Research Article

Work overload and burnout among chinese social workers during and post-covid-19: the impact of organizational support and professional identity

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ABSTRACT

Background: This study aimed to fill a gap in the existing literature by investigating burnout among Chinese social workers during and after the COVID-19 pandemic. Although a large number of studies have examined the impact of the pandemic on healthcare workers, there are relatively few studies on social workers. **Method**: Using a non-matched repeated cross-sectional design, this study surveyed frontline social workers who were engaged in COVID-19 prevention and control efforts at two time points: during the pandemic in 2022 (606 respondents) and after the pandemic period in 2023 (336 respondents). The collected data were analyzed to understand changes in burnout and work overload, and the moderating effects of professional identity and organizational support. **Results**: The analysis showed that social workers experienced moderate levels of emotional exhaustion and depersonalization, along with a drop in personal accomplishment during and after the pandemic. Work overload was a key factor contributing to burnout. Both organizational support and professional identity played roles in moderating the effects of work overload on burnout, but their influences varied over time. During the pandemic, professional identity helped buffer the impact on emotional exhaustion and depersonalization, while organizational support was more effective in moderating personal accomplishment. After the pandemic, organizational support played a more comprehensive moderating role across all burnout dimensions, whereas professional identity only has a weak effect on depersonalization. **Conclusion**: This study underscores the important role of professional identity during crises and highlights the significance of organizational support in transition to a post-crisis environment. These insights are valuable for policymakers and practitioners aiming to reduce burnout and improve the well-being of social workers.

Keywords: burnout, COVID-19, organizational support, professional identity, Chinese social workers

1. Introduction

In China's rapid societal evolution, social workers have emerged as pivotal agents in delivering grassroots welfare and maintaining social stability. The last decade has witnessed an explosion in this segment, with 11,300 private social work agencies and 660,000 certified social workers dotting the landscape

by the close of 2021 [1]. Fueled by the adoption of a government-purchased services model [2], this expansion has imposed twin demands on social workers — one for direct practice and another for points of entry into public administration. As they straddle the worlds of practical social work and political governance [3], these professionals are often presented with layered role expectations, which may ultimately overburden them. The outbreak of the COVID-19 pandemic in 2019 intensified these demands, placing social workers under unprecedented pressure. Besides their regular duties, they had to take on additional responsibilities related to pandemic control. These included assisting with nucleic acid testing, carrying out epidemiological investigations, verifying resident information, broadcasting preventive information, and mobilizing volunteers to combat infection[4-6]. This expanded role brought with it an undoubtedly increased number of working hours and numerous unprecedented challenges, making it difficult for them to balance direct practice with public administration tasks. Consequently, this heightened the risk of burnout among social workers.

Existing research has found that the COVID-19 pandemic has severely impacted the mental health of a wide range of professionals, including social workers[7,8]. Studies have shown that frontline healthcare workers, including social workers, face increased levels of stress, anxiety, depression, and burnout during the pandemic [9-12]. Factors such as increased workload, fear of COVID-19, and insufficient support all contribute to these mental health challenges [13-17]. In this light, the role of support mechanisms becomes salient. Externally, organizational support is vital. Organizational support takes many forms, including colleague support and communication and consultation provided by the organization. The provision of such a communicative and collaborative environment facilitates social workers sharing emotional labor[6], acquiring cognitive input from consultations for situational-appropriate action[18], and collectively developing strategies to address the complexities presented by their expanded roles[6]. This foundation of organizational support allows for effective crisis response and helps create a sense of togetherness and common purpose among professionals. Internally, professional identity emerges as a critical personal resource, providing practitioners with vitality and resilience. Professional identity is conceptualized as an individual's internalization of their profession's roles, values, cognitions, motivations, and behaviors [19-23]. It involves understanding the profession's values and role significance but also affects attitudes, action choices, and allegiance to the profession. Such a deep attachment to their identified profession enables social workers to face heightened job demands with resolve and dedication, cultivating resilience in the face of adversity [24].

The Job Demands-Resources (JD-R) model provides a useful framework for understanding the dynamics of burnout among social workers. According to the JD-R model, increases in job demands, such as work overload, can lead to strain and burnout, while adequate resources, such as organizational support and professional identity, can buffer these effects and promote engagement [25]. Although existing literature has addressed the general effects of work overload on burnout, it has largely overlooked the moderating roles of internal (professional identity) and external (organizational support) mechanisms, especially under the heightened conditions imposed by the COVID-19 pandemic. Moreover, previous studies have predominantly focused on healthcare providers during the pandemic, leaving a significant research gap concerning the experiences of social workers.

This study addresses the gap by examining how organizational support and professional identity interact with work overload to influence burnout among social workers during and after the COVID-19 pandemic. We used a non-matched repeated cross-sectional design to gather insights at two key periods: during the pandemic and the post-pandemic phase. By applying the Job Demands-Resources (JD-R) model, we aimed to understand how the combination of job demands and crucial resources impacts social workers' burnout

over time. This study sheds light on how these factors affect their well-being and resilience, not only during a crisis but also in its aftermath.

The deep significance of the study lies in what its findings portend for informing and preparing the social work field for future external crises akin to the COVID-19 pandemic. The study identifies how social workers might be better supported in enduring the stress and staving off burnout amid such severe adversity by unpacking the mechanics of job demands and resources during a public health emergency of such magnitude. However, the lessons drawn are narrowly applicable beyond the Chinese context and point the way toward the same kind of readying, prevention, and amelioration for the global social work community. The study raises the bar for the ongoing discourse around occupational health and the preparation of more proactive strategies and policies for managing a crisis and rebuilding. The forward-looking orientation is the study's relevance and importance, which precede its blueprint and flexibility to future external challenges in the social work field.

2. Literature review

2.1 Social workers among COVID-19

In the face of the COVID-19 pandemic, social workers globally have been crucial in responding to heightened psychosocial needs, often operating in resource-constrained environments [26, 27]. Their roles had expanded beyond traditional boundaries, including healthcare involvement and advocacy, addressing intensified emotional and mental health needs [28, 29].This adaptability and resilience, while commendable, also revealed significant challenges, including increased risks of burnout and psychological distress. The pandemic exacerbated existing workloads, and medical social workers faced unique psychological distress and burnout due to expanded and conflicting responsibilities and ethical dilemmas [27]. Additionally, resource scarcity and the impact of their expanded roles on their personal and family lives were pressing concerns [27]. These elevated stressors signal social workers' susceptibility to occupational burnout, particularly in environments lacking adequate support and prioritization of their well-being. In the Chinese context, social workers encountered distinctive challenges during the pandemic, with changes in the work environments, increased workloads, and the psychological impact of the pandemic having an impact on the well-being of Chinese social workers [29].The global health crisis thus serves as a magnifying glass, magnifying existing problems and revealing new challenges in the field of social work. This scenario underscores the need for a deeper understanding of the specific occupational health challenges faced by social workers during crises, with a particular emphasis on burnout and the effectiveness of existing support systems.

Despite the critical role social workers played during the pandemic, there is a lack of detailed understanding in the existing literature regarding their specific support needs during such global crises. Specifically, the moderating effects of organizational support and professional identity on the relationship between work overload and burnout remain underexplored. Our study aims to address this gap by investigating the dynamics of work overload and burnout and considering the potential mitigating roles of organizational support and professional identity. This study seeks to deepen the knowledge of these interrelated factors and advance the development of effective strategies to support social workers.

2.2 Work overload and burnout

Work overload, characterized by excessive job demands, intense stress, and overwork that exceed one's ability to sustain a healthy performance [30, 31], is a pervasive issue in social work. It frequently leads to burnout, first described by Freudenberger [32] and later articulated by Maslach and Jackson [33] as involving emotional exhaustion, depersonalization, and reduced personal accomplishment. Tracing the phenomenon,

the World Health Organization [34] emphasized its global significance. The relationship between work overload and burnout is significant across various professions. Excess of job demands leads to work overload. It results in a state of emotional exhaustion, a key element of burnout [30, 35, 36]. The phenomenon is not confined to a particular sector but is universal. Numerous studies have demonstrated that professionals experiencing high levels of work overload subsequently exhibit increased burnout, which then leads to decreased performance and effectiveness [37, 38]. In social work, this relationship is further complicated by the emotionally intense nature of the job. Social workers deal with high caseloads and clients with complex issues, which brings on work overload and increases the dangers of burnout [39, 40]. The COVID-19 pandemic added additional strain as these workers had to adapt to new roles and responsibilities, further adding to the intensities of their jobs [41, 42]. This issue supports the calls for research into work overload and burnout in social work generally and in the unique context of COVID-19 pandemic times.

The relationship between work overload and burnout is also affected by various factors. Studies suggest that burnout can act as a mediating variable between work overload and job performance, while emotional stability and other personal resources can mitigate the effects of work overload on professional outcomes [37, 38]. However, the extent to which factors such as organizational support and professional identity modify the relationship between work overload and burnout, particularly during and following a pandemic such as COVID-19, has rarely been investigated. Despite extensive research on work overload and burnout, there is a need for more detailed understanding of the direct impact of work overload on burnout among social workers under high work overload conditions, especially during crises like the COVID-19 pandemic. This study aims to address this gap by investigating the direct relationship between work overload and burnout among social workers during and after the COVID-19 pandemic.

2.3 Organizational support, professional identity, and burnout

Organizational support refers to the resources and assistance provided by the organization to the employee, including emotional and instrumental support from co-workers, guidance from supervisors, training opportunities, and job resources provided by the organization [43-45]. Such support is important for social workers as it helps to manage work overload and reduce burnout. The JD-R model specifies organizational support as a work resource that buffers the adverse effects of job demands on burnout [25]. Research has shown that organizational support enhances job satisfaction and reduces burnout, leading to greater commitment and engagement among social workers [46, 47]. Additionally, organizational support can help alleviate the impact of work-family conflict on job burnout [48], and perceived organizational support is consistently associated with lower burnout levels[49]. During crises like the COVID-19 pandemic, organizational support can reduce burnout by providing necessary resources and support[50].

Professional identity refers to an individual's self-concept as a professional, including a sense of belonging to a profession, alignment with the profession's core values, emotional commitment to professional goals and roles[51-54]. It is shaped by personal beliefs, values, experiences, and skills relevant to their chosen field [19] .This is crucial in helping social workers navigate job challenges. It provides a sense of purpose, meaning, and direction [55], essential to staying motivated and committed to their roles. It enables social workers to maintain their stamina, commitment, and integrity and promotes professional growth [56, 57]. A strong professional identity also helps form and maintain positive relationships with clients, colleagues, supervisors, and the organization, improving satisfaction and performance [58, 59]. The COVID-19 pandemic emphasized the importance of professional identity when it comes to social workers' ability to maintain professionalism and motivation despite changes in the work environment and ensure the quality of services [60]. It can serve as a buffer against occupational stress, helping social workers better manage the demands and difficulties of their profession [61].

Despite the established importance of organizational support and professional identity, the extent to which these factors can mitigate the impact of work overload on burnout, particularly during a crisis like the COVID-19 pandemic, remains underexplored. Understanding how these moderating factors influence burnout among social workers is crucial for developing effective support strategies. This study aims to fill this gap by examining the moderating roles of organizational support and professional identity in the relationship between work overload and burnout among social workers during and after the COVID-19 pandemic. By investigating these dynamics across different temporal contexts, this research will provide insights into how these factors can be leveraged to support social workers as they contend with high levels of work-related stress and adapt to current and future challenges.

2.4 Theoretical framework and hypotheses

This study is situated in the JD-R model, as put forward by Bakker and Demerouti [25]. This seminal framework in occupational health psychology explicates how job demands and resources combine to impact employee well-being and job performance. It is particularly salient for understanding burnout in high-pressure professions such as social work, where work overload is a common job demand. In the JD-R model, work overload is not simply a source of employee stress but also a potential precursor to burnout, particularly when not offset by sufficient job resources. The pandemic significantly exacerbated workloads, amplifying stress, and potential burnout scenarios. However, it is crucial to recognize that the nature of work overload in social work is an ongoing concern, not limited to the pandemic period alone. The JD-R model posits that job demands, regardless of their specific context, can lead to stress and potential burnout. In this sense, the pandemic has ramped up certain facets of work overload. However, the fundamental dynamics that the JD-R model delineates work across different time frames. Consequently, based on this broader perspective, the first hypothesis is formulated as follows:

H1: Work overload significantly predicts burnout among social workers in China during and after the COVID-19 pandemic.

Drawing from the JD-R model, the current study offers further insights by recognizing the pivotal role of job resources in mitigating the effect of job demands. In the context of social work, particularly intensified during the pressures of the pandemic, the two job resources of organizational support and professional identity are crucial components. Organizational support, primarily represented by supervisory support, coworker support, and training, is essential external resources that play an indispensable role in alleviating the strain from the increase in job demands [45, 47]. This role is particularly salient in the social work profession, where the pandemic has led to an increase in emotional distress in social workers and challenges due to the speed at which roles have changed, and workload has increased. In consideration of these points, this study proposes the following hypothesis:

H2: Organizational support moderates the relationship between work overload and burnout among Chinese social workers during the COVID-19 pandemic, and this moderating effect is subject to change in the post-pandemic era.

Professional identity, conversely, serves as an essential internal resource and provides social workers stability amidst tumultuous times. It involves aligning one's professional roles and values, becoming instrumental in constructing resilience against job-related stresses. The extraordinary challenges of the pandemic have underscored the significance of cultivating a sturdy professional identity, allowing social workers to navigate the crisis more productively [60]. A thoroughly developed professional identity can capacitate social workers to sustain a sense of purpose and dedication despite being bombarded by

overwhelming demands and uncertainties caused by the pandemic. In light of these insights, the following hypothesis is advanced:

H3: Professional identity moderates the relationship between work overload and burnout among Chinese social workers during the COVID-19 pandemic, with possible variations in this effect post-pandemic.

This research examines the roles of organizational support and professional identity as moderators in the relationship between work overload and burnout amongst social workers, covering both the COVID-19 pandemic and the subsequent post-pandemic period. Acknowledging that these elements play crucial duties under changing situations, the investigation aims to comprehend how organizational support, an external asset, and professional identity, an inner asset, moderate the impact of work overload on burnout in various phases. The investigation within and beyond the pandemic period presents a thorough viewpoint of how these moderating variables function in diverse temporal contexts. This viewpoint adds to a deeper application of the Job Demands-Resources model in understanding occupational stress and resilience in social jobs. This multifaceted investigation seeks to provide a nuanced perspective on external and internal protective factors for social workers under changing circumstances, with implications for policies and practices to bolster organizational support and professional well-being over time.

3. Methodology

3.1 Participants

This study involved social workers from the Pearl River Delta region of Guangdong Province, who were directly involved in the COVID-19 pandemic control efforts. The participants were recruited from 15 social work agencies in this region. Inclusion criteria for the participants were: first, being a social worker affiliated with any of the selected agencies and second, active involvement in COVID-19 pandemic control efforts outside their regular duties. Social workers who did not participate in pandemic control or were not on the frontline were excluded from the study. The initial survey, conducted in July 2022, approached participants using a convenience sampling method. This approach was selected due to the urgency and the practical constraints of the pandemic situation. A total of 675 responses were collected. However, after discarding those who have not participated in epidemic prevention and control or are not front-line social workers, 606 questionnaires were retained for analysis. In July 2023, a second survey was distributed to social workers from the same agencies to understand the evolving impact of the pandemic over time. Challenges such as reduced staffing in some agencies, high turnover of social workers, and voluntary participation reduced the number of respondents to 419. After removing responses from those who have not participated in epidemic prevention and control or are not front-line social workers, 336 questionnaires were considered valid and included in the final analysis.

The descriptive characteristics of the study participants and the control variables across the survey years 2022 and 2023 are shown in **Table 1**. In 2022, from the total of 606 participants, the majority were female (84.82%), with a substantial proportion aged between 27-35 years (44.39%). Most participants were married (52.15%) and did not have children (60.07%). The prevalent monthly salary range was 3001-5000 RMB (53.80%). Regarding job tenure in social work, the responses were fairly distributed across different durations, yet the segments of under one year (11.89%) and more than ten years (18.65%) were notably represented. The educational level of participants was predominantly undergraduate (54.46%). The 2023 survey with 336 respondents showed a similar gender distribution, with females comprising 81.55% of the sample. The age groups mirrored the previous year, with 27-35 years remaining the largest (44.94%). Marital

status slightly shifted towards a higher percentage of married individuals (54.17%). A majority of participants did not have children (62.80%), and the 3001-5000 RMB salary range remained common (48.51%). Job tenure in social work saw a slight increase in those with less than one year of experience (16.07%). Educational attainment in 2023 showed an increase in undergraduate degree holders (64.58%). These demographic profiles and control variables offer valuable insights into the social work sector during the pandemic, highlighting a predominantly female workforce, mid-aged, married, without children, earning a moderate income, with a significant portion possessing an undergraduate degree.

Table 1. Description of the sample of this study

Variables	2022(N = 606)		2023(N = 336)	
	N	%	N	%
Gender				
Male	92	15.18	62	18.45
Female	514	84.82	274	81.55
Age				
19-26	222	36.63	129	38.39
27-35	269	44.39	151	44.94
36-45	90	14.85	52	15.48
Over 46 years old	25	4.13	4	1.19
Marital status				
Unmarried	282	46.53	146	43.45
Married	316	52.15	182	54.17
Divorced	5	0.83	7	2.08
Widowed	3	0.50	1	0.30
Have children or not				
Have	242	39.93	125	37.20
Not have	364	60.07	211	62.80
Monthly salary (RMB)				
Under 3000	97	16.01	52	15.48
3001-5000	326	53.80	163	48.51
5001-7000	135	22.28	74	22.02
7001-10000	29	4.79	36	10.71
Over 10001	19	3.14	11	3.27
Job tenure in social work(Year)				
Under 1 year	66	11.89	54	16.07
Within 1-3 years	126	20.79	78	23.21
Within 3-5 years	111	18.32	53	15.77
Within 5—7 years	103	17.00	44	13.10
Within 7—10 years	87	14.36	38	11.31
More than 10 years	113	18.65	69	20.54
Education attainment				
High school/junior vocational school or below	24	3.96	6	1.79
Vocational college	208	34.32	102	30.36
Undergraduate	330	54.46	217	64.58
Postgraduate or higher	44	7.26	11	3.27

3.2 Instruments

The survey items used in this study are detailed in Table 2.

Dependent variable: Burnout was evaluated using the widely recognized Maslach Burnout Inventory-Human Services Survey (MBI-HSS) by Maslach and Jackson [33], which includes emotional exhaustion, depersonalization, and personal accomplishment subscales. This scale has high internal consistency as shown in Table 2.

Independent variable: Work overload was operationalized as items reflecting the demands of the job such as time pressure, workload, and urgency of the task, which is consistent with the definitions provided in the literature review. The specific items are summarized in **Table 2**.

Moderator: Organizational support was assessed by focusing on various forms of assistance provided within the workplace, including emotional and practical support from coworkers, guidance from supervisors, and access to necessary resources, such as counseling and training. Professional identity was measured through items evaluating work passion, value alignment, and professional commitment. This all consistent with the definitions provided earlier in this study.

Control variables：Demographic and job-related factors known to influence burnout were controlled for, including gender, age, and education level, which previous research has shown to correlate with burnout in social workers [62]. Furthermore, marital status was included due to their reported significance in social workers' well-being within the Chinese context [63]. The analysis also accounted for salary and tenure in social work, which are recognized predictors of workplace well-being [62,64].

Table 2. Survey items and reliability.

Variables	Item	Response Scale	Cronbach's Alpha
Burnout	Emotional exhaustion (9 items) Depersonalization (5 items) Personal accomplishment (8 items)	0 (never) to 6 (every day)	0.91 (EE) 0.84 (DP) 0.93 (PA)
Work overload	Insufficient sleep due to work ; Excessively long working hours ; Frequent urgent tasks with insufficient hours ; Having a large amount of daily work ; Having endless tasks at work(5 items)	1 (strongly disagree) to 5 (strongly agree)	0.90 (2022) 0.89 (2023)
Organizational support	Lack of relevant consultation and training at work(reverse) ; When I need assistance from coworkers at work, they help me ; My coworkers share their work experiences and insights with me ; The organization is provided the resources necessary to do its work effectively ; My supervisor provides me with guidance when I encounter difficulties at work (5 items)	1 (strongly disagree) to 5 (strongly agree)	0.75 (2022) 0.73 (2023)
Professional identity	The current work is of great value and significance ; I don't quite agree with the values of my job(reverse) ; My current job is a temporary choice(reverse) ; I am passionate about my profession ; I am pleased to belong to this profession ; My current job is not very attractive to me (reverse) (6 items)	1 (strongly disagree) to 5 (strongly agree)	0.73 (2022) 0.68 (2023)

Note: Reverse-scored items are indicated as (reverse)

3.3 Data Collection Procedures

This research collect data in two phases, first in 2022 and then in 2023, using the same structured questionnaire in both years to ensure consistency in data collection. Participants' informed consent was secured, emphasizing the voluntary nature of their participation, their right to withdraw at any time, and the confidentiality of their responses. A small compensation was offered to acknowledge their contribution. The unmatched repeated cross-sectional design was used to effectively capture the changing experiences of social workers over time, particularly in the dynamic context of the COVID-19 pandemic. This design helps to collect data at multiple time points, allowing for a nuanced understanding of change over time. Although longitudinal studies can provide more reliable data, several limitations make this approach impractical for our study. COVID-19 Pandemics present significant challenges, including high turnover of social workers and logistical difficulties in reconnecting participants. In addition, government-funded social work program budget cuts in the post-pandemic period exacerbated the loss of social workers[65]. These factors hindered our ability to track the same individuals over time. Therefore, we selected a design that, although less common, is more feasible and has been successfully applied in related fields to study occupational stress and adjustment during crises [66,67].

3.4 Data Analysis

Data analysis was executed using Stata 15.0, encompassing descriptive statistics, bivariate correlation, and moderated multiple regression analysis. Descriptive statistics and bivariate correlation were initially applied to the primary variables (independent, dependent, and moderator variables). Subsequently, moderated multiple regression analysis assessed the potential buffering or reversing effects of organizational support and professional identity on the relationship between work overload and burnout during and after the pandemic.

We selected Stata 15.0 for data analysis due to its robust statistical capabilities and wide acceptance in social science research. Stata provides comprehensive tools for data management, statistical analysis, and graphical representation, which are essential for handling complex survey data and performing advanced statistical tests. Additionally, Stata's user-friendly interface and extensive documentation facilitate efficient data analysis and interpretation. The effectiveness of Stata has been demonstrated in similar research contexts[68].

4. Results

4.1 Overview of Descriptive Statistics and Correlation Analysis

Tables 3 and 4 display the means, standard deviations, and correlations of the three dimensions of burnout, work overload, organizational support, and professional identity during and after COVID-19.

Tables 3 display during the COVID-19 period in 2022, social workers experienced significant levels of burnout, manifested across three dimensions: emotional exhaustion, depersonalization, and personal accomplishment, with mean scores of 21.43, 6.50, and 30.13, respectively. Work overload showed a positive correlation with emotional exhaustion ($r = .53$, $p < .001$), depersonalization ($r = .30$, $p < .001$), and personal accomplishment ($r = .08$, $p < .01$). Organizational support was negatively correlated with emotional exhaustion ($r = -.33$, $p < .001$) and depersonalization ($r = -.38$, $p < .001$), and positively correlated with personal accomplishment ($r = .32$, $p < .001$). Furthermore, professional identity was found to be negatively correlated with emotional exhaustion ($r = -.61$, $p < .001$) and depersonalization ($r = -.53$, $p < .001$) and positively correlated with personal accomplishment ($r = .19$, $p < .001$).

Table 3. Descriptive statistics and correlation coefficients of each component of burnout, work overload, organizational support, and professional identity during COVID-19 in 2022 (N=606).

Variables	Mean	SD	1	2	3	4	5	6
1.EE (0–54)	21.43	12.59	1					
2.DP (0–30)	6.50	6.64	0.72***	1				
3.PA (0–48)	30.13	9.77	0.03	–0.06	1			
4.WO (5–25)	16.73	4.71	0.53***	0.30***	0.08**	1		
5.OS (5–25)	19.32	3.20	–0.33***	–0.38***	0.32***	–0.20***	1	
6.PI (5–30)	18.94	4.05	-0.61***	–0.53***	0.19***	–0.50***	0.39***	1

*p < .05; **p < .01; ***p < .001. EE: emotional exhaustion, DP: depersonalization, PA: personal accomplishment, WO: work overload, OS: organizational support, PI: professional identity.*

Table 4 shows after pandemic in 2023, the average scores for the three dimensions of burnout among social workers, emotional exhaustion, depersonalization, and personal accomplishment were 18.58, 6.59, and 26.84, respectively. Work overload continued to be positively correlated with emotional exhaustion (r = .53, p < .001), depersonalization (r = .32, p < .001), and personal accomplishment (r = .11, p < .01). Organizational support showed negative correlations with emotional exhaustion (r = -.32, p < .001) and depersonalization (r = -.40, p < .001), and a positive correlation with personal accomplishment (r = .37, p < .001). Similarly, professional identity was negatively correlated with emotional exhaustion (r = -.57, p < .001) and depersonalization (r = -.55, p < .001) and positively correlated with personal accomplishment (r = .15, p < .01).

Table 4. Descriptive statistics and correlation coefficients of each component of burnout, work overload, organizational support, and professional identity post-COVID-19 in 2023 (N=336).

Variables	Mean	SD	1	2	3	4	5	6
1.EE (0–54)	18.58	9.88	1					
2.DP (0–30)	6.59	5.52	0.75***	1				
3.PA (0–48)	26.84	8.65	-0.02	-0.05	1			
4.WO (5–25)	15.50	4.76	0.53***	0.32***	0.11**	1		
5.OS (5–25)	19.04	3.21	–0.32***	–0.40***	0.37***	-0.10	1	
6.PI (5–30)	19.66	3.75	-0.57***	–0.55***	0.15**	–0.37***	0.39***	1

*p < .05; **p < .01; ***p < .001. EE: emotional exhaustion, DP: depersonalization, PA: personal accomplishment, WO: work overload, OS: organizational support, PI: professional identity.*

The cut-off points of the MBI-HSS in the Chinese version were: EE: low ≤16, moderate 17-26, high ≥27; DP: low ≤6, moderate 7–12, high ≥13; PA: low ≤31, moderate 32–38, high ≥39 [69-71]. Based on these criteria, the study found that social workers experienced moderate levels of emotional exhaustion, depersonalization, and low levels of personal accomplishment during the pandemic. Interestingly, in the post-pandemic phase, there was a notable decline in levels of emotional exhaustion and personal accomplishment among the social workers.

4.2 Moderated multiple regression analysis

4.2.1 Impact of Work Overload on Burnout

Tables 5 and 6 summarize the moderated multiple regression analysis predicting burnout from work overload, organizational support, professional identity, and their interaction term (work overload × organizational support) during and post-COVID-19 in 2022 and 2023. Control variables included

demographic (gender, age, marital status, educational attainment) and job-related characteristics (monthly salary, social work tenure). In 2022, work overload significantly predicted emotional exhaustion (β = .85, p < .001) and personal accomplishment (β = .52, p < .001). In 2023, these effects persisted, with work overload remaining a significant predictor of emotional exhaustion (β = .79, p < .001), depersonalization (β = .17, p < .001), and personal accomplishment (β = .31, p < .001). Therefore, Hypothesis 1 is confirmed.

4.2.2 Moderating Role of Organizational Support and Professional Identity

Tables 5 show that during the COVID-19 pandemic in 2022, the moderating effects of professional identity and organizational support on burnout dimensions were quantitatively distinct. The analysis indicated that professional identity moderated the relationship between work overload and emotional exhaustion significantly (β = - .04, p < .05). The model incorporating this interaction accounted for 47.9% of the total variance in emotional exhaustion, with the interaction term (work overload × professional identity) itself contributing an additional 0.3%. Furthermore, professional identity's moderating effect was also evident in the relationship between work overload and depersonalization (β = -.04, p < .001). In this instance, the moderation model explained 34.4% of the total variance of depersonalization, and the specific interaction term (work overload × professional identity) contributed an additional 1.4% to the variance. Contrastingly, in the dimension of personal accomplishment, it was organizational support that moderated the relationship between work overload and personal accomplishment (β = -.10, p < .001). Here, the moderation model accounted for 17.3% of the total variance in personal accomplishment, with the interaction between work overload and organizational support explaining a further 2.4% of the variance. These results underscore the differentiated moderating roles of professional identity and organizational support across various burnout dimensions.

Table 5. Results of the moderated multiple regression analysis on how Organizational support and Professional identity moderate the effect of work overload on each component of burnout during COVID-19 in 2022 (N=606).

Variables	Emotional exhaustion		Depersonalization		Personal accomplishment	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Work overload	0.85***	0.89***	0.08	0.11**	0.52***	0.56***
	(0.09)	(0.09)	(0.05)	(0.06)	(0.09)	(0.09)
Organizational support	-0.44***	-0.46***	-0.40***	-0.43***	0.88***	0.83***
	(0.13)	(0.13)	(0.08)	(0.08)	(0.13)	(0.12)
Professional identity	-1.14***	-1.12***	-0.66***	-0.64***	0.52***	0.53***
	(0.12)	(0.12)	(0.07)	(0.07)	(0.11)	(0.11)
Work overload× Organizational support		0.00		0.00		-0.10***
		(0.02)		(0.01)		(0.02)
Work overload× Professional identity		-0.04**		-0.04***		0.01
		(0.02)		(0.01)		(0.02)
Age	0.28	0.17	0.17	0.06	1.23*	1.28*
	(0.68)	(0.68)	(0.41)	(0.40)	(0.67)	(0.66)
Have children or not	-2.89**	-3.07**	-1.28	-1.48*	-0.56	-0.29
	(1.37)	(1.377)	(0.82)	(0.81)	(1.36)	(1.34)
Job tenure in social work	-0.68**	-0.61*	-0.36*	-0.28	-0.54	-0.62*
	(0.35)	(0.35)	(0.21)	(0.21)	(0.34)	(0.34)

Variables	Emotional exhaustion		Depersonalization		Personal accomplishment	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Education attainment	-0.74	-0.80	-0.02	-0.08	1.09*	1.09*
	(0.59)	(0.59)	(0.35)	(0.35)	(0.58)	(0.58)
Constant	41.99***	41.37***	26.72***	26.09***	-6.51	-6.92
	(4.47)	(4.46)	(2.66)	(2.64)	(4.42)	(4.36)
adj_R^2	0.476	0.479	0.330	0.344	0.149	0.173
ΔR^2	0.476	0.003	0.330	0.014	0.149	0.024

Standard errors in parentheses. The variables with no significant effects in any model are not present in the table, including gender, marital status, and monthly salary.

*p < .05; **p < .01; ***p < .001.

Table 6 revealed that after COVID-19 in 2023, organizational support had a more pronounced moderating effect on the relationship between work overload and various components of burnout. Specifically, significant interaction effects were observed between work overload and organizational support in predicting emotional exhaustion (β = -.06, p < .01) and personal accomplishment (β = -.12, p < .001). These interactions contributed to an additional 0.7% variance in emotional exhaustion (p < .001), with the full moderation model accounting for 49.3% of its total variance. In terms of personal accomplishment, the model explained an additional 3.9% of variance (p < .001), covering 20.5% of its total variance. Moreover, professional identity showed a significant effect only in predicting depersonalization. Notably, organizational support (β = -.03, p < .01) and professional identity (β = -.02, p < .05) together explained an additional 1.9% of the variance in depersonalization, which accounted for 38.6% of its total variance, underscoring their combined significance in this dimension of burnout.

During the COVID-19 pandemic, professional identity significantly moderated the effects of work overload on emotional exhaustion and depersonalization among social workers, while organizational support primarily enhanced personal accomplishment. Post-pandemic, organizational support's moderating role expanded, significantly impacting all burnout dimensions, with its influence becoming more pronounced compared to professional identity, which continued to weakly affect depersonalization. These findings indicate that the moderating effects of professional identity and organizational support on burnout vary in prominence and scope depending on the temporal context of the pandemic. Hypotheses 2 and 3 are confirmed.

Table 6. Results of the moderated multiple regression analysis on how Organizational support and Professional identity moderate the effect of work overload on each component of burnout post-COVID-19 in 2023（N=336）

Variables	Emotional exhaustion		Depersonalization		Personal accomplishment	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Work overload	0.79***	0.79***	0.17***	0.17***	0.31***	0.30***
	(0.09)	(0.09)	(0.05)	(0.05)	(0.10)	(0.10)
Organizational support	-0.45***	-0.54***	-0.40***	-0.44***	0.94***	0.68***
	(0.13)	(0.14)	(0.08)	(0.09)	(0.15)	(0.16)
Professional identity	-0.84***	-0.78***	-0.54***	-0.51***	0.12	0.25*
	(0.12)	(0.13)	(0.08)	(0.08)	(0.14)	(0.14)
Work overload× Organizational support		-0.06**		-0.03**		-0.12***
		(0.03)		(0.02)		(0.03)
Work overload× Professional identity		-0.0109		-0.02*		0.02
		(0.0194)		(0.01)		(0.02)

Variables	Emotional exhaustion		Depersonalization		Personal accomplishment	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age	-1.69**	-1.74**	-0.29	-0.37	0.07	0.11
	(0.82)	(0.82)	(0.51)	(0.50)	(0.91)	(0.89)
Have children or not	-2.16*	-2.05	-0.45	-0.31	1.501	1.49
	(1.26)	(1.26)	(0.78)	(0.77)	(1.41)	(1.38)
Monthly salary	-0.97*	-0.84*	-0.28	-0.20	1.17**	1.43***
	(0.50)	(0.50)	(0.31)	(0.31)	(0.56)	(0.55)
Job tenure in social work	0.98***	0.97***	0.17	0.17	-0.06	-0.09
	(0.36)	(0.35)	(0.22)	(0.22)	(0.40)	(0.39)
Constant	33.63***	33.99***	21.11***	20.96***	-3.17	-1.36
	(4.47)	(4.48)	(2.77)	(2.75)	(4.98)	(4.91)
adj_R2	0.486	0.493	0.367	0.386	0.166	0.205
ΔR^2	0.486	0.007	0.367	0.019	0.166	0.039

Standard errors in parentheses. The variables with no significant effects in any model are not present in the table, including gender, marital status, and education attainment.

*$p < .05$; **$p < .01$; ***$p < .001$.

5. Discussion

This study yields important insights into burnout experienced by social workers during and after COVID-19. Work overload consistently correlated with higher emotional exhaustion, greater depersonalization, and greater personal accomplishment. This suggests that while work overload can lead to increased emotional exhaustion and depersonalization, it can also enhance the sense of personal accomplishment among social workers. These findings contrast with some previous research, which found work overload to be associated with emotional exhaustion and depersonalization, but did not find a positive correlation with personal accomplishment[73,74]. This discrepancy might be attributed to the unique context of social work during the pandemic, where overcoming challenges may enhance a sense of achievement despite increased stress.

Findings from the study indicate that social workers experienced moderate levels of emotional exhaustion, depersonalization, and low levels of personal accomplishment during the pandemic. Interestingly, after the pandemic, there was a notable decline in levels of emotional exhaustion and personal accomplishment among the social workers. Although this finding suggests a partial recovery as the immediate crisis subsided, caution is warranted in interpreting these results due to the non-paired sample design, which does not allow for a direct pre-post comparison. Future research using longitudinal designs is necessary to confirm these trends and better understand the long-term impacts of the pandemic on social workers' well-being.

The study found that during the COVID-19 pandemic, professional identity significantly moderated the effects of work overload on emotional exhaustion and depersonalization among social workers, while organizational support primarily enhanced personal accomplishment. This result reflects the JD-R model's emphasis on personal resources in coping with job demands under crisis conditions [25, 72]. During the pandemic, the renewed salience of professional identity may reflect social workers' reliance on internal coping processes, such as identity reinforcement, in times of heightened uncertainty and stress. Conversely, post-pandemic organizational support demonstrated a broader moderating effect across all three burnout dimensions, suggesting a shift in resource dynamics. This shift is in line with the JD-R model's contention that external resources, such as organizational support, become more central when the immediate crisis fades,

and the work environment stabilizes [75, 76]. This centralization could mark a movement away from crisis management to consideration of sustainable work practices and support systems.

The varying roles of organizational support and professional identity during and after the pandemic reflect the dynamic nature of job resources, personal resources, and their effectiveness depending on external circumstances. These insights coincide with and contribute new understandings to the JD-R model, which proposes that job demands like excess workload can cause burnout. At the same time, resources, including support from one's organization and a strong professional identity, may lessen the impact of burnout. This research validates this proposition and offers additional context by revealing how these protective factors play varying roles in burnout and shift their importance between the height of the pandemic and the period afterward.

The study highlights the importance of adaptable support strategies that respond to the changing needs of social workers over time. During the pandemic, enhancing professional identity can be particularly beneficial, as it helps social workers cope with increased demands. After pandemic, reinforcing organizational support can address the ongoing challenges and stabilize the workforce. These findings highlight the importance of adaptable support strategies that respond to the changing needs of social workers over time. A resilient professional spirit and workplace community offering refuge helped maintain well-being in this tumultuous season for many.

6. Implications

The study's findings have significant implications for social work practice and policy, especially in a post-pandemic era. As the clear link between work overload and increased burnout indicates, organizational interventions need to target workload management. Policies might include job redesign, workload balancing, and providing additional resources[77]. That professional identity and organizational support play distinct roles in mitigating burnout suggests that interventions should be tailored to the specific stage of crisis and recovery. Professional identity can be enhanced through training and development[78], while organizational support structures can be improved to sustain the well-being of social workers[79]. The findings of this study also suggest that there needs to be increased attention on developing resilience and professional identity in social work education and training programs. Educators and trainers should focus on developing skills to bolster professional identity and the competencies for effectively coping with work-related stress[80, 81]. Additionally, programs that create collegiality and mentorship should be fostered, which can help social workers navigate the challenges of their roles.

7. Limitations

This study's non-matched repeated cross-sectional design, while well-suited to capturing the collective experience of social workers at two different points in time, has inherent limitations. The absence of longitudinal tracking of the same participants across the two phases of the study limits our ability to make firm inferences about individual-level changes over time. Furthermore, the utilization of convenience sampling, while necessary under the constraints of the COVID-19 pandemic, may have resulted in a sample that does not fully represent social workers across the Pearl River Delta region. This drawback may have introduced selection biases that impact the generalizability of the study's findings. The dramatic drop in respondents from the 2022 to 2023 survey (from 606 to 336 respondents) could raise potential concerns about the consistency and representativeness of the sample. Characteristics of the respondent pool in the follow-up survey, such as high turnover of social workers or a decrease in staffing, might have influenced these changes. These changes in the participant pool could affect comparability across the survey phases,

potentially biasing understanding of how the pandemic's impacts on social workers may have been evolving. While the study is a valuable contribution to understanding the experiences of social workers involved in COVID-19 pandemic control in the Pearl River Delta region, the specific context in which it takes place may limit the extent to which the results can be generalized to other crisis situations or other regions. The regional context of the study and the specificities of pandemic control work might limit the degree to which its results can be transferred to other social work settings or crises.

8. Conclusion

This study provides significant insights into the impact of work overload on social workers' burnout during and after the COVID-19 pandemic, revealing critical roles for both organizational support and professional identity. The findings underscore that work overload is positively associated with higher levels of emotional exhaustion and depersonalization, yet it also correlates with increased personal accomplishment among social workers. This paradoxical effect suggests that while excessive job demands can strain social workers emotionally, they may also derive a sense of achievement from managing high workloads. Organizational support plays a pivotal role in mitigating the negative impacts of work overload, especially in the post-pandemic period. During the pandemic, professional identity emerged as a crucial buffer, helping to reduce emotional exhaustion and depersonalization. This highlights the dynamic nature of job resources, where the importance of organizational support and professional identity shifts based on the context and timing of the stressors.

These results extend the Job Demands-Resources (JD-R) model by illustrating how the roles of job resources can evolve, providing empirical evidence for the model's adaptability. The study emphasizes the need for adaptive support mechanisms and professional resilience, particularly in high-pressure professions during crises like the COVID-19 pandemic. However, the study's non-paired sample design limits direct during and after pandemic comparisons, suggesting that future research should adopt longitudinal designs to better track these changes over time. Such research could also explore these dynamics across different cultural and occupational contexts to enhance generalizability. By focusing on the evolving dynamics of burnout during a global pandemic, this study contributes new knowledge to the field of occupational health psychology. It underscores the need for ongoing support and development strategies for social workers to ensure their well-being and sustained professional commitment in the face of future challenges.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contributions

Investigate, data analyse and writing, Lizhen Wei; Supervision, Nur Saadah Mohamad Aun, Fauziah Ibrahim and Surendran Rajaratnam. All authors have read and agreed to the published version of the manuscript.

Compliance with ethical standards

The current study was completely funded by the authors of the paper from their personal funds. The procedures recommended by the institutional and/or national research committee, involving human participants have been strictly followed. Informed consent was obtained from all the participants included in the study and their responses will be kept confidential at all stages.

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