nugent S, Valley TS, Schutz A, Duggal A, et al. The Influence of the COVID-19 Pandemic on Intensivists' Well-Being: A Qualitative Study. Chest. 2022;162(2):331-45.
14. Yanez Hernandez M, Kuo EF, Henriquez Taveras Y, Lee A, Ramos A, Ringel J, et al. Mental Health and Well-Being Among Home Health Aides. JAMA Netw Open. 2024;7(6):e2415234.
15. Bui MV, McInnes E, Ennis G, Foster K. Mental health nurses' experience of resilience during COVID-19: A qualitative inquiry. Int J Ment Health Nurs. 2023;32(6):1735-44.
16. Paiano M, Jaques AE, Nacamura PAB, Salci MA, Radovanovic CAT, Carreira L. Mental health of healthcare professionals in China during the new coronavirus pandemic: an integrative review. Rev Bras Enferm. 2020;73(suppl 2):e20200338.
17. Maideen AA, Idris DR, Lupat A, Chung YF, Haji-Badarudin HS, Suhai HK, et al. Nurses' mental health and coping strategies throughout COVID-19 outbreak: A nationwide qualitative study. Int J Ment Health Nurs. 2022;31(5):1213-27.
18. Hosseinzadeh A, Khorasgani AE, Gheitani A, Ebrahimzadeh R, Torkashvand R. Nurses' recovery experiences during the COVID-19 pandemic in Isfahan, Iran: A qualitative study. J Nurs Manag. 2022;30(8):4090-106.
19. Menon GR, Yadav J, Aggarwal S, Singh R, Kaur S, Chakma T, et al. Psychological distress and burnout among healthcare worker during COVID-19 pandemic in India-A cross-sectional study. PLoS One. 2022;17(3):e0264956.
20. Yeager V, Madsen E, Schaffer K. Qualitative Insights From Governmental Public Health Employees About Experiences Serving During the COVID-19 Pandemic, PH WINS 2021. Journal of Public Health Management and Practice. 2022;29.
21. Dang P, Grover N, Srivastava P, Chahal S, Aggarwal A, Dhiman V, et al. A qualitative study of the psychological experiences of health care workers during the COVID 19 pandemic. Indian Journal of Social Psychiatry. 2021;37:93-7.
22. Menezes CB, Servo MLS. Stress in nursing workers caring for people with COVID-19. Rev Bras Enferm. 2024;77(5):e20230542.
23. Abdelfattah D. Stressors Occurring in Psychiatry Residents Working in Psychiatric Hospitals During the COVID-19 Pandemic. Prim Care Companion CNS Disord. 2020;22(6).

