Pakistan Journal of Psychological Research, 2025 Vol. 40, No. 2, 435-459

https://doi.org/10.33824/PJPR.2025.40.2.26

Development and Validation of Job Characteristics Scale for Pakistani Police Investigation Personnel

Usman Ahmad Zaheer and Rafia Rafique

University of the Punjab

The objective of the study is to develop and validate the job characteristics scale for police investigation personnel based on the Job demand and Resource model (JDR). For this purpose, a purposive sampling technique was employed and police investigation personnel (*N = 170*) were taken from the police stations of all districts of Punjab Pakistan. The development and validation comprised two phases, which were further divided into many steps like domain specification, item generation, content validity, pilot testing, main data collection, item reduction, dimensionality assessment, and psychometric validation. 48 items were revealed after the content validity index analysis (CVI) whereas factor analysis extracted 32 items of the Job Characteristics Scale comprising eight subscales. Confirmatory Factor Analysis (CFA) was carried out by using AMOS 21v, the value of χ^2 (436) = 454.34, CFI = .99, GFI = .91, SRMR = .03, and RMESA = .01 which indicated a good model fit for the scale. The value of composite reliability (CR) > 0.70 and the average variance extracted (AVE) > 0.50 showing very good construct reliability and convergent validity respectively. The divergent validity for the sub-domains was also assessed by MSV (Minimum-Shared Variance) analysis. The value obtained from the AVE for Political interference was 0.12, overload was 0.24, growth opportunity was 0.28, job variety was 0.25, organizational support was 0.28, feedback was 0.25, job autonomy was 0.17 and dealing with others was 0.12. The development and validation of a job characteristics scale for Pakistani police investigation personnel is crucial for enhancing our understanding of their work environment and for identifying areas for improvement that can promote their well-being and enhance their job performance.

Keyword. Job characteristics, Pakistani police investigation personnel, scale development, psychometric validation

---

Usman Ahmad Zaheer and Rafia Rafique, Department of Psychology, University of the Punjab, Lahore, Pakistan.

Correspondence concerning this article should be addressed to Usman Ahmad Zaheer, Department of Psychology, University of the Punjab, Lahore, Pakistan. Email: Usmanahmad.appsy@pu.edu.pk

Police personnel play a critical role in ensuring public safety and maintaining law and order in communities (Siraji & Hussain, 2024). Police personnel in Pakistan have threatening and demanding job that have severe effects on their physical and mental health (Khizar, 2017). They are responsible for enforcing the law, investigating crimes, and protecting life and property. As a result, they face unique challenges and demands in their work, which can impact their job satisfaction and overall effectiveness (Johnson, 2012). Understanding the key job characteristics of police investigation personnel is essential for organizations looking to support and enhance the well-being and performance of their employees (Roberts et al., 2021).

Numerous studies have been conducted to explore the job characteristics of police investigation personnel and their impact on job satisfaction, stress, and well-being (Mark & Smith, 2012; Johari et al., 2018; Teetzen et al., 2022). These studies indicated the demands and challenges faced by police investigation personnel and have led to the development of strategies and interventions aimed at improving their overall health and well-being.

Kumar (2021) found that police investigation personnel who reported higher levels of skill variety, task identity, and feedback had higher levels of job satisfaction and lower levels of stress. Additionally, the study showed that personnel who reported higher levels of autonomy experienced lower levels of stress and higher levels of job satisfaction (Paoline III & Gau, 2020). These findings suggest that providing police investigation personnel with job resources to carry out their work can play a key role in promoting job satisfaction and reducing stress.

Similarly, Marcos et al. (2020) investigated the effect of organizational culture on the well-being of police investigation personnel. Those working in organizations with a supportive and positive culture reported lower stress and higher job satisfaction compared to those in more toxic or negative environments. It emphasizes the importance of providing a positive work environment, which can enhance the well-being and performance of police investigation personnel.

Additionally, a study by Gershon and Wieling (2020) explored the impact of shift work and long hours on the job satisfaction and well-being of police investigation personnel. It was found that those working irregular or extended hours often experience high levels of stress and burnout, as well as lower levels of job satisfaction. In response, organizations have implemented flexible schedules and offered support services, such as counseling and stress management

programs, to help address these challenges and improve the well-being of police investigation personnel.

Therefore, the present study followed the job demand and resource model (Bakker et al., 2023) for police personnel to ensure that police departments have the necessary resources to meet the demands of their job (Bureau of Justice Assistance, 2014). This model considers the specific job demands of police work and the resources needed to meet those demands. The job demands for police personnel include physical demands, such as overload, social influence, and work under pressure, physical demands; cognitive demands, such as decision-making, critical thinking, and problem-solving skills; and emotional demands, such as the ability to remain calm and composed in stressful situations (Cataline, 2023). The resources needed to meet these demands include personnel, equipment, training, and support services (National Institute of Justice, 2019). Job resources include the number of officers on the force, growth opportunities, job autonomy, organizational support, and other resources to help officers cope with the emotional demands of their job (Peak & Sousa, 2009).

The development and validation of a Job Characteristics Scale designed for Pakistani Police Investigation Personnel is essential due to the unique nature of their roles and the distinct cultural context within which they operate. While existing job characteristics scales like the Job Characteristics Scale (Hackman & Oldham, 1975), the Job Diagnostic Index (JDI) (Hackman, 1974), the Job in General Scale (JIG) (Ironson et al., 1989), and the Michigan Organizational Assessment Questionnaire Subscale (Cammann et al., 1979) provide a general framework, it's really important to have an indigenous scale because the way things work in Pakistan, like the culture, how organizations are set up, and how society functions, is quite different from other cultures. A culturally developed scale will ensure that the specific demands and resources of the job are accurately reflected. The organizational structure and operational procedures of the Pakistani police force may differ from those in other countries. Developing a scale with reference to the local police context will address these unique organizational features, confirming that the scale is relevant and applicable to the daily experiences of Pakistani police investigation personnel.

Objectives

The following are the objectives of this study:

1. To develop job characteristics scale for police investigation personnel.

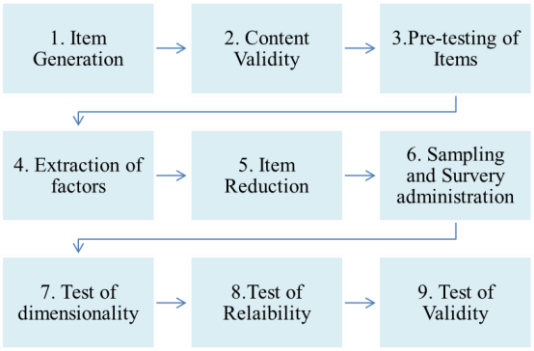
2. To establish psychometric properties of job characteristics scale for police investigation personnel.

Method

Research Design

In light of the job characteristics scale-based Job Demands-Resources (JDR) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), the purpose of this study is to construct and validate a job characteristics scale for police investigation personnel. According to this model, all occupations consist of both demands and resources. This whole procedure is divided into three phases and further divided into nine steps (Hinkin, 1995).

Figure 1*: Procedure for the Scale Development*



Phase I: Development of Scale

Step 1 Item-pool Generation

The **Job Characteristics Scale (JCS)** was operationalized by categorizing job characteristics into **job demands** and **job resources**, in line with the **Job Demands-Resources (JD-R) model** (Bakker & Demerouti, 2007). This step utilized both inductive and deductive approaches for data collection. Semi-structured interviews were conducted with four Senior Police officers, aged 36 to 48 years (*M = 40, SD = 9.7*), who were recruited from different police stations (*N = 4*). The aim of the interviews was to gain insights into situations related to the job domain. A semi-structured interview guide was used to interview participants which explored their role and job responsibilities, working environment, challenges and stressors that might face and how this affects the mental health, decision-making and flexibility, interactions and relationships and its impact on their

ability to perform at the job, opportunities for professional growth and development, workload and any other external factors affecting their job. Informed consent was obtained from the police personnel, and all interviews were recorded for transcription and analysis purposes. Content analysis was employed to analyze the transcribed interviews, which provide a deeper understanding of situations related to the job domain of police personnel. A total of 48 statements were developed by the authors (UA, and RR), based on insights gathered from the interviews. The items were evaluated through a structured process, beginning with a review by professors (*N = 3*) in the field of psychology. These experts assessed the clarity, relevance, and alignment of the items with the study's objectives. Based on their feedback, any unclear, ambiguous, or redundant items were removed during the refinement process.

Step 2 Content Validity

The job characteristics scale is developed to assess if its factors are related to the job-related domains of police personnel. To do this, a group of five experts, including three senior police officers (DSP) and two psychologists (PhD), evaluated 48 items. Each item was rated on a four-point Likert scale from one to four, where one is not relevant and four is highly relevant, and experts were requested to propose or add any additional items about the job characteristics domain. The Content Validity Index (CVI) was analyzed by the ratings given by the experts, only 42 items were retained for the job characteristics scale (Lynn, 1986). The Scale Content Validity Index (CVI) is calculated through the summation of item-level content validity indices (CVIs), divided by the total quantity of items, which resulted in a value of 0.80. According to Lynn (1986), the value of CVI (.80) is acceptable for the scale (see Table 1).

Table 1**:** *Content Validity Index for Job Characteristics Scale (N = 5)*

Serial	Scale	Item	E1	E2	E3	E4	E5	Agmt	Item CV
1	Job Autonomy	1	4	4	4	4	3	4	0.8
2		2	4	4	3	4	4	4	0.8
3		3	4	4	4	4	4	5	1
4		4	4	2	3	4	4	3	0.6
5		5	4	4	3	4	4	4	0.8
6		6	4	3	4	4	4	4	0.8
7	Organizational Support	1	4	4	3	4	4	4	0.8
8		2	3	4	4	4	4	4	0.8

Continued…

Serial	Scale	Item	E1	E2	E3	E4	E5	Agmt	Item CV
9		3	4	4	2	4	4	4	0.8
10		4	4	4	4	3	4	4	0.8
11		5	4	4	4	3	4	4	0.8
12		6	4	4	2	3	4	3	0.6
13	Dealing with Others	1	4	4	4	4	3	4	0.8
14		2	4	4	2	4	3	3	0.6
15		3	3	4	4	4	4	4	0.8
16		4	4	4	4	4	4	5	1
17		5	4	3	4	4	4	4	0.8
18	Growth Opportunity	1	3	3	4	4	3	2	0.4
19		2	4	4	4	4	4	5	1
20		3	4	4	4	4	3	4	0.8
21		4	4	4	4	3	4	4	0.8
22		5	4	4	4	4	4	5	1
23		6	4	4	3	4	4	4	0.8
24	Job variety	1	3	4	4	4	4	4	0.8
25		2	4	3	3	4	3	2	0.4
26		3	4	4	3	4	4	4	0.8
27		4	4	4	4	4	3	4	0.8
28		5	2	4	4	4	4	4	0.8
29		6	4	4	4	4	4	5	1
30	Overload	1	4	4	4	2	4	4	0.8
31		2	4	4	4	4	4	5	1
32		3	3	4	4	4	4	4	0.8
33		4	4	3	4	4	4	4	0.8
34		5	4	4	4	4	4	5	1
35		6	3	4	4	4	4	4	0.8
36	Feedback	1	4	4	4	4	4	5	1
37		2	4	4	4	4	3	4	0.8
38		3	4	4	4	3	4	4	0.8
39		4	4	4	3	4	4	4	0.8
40		5	3	4	4	2	3	2	0.4
41		6	4	4	4	4	4	5	1
42	Political interference	1	4	4	4	4	4	5	1
43		2	4	4	4	4	3	4	0.8
44		3	4	3	4	4	4	4	0.8
45		4	4	4	4	4	4	5	1
46		5	4	3	4	4	4	4	0.8
47		6	4	3	4	4	4	4	0.8
48		7	4	4	4	3	4	4	0.8

Note. E1-5: Experts 1-5; Agmt: Experts' Agreement.

Phase 2: Scale Development

Step 3 Pre-testing of Items

The Job Characteristics Scale uses a five-point Likert rating system (*1-5*). It is used to measure the level of agreement with a statement, where one shows strong disagreement with a statement, and five indicates strong agreement with a statement. A sample of 30 (*N = 30*) police personnel aged 25 to 50 years (*M = 34.00, SD = 8.44*) were selected through purposive sampling from various police stations to establish face validity of the job characteristics scale. Personnel did not report any vague items. Finally, 42 statements of the job characteristics scale were included for further assessment. The pre-testing aimed to assess the feasibility of the job characteristics scale and determine the final items for factor analysis.

Step 4. Sampling and Survey Administration

Employing a purposive sampling technique, a sample of 170 police investigation personnel was selected from different police stations located in the province of Punjab. The sample consisted of police personnel aged 27 to 49 (*M = 37.27, SD = 4.85*). Police personnel with at least one year of working with investigation cases and currently working as investigation personnel were included to maintain the homogeneity of the sample.

Procedure

After receiving approval from the Ethics and Research Committee, the concerned departments granted permission to participate in this research. Written consent was obtained from all participants to ensure their willingness to take part in the study. Out of the 185 questionnaires that were distributed, only 170 were found to be complete in all aspects. The confidentiality of the information collected was maintained by not asking for the names of the participants.

Step 5. Item Reduction Analysis

After the pre-testing of the items, 42 items were initially included in the scale to assess various aspects of job characteristics. An inter-item correlations method was employed, examining how responses to one item correlated with responses to all other items in the scale. This approach helps determine if the questions are effectively measuring

the same concept (Raykov, & Marcoulides, 2011). Subsequently, 10 items with very low correlations (less than 0.30) were deemed less useful and were consequently removed from the scale (Piedmont, 2014). This process aimed to ensure that the remaining questions collectively provided a robust and cohesive measure of job characteristics.

Step 6. Extraction of Factors

The scale's construct validity was determined in this phase, and factor analysis with varimax rotation was used to clarify factor relationships. According to Shrestha (2021), the KMO (Kaiser-Mayer Olkin) value of 0.81 indicates that the sample used in the study is suitable for factor analysis. The approximate chi-square value of 2,355 with 496 degrees of freedom was also significant at $p = .00$, indicating that the data was evenly distributed without any missing values or outliers (Stanimirova et al., 2007). High values of commonalities confirmed further analysis (Hadi et al., 2016).

Exploratory Factor Analysis. The Job Characteristics Scale underwent principal axis factoring using varimax rotation. The scree plot and factor analysis exposed the factor structure. By employing a scree plot and eigenvalues greater than one, it was determined that the constructed measurement consisted of eight factors (Kim & Mueller, 1978). Out of the 32 items that underwent factor analysis, only those that met the assumptions were retained. All factors that had an Eigenvalue more significant than 1 were also retained, resulting in eight factors with a total variance of 66.13% after EFA (See Table 2 and figure 2).

Table 2: *Factor Loading for Exploratory Factor Analysis, With Varimax Rotation of Factors for Job Characteristics Scale (N = 170)*

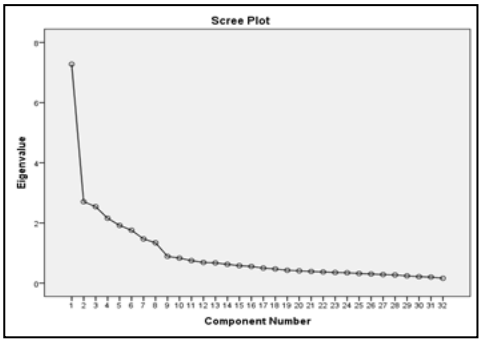
Sr	*Item no.*	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**	**F8**
1	OS3	**.84**	-.06	-.12	.12	.01	.10	-.01	.01
2	OS2	**.84**	-.09	-.13	.01	.13	.16	.03	.07
3	OS4	**.83**	-.06	-.01	.04	.16	.05	.07	.05
4	OS1	**.81**	-.09	-.13	.11	.13	.06	.02	.13
5	PI4	-.09	**.79**	.11	-.06	-.03	-.05	-.07	-.10
6	PI1	.02	**.78**	.01	-.14	-.13	-.00	-.04	.05
7	PI2	-.08	**.77**	.03	.01	-.06	-.08	-.14	-.15
8	PI5	-.11	**.71**	-.01	-.13	-.03	-.08	-.03	.02
9	PI3	-.05	**.69**	.17	-.07	-.00	-.07	.05	-.17
10	OL4	-.09	.07	**.79**	-.08	-.12	-.02	-.13	.02

Continued…

Sr	*Item no.*	F1	F2	F3	F4	F5	F6	F7	F8
11	OL3	-.14	.17	**.79**	.01	-.13	-.11	-.14	-.01
12	OL1	-.18	.03	**.78**	-.00	-.10	-.06	-.14	-.05
13	OL2	.00	.03	**.76**	-.19	-.08	-.06	-.25	-.10
14	FB2	.06	-.08	-.05	**.86**	.08	.13	.07	-.02
15	FB4	.04	-.13	-.11	**.77**	.13	.10	-.00	.13
16	FB3	.18	-.05	-.00	**.72**	-.00	.14	.14	.07
17	FB1	.01	-.12	-.07	**.72**	.07	-.00	.11	.03
18	GO4	.19	-.10	-.08	.05	**.80**	.13	.15	.11
19	GO3	.02	-.18	-.18	.13	**.72**	.09	.11	.05
20	GO1	.16	-.01	-.01	.01	**.72**	-.12	.13	.11
21	GO2	.08	-.00	-.18	.10	**.70**	.16	.05	-.01
22	JA2	.15	-.09	-.06	.14	.11	**.78**	-.00	-.00
23	JA3	.08	.00	-.13	.17	.04	**.75**	-.04	.14
24	JA1	-.01	-.21	.02	.09	.11	**.70**	.26	.06
25	JA4	.14	-.04	-.07	-.02	-.01	**.69**	.12	.20
26	JY2	.04	.01	-.09	-.03	.11	.13	**.78**	.03
27	JY1	.09	-.15	-.16	.12	.04	.16	**.69**	.08
28	JY4	.00	-.08	-.19	.17	.17	-.05	**.66**	.04
29	JY3	-.04	-.03	-.41	.15	.15	.02	**.65**	-.00
30	DO1	.01	-.10	-.07	.10	.05	.10	.02	**.83**
31	DO3	.04	-.06	-.10	.07	.06	.14	-.02	**.75**
32	DO2	.22	-.14	.08	.02	.12	.09	.18	**.69**
Eigenvalues		7.27	2.70	2.54	2.15	1.91	1.75	1.46	1.34
Cumulative percentage of variance		9.73	19.43	28.65	37.13	44.87	52.58	59.90	66.13

Note. Items with a loading of 0.50 or above are shown in bold.
$p^{**} < .01$.

Figure 2*: Scree Plot of The Job Characteristics Scale*



***Reliability and Inter Correlation*.** Cronbach's alpha was used to assess the reliability of the sub-factors (overload, Political interference, organizational support, growth opportunity, dealing with others, feedback, job variety, and job autonomy). the coefficient values of .89, .83, .85, .81, .78, .77, .76, and .72 for organizational

support, political interference, overload, feedback, growth opportunity, job autonomy, job variety, and dealing with others respectively. On the other hand, intercorrelation among factors indicated that organizational support, feedback, growth opportunity, job autonomy, job variety, and dealing with others are positively correlated with each other. whereas political interference and over-load are negatively related to all other variables (see Table 3).

Table 3: *Reliability and Iter-correlation of the Job Characteristics Scale's Factors (N = 170)*

Factor	Sub domains	1	2	3	4	5	6	7	8
1	OS	-	-.21**	-.27***	.22**	.32***	.28***	.15*	.24**
2	PI		-	.22**	-.26***	-.22**	-.23**	-.21**	-.25***
3	OL			-	-.22**	-.34***	-.23**	-.49***	-.16*
4	FB				-	.24**	.29***	.28***	.20**
5	GO					-	.23**	.36***	.24**
6	JA						-	.25**	.31**
7	JV							-	.18**
8	DO								-
Alpha Coefficient		.89	.83	.85	.81	.78	.77	.76	.72

Note. OS = Organizational Support PI = Political interference, OL = Overload, FB = Feedback, GO = growth opportunity, JA = Job autonomy, JY = Job variety, DO = dealing with others.

** $p < 0.01$.

Phase III *Validation of Job Characteristic Scale*

This step involved validating the measure by determining its psychometric properties, including reliability and validity (convergent and discriminant validity).

Sample

For factor analysis, Solomon et al. (2019) suggest a sample size of 300 or more, while a larger sample size is generally better for questionnaire validation. So, based on this criterion we select a sample of 300 from different cities of Punjab, Pakistan.

Inclusion criteria

Police personnel were recruited based on the following criteria.

- Police personnel who are working as investigation officers were included in this study

- Police personnel have at least a minimum of one year of experience in investigation jobs.

Exclusion Criteria

Police personnel who have the following characteristics were not included in the study.

- Police Personnel who are doing administrative jobs in the police department were excluded.
- Police personnel having any kind of disability or physical injury were not included in this study.
- Female investigation personnel were not included in this study (see Table 4).

Table 4: *Descriptive Statistics of Demographic Characteristics of Study Sample (N = 300)*

Characteristics	*f* (%)
Age	
25-35 Years	67(22.3)
36-45 Years	158(52.7)
More than 45 Years	75(25.0)
Rank	
Assistant Sub Inspector	63(21.0)
Sub Inspector	206(68.7)
Inspector	31(10.3)
Job Experience	
1 to 5 Years	41(13.7)
6 to 10 Years	81(27.0)
11 to 15 Years	86(28.7)
More than 15 Years	92(30.7)
Job Region	
Lahore	39(13.0)
Faisalabad	33(11.0)
Sargodha	32(10.7)
Gujranwala	44(14.7)
Rawalpindi	42(14.0)
Sahiwal	36(12.0)
Multan	26(8.70)
DG khan	22(7.30)
Bahawalpur	26(8.7)

Note. f = Frequency, M = Mean, SD = Standard deviation, % = Percentage.

Instrument

Job Characteristics Scale

The committee approach was used to generate and select 32 questionnaire items. The scale response format was a 5-point Likert-type. Higher scores on each component showed higher than the respective characteristics of the job.

Procedure

Formal permissions were obtained from the relevant authorities at the Institute of Applied Psychology before collecting the data. Each personnel of the investigation team was contacted individually and briefed about the study's objectives, obtaining informed consent. The personnel were assured that their privacy and confidentiality would be maintained. The questionnaire was then given to the personnel to collect their responses. We expressed our gratitude for the valuable contributions they made and for their cooperation throughout the process. All police personnel were dealt with by the ethical guidelines.

Step 7: Tests of Dimensionality

Confirmatory factor analysis (CFA) was analyzed over a set of 32 items on a five-point Likert scale. This analysis aimed to determine the underlying factor structure of the indigenous scale. Structural equation modeling (SEM) was assessed in AMOS version 24.0 to validate the factor structure through the CFA of the JCS.

Confirmatory Factor Analysis of Job Characteristics Scale:

It was run and indices of model fit are presented in Table 5. The value of $\chi^2/df = 1.04$, which falls between 1 and 3, indicates an absolute fit and suggests that the model is fit for the data. However, there are another parameter often used such as CFI, GFI, SRMR, and RMSEA to assess the overall model fit. These indices have been analyzed in the literature to evaluate the model fitness

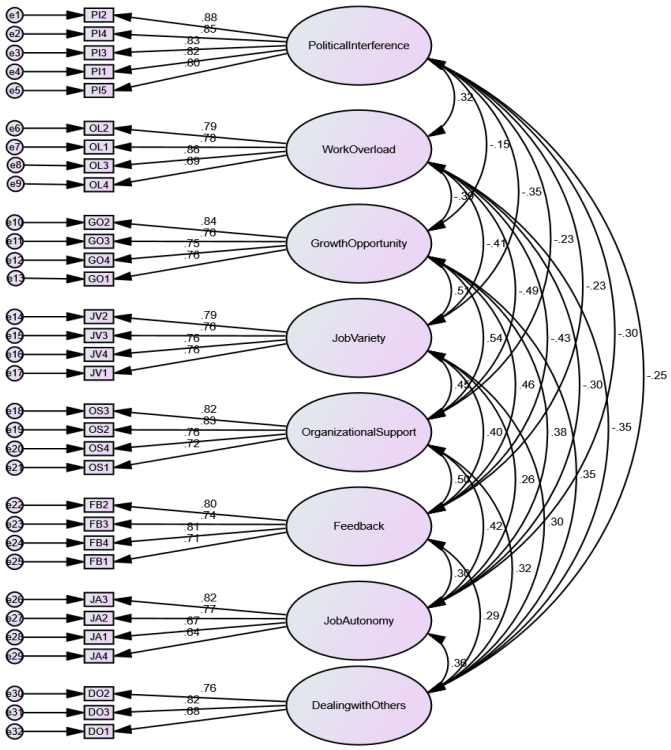
Experts recommend that the ratio of χ^2 to the degrees of freedom (df) should be within the range of 1 to 3 for optimal results., CFI values should be > .95, whereas GFI and SRMR values should be > .90 and <.08 respectively and RMSEA values should be < .06 considered permissible (Kline, 2023). As per the descriptive measures of fit, the model was a good fit. (See figure 3)

Table 5: *Initial Model Fit Indices of Confirmatory Factor Analysis Job Characteristics Scale (N = 300)*

Model	χ^2	*Df*	χ^2/df	*CFI*	*GFI*	*SRMR*	*RMSEA*
Model Fit Indices	454.34	436	1.04	.99	.91	.03	.01
Threshold	-	-	>1 to <3	>.95	>.90	<.08	<.06

Note. N = 300, Chi-square > .05, CFI = Comparative fit indices, GFI = Goodness of fit indices, SRMR=Standardized Root Mean Squared Residual RMSEA = Root Mean Square of approximation.

Figure 3: *Confirmatory Factor analysis of Job Characteristics Scale*



Step 8: Test of Reliability

The psychometric properties, including reliability and factor loadings of job characteristics scale for police investigation personnel. The factor loading for each factor was discovered to be about .70 or higher, suggesting that each item contributed around .50 to the overall variance (Hair et al., 2010). Additionally, the reliability coefficients (measured by Cronbach's alpha reliability) ranged from .79 to .91, showing that the measurements are highly reliable.

Table 6: *Psychometric properties of Job characteristics scale for Police investigation personnel (N= 300)*

Factors	**k**	**α**	λ
Political interference	5	.91	
PI2 (اہم سماجی اور سیاسی شخصیات مجھے میری نوکری کی وجہ سے جانتے ہیں)			.88
PI4 (سیاسی مداخلت کی وجہ سے اکثر تبادلے ہو جاتے ہیں۔)			.85
PI3 (سیاسی مداخلت کی وجہ سے پولیس کی کارکردگی متاثر رہتی ہے۔)			.83
PI1 (کبھی کبھی سیاسی دباوء کی وجہ سے مجھے کئی ایسے کام کرنے پڑتے ہیں جو میں نہیں کرنا چاہتا)			.82
PI5-R (میں اپنے کام میں کسی قسم کی سیاسی مداخلت محسوس نہیں کرتا ۔)			.80
Overload	4	.86	
OL2 (ہمارے ادارے میں کام زیادہ اور افرادی قوت کم ہے۔)			.79
OL1 (کام کا تناسب زیادہ ہونے کی وجہ سے تناؤ رہتا ہے۔)			.78
OL3 (میرے کام کا کوئی معین وقت نہیں ہے۔)			.86
OL4 (کام کی زیادتی کی وجہ سے میں اپنے فرائض پر تو جہ نہیں دے پاتا۔)			.69
Growth Opportunity	4	.86	
GO2 (پولیس کی نوکری میں پروموشن کی رفتار دوسرے اداروں کی نسبت بہتر ہے۔)			.84
GO3-R (پولیس کی نوکری میں محنت کرنے کا کوئی صلہ نہیں ملتا۔)			.76
GO4-R (پولیس کی نوکری میں بڑے افسر ان ہماری ترقی کی راہ میں رکاوٹ ہیں۔)			.75
GO1 (پولیس کی نوکری میں ترقی کے مواقع موجود ہیں۔)			.76
Job Variety	4	.84	
JV2 (پولیس کی نوکری میں مجھے بیک و قت مختلف قسم کے کام کرنے پڑتے ہیں۔)			.79
JV3 (میری موجودہ ملازمت مجھے کام سے متعلق نئی نئی مہارتیں سیکھنے کے لیے راغب کرتی ہے۔)			.76
JV4-R (پولیس کی نوکری میں آپ اپنا کام مکمل کرنے کے لیے ایک ہی طریقہ کار استعمال کرتے ہیں۔)			.76
JV1 (پولیس کی نوکری کے لیے مختلف نوعیت کی صلاحیت چاہیے ہوتی ہے۔جیسے کاغذات سنبھالینا، ہتھیارچلانا وغیرہ)			.76
Organization Support	4	.86	
OS3-R (مجھے ایسے لگتا ہے کہ میں اپنی مدد آپ کے تحت ہی نوکری کر رہا ہوں۔)			.82
OS2 (یہ ادارہ میری فلاح و بہبود کا خیال رکھتا ہے۔)			.83
OS4-R (ادارہ میری طرف سے کی گئی شکایات/سفارشات کو نظر انداز کرتا ہے۔)			.76
OS1(میرے ادارے کا تعاون مشکل وقت میں میرے ساتھ ہو تا ہے۔)			.72
Feedback	4	.85	

Continued…

Factors	k	α	λ
FB2-R (پولیس کے کام میں افسروں اور دفتری ساتھیوں کی رائے کو بہت اہمیت نہیں دی جاتی ہے۔)			.80
FB3 (میرے اچھے کام کرنے پر میرے افسران مجھے سراہتے ہیں۔)			.74
FB4-R (پولیس کے کام میں آپ کی رہنمائی کرنےوالاکوئی نہیں ہوتا۔)			.81
FB1 (پولیس کے کام میں اچھی کارکردگی کو سراہا جاتا ہے۔)			.71
Job autonomy	4	.81	
JA3-R (میرے اکثر کام افسر ان کی مداخلت کی وجہ سے رہ جاتے ہیں)			.82
JA2 (پولیس کی نوکری میں اکثر فیصلے افسر ان بالا کی مشاورت کے بغیر کرنے پڑتے ہیں۔)			.77
JA1 (مجھے اپنے کام کے بارے میں فیصلے کرنے کی آزادی ہے۔)			.67
JA4 (اگرمیں اپنی مرضی کے فیصلے کروں تو بہتر کا رکردگی کی طرف لے کے جا سکتے ہیں۔)			.64
Dealing with others	3	.79	
DO2 (پولیس کی نوکری میں بول چال کی صلا حیت ہونا اہم ہوتا ہے۔)			.76
DO3 (پولیس کی نوکری کرنے کے لیےآپ کو دوسروں کی بات سمجھنے کی صلاحیت ہوناضروری ہوتا ہے۔)			.82
DO1 (پولیس کی نوکری میں لوگوں سے رابطے میں رہنا اہم ہوتا ہے۔)			.68

Note. CR = composite reliability, AVE = Average variance extracted, MSV = Maximum Shared Variance, λ (lambda) = standardized factor loading, α = Cronbach's alpha.

Step 9: Convergent and Discriminant Validity of Job characteristic Scale

To ensure the convergent validity of the study, Average Variance Extracted (AVE) was used (See Table 7). Additionally, the Composite Reliability (CR) of each latent variable was calculated, as it is considered a better indicator of reliability than Cronbach's alpha (Cheung et al., 2023). McDonald's construct reliability, also known as MaxR(H), was also estimated. Coefficient H indicates the connection between the latent construct and its measured indicators. Coefficient H is not influenced by the sign of indicators' loadings, gathering information from all indicators based on their ability to reflect the construct (Hancock & Mueller, 2001, p. 213). All eight latent constructs showed a composite reliability (CR) greater than 0.70 and an average variance extracted (AVE) exceeding 0.50. This indicates that the study has shown excellent construct internal consistency and convergent validity (Byrne, 2010). Moreover, the square root of AVE, depicted in diagonal lines in bold font, surpasses the remaining inter-

construct correlations; Political interference (0.83), Overload (0.78), Growth Opportunity (0.78), Job Variety (0.76), organizational support (0.78), Feedback (0.76), Job autonomy (0.72) and Dealing with others(0.75). The discriminant validity for the sub-domains was also assessed by MSV (minimum shared variance) for there to be evidence of discriminatory validity, the MSV must be less than the value obtained from the AVE which is Political interference (0.12), Overload (0.24), Growth Opportunity (0.28), Job Variety (0.25), organizational support (0.28), Feedback (0.25), Job autonomy(0.17) and Dealing with others(0.12).

Table 7: *Convergent and Discriminant Validity of Factors for Job Characteristics Scale (N = 300)*

		CR	AVE	MSV	MaxR(H)	1	2	3	4	5	6	7	8
1	Political interference	.91	.69	.12	.92	**.83**							
2	Overload	.86	.61	.24	.87	.32***	**.78**						
3	Growth Opportunity	.86	.60	.28	.86	-.15*	-.38***	**.78**					
4	Job Variety	.85	.58	.25	.85	-.35***	-.41***	.50***	**.76**				
5	Organizational Support	.86	.61	.28	.87	-.22***	-.49***	.53***	.44***	**.78**			
6	Feed back	.85	.58	.25	.85	-.22***	-.42***	.46***	.40***	.50***	**.76**		
7	Job Autonomy	.81	.52	.17	.83	-.29***	-.29***	.38***	.25***	.42***	.30***	**.72**	
8	Dealing with Others	.79	.56	.12	.80	-.25***	-.34***	.35***	.29***	.32***	.29***	.36***	**.75**

Note. CR = Composite Reliability, AVE = Average Variance extracted, MSV = Minimum shared variance, MaxR(H) = McDonald Construct Reliability.

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

Discussion

Many instruments and methods are there that measure job characteristics for different professions, but the job characteristics scale for police investigation personnel is the first scale in Pakistani culture based on Job demand resource theory (Bakker & Demerouti 2007). The Job Demands and Resources Scale for police investigation personnel in Pakistan aligns with the JD-R (Job Demands-Resources) model, (Bakker & Demerouti, 2017; Demerouti et al., 2001; Schaufeli & Taris, 2014). This scale is a self-report measure for Pakistani police investigation personnel, designed to measure specific job demands and resources. Its dimensions were identified through a thorough content analysis of existing literature and via semi-structured interviews.

The current study had four phases. The first, through an inductive and deductive approach based on semi-structured interviews, was conducted to gain insights into the situation related to the job. There were six items in the Job autonomy factor, six items in organizational support, five items in dealing with others, six items in growth opportunity, 6 items in job variety, six items in overload, six items in feedback, and seven items in Political interference, the item which has CVI value lower than 0.8, were removed for further analysis. A list of 48 items was developed; only 42 items were retained for the job characteristics after the Content validity index. The Content Validity Index is a measure that represents the average or mean content validity ratio for all the items included in a final assessment tool or instrument (DeVon et al., 2007). It is recommended that when calculating the Content Validity Index (CVI) for an assessment tool, the values should be higher than 0.70 (Tilden et al., 1990). On the other hand, Davis (1992) suggests that it's even better if the CVI exceeds 0.80.

These were subject to EFA in Phase II, and eight factors - Overload, Political interference, Organizational Support, Feedback, growth opportunity, Job autonomy, Job variety, and dealing with others emerged with factors ranging from .69 to .86. Hair et al. (2010) recommends a cutoff for factor loadings relative to sample size. If there is a sample size of 250, a factor loading of 0.35 is necessary for statistical significance. However, in the present study, the sample size was only 170 during the exploratory factor analysis (EFA). Therefore, Hair et al. (2010) suggest a higher factor-loading cutoff, specifically greater than 0.45, to ensure the robustness and significance of the factors identified in the analysis, considering the smaller sample size employed. Furthermore, the Scree plots also showing the eight-factor structure for the job characteristics scale. Scree test is a visual

technique used in exploratory factor analysis. The process involves plotting the eigenvalues in descending order to create a graph known as a scree plot. The scree test aims to identify a point on the plot where there's a noticeable bend, often referred to as an elbow. This bend indicates a significant shift from high to low eigenvalues (Cattell, 1966).

Eight sub-factors Overload, Political interference, Organizational Support, Feedback, growth opportunity, Job autonomy, Job variety, and dealing with others can separately help in job-related situations. All the factors are independent, but they are correlated. the alpha coefficient values of .89, .83, .85, .81, .78, .77, .76, and .72 for organizational support, political interference, overload, feedback, growth opportunity, job autonomy, job variety, and dealing with others, respectively. It is supported by the physicians' job demands and resources scale, has internal consistency across the nine subscales greater than .60 (Moreira et al., 2023). On the other hand, intercorrelation among factors indicated that organizational support, feedback, growth opportunity, job autonomy, job variety, and dealing with others are positively correlated with each other with the range .15 to .36. whereas political interference and overload are negatively related to all other variables with the range of -.21 to -.49. Cronbach's alpha for the eight factors showed a high internal consistency, a high intercorrelation among them, and a significant item correlation (the total correlation of most of the items was > 0.2). The sub-factors of job demands and resources will have some level of correlation with each other (Tabachnick & Fidell, 2007).

The overload factors include statements like " کام کا تناسب زیادہ ہونے کی وجہ سے تناؤ رہتا ہے۔". Shultz et al. (2010) find out a significant negative impact on health outcomes associated with Overload, including the highest level of 16 adverse health outcomes. Political interference factor included statements like " اہم سماجی اور سیاسی شخصیات مجھے میری نوکری کی وجہ سے جانتے ہیں. The feeling of superiority and linkage with different political personalities has been directly connected with stress. It has been confirmed by Bano's (2011) study, and she found that political pressure is a crucial cause of stress among police, indicating that Political interference in law enforcement contributes to stress. The reason being, organizational factor includes statements such as "میرے ادارے کا تعاون مشکل وقت میں میرے ساتھ ہو تا ہے۔". Boateng (2014) found that officers who perceived more incredible organizational support felt more effective in their roles. The following statement includes aspects of job variety, job autonomy, and feedback. E.g., " پولیس کی نوکری کے لیے مختلف نوعیت کی صلاحیت چاہیے ہوتی ہے۔", " میرے اچھے کام " and "مجھے اپنے کام کے بارے میں فیصلے کرنے کی آزادی ہے۔"

کرنے پر میرے افسران مجھے سراہتے ہیں۔" respectively. According to research, job variety, autonomy, and feedback play a crucial role in enhancing job satisfaction. When employees have the chance to perform a variety of tasks and have the freedom to make decisions about their work while receiving regular feedback on their performance, they are more likely to be content with their jobs (Tosi et al., 1994). Whereas, the growth opportunity factor includes items like, "پولیس کی نوکری میں ترقی کے مواقع موجود ہیں۔". According to a study conducted by Huang et al. (2017), the availability of career growth opportunities has a significant impact on employees' emotional well-being, particularly on emotional exhaustion. It suggests that the availability of career growth opportunities can have an impact on the mental well-being of workers. Furthermore, the dealing with others factor includes items like, " پولیس کی نوکری میں لوگوں سے رابطے میں رہنا اہم ہوتا ہے۔". A study conducted by Pooja et al. (2016) found that social interaction can help reduce the negative impact of work overload and interpersonal conflict on employees' commitment to their organization. This implies that increasing social interaction among colleagues can mitigate stress and boost their commitment to the organization.

Confirmatory Factor Analysis (CFA) was performed on 32 items using IBM SPSS AMOS (Analysis of moment structure) version 25.0 to validate the factor structure of the Job characteristics scale. Thirty-two items were confirmed, and the model showed excellent fit indices. The Job characteristics scale was divided into eight categories. All eight latent constructs showed a Composite Reliability (CR) greater than 0.70 and an average variance extracted (AVE) exceeding 0.50. This indicates that the study has shown excellent construct internal consistency and convergent validity (Byrne, 2010). Moreover, the square root of AVE, depicted in diagonal lines in bold font, surpasses the remaining inter-construct correlations: political interference (0.83), overload (0.78), growth opportunity (0.78), job variety (0.76), organizational support (0.78), feedback (0.76), job autonomy (0.72) and dealing with others (0.75). The divergent validity for the sub-domains was also assessed by MSV (Minimum Shared Variance) for there to be evidence of discriminatory validity. The MSV must be less than the value obtained from the AVE, which is political interference (0.12), overload (0.24), growth opportunity (0.28), Job Variety (0.25), organizational support (0.28), feedback (0.25), Job autonomy (0.17) and dealing with others (0.12).

The Job Characteristics Scale is a simple self-report measure to administer. It assesses eight different aspects of a job, including overload, political interference, organizational support, feedback,

growth opportunity, job autonomy, job variety, and dealing with others. This instrument is contextually relevant and reasonably valid, as it deals separately with these eight aspects. It can be used to identify job-related situations in police departments. High scores on a particular aspect of the scale indicate that that particular situation influences police personnel. The scale is culturally diverse and can be used in police domains across cultures.

Implications

The newly developed scale has several important implications for police organization. First, it can play a key role in enhancing job satisfaction by helping identify the job characteristics that are most significant to police investigators in Pakistan. Additionally, the Job characteristic's scale can serve as a tool for recruitment and selection, helping police department to select personnel who are likely to be satisfied and motivated in their roles. The job characteristics scale also has the potential to inform training and development programs by highlighting areas where police investigators may need to improve their skills and knowledge. Furthermore, the scale can be valuable in guiding organizational change, allowing organizations to identify areas requiring improvement to boost job satisfaction and motivation. In the realm of performance management, the scale can assist in setting performance goals and measures for investigators, such as establishing decision-making and problem-solving goals if investigators report high levels of autonomy. Finally, the scale can help organizations understand the factors influencing retention and turnover, allowing them to focus on retaining high-performing investigators and improving recruitment efforts by identifying and addressing the job characteristics that matter most to their staff.

Limitations

The newly developed scale has several limitations. One key limitation is its generalizability; the scale may not be applicable to other countries or cultures, as what works for police investigation personnel in Pakistan may not be relevant to investigation personnel in countries with different cultural and social norms. Another limitation is its limited scope, as the scale focuses solely on job characteristics and does not consider other factors that can influence job satisfaction, such as organizational culture, leadership, and available resources. Additionally, the scale relies on self-report measures, which can introduce bias and social desirability effects, leading to the possibility that police investigators may overestimate their job satisfaction or the

importance of certain job characteristics. The lack of objective measures is another limitation, as the self-reported nature of the scale may not accurately reflect the actual job characteristics experienced by investigators. Lastly, the scale may have a lack of diversity, as it may not capture the experiences of all police investigation personnel, particularly those from minority or female backgrounds. As a result, the scale might not fully represent the diverse experiences of the entire population of police investigation personnel in Pakistan.

References

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309-328.

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job demands–resources theory: Ten years later. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*(1), 25-53.

Bano, B. (2011). Job stress among police personnel. *IPEDR*, *4*, 290-3.

Boateng, F. D. (2014). Perceived organizational support and police officer effectiveness: Testing the organizational support theory in Ghana. *International Criminal Justice Review*, *24*(2), 134-150.

Bureau of Justice Assistance. (2014). *Police performance, health, and wellness symposium: Summary report*. https://www.bja.gov/publications/police-performance-health-and-wellness-symposium-summary-report.pdf

Byrne, B. M. (2010). Structural equation modeling with AMOS: Basic concepts, applications, and programming. Nova Iorque: Routledge.

Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (1979). The Michigan organizational assessment questionnaire. *Unpublished manuscript, University of Michigan, Ann Arbor*, *71*, 138.

Cataline, J. J. (2023). *The Stress Experienced by Police Personnel as It Relates to Police Administration: A Delphi Study* (Doctoral dissertation, University of Arizona Global Campus).

Cattell, R. B. (1966). The screen test for the number of factors. *Multivariate behavioral research*, *1*(2), 245-276.

Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2023). Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. *Asia Pacific Journal of Management*, 1-39.

Davis, L. L. (1992). Instrument review: Getting the most from a panel of experts. *Applied nursing research*, *5*(4), 194-197.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499-512. https://doi.org/10.1037/0021-9010.86.3.499

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499.

Gershon, R. R., & Wieling, E. (2020). Shift work and job satisfaction among police investigation personnel: An examination of stress and burnout. Policing: *An International Journal of Police Strategies & Management*, *43*(1), 51-60.

Hackman, J. R., & Oldham, G. R. (1974). The Job Diagnostic Survey: An instrument for the diagnosis of jobs and the evaluation of job redesign projects.

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, *60*(2), 159. https://doi.org/10.1037/h0076546

Hadi, N. U., Abdullah, N., & Sentosa, I. (2016). An easy approach to exploratory factor analysis: Marketing perspective. *Journal of Educational and Social Research*, *6*(1), 215.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. Seventh Edition. Prentice Hall, Upper Saddle River, New Jersey.

Hancock, G. R., & Mueller, R. O. (2001). Reting construct reliability within latent variable systems. *Structural equation modeling: Present and future*, *195*, 216.

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, *21*(5), 967- 988. https://doi.org/10.1177/014920639502100509

Huang, R. T., Chou, T. P., & Chen, C. P. (2017). Examining the roles of shared vision and career growth opportunity in developing new employees. *Journal of Organizational Change Management*, *30*(4), 599-609.

Ironson, G. H., Smith, P. C., Brannick, M. T., Gibson, W. M., & Paul, K. B. (1989). Construction of a Job in General scale: A comparison of global, composite, and specific measures. *Journal of Applied Psychology*, *74*(2), 193-200. https://doi.org/10.1037/0021-9010.74.2.193

Johari, J., Shamsudin, F. M., Yean, T. F., Yahya, K. K., & Adnan, Z. (2018). Job characteristics, employee well-being, and job performance of public sector employees in Malaysia. *International Journal of Public Sector Management*, *32*(1), 102-119.

Johnson, R. R. (2012). Police officer job satisfaction: A multidimensional analysis. *Police Quarterly*, *15*(2), 157-176.

Khizar, U. (2017). The Relationship of Personality Traits, Gender, Occupational Stress and Job Satisfaction Among Police Officers In Punjab, Pakistan.

Kim, J. O., & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues* (Vol. 14). sage.

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford publications.

Kumar, T. V. (2021). The influence of demographic factors and work environment on job satisfaction among police personnel: An empirical study. *International Criminal Justice Review, 31*(1), 59-83.

Lambert, E. G., Qureshi, H., & Frank, J. (2021). The good life: Exploring the effects job stress, job involvement, job satisfaction, and organizational commitment on the life satisfaction of police officers. *International Journal of Police Science & Management*, *23*(3), 279-292.

Lynn, M. (1986) Determination and Quantification of Content Validity Index. Nursing Research, *35*, 382-386. https://doi.org/10.1097/00006199-198611000-00017

Marcos, A., García-Ael, C., & Topa, G. (2020). The influence of work resources, demands, and organizational culture on job satisfaction, organizational commitment, and citizenship behaviors of Spanish police officers. *International Journal of Environmental Research and Public Health*, *17*(20), 7607.

Moreira, S., Oliveira, S., Vala, J., Costa-Lopes, R., & Marques-Pinto, A. (2023). Psychometric Assessment of the Physicians' Job Demands and Resources Scale. *Evaluation & the Health Professions*, *46*(4), 384-395.

Paoline III, E. A., & Gau, J. M. (2020). An empirical assessment of the sources of police job satisfaction. *Police Quarterly, 23*(1), 55-81.

Peak, K. J., & Sousa, W. H. (2009). *Policing America: Challenges and best practices*. Upper Saddle River: Pearson/Prentice Hall.

Piedmont, R.L. (2014). Inter-Item Correlations. In: Michalos, A.C., Ed., Encyclopedia of Quality of Life and Well-Being Research, Springer, Dordrecht, 3303-3304. https://doi.org/10.1007/978-94-007-0753-5_1493

Pooja, A. A., De Clercq, D., & Belausteguigoitia, I. (2016). Job stressors and organizational citizenship behavior: The roles of organizational commitment and social interaction. *Human Resource Development Quarterly*, *27*(3), 373-405.

Raykov, T., & Marcoulides, G. A. (2011). *Introduction to psychometric theory*. Routledge/Taylor & Francis Group.

Roberts, R., Wong, A., Jenkins, S., Neher, A., Sutton, C., O'Meara, P., ... & Dwivedi, A. (2021). Mental health and well-being impacts of COVID-19 on rural paramedics, police, community nurses and child protection workers. *Australian Journal of Rural Health, 29*(5), 753-767.

Siraji, S. H., & Hussain, N. (2024). Examining the role of police personnel in maintaining law and order: The impact of public perception and engagement in Nagaon District, Assam. *Library Progress International, 44*(3), 7857-7876.

Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*, *9*(1), 4-11.

Shultz, K. S., Wang, M., & Olson, D. A. (2010). Role overload and underload in relation to occupational stress and health. *Stress and Health: Journal of the International Society for the Investigation of Stress*, *26*(2), 99-111.

Solomon, Michael, Russell-Bennett, Rebekah, & Previte, Josephine (*2019*). Consumer behaviour: Buying, having, being (4th Edition).

Stanimirova, I., Daszykowski, M., & Walczak, B. (2007). Dealing with missing values and outliers in principal component analysis. *Talanta*, *72*(1), 172-178.

Tabachnick, B. G. (2007). Experimental designs using ANOVA. *Thomson/ Brooks/Cole*.

Tilden, V. P., Nelson, C. A., & May, B. A. (1990). Use of qualitative methods to enhance content validity. *Nursing Research*, *39*(3), 172-175.

Tosi, H. L., Rizzo, J. R., & Carroll, S. J. (1994). Managing organizational behavior (3rd ed.). Cambridge, MA: Blackwell.

Received 06 June 2023
Revision received 26 December 2024