

# JOB DEMANDS OF POLICE PERSONNEL: IDENTIFYING THEMES AND RESEARCH CLUSTERS FROM BIBLIOMETRIC ANALYSIS

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## ABSTRACT

Policing is the only arm of the state that is authorized to use coercive force against its citizens, which makes the job uniquely demanding. With the emergence of a work culture characterized by job demands with complex technology, work overload, social isolation, sleep disturbances, and spillover effects leading to work-life imbalance, police work has been identified as one with a highly stressful environment. Despite interest over the years in the predictors and outcomes of police stress, the research findings are inconsistent. No review, to date, has offered a holistic retrospection on the job demands of the police. The current study is an attempt to overview job demands research on police personnel using bibliometric analysis and systematic review of literature. The study highlights the publication trend, the most productive and influential authors, the significant areas of research in the domain, and infers the intellectual structure of job demands research on police personnel. Using the science mapping techniques of co-citation and bibliometric

coupling analyses, the study infers the knowledge foundation and the thematic structure of job demands research in police personnel for the period 1983-March 2024 by uncovering six and eight specific areas of job demands research on police personnel respectively. Additionally, by using co-occurrence analysis, the study also attempts to highlight the influential topics of research in the same period divided into four segments and also outlines the future research directions in the domain of job demands with police personnel as the focal point.

**Keywords:** A Bibliometric Analysis Review

## INTRODUCTION

Work is considered to be the key element of human endeavors, the key element of progress and the achievement of goals. It is further defined as the human being's central identification with leading a productive life. It is every human being's life objective and, simply put, the means to earn a living, as stated by the WHO Occupational Health Programme in 1978. Individuals' ability

to derive meaning from their daily experiences is considered an essential element of their respective well-being (Keyes, 2007; Clausen & Borg, 2011). It is due to this reason that the experience of meaning at work has found a relationship with general well-being (Arnold et al., 2007), reduced rates of turnover (Leiter et al., 1998; Milliman et al., 2003), reduced sickness absence (Clausen et al., 2010), and enhanced organizational commitment (Milliman et al., 2003). The continuous interaction between man and his work environment, consisting of physical and psychological elements, is associated with positive or negative effects on health, and the organizational processes themselves are influenced by the individual's state of physical and mental well-being, which is influenced by job demands (Karasek, 1979; Johnson, 1989; Bakker & Demerouti, 2007).

## REVIEW OF LITERATURE

### Job Demands

Job demands are defined as those aspects of work that require sustained physical and mental effort (Bakker & Demerouti, 2007) and therefore found to have a relationship with certain physiological and psychological costs (Schaufeli & Bakker, 2004) and can be ascertained by the amount of stress caused to the worker participating in the work/job and is therefore dependent on the environment in which the job is to be done (Karasek, 1979). The demands can be categorized as quantitative demands, which are defined as work characterized by high work overload and high pressure of work. Emotional demands require the ability to deal with strong feelings

such as sorrow, anger, desperation, and frustration at work (Johannessen et al., 2013) and effort needed to deal with emotions that are required or desired by the organization from its members in interpersonal transactions. Role demands mean uncertainties that an employee encounters related to his/her responsibilities/role and the associated difficulty in the performance of such roles. It consists of role conflicts (occurs when the information and instructions received to perform a role are mutually exclusive or contradictory) and role ambiguity (when an employee lacks clarity or is not clear about his/her tasks and objectives) and is found to have a positive relationship with stress (Parikh et al., 2004; Wickramasinghe, 2010; Frank et al., 2017) and anxiety (Doby & Caplan, 1995). The physical and motoric aspects of behavior or demands related to musculoskeletal systems are physical in nature. The study of the job demands of police becomes more critical when one considers the potential for societal harm when police personnel are working in distress (Toch, 2002).

### Job Demands and Police

Policing is considered one of the most stressful occupations (Lieberman et al., 2002; Webster, 2013) due to the nature of their duties and particularly the job demands (Violanti & Aaron, 1994), and as they are considered never off duty (Thakre et al., 2019), being at high risk in terms of developing mental health issues (Sharma, 2019), problems related to physical health, psychological well-being, and job satisfaction (Shane, 2010), high prevalence of hypertension and diabetes, cardiac and metabolic disorders (Gershon et al., 2002), sleep disorders, and

work absenteeism (Elgmark Andersson et al., 2017). The stress transcends to their families as well (Burke, 1993). The response time of police officials is often in seconds to complex life-threatening situations, but at the same time, they encounter constant criticism on social media and threats to their lives (Patel et al., 2019), despite their importance for strength and emotional serenity (Burns, 2014). Fox and Spector (2002) found a relationship between emotional work and emotional exhaustion. Selokar et al. (2011) found higher stress among lower ranks. With continuous difficulty in retention (PERF, 2021) and an increasing rate of crime, there have been resultant effects on the quality of investigation and work overload stress prevalent among police personnel (Hart et al., 1995).

Though studies have been conducted on job demands across different occupational groups, there has been a dearth of review studies of job demands on police. The current study provides an evaluation of the available literature through bibliometric analysis and systematic literature review (SLR) and attempts to answer the following research questions:

RQ1. What is the current trend of research in the domain of job demands of police personnel?

RQ2. What are the most productive contributors in job demands research in terms of authors, institutions, countries, and their influence?

RQ3. What are the leading, influential, and impactful sources of the literature?

RQ4. What are the most influential articles in the research domain of job demands on police personnel?

RQ5. How has the conceptual and intellectual structure evolved over the years?

RQ6. Which specific areas are addressed within the study of police and job demands?

RQ7. What are the research directions/ areas/gaps that need to be addressed in the future?

To answer the vital research questions, various bibliometric analyses such as citation analysis, co-citation analysis, bibliographic coupling, co-occurrence analysis, Scopus search and analysis were conducted. The systematic literature review specifically addresses the last two research questions.

The Appendix section of the paper reports the list of studies reviewed after meeting the inclusion criteria (see Table 7).

## RESEARCH METHODOLOGY

The current study adopted a variety of bibliometric analysis techniques and a systematic review of literature approach. The former involves the application of quantitative tools on bibliographic and bibliometric information and aids in eliminating the risk of subjective bias, which is common in qualitative synthesis of literature. Due to its utility in handling large volumes of data, uncovering emerging trends in articles and other research constituents, as well as their performance, to find the interrelationship among them (Cobo et al., 2015), and its ability to deduce the foundational themes and knowledge base of a domain, the approach enables both a retrospective summary of the domain and predicting future research directions (Goodell

et al., 2021). The current study followed Donthu et al.'s (2021) four-step procedure for undertaking a review using a bibliometric approach: (1) define the objective or aims and scope of the study; (2) choose the approach or techniques for bibliometric analysis; (3) collect the data; and (4) use the collected data for running the analysis and reporting the findings.

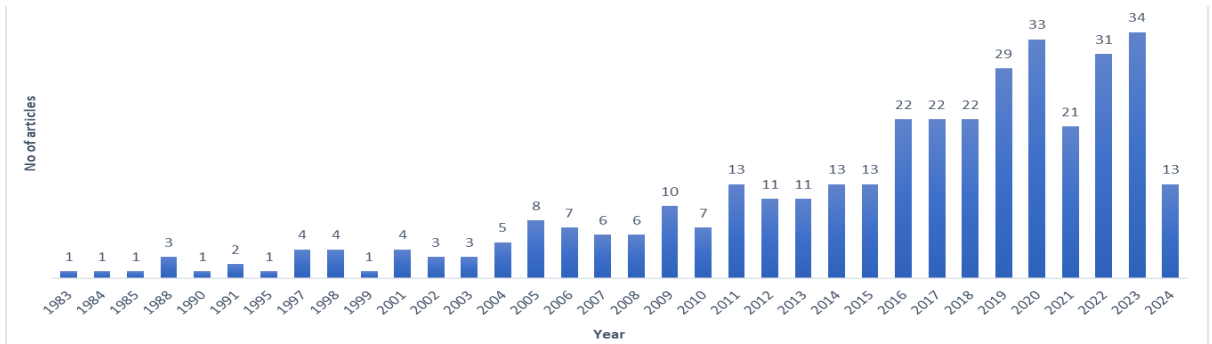
The study aims to report the trend of research efforts in the domain of job demands of police personnel from a retrospective approach. At the same time, it provides directions for future research, deduces the intellectual structure of job demands research of police, establishes the visualizations of thematic evolution of the domain under study encapsulating the influential authors, institutions, and countries that contributed to the literature. For techniques of analysis, performance analysis of the data corpus, which explains the contributions of research constituents to the domain (Cobo et al., 2011), followed by science mapping techniques, which explain the relationships between research constituents and intellectual and structural connections among them (Baker et al., 2021), were applied. Hence, techniques of citation analysis, co-citation analysis (for knowledge

foundations), bibliographic coupling (to unveil the thematic clusters and intellectual structure), and co-occurrence analysis (to predict the topical trajectories and better interpretation of thematic clusters) (Donthu et al., 2021). The study used the Scopus database to acquire the data as it is considered a comprehensive collection of peer-reviewed articles (Pattnaik et al., 2020) and provides the flexibility to search across a diversified bibliographic study domain (Hassan & Ahmi, 2002). Through SLR, the thrust is upon finding the areas that are addressed when job demands research involving police personnel is conducted and on areas of the domain which researchers hold remains to be addressed or needs more research efforts in the future for generalizability and for answering the questions that arise out of gaps in the literature. VOSviewer, along with Rstudio, is employed for analysis and visualizing bibliometric data extracted from the Scopus database. Data extracted from databases is in raw format and contains duplicate, erroneous records, and is not entirely fit to run analysis; hence, data cleaning was applied to remove such entries. Table 1 explains the methodical technique applied in the study to arrive at the figure of 359 articles.

**Table 1: Search criteria and selection of articles**

Corpus Filtering Criteria								Reject	Accept
Criteria for search input									
Search database: Scopus									
Search date: 12 March 2024									
Search query/ term: ("job demands" OR "work demands" OR "workplace demands" OR "occupational demands") AND ("police*" OR "policing" OR "law enforcement" OR "security")									482
Article selection									
Screening Criteria: Language : Include documents in only English								11	471
Erroneous records screening: Include documents with valid title and author information								10	461
Content screening: Include articles if "Titles, abstracts, and keywords" indicate relevance to scope of study (i.e., Job demands in Police personnel) only								102	359

The table presents the systematic technique for arriving at the corpus of 359 articles.



**Fig. 1: Publication Trend**

## RESULTS AND DISCUSSION

### Research trends and scientific productivity

The publication trend of job demands research in the framework of police personnel is shown in Figure 1. The total number of documents is plotted on the Y-axis against their respective year of publication on the X-axis. The figure indicates that research on work demands is not new and has been occurring for more than four decades. The research journey in this domain began with Violanti et al.'s (1983) work on occupational demands and the consumption of alcohol as a coping tool. Findings reported psychological distress as mediating between demands and alcohol consumption, also having a positive effect on alcohol use. However, until 2010, the pace of research has been slow, with the research work remaining mostly in single digits. But since the previous decade, the pace of research has been observing an upward trajectory. The most productive years are 2023 (34 articles), followed by 2020 (33 articles) and 2022 (31 articles). This year's data shows this rising trend is expected to continue in the coming years as well, with 13 documents

published by mid-March this year, making 38.23% of the highest tally of articles published in the previous year.

### Top authors, institutions, and countries of job demand research on police personnel

Table 2 below highlights the authors who contributed most to the domain of job demands of police personnel. Along with that, the table also provides an outline of the authors' affiliations (institution and country) from the period of 1983 to March 2024. Based on the number of citations, Bakker emerges as the most influential and impactful author with 702 citations, followed by Bongers and Van Mechelen with 539 citations each to their name. In terms of productivity, Dollard and Burke top the list with 7 documents each to their name, immediately followed by Bakker with 6 publications. In terms of institutions contributing to the research of job demands of police personnel, Utrecht University and the Department of Social and Organizational Psychology are the most influential as well as the most productive institutions with

**Table 2: Top Authors, institutions and countries of Job Demand research on Police Personnel**

TC	Author	TP	TC	Institution	TP	TC	Country	TP
702	bakker, arnold b.	6	511	utrecht university, netherlands	3	2930	netherlands	47
539	bongers, paulien m.	3	468	department of social and organizational psychology, utrecht university, utrecht, nethe	2	1865	united states	76
539	van mechelen, willem	3	423	tno work and employment, 2130 as hoofddorp, p.o. box 718, netherlands	2	1280	australia	54
537	demerouti, evangelia	4	374	department of clinical chemistry, klinikum grosshadern, university of munich, 8000 mu	1	1243	canada	28
463	dollard, maureen f.	7	374	department of medical sociology, medical school, university of marburg, d-3550 marb	1	1204	united kingdom	35
395	tuckey, michelle r.	5	308	department of social medicine, faculty of medicine, vrije universiteit amsterdam, 1081	1	718	germany	16
380	schaufeli, wilmar b.	5	308	institute for research in extramural medicine, faculty of medicine, vrije universiteit am	1	689	norway	15
375	burke, ronald j.	7	308	tno work and employment, 2130 as, hoofddorp, p.o. box 718, netherlands	1	388	china	20
374	cremer, peter	1	284	department of management, john molson school of business, concordia university, ca	1	333	italy	8
374	junge, astrid	1	284	department of work and organizational psychology, erasmus university rotterdam, ins	1	216	hong kong	4
374	peter, richard	1	284	department of work and organizational psychology, erasmus university, rotterdam, ne	1	194	belgium	9
374	seidel, dieter	1	284	erasmus university, netherlands	1	172	poland	7
374	siegrist, johannes	2	284	norwich business school, university of east anglia, united kingdom	1	141	sweden	13
362	heuven, ellen	2	268	erasmus university rotterdam, netherlands	2	140	taiwan	6
341	winefield, anthony h.	4	240	department of psychology, university of tromsø, n-9037 tromsø, norway	2	134	switzerland	6
308	arins, geertje a. m.	1	224	eindhoven university of technology, netherlands	1	133	south korea	10
308	bouter, lex m.	1	219	norwegian school of management bi, university of tromsø, n-9037 tromsø, norway	1	131	france	6

TC = total citations, TP = total publications. The research constituent appears according to total citations.

**Table 3: Top journals for Job Demand research on Police Personnel**

Journal	Publisher	TP	TC	h_index	g_index	m_index
International Journal Of Stress Management	American Psychological Association	9	720	7	9	0.333
Journal Of Occupational And Organizational Psychology	Wiley-Blackwell	5	450	5	5	0.333
Journal Of Occupational Health Psychology	American Psychological Association	5	416	5	5	0.227
American Journal Of Industrial Medicine	Wiley-Blackwell	5	410	4	5	0.167
Journal Of Applied Psychology	American Psychological Association	3	408	3	3	0.081
Social Science And Medicine	Elsevier	2	383	2	2	0.057
Journal Of Criminal Justice	Elsevier	3	299	3	3	0.158
Journal Of Managerial Psychology	Emerald	2	237	2	2	0.2
Occupational And Environmental Medicine	Lippincott Williams & Wilkins	7	227	5	7	0.294
Journal Of Management	Sage	1	224	1	1	0.143
Personnel Review	Emerald	2	199	2	2	0.222
Frontiers In Psychology	Frontiers Media	9	196	6	9	0.667
Journal Of Psychosomatic Research	Elsevier	1	195	1	1	0.036
Scandinavian Journal Of Work, Environment And Health	Nordic Association of Occupational Safety and Health	5	179	4	5	0.148
Journal Of Occupational And Environmental Medicine	Lippincott Williams & Wilkins	12	165	8	12	0.308
Journal Of Organizational Behavior	Wiley-Blackwell	2	163	2	2	0.067
International Journal Of Environmental Research And Public Health	MDPI	13	158	7	12	0.875
Anxiety, Stress And Coping	Taylor & Francis	3	155	3	3	0.2
Stress And Health	John Wiley & Sons	3	146	3	3	0.188
Social Psychiatry And Psychiatric Epidemiology	Springer Science+Business Media	2	145	2	2	0.143

TP = total publications, TC = total citations, the remaining three columns indicate the journal's impact presented in the form of h-index, g-index, and m-index.

511 and 468 citations respectively. Furthermore, based on the countries, the Netherlands (2930 citations) and the United States of America

(1865 citations) have the most influential contribution to the job demands research of police personnel.



## Top journals for job demand research on police personnel, their influence, and impact

The top journals that publish research on job demands in police personnel are shown in Table 3 along with the publisher of each journal, the productivity, the total citation score, and the h, g, and m index, which highlight the impact of the journal. In terms of citations or influence, the International Journal of Stress Management tops the list with 720 citations, followed by the Journal of Occupational and Organizational Psychology with 450 citations. The International Journal of Environmental Research and Public Health is the most productive source in the domain with 13 publications, immediately followed by the Journal of Occupational and Environmental Medicine with 12 publications. Both these journals contribute 26.59% of the total articles in the table. Following the trends of publication

as mentioned in Table 1, the journals are becoming more receptive to research work in the area of job demands of police personnel, as more than 43% of total publications from 1983 to mid-March 2024 have been during the last five years.

## Most influential articles on job demands research on police personnel

The top-cited publications in research work on job demands in police personnel have been listed in Table 4, along with the publication title, the authors, the year, and the total citation score based on citation analysis. Siegrist et al.'s (1990) "Low-status control, high effort at work and ischemic heart disease: prospective evidence from blue-collar men" is identified as the most influential article in the domain of this study accredited with the highest citation score in Scopus of 374, followed by Arins et

**Table 4: Top articles on Job Demand research on Police Personnel**

Author	Title	TC
Siegrist et al. (1990)	Low status control, high effort at work and ischemic heart disease: Prospective evidence from blue-collar men	374
Arins et al. (2001)	Psychosocial risk factors for neck pain: a systematic review	308
Bakker and Heuven (2006)	Emotional dissonance, burnout, and in-role performance among nurses and police officers.	284
Miraglia and Johns (2016)	Going to work ill: A meta-analysis of the correlates of presenteeism and a dual-path model.	284
Petrou et al. (2018)	Crafting the Change: The Role of Employee Job Crafting Behaviors for Successful Organizational Change	224
Martinussen et al. (2007)	Job demands, job resources, and burnout among police officers	219
Stansfeld et al. (1997)	Work and psychiatric disorder in the Whitehall II Study	195
Bos-Nehles et al. (2017)	HRM and innovative work behaviour: a systematic literature review	190
Breevaart et al. (2015)	Leader-member exchange, work engagement, and job performance	184
Hall et al. (2010)	Job demands, work-family conflict, and emotional exhaustion in police officers: A longitudinal test of competing theories	179
Mcgonagle et al. (2015)	Individual and work factors related to perceived work ability and labor force outcomes.	155
Richardsen et al. (2006)	Work and health outcomes among police officers: The mediating role of police cynicism and engagement.	140
Miller et al. (2003)	Diversity in Blue: Lesbian and Gay Police Officers in a Masculine Occupatio	129
Amick et al. (2002)	Relationship Between All-Cause Mortality and Cumulative Working Life Course Psychosocial and Physical Exposures in the United States Labor Market From 1968 to 1992	128
Carlson et al. (2011)	Health and turnover of working mothers after childbirth via the work-family interface: An analysis across time.	127
Kirmeyer (1988)	Coping with competing demands: Interruption and the Type A pattern.	126
Loi et al. (2011)	The interaction between leader-member exchange and perceived job security in predicting employee altruism and work performance	118
Ariëns et al. (2002)	High physical and psychosocial load at work and sickness absence due to neck pain	116
Sluiter (2006)	High-demand jobs: Age-related diversity in work ability?	116

Most frequently cited publications on occupational stress in police personnel, along with author(s), publication year, title, and TC = total citations.

al.'s (2001) "Psychosocial risk factors for neck pain: a systematic review" with a 308 citation score, which reported a positive relationship between neck pain and high quantitative job demands. Furthermore, Bakker and Hueven's (2006) "Emotional dissonance, burnout, and in-role performance among nurses and police officers" focused on police officers and found emotionally demanding interactions result in emotional dissonance and further burnout.

### Top references for job demand research on police personnel

This section of the paper focuses more closely on the cited publications that are referred to frequently in the domain of job demands research in police personnel. Hence, this section examines the research work that is often cited to answer or uncover the initial or foundational inquiries in the area of job demand research. Table 5 provides a list of top references in the research corpus under study,

along with each publication, its local citations, the authors, and global citations are also given. "The Job Demands-Resource Model of Burnout" by Demerouti et al. (2001), which first proposed and tested the JD-R model and found job demands related to exhaustion and lack of job resources to disengagement, is the top reference paper in the corpus of research articles with 22 local citations and 7067 global citations. It is immediately followed by Bakker and Demerouti's "The Job Demands-Resource Model: State of the Art" (2007) with 20 local citations and 6399 global citations, which provides an outline of the studies that have taken the JD-R model as one of the focal points in their work. Furthermore, Bakker et al.'s (2005) "Job Resources Buffer the Impact of Job Demands on Burnout" work concentrates on the vital importance of autonomy and the importance of performance feedback, which is found to buffer the negative impact of job demands on burnout and has 13 local citations and 1422 global citations.

**Table 5. Top references for Job Demand research on Police Personnel**

LC	Cited References	Title	GC
22	Demerouti et al. (2001)	THE JOB DEMANDS-RESOURCES MODEL OF BURNOUT	7067
20	Bakker and Demerouti (2007)	THE JOB DEMANDS-RESOURCES MODEL: STATE OF THE ART	6399
13	Bakker et al. (2005)	JOB RESOURCES BUFFER THE IMPACT OF JOB DEMANDS ON BURNOUT	1422
11	Aiken and West (1991)	MULTIPLE REGRESSION: TESTING AND INTERPRETING INTERACTIONS	11
11	Hobfoll (1989)	CONSERVATION OF RESOURCES: A NEW ATTEMPT AT CONCEPTUALIZING STRESS	9540
		JOB DEMANDS, JOB RESOURCES, AND THEIR RELATIONSHIP WITH BURNOUT AND ENGAGEMENT: A MULTI-SAMPLE STUDY	
10	Schaufeli and Bakker (2004)		4935
8	Blau (1964)	EXCHANGE AND POWER IN SOCIAL LIFE	433
8	Hobfoll (1989)	CONSERVATION OF RESOURCES: A NEW ATTEMPT AT CONCEPTUALIZING STRESS	9540
8	Hobfoll (2002)	SOCIAL AND PSYCHOLOGICAL RESOURCES AND ADAPTATION	2969
8	Shane (2010)	ORGANIZATIONAL STRESSORS AND POLICE PERFORMANCE	243
		WORK-RELATED STRESS AND COPING AMONG CORRECTIONAL OFFICERS: IMPLICATIONS FROM ORGANIZATIONAL LITERATURE	
7	Triplett et al. (1996)		166
7	Bandura (1997)	SELF-EFFICACY: THE EXERCISE OF CONTROL	28

LC = local citations, GC = global citations

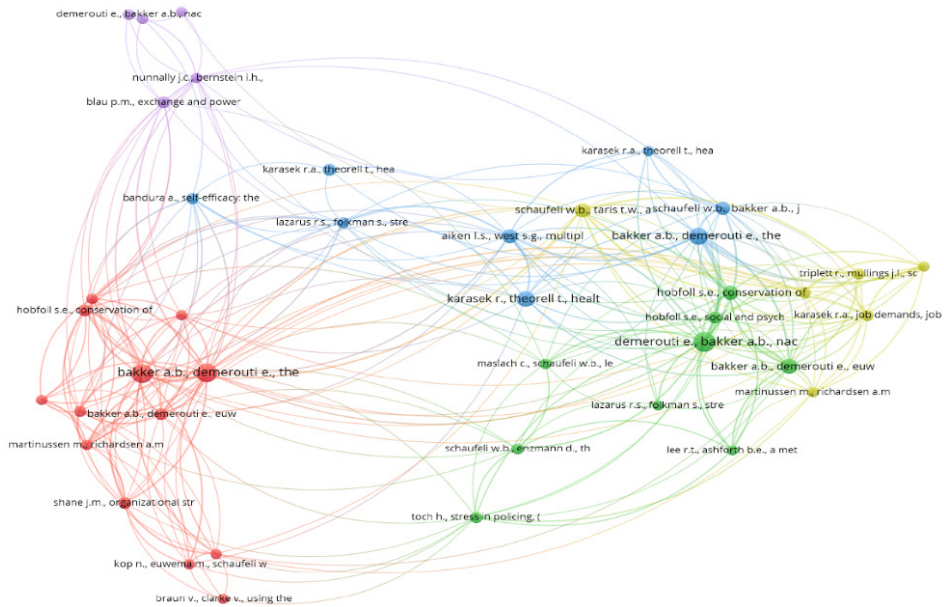


### Knowledge foundations of job demands in police personnel through co-citation analysis

Figure 2 shows the co-citation map of references that are cited at least five times by the articles in the review corpus under study for this paper. The objective of drawing a co-citation map based on references is to reveal the intellectual structure of a research domain (Rossetto et al., 2018), for instance, the underlying themes and to uncover the knowledge foundations (Liu et al., 2015; Donthu et al., 2021). Co-citation is a science mapping technique that assumes that those publications that are cited together frequently are similar to each other thematically (Hjørland, 2013). From Figure 2, we can observe that co-citation analysis of co-cited

references reveals that research work in the domain of job demands focusing on police personnel draws upon existing research from five foundational clusters, namely working conditions (red nodes), resources (green nodes), work design relation with burnout, productivity (blue nodes), stress (yellow nodes), and social structure in an organization (purple nodes).

By further examining these groups, we observe that these individual foundational clusters are converging into three overarching foundational clusters. For example, red and blue nodes converge as those focusing on working conditions and work design, whereas green and purple nodes converge as resources, and yellow nodes focus on stress.



**Fig. 2: Co-citation of references cited by articles on job demands research on police personnel. Each node represents a cited reference. Each color of nodes represents a semantic cluster of references based on thematic similarity. The size of nodes represents the degree of local citations wherein larger nodes reflect greater intensity of local citations. The link between nodes represents co-citations. The size of the link between nodes represents the degree of co-citations wherein thicker links reflect greater co-citation intensity.**

## Thematic clusters of job demand research on police personnel through bibliographic coupling

The previous section of the study focused on knowledge foundation through co-citation analysis. We further examine the review corpus in this section through a different science mapping technique called bibliographic coupling to build on the knowledge foundation. Since co-citation analysis concentrates on the publications that are highly cited to build on the themes, it leaves the more recently developed or niche publications out of their scope (Donthu et al., 2021). On the other hand, bibliographic coupling focuses on the citing publication itself to explain the present knowledge in the field (Goodell et al., 2021). Thus, bibliographic coupling not only encapsulates seminal knowledge but also focuses on niche and recent knowledge which might have not received many citations due

to its recent nature and might have thus been overlooked by the co-citation analysis (Donthu et al., 2021). Table 6 provides an overview of five thematic clusters that underpin the knowledge structure of job demand research on police personnel through the science mapping technique of bibliographic coupling.

Cluster 1 consists of 127 articles ranging from 1983 to 2024, which primarily focus on the stressors faced by individuals. These stressors were physical, psychological, and social. The top three cited papers in this cluster are Ariens et al. (2001), Stansfeld et al. (1997), and Amick et al. (2002), with citation scores of 308, 195, and 128, respectively. Ariens et al. (2001) found a positive association between neck pain and high quantitative job demands, low social support from colleagues, low job control, low skill discretion, and low job satisfaction. Stansfeld et al. (1997) found high demands at work to be associated with negative

**Table 6: Thematic clusters of job demand research in police personnel**

Theme	Author(s)	Title	TC
Physical and Psychosocial Stressors	Ariens et al. (2001)	Psychosocial risk factors for neck pain: a systematic review	308
	Stansfeld et al. (1997)	Work and psychiatric disorder in the Whitehall II Study	195
	Amick et al. (2002)	Relationship Between All-Cause Mortality and Cumulative Working Life Course Psychosocial and Physical Exposures in the United States Labor Market From 1968 to 1992	128
Social Support and Work Life Balance	Bos-Nehles et al. (2017)	HRM and innovative work behaviour: a systematic literature review	190
	Breevaart et al. (2015)	Leader-member exchange, work engagement, and job performance	184
	Hall et al. (2010)	Job demands, work-family conflict, and emotional exhaustion in police officers: A longitudinal test of competing theories	179
Work Design	Carlson et al. (2011)	Health and turnover of working mothers after childbirth via the work-family interface: An analysis across time.	127
	Petrou et al. (2018)	Crafting the Change: The Role of Employee Job Crafting Behaviors for Successful Organizational Change	224
	Hu et al. (2017)	How are changes in exposure to job demands and job resources related to burnout and engagement? A longitudinal study among Chinese nurses and police officers	82
Work Engagement	Brenninkmeijer et al. (2010)	Regulatory focus at work: The moderating role of regulatory focus in the job demands-resources model	73
	Bakker and Heuven (2006)	Emotional dissonance, burnout, and in-role performance among nurses and police officers.	284
	Martiniusen et al. (2007)	Job demands, job resources, and burnout among police officers	219
	Richardson et al. (2006)	Work and health outcomes among police officers: The mediating role of police cynicism and engagement.	140
Outcomes of Burnout	Miller et al. (2003)	Diversity in Blue: Lesbian and Gay Police Officers in a Masculine Occupation	129
	Sluiter (2006)	High-demand jobs: Age-related diversity in work ability?	116
	Tuckey et al. (2009)	Workplace bullying: The role of psychosocial work environment factors.	88
	Sherwood et al. (2019)	Identifying the Key Risk Factors for Adverse Psychological Outcomes Among Police Officers: A Systematic Literature Review	46

TC = total citations

mental health and suggested interventions in job design, training, and social support. Amick et al. (2002) examined the relationship between physical and psychosocial work conditions and mortality and found an association between low psychosocial demands, low job control, or passive work and mortality.

Cluster 2 consists of 61 articles primarily focusing on social support and work-life balance, ranging from 2010 to 2024. The top cited papers in this cluster are Bos-Nehles et al. (2017), with 190 citations, who found autonomy, job security, work composition, reward, training and development, and feedback to be practices with a positive impact on innovative work behavior. Breevaart et al. (2015), with 184 citations, found that employees in high-quality leader-member exchange relationships can achieve better job performance and work engagement.

Cluster 3 consists of 54 articles on work design, ranging from 2010 to 2024, with the top three cited articles being Petrou et al.'s (2018) work, with 224 citations, which found that employee resource-seeking behavior has a positive effect on work engagement and that seeking challenges positively affects adaptivity. Hu et al.'s (2017) work, with 82 citations, found that participants working in a highly demanding work environment showed a significant increase in burnout. Brenninkmeijer et al.'s (2010) work, with 73 citations, is on promotion focus and prevention focus. The former affects the motivational processes, whereas the latter influences the exhaustion process.

Cluster 4 consists of 52 articles on work engagement, ranging from 1984 to 2023.

The top three cited articles are Bakker and Hueven's (2006) work, with 284 citations, which found that emotional job demands were associated with disengagement and exhaustion. Martinussen et al.'s (2007) work, with 219 citations, found that burnout is associated with psychosomatic complaints, satisfaction with life, and intention to quit the job. Richardsen et al.'s (2006) work, with 140 citations, found that work engagement partially mediates the effects of job demands, job resources, and individual characteristics on organizational commitment and self-efficacy.

Cluster 5 consists of 23 articles on burnout outcomes, ranging from 2006 to 2023. The top three cited articles are Sluiter's (2006) work, with 116 citations, Tuckey et al.'s (2009) work, with 88 citations, and Sherwood et al.'s (2019) work, with 46 citations. These articles suggest that diversity thinking should be used to make decisions regarding the workability of aging workers in a highly demanding work environment.

### **Thematic trends of job demand research on police personnel through co-occurrence analysis.**

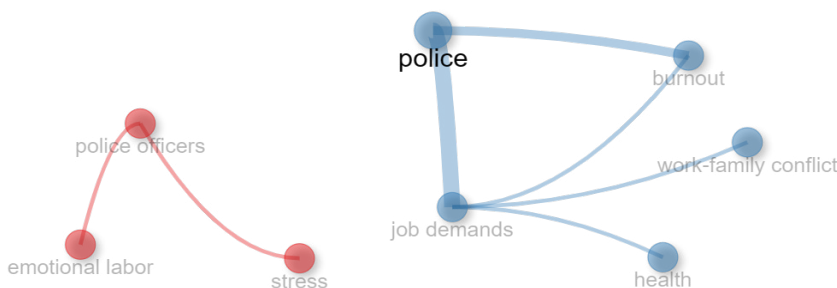
In this part we attempt to further explore the thematic trends in the job demands research through co-occurrence analysis to build on the foundations and themes revealed in previous sections. Co-occurrence analysis explores the existing and future relationships among topics in a research domain, the former helps to elaborate the content of each of the thematic clusters whereas the latter is performed by analysing words from managerial implications

and future research direction content of the paper (Donthu et al. 2021). Figure 3-6 describes the evolution of topics in job demands research on police personnel in chronological order by using author keywords.

The study conducted on the theme of job demands research on police personnel between 1983-2011 (figure 3) focused more on stressors as a whole, police in general (red nodes), and the association of job demands with health and burnout (blue nodes). It is the initial phase of research in the area of job demands that focuses on police personnel.

The study conducted on the theme of job demands research on police personnel between 2012 and 2017 (figure 4) focused on job demands and association with stress (green nodes), resources part of the job demands-resources model (blue nodes), and outcomes (red nodes).

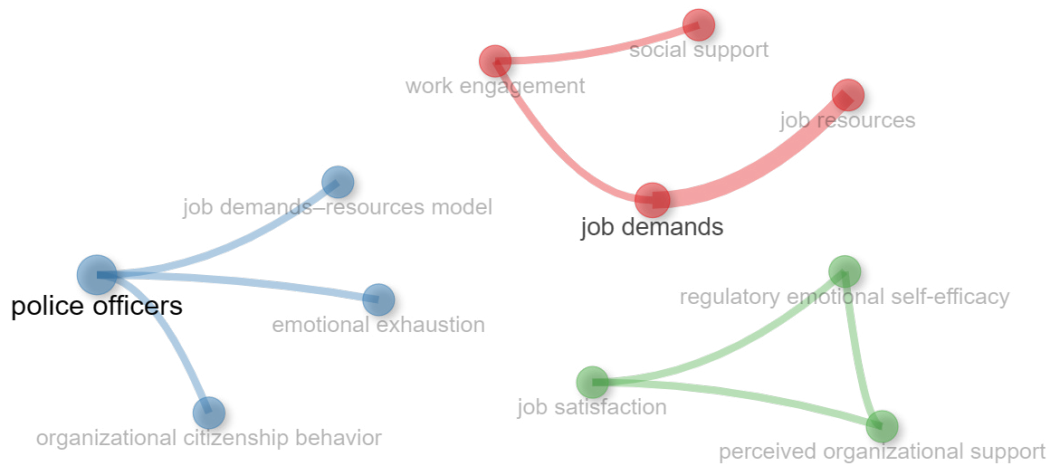
The study carried out between the period of 2018 and 2020 (figure 5) on the theme of job demands research on police personnel focused on work engagement (red nodes) and work design (blue nodes), and there is also a focus on outcomes and social support variables (green nodes).



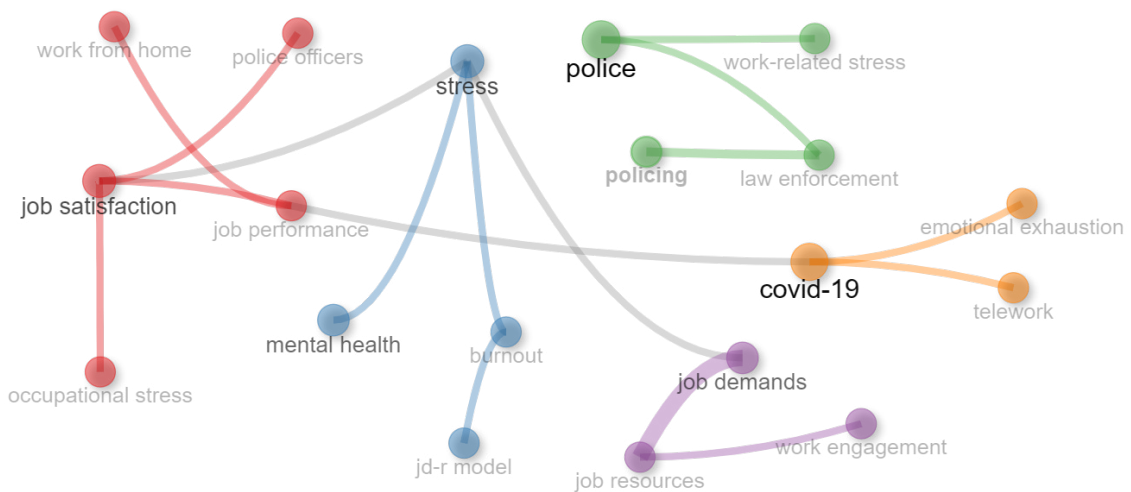
**Fig. 3: Influential topics in the period of 1983-2011**



**Fig. 4: Influential topics in the period of 2012-2017**



**Fig. 5: Influential topics in the period of 2018-2020**



**Fig. 6: Influential topics in the period of 2021-2024**

The study was carried out between the period of 2021 and 2024 (figure 6) on the theme of job demands research on police personnel, emphasizing the areas of work design (red nodes), outcomes (blue nodes), work engagement (purple nodes), and policing in general (green nodes). Additionally, COVID-19, work settings like telework, and work from

home are seen as emerging areas (yellow nodes) of research in the same period.

**Systematic Literature Review**

The same keywords and database were used for the systematic literature review, excluding letters, conference reviews, and books under

the document type tab in Scopus. The search results displayed 348 articles. Then, at each stage, exclusion criteria were applied. For example, those articles that did not address the theme or the topic of the current study in whole or in part were excluded. Figure 7 represents the flow diagram followed for article selection for systematic review.

Table 7 addresses the last two research questions. Firstly, it highlights the specific areas covered in the research domain of job demands involving police personnel. Most of the studies relate to the presence or absence of stress as a consequence of job demands (Violanti et al., 1983) and corresponding resources (Chrisopoulous et al., 2010, Wolter et al., 2019, Tuckey et al., 2012, Oliver et al., 2023, Krause et al., 2023). The effects of increasing job demand without checks and appropriate resources lead to various psychological issues (Hansson et al., 2017, Baka, 2020, Oliver et al., 2023, Opielka and Staller, 2024), such as burnout (Mostert and Joubert, 2005, Martinussen et al., 2007, Smoktunowicz

et al., 2015, Maran et al., 2020, Oliver et al., 2023), work-family conflict (Martinussen et al., 2007, Hall et al., 2010, Duxbury et al., 2018, Maran et al., 2020), and affecting physical health as well (Richardson et al., 2006, Noblet et al., 2009, Elgmark et al., 2017, Chen and Wu, 2022, Oliver et al., 2023). Mikkelsen and Burke (2004) have discussed different types of job demands often faced by police personnel, such as quantitative demands and hiding emotions, which are particularly considered an important part of police personnel's job as they have to deal with both victims and perpetrators of crime. This often leads to emotional exhaustion, which has been covered widely in research over the years (Mikkelsen and Burke, 2004, Martinussen et al., 2007, Hall et al., 2010, Wolter et al., 2019, Maran et al., 2020, Opielka and Staller, 2024). According to Drew et al. (2024), operational stress can indirectly lead to turnover intention as the former is found to be the strongest predictor of burnout, which can lead to employees leaving the organization (Martinussen et al., 2007). Job

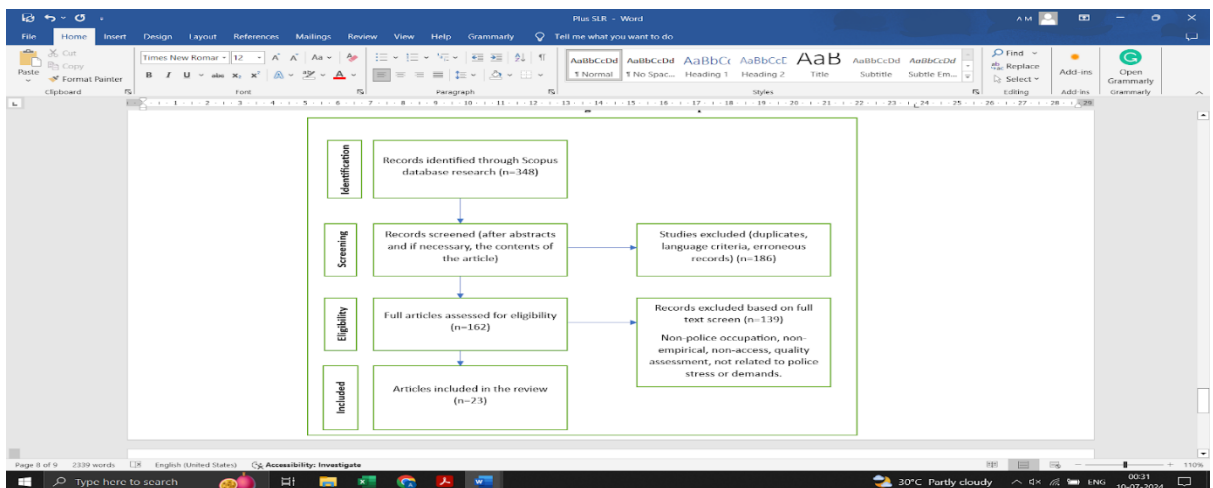


Fig. 7: Flow Diagram of the search process



demands research covers the aspect of resources, both on the job and off the job, as job resources enhance the level of engagement of police personnel. For instance, if the cognitive job demands are matched with cognitive resources, then there is increased efficacy of police personnel. Also, a match between demands and resources mitigates strain (Chrisopoulous et al., 2010), moderates work stress (Oliver et al., 2023). Research on person-centric and situation-centric resources is necessary for stress coping and mental well-being. However, it has also been found that a high level of resources in comparison to job demands is harmful to well-being and, at the same time, matched with high physical demands leads to physical strain (Chrisopoulous et al., 2010). Also, different coping behaviors adopted by police personnel are discussed in job demands research. For instance, alcohol, changes in working style leading to depersonalization, and other job-related attempts to cope (Violanti et al., 1983). Social support and other job resources have been found to moderate the negative effects of job demands, preventing burnout, harassment at the workplace, and counterproductive work behavior. An interesting case was found in the case of police officers engaged in shift work. Mikkelsen and Burke (2004) reported more conflicts and spouse concerns in the case of such officers, whereas Opielka and Staller (2024) found that such officers reported less time overload and better mental well-being. Older officers reported higher exhaustion (Martinussen et al., 2007), and depression was found highest in the 45-50 age group (Baka, 2020). Women reported lower commitment and autonomy (Richardson et al., 2006), low social support, high job strain (Hansson et al., 2017), family

role overload as they have heavier demand outside of work (Duxbury et al., 2018), and higher depression (Baka, 2020) in comparison to male personnel. Autonomy in breaks and holidays is found to be related to job satisfaction and contributes positively to mental health (Krause et al., 2023), and overall autonomy in the job reduces the impact of the stress response (Chen and Wu, 2022).

Future research directions and research gaps have also been discussed in Table 7. Among them, adopting a longitudinal research design is a suggestion shared by the majority of the researchers in this systematic review. There are valid reasons for the same. Firstly, cross-sectional studies make causal relationships problematic. An individual's overall perception of the work environment may get influenced when facing prolonged negative behavior at work. A cross-sectional study cannot overcome this as it records data at a single point in time. Moreover, it limits the findings of research as the perception of stress or work/role overload cannot be examined at a single point in time. For better generalizability, the dynamics of such perceptions have to be recorded over some time, possibly through a longitudinal study design.

Researchers also suggest research on resources like resilience and emotional stability and their effect on job demands and stress. Also, the overall duties performed by police personnel can be divided into complex and standard tasks, and their respective effect on stress response can be recorded. Findings from such an exercise can be inculcated in selection decisions whereby the suitability of the candidate is checked in the initial recruitment stages, thus saving time, cost, and more importantly, lives.

**Table 7: Systematic Literature Review**

S.no	Author	Study Design	Participant Information	Variables	Mediator/Moderator	Findings	Future Research Directions/Recommendations	Location
1	Violanti et al. (1983)	Quantitative; Cross-sectional; Questionnaire	N=500, 21 Police Organizations	Psychological Distress, Occupational Demands (Depersonalization, Authoritarianism, Organizational Defense, Danger Preparation), Police Coping Responses (Cynicism, Secrecy, Deviance, Alcohol Use)	-	Distress associated with alcohol use, Depersonalization directly, and indirectly related to stress and alcohol use, and job-related attempts to cope were ineffective in reducing the stress or impact of demands.	Direct and Indirect effect of depersonalization on distress, Comprehensive study of available coping responses, Panel Analysis to test the causal effects of work factors and distress on alcohol consumption, Impact of occupational stress in other occupations/professions.	United States
2	Mikkelsen and Burke (2004)	Quantitative; Cross-sectional; Questionnaire	N=766, Males (84%), Females (16%), Married (82%), Had children (88%), Constables (62%), Positioned in large departments (36%), worked 36-39 hours per week (86%), born before 1960 (42%)	Work-family conflict, work demands, burnout, work outcomes, coping, psychological and physical health	-	Work-family concerns with psychological health, younger police officers and those working shifts reported more conflicts, Cynicism, Quantitative demands, hiding emotions, and Exhaustion were associated with work-family conflict and spouse concerns, Strong association between burnout and work-family conflict and spouse concerns.	Target Interventions: Check on levels of job demands, alleviating the levels of job demands and exhaustion and focus on the work-family interface.	Norway
3	Mostert K.; Joubert A.F. (2005)	Quantitative; Cross-sectional; Questionnaire	N=340, White (55%), Black (5%), Coloured (39.4%), Indian (0.5%), Male (75.59%), Female (34.4%), Inspector (64.4%), Sergeant (14.1%), Captain (13.8%), Grade 12 (57.6%), Diploma (22.6%), University degree (2.06%)	Occupational Stress, Burnout, Coping.	Coping	Occupational stress strongly influences burnout, Avoidance coping moderated this influence, and Approach coping has a direct influence on burnout.	Interventions at the organizational level to reduce stressors and provide resources, Assessment of coping strategies at personnel selection stages.	South Africa

4	Richardson et al. (2006)	Quantitatives; Cross-sectional; Questionnaire	N=150, Female (20%), Male (80%), Married (78%), had children (50%), Average work experience (13.4 years), Mean working hours/week (40).	Job Demands, Resources, Cynicism, Engagement, Commitment, Self-efficacy, Health.	Cynicism	Type A behaviour was linked with cynicism and engagement, job demands associated with cynicism, job resources positively associated with engagement, cynicism was associated with increased health complaints and reduced commitments and efficacy, and women reported less overtime, commitment and autonomy.	Longitudinal design for establishing causal relationships, integrating enhanced indicators for health and work performance.	Norway
5	Martinussen et al. (2007)	Quantitatives; Cross-sectional; Questionnaire	N=223, Male (173), Female (48), Married (76%), had children (48%), Average work experience (11.5 years), Mean working hours/week (39.5).	Job Demands, Resources, Burnout, Outcomes (Health, Work).	-	Older officers reported higher exhaustion, and work-family pressure as important predictors of all three burnout dimensions, burnout predicted work and health outcomes like psychosomatic complaints and satisfaction with life, job satisfaction, commitment and intention to leave the organization.	Inculcating models which include coping/protective factors and officers' perception of rewards, emotional stability and resilience as resources.	Norway
6	Wu (2009)	Quantitatives; Cross-sectional; Questionnaire	N=672; Male (654), Mean age (35).	Role conflicts, emotional exhaustion, health problems	-	Intrasender role conflict and its positive association with emotional exhaustion and health problems.	Burnout indicators, different role conflicts in measuring work stress.	Taiwan
7	Noblet et al. (2009)	Quantitatives; Cross-sectional; Questionnaire	N=2085; Male (81%); 30-49 years (72%); Work experience 20 years or more (39%).	Job control, job demands, support from work sources, well-being, job satisfaction, organizational commitment	-	Social support, and control, ensure the well-being, satisfaction and commitment of the employee, negative relationship between workload on well-being and satisfaction.	Moderator variables, Longitudinal design, effect of task classification (complex vs standard)	Australia

8	Chrisopoulos et al. (2010)	Quantitative; Longitudinal; Questionnaire	N=179; Male (161), Female (18); Mean age (43.4); Sergeant (49.7%), Senior constable (21.8%)	Job demands, resources, cognitive strain, emotional strain, physical strain	-	Match between demands and resources mitigates strain, a high level of resources in comparison to demands is harmful to well-being, matching of cognitive demands with cognitive resources enhances efficacy, and high levels of physical demands, and resources were associated with high levels of physical strain.	Focus on the psychological component of demands relates specifically to police tasks, police specific stressors for better buffering effects to reduce strain.	Australia
9	Hall et al. (2010)	Quantitative; Longitudinal; Questionnaire	N=257, Male (230), Female (27), Average age (42.6 years), Married (86%), Dependents (71%), Sergeant (43.6%), Senior constable (30%), Senior sergeant (12.1%)	Work-family conflict, emotional exhaustion, job demands.	Work-family conflict, Emotional exhaustion	The study confirms both mediation scenarios, increased demands lead to work-family conflicts, and emotional exhaustion and hinder recovery, and inclusion of resources in the model.	Reciprocal mediation relationships, effects of job demand spillover.	Victoria
10	Tuckey et al. (2012)	Quantitative; Cross-sectional; Questionnaire	N=716; Male (615), Female (101); Mean Age (41.9); Sergeants (348), Constables (368); Work experience (17.5 years)	Job demands, resources, harassment, role-specific or micro-level psychological variables	-	Lack of resources increases the odds of harassment of officers, and harassment at the workplace increases the officers' perception of threat in officer-offender interactions.	Longitudinal research, the role of power dynamics, the imbalance of power leading to harassment and eventually bullying at work, and multilevel effects of resourcing.	Australia
11	Smoktunowicz et al. (2015)	Quantitative; Cross-sectional; Questionnaire	N=625; Male (80%), Female (20%); Mean Age (36.6 years); Average work experience (12.83 years)	Job demands, burnout, job control, social support, counterproductive work behaviour (CWB)	Job burnout, control, social support.	Job demands are related to burnout when social support is low and there is high burnout, low social support relates to high instances of CWB, and social support moderated the relationship between job demands and burnout. Burnout mediated the job demands-CWB relationship when job control was high and social support was low.	Longitudinal research, organizational behaviour related to positive and negative outcomes to the individual and organization	Poland

12	Elgmark et al. (2017)	Quantitative; Cross-sectional; Questionnaire	N=4244; Male (74%), Female (26%); 30-34 years (29%); Work experiences, less than 10 years (77%); Majority worked in rotational shifts	Job demands, job control, support, exposure to threats, shift work, fatigue, and job satisfaction.	-	Job demands contribute significantly to fatigue while support to job satisfaction, and exposure to threats contribute positively to fatigue and negatively to job satisfaction.	Occupation-specific variables to the demand control support model, focussing on the link between psychosocial and physical aspects of police work.	Sweden
13	Hansson et al. (2017)	Quantitative; Cross-sectional; Questionnaire	N=714; Female (31%), Male (69%); Mean Age (42 years); Married (83%); Average work experience (15.5 years).	Job demands, control of social support, and general mental health.	-	Low social support and high job strain in female officers, low social support with active work and job strain is likely to cause psychological disturbance and poor mental health. Married women reported higher levels of social support.	Effect of role conflict on mental health and its role in the association of active work with psychological disturbance.	Sweden
14	Duxbury et al. (2018)	Quantitative; Cross-sectional; Questionnaire	Male (1169), Female (300); Average age_M (41.7 years), F(40.1 years); Rank_Constable_M (61%), F (72%); Work experience_M (14.8 years), F (14.1 years); Worked per week, M (44 hours), F (42).	Competing demands, outside work, non-supportive culture, work role overload, family role overload, and perceived stress.	-	Family role overload and work-role overload are important predictors of stress, female officers face similar stressors as they used to face in the 70s and 80s and these are more problematic for them as they have heavier demands outside of work.	Longitudinal research, Single police officers' work and family demands leading to overload and stress.	Canada
15	Turtle et al. (2018)	Quantitative; Cross-sectional; Questionnaire	N=1180; Male (91%), Mean age (39 years); Work experience average (14 years), all married.	Marital functioning, career demands, social and emotional spillover.	-	Career demands and social spillover are significant predictors of marital functioning.	Inclusion of other family systems (parent-child relation, sibling relations), mixed research specifically interviews or focus groups with children.	United States
16	Wolter et al. (2019)	Quantitative; Cross-sectional; Questionnaire	N=843; Male (609), Female (234); Age mean (40.9 years); Work experience mean (19.7 years); Field service (65.2%)	Job demands, resources, emotional exhaustion, well-being.	-	Job demands contribute significantly to emotional exhaustion, administrative stressors relate strongly to job demands, fair organizational climate, organizational goals and values promote well-being.	Significance of shared values in the police context, the effect (moderate or direct) of resources on emotional exhaustion/burnout concerning job demands, more factors to be included as job demands, resources in JD-R model according to a specific policing context.	Germany

17	Maran et al. (2020)	Quantitative; Cross-sectional; Questionnaire	N=police officers (112), health care professionals (286)	Secondary traumatic stress (STS), well-being and malaise at work, job demands, and job resources.	-	Officers suffer greater STS, workload, and work-family conflict in comparison to health care professionals, negative emotions and burnout as a consequence are suffered to a greater extent, work experience was not related to STS, work-family conflict provides context to STS.	A larger sample for more effective results, burnout syndrome and secondary traumatic stress using a person-centric approach applied in a police context, STS concerning the role (frontline work, serious crime investigations) of an officer in the organization, where an officer has to intervene, behaviour of STS suffered behaviour towards their children.	Italy
18	Baka (2020)	Quantitative; Cross-sectional; Questionnaire	N=7741; Male (83%), Female (17%); 31-40 years (50%), 41-50 years (23%), 25-30 years (21%); Positioned in crime prevention divisions (60%), criminal investigation (35%), support services (5%); Supervisory positions (14%), line officers (86%).	Job Demands, job control, social support, depression	Job control, social support	Job seniority is directly linked with organizational, and operational demands, depression, job control and lower social support, highest depression in the 45-50 age group, lowest in the 25-30 years, and depression higher in the case of female officers. Social support and job control moderated the negative effects of police job demands for organizational and not operational demands.	Longitudinal design for establishing causality between mental, and physical problems and job demands, and lack of resources. Effect of feedback, coaching, psychological climate as job resources.	Poland
19	Chen and Wu (2022)	Quantitative; Cross-sectional; Questionnaire	N=251; Male (217), Female (34); Age mean_31-40 (47.4)	Stress response, job demands, basic psychological needs, job autonomy.	Basic psychological needs, job autonomy.	Job demands improved the degree of satisfaction of basic psychological needs, job autonomy moderated between job demands and police stress response, and basic psychological needs partially mediate the influence of job demands on the stress response.	Relationship between job demands and stress response to broaden the scope of mental health, person-centric approach to understanding the basic physiological needs.	China



20	Oliver et al. (2023)	Quantitative; Cross-sectional; Questionnaire	N=852; Male (428), Female (413); Age mean (41.6 years); Work experience (4.15 years)	Work-related stress and well-being process, physical activity behaviour, police-specific stress.	-	Perceived job stress indirectly influenced the relationship between work demands and psychological well-being, work resources moderated the relationship between demand and perceived work stress and person characteristics between work demands and psychological well-being. Police leaders deal with more quantitative demand, work privacy conflicts with more task-related, organizational resources with predictable but meaningful work and they had more influence and opportunities to develop a better feedback system, autonomy in breaks and holidays were related to job satisfaction and relevant for positive mental health among police leaders. Organizational stressors are the strongest predictor of turnover intentions, a lower level of organizational commitment is associated with leaving the police profession, operational stress is the strong predictor of burnout through it, has the strongest indirect effect on turnover intention, trauma does not negatively impact the commitment of the personnel towards their profession as do the operational and organizational requirements of their job.	Longitudinal design, structural equation modelling to test complex relations between variables, qualitative study approach for greater clarity on the importance of physical activity and testing whether perceived work stress, work features and psychological well-being mutually affect each other or they have unidirectional causal effects.	Britain
21	Krause et al. (2023)	Quantitative; Cross-sectional; Questionnaire	N=712; 356 leaders and 356 followers were matched; Full-time officers	Job demands, resources and mental health outcomes	-	Police leaders deal with more quantitative demand, work privacy conflicts with more task-related, organizational resources with predictable but meaningful work and they had more influence and opportunities to develop a better feedback system, autonomy in breaks and holidays were related to job satisfaction and relevant for positive mental health among police leaders. Organizational stressors are the strongest predictor of turnover intentions, a lower level of organizational commitment is associated with leaving the police profession, operational stress is the strong predictor of burnout through it, has the strongest indirect effect on turnover intention, trauma does not negatively impact the commitment of the personnel towards their profession as do the operational and organizational requirements of their job.	Longitudinal design specifically for police leaders, exhaustion and job engagement can be used as a mediator variable on health consequences, treating autonomy over breaks and holidays to be tested separately.	Germany
22	Drew et al. (2024)	Quantitative; Cross-sectional; Questionnaire	N=2669; Male (86%)	Job demands, burnout, psychological distress, commitment.	-	Organizational stressors are the strongest predictor of turnover intentions, a lower level of organizational commitment is associated with leaving the police profession, operational stress is the strong predictor of burnout through it, has the strongest indirect effect on turnover intention, trauma does not negatively impact the commitment of the personnel towards their profession as do the operational and organizational requirements of their job.	Longitudinal design, the inclusion of personnel from other regions will enhance the generalizability of findings, surveying officers who left the job, and investigation of responses on the lines of whether the personnel want to leave the particular policing agency or leave the policing profession altogether.	United States

23	Opielka and Staller (2024)	Quantitative; Cross-sectional; Questionnaire	N=666; Age_mean (43.5 years)	Working hours, job characteristics, psychological well-being.	-	Shift duty officers reported better mental well-being, less time overload, and perceived that they could complete their professional tasks more efficiently, officers on regular night shifts reported higher emotional stress in comparison to day duty officers owing to police service-specific activities.	Longitudinal design, diverse psychosocial work stressors across professions engaged in day and shift work, job characteristics specifically work schedules and its impact on mental health.	Germany
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Authors also suggest research on the imbalance of power, leading to harassment and sometimes bullying at the workplace due to a lack of social support. But there are instances where the social support provider is also, at the same time, the reporting officer who is responsible for increased demands and stress. The dynamics of such a relationship therefore require more research. Research on secondary traumatic research using a person-centric approach in a police work context is also recommended. Investigation of turnover intention responses from a wider sample of police personnel to examine whether the intent is to change the current agency/department or they want to leave the profession altogether.

### MANAGERIAL IMPLICATIONS

The research paper is an attempt to highlight, through a retrospective approach, the importance of job demands research on police personnel for academicians and practitioners, as the consequences of job demands have been considered as both a public concern and private trouble (Kenny & Cooper, 2003). The systematic review of literature provides areas that are addressed in job demands research in a policing context, as well as the areas that need further deliberation. The thematic clusters provide deliberations on work engagement, stressors, job design, and work-life balance in the case of police personnel who often have to work for sixteen hours at a stretch due to a shortage of manpower, uncertain law and order situations (Patel et al., 2019), as well as for other occupation groups in the first responder category. A bibliometric approach provides firm

foundations for advancing in a research area in a novel and meaningful way, gaining a one-stop overview, and identifying knowledge gaps (Donthu et al., 2021). The recent diffusion of the pandemic has considerably affected the working conditions, the knowledge, skills, and abilities (KSA) framework, leading to new and more complex job demands on police personnel. Hence, future research work can concentrate on the impact of public health emergencies like Covid-19 on law enforcement agencies.

## CONCLUSION

Police personnel represent an occupational group that, due to high job demands, is extremely vulnerable to stress (Violanti & Aron, 1994). Police have to deal with both criminals and victims of crime on a daily basis. The former requires a tight confrontation, while the latter requires an empathetic approach. As a consequence, police personnel engage in emotional labor daily. There have been studies on stress and mental health, but there are still important research gaps, especially concerning police personnel (Grawitch et al., 2010). No article has provided a holistic retrospection on the job demands domain of the police. To address this gap, the current study attempts to overview job demands research on police using a bibliometric method for the period 1983 to the middle of March 2024. Additionally, it incorporates a systematic review of literature. The former involves analyzing a corpus of 359 articles published in leading journals of the subject area, while the latter involves a review of 23 articles meeting our inclusion criteria.

The study highlights publication trends, the most productive and influential authors, and attempts to infer the intellectual structure of the domain. Using science mapping techniques such as co-citation analysis and bibliographic coupling, the study gathers the knowledge foundation and thematic structure of the domain by uncovering five specific areas of job demands research on police. Through co-occurrence analysis, the study also highlights the themes, patterns, and research direction in the job demands research on police personnel.

## REFERENCES

1. Acquadro Maran, D., Zito, M., & Colombo, L. (2020). Secondary traumatic stress in Italian police officers: the role of job demands and job resources. *Frontiers in psychology*, 11, 1435.
2. Amick III, B. C., McDonough, P., Chang, H., Rogers, W. H., Pieper, C. F., & Duncan, G. (2002). Relationship between all-cause mortality and cumulative working life course psychosocial and physical exposures in the United States labor market from 1968 to 1992. *Psychosomatic Medicine*, 64(3), 370-381.
3. Ariëns, G. A., van Mechelen, W., Bongers, P. M., Bouter, L. M., & van der Wal, G. (2001). Psychosocial risk factors for neck pain: a systematic review. *American journal of industrial medicine*, 39(2), 180-193.
4. Arnold, K. A., Turner, N., Barling, J., Kelloway, E. K., & McKee, M. C. (2007). Transformational leadership and psychological well-being: the mediating role of meaningful work. *Journal of occupational health psychology*, 12(3), 193.
5. Baka, L. (2020). Types of job demands make a difference. Testing the job demand-control-support model among Polish police officers.

- The International Journal of Human Resource Management, 31(18), 2265-2288.
6. Baker, H. K., Kumar, S., & Pandey, N. (2021). Forty years of the Journal of Futures Markets: A bibliometric overview. *Journal of Futures Markets*, 41(7), 1027-1054.
  7. Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, 22(3), 309–328.
  8. Bakker, A. B., & Heuven, E. (2006). Emotional dissonance, burnout, and in-role performance among nurses and police officers. *International Journal of stress management*, 13(4), 423.
  9. Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of occupational health psychology*, 10(2), 170.
  10. Bos-Nehles, A., Renkema, M., & Janssen, M. (2017). HRM and innovative work behaviour: A systematic literature review. *Personnel review*, 46(7), 1228-1253.
  11. Breevaart, K., Bakker, A. B., Demerouti, E., & Van Den Heuvel, M. (2015). Leader-member exchange, work engagement, and job performance. *Journal of Managerial Psychology*, 30(7), 754-770.
  12. Brenninkmeijer, V., Demerouti, E., le Blanc, P. M., & Hetty van Emmerik, I. J. (2010). Regulatory focus at work: The moderating role of regulatory focus in the job demands-resources model. *Career Development International*, 15(7), 708-728.
  13. Burke, R. J. (1993). Work-family stress, conflict, coping and burnout in police officers. *Journal of Clinical Forensic Medicine*, 1(1), 52.
  14. Burns, C. M. (2014). What helps and hinders the decision to access psychological services in a police population: a critical incident study (Doctoral Dissertation). 14(2), 20-31.
  15. Chen, P. F., & Wu, L. (2022). Impact of job demands on police stress response—the roles of basic psychological needs and job autonomy. *BMC public health*, 22(1), 2275.
  16. Chrisopoulos, S., Dollard, M. F., Winefield, A. H., & Dormann, C. (2010). Increasing the probability of finding an interaction in work stress research: A two-wave longitudinal test of the triple-match principle. *Journal of Occupational and Organizational Psychology*, 83(1), 17-37.
  17. Clausen, T., Christensen, K.B., and Borg, V. (2010). “Positive work-related states and long-term sickness absence: a study of register-based outcomes”. *Scandinavian Journal of Public Health*, Vol. 38, Supplement 3, pp. 51-58.
  18. Clausen, T., & Borg, V. (2011). “Job demands, job resources and meaning at work”. *Journal of Managerial Psychology*, 26(8), 665-681.
  19. Cobo, M.J., López-Herrera, A.G., Herrera-Viedma, E., and Herrera, F. (2011). “An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field”. *Journal of Informetrics*, 5(1), 146–166.
  20. 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.
  21. Doby, V.J., & Caplan, R.D. (1995). “Organizational stress as threat to reputation: Effects on anxiety at work and at home”. *Academy of Management Journal*, 38(4), 1105-1123.
  22. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., and Lim, W.M. (2021). “How to conduct a bibliometric analysis: An overview and guidelines”. *Journal of business research*, 133, 285-296.
  23. Drew, J.M., Sargeant, E., & Martin, S. (2024). “Why do police consider leaving

- the profession?: The interplay between job demand stress, burnout, psychological distress, and commitment". *Policing: A Journal of Policy and Practice*, 18, paae036.
24. Duxbury, L., & Halinski, M. (2018). "It's not all about guns and gangs: role overload as a source of stress for male and female police officers". *Policing and society*, 28(8), 930-946.
  25. Elgmark Andersson, E., Larsen, L.B., & Ramstrand, N. (2017). "A modified job demand, control, support model for active duty police". *Work*, 58(3), 361-370.
  26. Frank, J., Lambert, E.G., & Qureshi, H. (2017). "Examining Police Officer Work Stress Using the Job Demands–Resources Model". *Journal of Contemporary Criminal Justice*, 33(4), 348–367.
  27. Fox, S., & Spector, P.E. (2002). "Emotions in the workplace: The neglected side of organizational life introduction". *Human resource management review*, 12(2), 167-171.
  28. Grawitch, M.J., Barber, L.K., & Kruger, M.H. (2010). "Role identification, community socio-economic status demands, and stress outcomes in police officers". *Anxiety, Stress, & Coping*, 23(2), 165-180.
  29. Gershon, R.R., Lin, S., & Li, X. (2002). "Work stress in aging police officers". *Journal of occupational and environmental medicine*, 44(2), 160-167.
  30. Goodell, J.W., Kumar, S., Lim, W.M., and Pattnaik, D. (2021). "Artificial intelligence and machine learning in finance: Identifying foundations, themes, and research clusters from bibliometric analysis". *Journal of Behavioral and Experimental Finance*, 32, 100577.
  31. Grawitch, M.J., Barber, L.K., & Kruger, M.H. (2010). "Role identification, community socio-economic status demands, and stress outcomes in police officers". *Anxiety, Stress, & Coping*, 23(2), 165-180.
  32. Hall, G.B., Dollard, M.F., Tuckey, M.R., Winefield, A.H., & Thompson, B.M. (2010). "Job demands, work family conflict, and emotional exhaustion in police officers: A longitudinal test of competing theories". *Journal of occupational and organizational psychology*, 83(1), 237-250.
  33. Hansson, J., Hurtig, A.K., Lauritz, L.E., & Padyab, M. (2017). "Swedish police officers' job strain, work-related social support and general mental health". *Journal of police and criminal psychology*, 32, 128-137.
  34. Hart, P. M., Wearing, A. J., & Headey, B. (1995). Police stress and well-being: Integrating personality, coping, and daily work experiences. *Journal of Occupational and Organizational Psychology*, 68(2), 133-156.
  35. Hassan, S., and Ahmi, A. (2022). Mapping the state of the art of scientific production on requirements engineering research: A bibliometric analysis. *International Journal of Information Technologies and Systems Approach (IJITSA)*, 15(1), 1-23.
  36. Hjørland, B. (2013). Facet analysis: The logical approach to knowledge organization. *Information Processing and Management*, 49(2), 545–557.
  37. Hu, Q., Schaufeli, W. B., & Taris, T. W. (2017). How are changes in exposure to job demands and job resources related to burnout and engagement? A longitudinal study among Chinese nurses and police officers. *Stress and Health*, 33(5), 631-644.
  38. Johannessen, H. A., Tynes, T., & Sterud, T. (2013). Effects of occupational role conflict and emotional demands on subsequent psychological distress. *Journal of Occupational and Environmental Medicine*, 55(6), 605-613.
  39. Johnson, J. V., Hall, E. M., & Theorell, T. (1989). Combined effects of job strain and social isolation on cardiovascular disease morbidity and mortality in a random sample

- of the Swedish male working population. *Scandinavian Journal of Work, Environment & Health*, 15(4), 271-279.
40. Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-308.
  41. Kenny, D. T., & Cooper, C. L. (2003). Introduction: Occupational stress and its management. *International Journal of Stress Management*, 10(4), 275.
  42. Keyes, C. L. (2007). Promoting and protecting mental health as flourishing: a complementary strategy for improving national mental health. *American psychologist*, 62(2), 95.
  43. Krause, A., Schleicher, K., & Dohnke, B. (2023). Mental health of police leaders: Differences and predictions of job demands and resources. *Policing: A Journal of Policy and Practice*, 17, paad043.
  44. Leiter, M.P., Harvie, P. and Frizzel, C. (1998), "The correspondence of patient satisfaction and nurse burnout", *Social Science and Medicine*, Vol. 47 No. 10, pp. 1611-7
  45. Liberman, A. M., Best, S. R., Metzler, T. J., Fagan, J. A., Weiss, D. S., & Marmar, C. R. (2002). Routine occupational stress and psychological distress in police. *Policing: An International Journal of Police Strategies & Management*, 25(2), 421-441.
  46. Liu, Z., Yin, Y., Liu, W., & Dunford, M. (2015). Visualizing the intellectual structure and evolution of innovation systems research: A bibliometric analysis. *Scientometrics*, 103 (1), 135–158.
  47. Martinussen, M., Richardsen, A. M., & Burke, R. J. (2007). Job Demands, job resources, and burnout among police officers. *Journal of Criminal Justice*, 35(3), 239–249.
  48. Mikkelsen, A., & Burke, R. J. (2004). Work-family concerns of Norwegian police officers: Antecedents and consequences. *International Journal of Stress Management*, 11(4), 429.
  49. Milliman, J., Czaplewski, A. J., and Ferguson, J. (2003). "Workplace spirituality and employee work attitudes: an exploratory empirical assessment." *Journal of Organizational Change Management*, Vol. 16 No. 4, pp. 426-447.
  50. Mostert, K., & Joubert, A. F. (2005). Job stress, burnout and coping strategies in the South African police service. *South African Journal of Economic and Management Sciences*, 8(1), 39-53.
  51. Noblet, A., Rodwell, J., & Allisey, A. (2009). Job stress in the law enforcement sector: Comparing the linear, non-linear and interaction effects of working conditions. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 25(1), 111-120.
  52. Oliver, H., Thomas, O., Neil, R., Moll, T., & Copeland, R. J. (2023). Stress and psychological wellbeing in British police force officers and staff. *Current Psychology*, 42(33), 29291-29304.
  53. Opielka, S., & Staller, M. (2024). Effects of Shift Work on the Mental Health of Police Officers: Results from a Study Within the Police of North Rhine-Westphalia, Germany. *Journal of Police and Criminal Psychology*, 1-12.
  54. Patel, Z., Sinha, P. K., Sharma, A., & Maniyar, K. (2019). Examining the Relationship in Operational Stress, Professional Quality of Life and Coping Strategies among Police Personnel: An Empirical Investigation. *Indian Police Journal*, 66(3), 19–30.
  55. Parikh, P., Taukari, A., & Bhattacharya, T. (2004). Occupational stress and coping among nurses. *Journal of Health Management*, 6(2), 115-127.
  56. Pattnaik, D., Kumar, S. and Vashishtha, A. (2020) Research on trade credit—a systematic



- review and bibliometric analysis. *Qualitative Research in Financial Markets*, 12(4), 367-390.
57. Petrou, P., Demerouti, E., & Schaufeli, W. B. (2018). Crafting the change: The role of employee job crafting behaviors for successful organizational change. *Journal of Management*, 44(5), 1766-1792.
58. Police Executive Research Forum (2021) COVID27Jan21. Retrieved from <https://www.policeforum.org/covid27jan21> Richardsen, A. M., Burke, R. J., & Martinussen, M. (2006). Work and health outcomes among police officers: The mediating role of police cynicism and engagement. *International Journal of Stress Management*, 13(4), 555.
59. Rossetto, D. E., Bernardes, R. C., Borini, F. M., & Gattaz, C. C. (2018). Structure and evolution of innovation research in the last 60 years: Review and future trends in the field of business through the citations and co-citations analysis. *Scientometrics*, 115(3), 1329–1363.
60. Schaufeli, W. B., & Bakker, A. B. (2004). Job Demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior*, 25(3), 293–315.
61. Selokar, D., Nimbarte, S., Ahana, S., Gaidhane, A., & Wagh, V. (2011). Occupational stress among police personnel of Wardha city, India. *The Australasian medical journal*, 4(3), 114.
62. Shane, J. M. (2010). Organizational stressors and police performance. *Journal of criminal justice*, 38(4), 807-818.
63. Sharma, P. (2019). Occupational stress and mental health. *The Indian Police Journal*, 66(3), 15-18.
64. Sluiter, J. K. (2006). High-demand jobs: age-related diversity in work ability? *Applied ergonomics*, 37(4), 429-440.
65. Smoktunowicz, E., Baka, L., Cieslak, R., Nichols, C. F., Benight, C. C., & Luszczynska, A. (2015). Explaining counterproductive work behaviors among police officers: The indirect effects of job demands are mediated by job burnout and moderated by job control and social support. *Human Performance*, 28(4), 332-350.
66. Stansfeld, S. A., Fuhrer, R., Head, J., Ferrie, J., & Shipley, M. (1997). Work and psychiatric disorder in the Whitehall II Study. *Journal of psychosomatic research*, 43(1), 73-81.
67. Thakre, A., Nishar, K., & Gogoi, P. (2019). Police Culture and Occupational Stress. *Indian Police J*, 66(3), 6-14.
68. Toch, H. (2002). *Stress in policing*. Washington, DC: American Psychological Association.
69. Tuckey, M. R., Chrisopoulos, S., & Dollard, M. F. (2012). Job demands, resource deficiencies, and workplace harassment: Evidence for micro-level effects. *International Journal of Stress Management*, 19(4), 292.
70. Tuttle, B. M., Giano, Z., & Merten, M. J. (2018). Stress spillover in policing and negative relationship functioning for law enforcement marriages. *The Family Journal*, 26(2), 246-252.
71. Violanti, J., Marshall, J., & Howe, B. (1983). Police occupational demands, psychological distress and the coping function of alcohol. *Journal of Occupational and Environmental Medicine*, 25(6), 455-458.
72. Violanti, J. M., & Aron, F. (1994). Ranking police stressors. *Psychological Reports*, 75(2), 824.
73. Webster, J. H. (2013). Police officer perceptions of occupational stress: the state of the art. *Policing: An International Journal of Police Strategies & Management*, 36(3), 636-652.

74. Wickramasinghe, V. (2010). Work-related dimensions and job stress: The moderating effect of coping strategies. *Stress and Health*, 26(5), 417-429.
75. Wolter, C., Santa Maria, A., Wörfel, F., Gusy, B., Lesener, T., Kleiber, D., & Renneberg, B. (2019). Job demands, job resources, and well-being in police officers—a resource-oriented approach. *Journal of police and criminal psychology*, 34, 45-54.
76. Wu, C. H. (2009). Role conflicts, emotional exhaustion and health problems: a study of police officers in Taiwan. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 25(3), 259-265.
77. World Health Organization. (1978). Proposed programme budget for the financial period 1980-1981. World Health Organization.