Regression Analysis of the Job Burnout of Street-Level Bureaucracy under the Background of Applied Statistics

Wei Geng[1*], Kaiqiao Yang[1], He Wang[1]

[1]*People's Public Security University of China, Beijing, 100038, China*
**Corresponding author: waynegeng@stu.ppsuc.edu.cn*

Abstract

With the continuous improvement of the efficiency and effect of big data on grassroots government participation in social governance, government digitization has become an important measure to improve the government's grassroots social governance ability. The purpose of this paper is to explore the causes of job burnout of grassroots government personnel under the background of digital government and to explore the relationship and influence mechanism between job burnout and job tension of grassroots government personnel based on a regression analysis model. Using the OSI-R scale and the MBI-HSS scale, it is found that the heavy work task of street-level bureaucracy will significantly impact the emotional exhaustion of job burnout, and the task ambiguity will also have a significant impact on the emotional exhaustion of job burnout. In addition, role stress plays an intermediary role in the relationship between occupational stress and job burnout of street-level bureaucracy. Therefore, the grassroots government should be aware of street-level bureaucracy's social and psychological needs, reasonably set up posts and personnel arrangements, reduce the burden of heavy government work for street-level bureaucracy, and implement a sustainable digital government personnel resource management scheme.

Keywords: *Applied statistics; Regression analysis; Street-level bureaucracy; Job burnout; Occupational stress*

1. Introduction

The wide application of big data technology provides opportunities for the digitization of grassroots government and the diversified transformation of social governance. It effectively improves the efficiency and effect of grassroots government participation in social management. It makes grassroots government assume more responsibilities in the multi governance social governance system to coordinate the social interest conflicts among various governance subjects [1]. Facing the unbalanced relationship between grassroots government and multiple issues of social governance caused by the interweaving of interests, the governance mechanism and government organization ability reflect a relative lag. The overlapping of service functions, governance responsibilities, and work transparency puts forward more comprehensive requirements for street-level bureaucracy [2]. Therefore, street-level bureaucracy faces tremendous work pressure, resulting in frequent physical and mental illness[3]. Under the background of the era of big data, to explore the relationship between street-level bureaucracy burnout and emotional exhaustion[4], this paper investigates the occupational tension, emotional fatigue, and its generation mechanism of street-level bureaucracy burnout by using occupational stress scale and MBI-HSS burnout scale, construct the relationship model between occupational stress and emotional exhaustion in job burnout. This paper selects the staff of a grassroots government in China as the research sample in the research process. It collects relevant data with the help of a general demographic data questionnaire, occupational stress scale, and MBI-HSS burnout scale. We analyze, integrate, and process the obtained data and deeply excavate the internal relationship between role overload, role ambiguity, role boundary, and emotional exhaustion in the occupational role of street-level bureaucracy. Thus, it provides a fundamental basis for improving the professional identity and sense of honour

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of street-level bureaucracy, reducing its professional tension and the occurrence of job burnout.

2. Research design

2.1. Research subjects

In the era of big data, the grassroots government has become the provider of complex public services and the coordinator of social governance subjects. All stress of social governance has various demands on it. The grassroots government staff directly bear the responsibility of government operation and problem-solving under the constraints of multiple rules and regulations. In addition, due to the influence of professional characteristics and social background, this group is always under tremendous work pressure. Once the adverse effects of these pressures penetrate the work process, it may lead to severe problems of social governance. Firstly, the research team collected the preliminary information of the subjects through the general population selection questionnaire. Then, we used the OSI-R occupational stress scale and MBI-HSS occupational burnout scale to make statistics on the occupational stress and burnout of street-level bureaucracy and its influencing factors.

From September to November 2021, the research team selected the staff of the City B government as the research sample to study their job stress and job burnout. We selected the subjects according to the following 4 inclusion criteria: (1) Government staff with professional qualifications; (2). Aged from 18 to 60; (3) Working for more than 1 year; (4) Participation in the questionnaire is voluntary. In addition, the research team excluded non-on-the-job government staff during an internship or further education and those who were unable to participate in the questionnaire due to vacation or other objective reasons.

2.2. Measurement tools

Some of the secondary scales of OSI-R inventory and MBI-HSS inventory are used as tools to measure occupational role stress and job burnout. The Likert-type scale scoring method is adopted, also known as the 5-point scoring method. Civil servants in city B were selected as subjects using a stratified sampling method. A total of 450 questionnaires were distributed, and 441 (98.00%) were recovered. To ensure sample data quality, the researchers screened out the questionnaires whose answer repetition rate was higher than 70% and finally got 424 valid questionnaires (96.15%).

(1) OSI-R inventory

The occupational stress inventory - revised Edition (OSI-R) developed by Samuel H. Osipow since 1981 has been revised seven times, comprehensively and systematically reflecting occupational stress, stress response, and strain capacity[5]. OSI-R has three secondary scales: occupational role questionnaire (ORQ), emotional strain questionnaire (PSQ), and personal resources questionnaire (PRQ). These questionnaires have 6, 4, and 4 dimensions, respectively. The occupational role questionnaire includes role overload (RO), Role Inventory (RI), role ambiguity (RA), role boundary (RB), responsibility (R), and physical environment (PE). RO, RA, and RB are selected as the occupational role questionnaire measurement tools. In this study, the Cronbach α coefficient of this scale is 0.956.

(2) MBI-HSS inventory

Maslach's job burnout inventory is currently the most used measurement of job burnout[6]. There are three secondary scales in the MBI-HSS inventory: emotional examination (EE), depolarization (DP), and personal accuracy (PA). The emotional examination scale is selected as the measurement tool. In this study, the Cronbach α coefficient of this scale is 0.780.

(3) Statistical processing

SPSS22 0 data analysis software and AMOS21.0 software carry out standard method deviation tests, descriptive statistics, and correlation analysis of various variables; The macro program PROCESS of SPSS software is used to test the mediating effect between variables.

(4) Reliability and validity analysis

We tested the Cronbach α Coefficient and CITC value of the inventories for reliability analysis. The data validity was determined by the KMO value test and Bartlett sphericity test.

According to our test, the overall Cronbach α coefficient of the scale is 0.909, greater than 0.9, which shows that the reliability quality of the research data is very high and can be used for further research. The validity data of the tested scale are shown in Table 1. The corresponding commonality values of all research items are higher than 0.4, indicating that the research item information can be extracted effectively. The KMO value of the scale is 0.899, and the KMO value is greater than 0.8, reflecting the scale's high validity.In addition, the variance interpretation rate values of the 12 factors are 16.487%, 8.837%, 8.554%, 7.131%, 4.708%, 3.925%, 3.464%, 3.326%, 2.947%, 2.610%, 2.440%, 2.350%, the interpretation rate of cumulative variance after rotation was 66.780% > 50%., it means that the amount of information of the research item can be extracted effectively, and the research data is suitable for extracting information.

Table 1. KMO and Bartlett test

KMO value		0.899
Bartlett sphericity test	Approximate chi-square	7352.310
	df	1326
	p value	0.000

3. Research results

3.1. Correlation analysis

It can be seen from Table 2 that correlation analysis is used to study the correlation between emotional exhaustion and role boundary, role ambiguity, role overload[7]. Pearson correlation coefficient is used to represent the strength of the correlation[8]. Specific analysis shows that:

The correlation coefficient between emotional exhaustion and role boundary is 0.590 and shows the significance of 0.01 level, which shows a significant positive correlation between emotional exhaustion and role boundary. The correlation coefficient between emotional exhaustion and role ambition is 0.507. It shows a significance of 0.01 level, which shows a significant positive correlation between emotional exhaustion and role ambition. The correlation coefficient between emotional exhaustion and role overload is 0.527. It shows the significance of 0.01 level, which shows a significant positive correlation between emotional exhaustion and role overload.

Table 2. Pearson correlation analysis

Dimensions		Emotional exhaustion
Role boundary	correlation coefficient	0.590**
	p value	0.000
Role ambition	correlation coefficient	0.507**
	p value	0.000
Role overload	correlation coefficient	0.527**
	p value	0.000

*$p<0.05$ **$p<0.01$

3.2. Impact analysis

Stepwise regression analysis was carried out with role boundary, role ambiguity, role overload as independent variables, and emotional exhaustion as dependent variables. After the automatic identification of the model[9], the remaining two items: role boundary and role overload, are in the model. The specific analysis data can be seen in Table3. It is found that all VIF values in the model are less than 5, which means that there is no collinearity problem. In addition, the D-W value is close to 2, which indicates that there is no autocorrelation in the model, there is no correlation between sample data, and the model is suitable.

Table 3. Stepwise regression analysis (n=258)

	Regression coefficient	95% CI	VIF
Constant	4.944* (*t*=2.038)	0.189 ~ 9.699	-
Role boundary	0.516** (*t*=7.768)	0.386 ~ 0.646	1.362
Role overload	0.437** (*t*=5.441)	0.280 ~ 0.595	1.362
R^2		0.416	
Adjusted R^2		0.412	
F value		*F*(2,255)=90.912,*p*=0.000	

Dependent variables: emotional exhaustion, D-W value=1.967, *$p<0.05$ **$p<0.01$

The model formula is: EE = 4.944 + 0.516 * Rb + 0.437 * RO, and the R-square value is 0.416, which means that role boundary and role overload can explain 41.6% of the change of emotional exhaustion. Moreover, the model passed the F test (F = 90.912, P = 0.000 < 0.05), indicating that the model is effective.

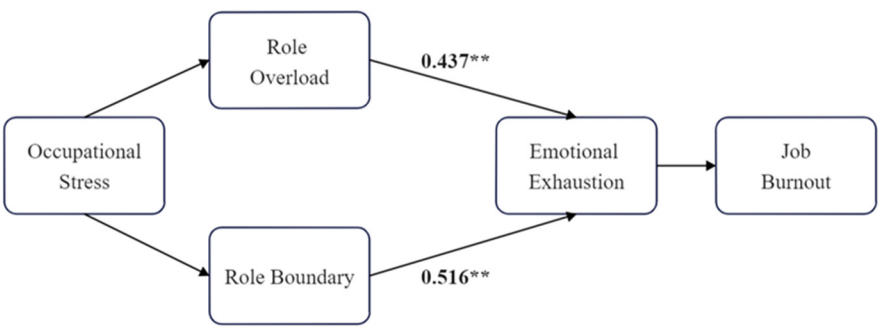

Fig.1 Schematic diagram of the correlation mode

The final specific analysis shows that the regression coefficient of role boundary is 0.516 ($t = 7.768$, $P = 0.000 < 0.01$), which means that role boundary will have a significant positive impact on emotional exercise [10]. The regression coefficient of role overload is 0.437 ($t = 5.441$, $P = 0.000 < 0.01$), which means that role overload will have a significant positive impact on emotional exhaustion. According to the summary and analysis, role boundary and role overload will significantly positively impact emotional exhaustion.

4. Conclusion

The results show that the occupational role overload of street-level bureaucracy will significantly impact the emotional exhaustion of job burnout, and role ambition will also have a significant impact on the emotional exhaustion of job burnout. The occupational role plays an intermediary role in the relationship between occupational stress and job burnout of street-level bureaucracy. It can be seen that the heavy government work and the uncertainty of the task are the crucial inducements for the loss of grassroots government personnel. Street-level bureaucracy is not only an "organization person" with formal establishment and completion of government affairs but also a "social person" with ideological concepts, emotional needs, and interest considerations. Reasonably arranging daily work and clarifying the direction and timeliness of tasks are conducive to alleviating the occupational stress of street-level bureaucracy and improving the psychological status of emotional exhaustion of grassroots government personnel [11]. In addition, from the perspective of two-factor theory, on the one hand, government managers can reduce job burnout by improving the salary of street-level bureaucracy and timely awarding spiritual commendation; On the other hand, government managers can stimulate the work enthusiasm of street-level bureaucracy by establishing a fair reward and punishment system and a reasonable performance appraisal system.

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