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REVIEW ARTICLE

The Healthcare Workers' Dissatisfaction Factors on Employment Contract in Malaysia: A Systematic Review.

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Abstract

The introduction of a contract employment system for doctors in 2016 in Malaysia has raised widespread discontentment regarding the precarious nature of employment for contract doctors. There has been an increasing job dissatisfaction and decreasing job satisfaction among the contract doctors. The displeasure has led to a negative impact on the health services including high resignations, absenteeism, and protests when dialogue and discussion fail to address these issues. The review aimed to identify various satisfaction and dissatisfaction factors associated with the contract employment system in different countries that practiced the system. Literature and citations are systematically searched in the databases of PubMed, Cochrane Library, Wiley Online Library, Elsevier's Scopus, and Google Scholar. The articles contain an empirical study in the English language, published after year 2000, with at least one factor of satisfaction or dissatisfaction and subjected to methodology quality appraisal using methodological criteria. Thirteen eligible articles were reviewed. It was found that the intrinsic job satisfaction factors that are mostly mentioned in many studies were job performance and working experience. The extrinsic job satisfaction factors were mainly the aspects related to the organization, career advancement and inter-relationship between co-workers. In terms of intrinsic job dissatisfaction, the feeling of insecurity about the job and emotional exhaustion were identified. The extrinsic job dissatisfaction includes career advancement policy, and provision of facilities and infrastructure. Salary, social security payments and working time were identified as the extrinsic factors for both job satisfaction and dissatisfaction. However, there was lack of consistency in the findings between studies on the factors associated with satisfaction or dissatisfaction. This review provides evidence of the presence of intrinsic and extrinsic factors of job satisfaction and dissatisfaction among the contract workers. However, the study did not seek the acceptability of the system by the contract workers. Most of factors identified were common to all professions such as remuneration, benefits, and workload, so administrative solution should be sought to address the issues. Attention by higher authorities should be given to the feeling of insecurity about the job, career advancement and emotional exhaustion experienced by contract doctors.

Keywords: *employment contract, healthcare worker, job dissatisfaction, job satisfaction.*

Background

The scarcity of financial resources in healthcare sector has been increasing over the years. Temporary employment or contracting health care workers has been adopted as a strategy to optimize scarce financial resources in many countries[1] .At the same time, healthcare services are facing the shortage in the skilled healthcare workers globally[2] .Since the healthcare workforce has been identified as essential in achieving effective health services and equitable health distribution, the service quality and efficiency are highly influenced by workers' satisfaction, motivation, and willingness to perform tasks with limited resources[3].

In a competitive health service environment, temporary employment, such as hiring contract health care workers, may not guarantee a long-term, sustainable service to the public. Temporary employment is usually accompanied by unstable and insecure work arrangements, which carry a higher risk of unemployment, job instability, and many other disadvantages [4-5]. In Malaysia, when the system was first introduced, doctors were offered a three-year contract. The terms of employment and the career pathway were not clear and were not well-understood by many new doctors at that time. The renewal or termination of contracts and the criteria for selecting doctors for permanent posts were ill understood by many contract officers [6]

The dissatisfaction among contract doctors increased over time, especially when there was a discrepancy in remuneration, grade increments and allowances between permanent and contract positions, despite all doctors facing similar risks and work burdens. [7]. There were different terms set for training and career advancement in the two groups as well. Feelings of rejection and discrimination among contract doctors led to open protests and confrontations with the authorities. Why was there such low acceptance of this system by the doctors in Malaysia? A similar system has been practiced in many countries for many years.

This study aimed to find out the factors attributed to dissatisfaction of contract health care workers with this employment system and find out the possible solution to address this issue in Malaysia.

Methodology

A systematic review was conducted following the PRISMA recommendations for systematic reviews [8-10]. The literature search was carried out using the databases PubMed, Cochrane Library, Wiley Online Library, Elsevier's Scopus, and Google Scholar. The search terms employed were Contract Employment [Mesh], Job Satisfaction [Mesh], Job Dissatisfaction [Mesh], Healthcare workers [Mesh] using Boolean operators' method.

Data were extracted from the selected articles using a standard data extraction form developed by the Joanna Briggs Institute Reviewers' Manual 2015 Methodology for JBI Scoping Reviews [11]. (All data then keyed into Excel spreadsheet. Extracted data included the study information (author(s), year of publication, journal of publication, countries of origin of the study, study design), demographic characteristics of participants (sample size, mean age, sex, type of healthcare worker, type of healthcare facilities, type of employment), and information of job satisfaction measure and scoring used (tools, reliability, job satisfaction score (JSS), indication /job satisfaction factors).

The studies included were empirical study, published in the English language between year 2000 to 2022 and contained at least one factor of healthcare worker dissatisfaction and/or satisfaction factors. The articles were selected following the four steps based on prism flow chart (Figure 1).

Step 1: Identification of the articles from database and additional resources and removing duplicates.

Step 2: The screening of the articles based on reading the title and the abstract of the publications. Irrelevant articles were removed.
Steps 3: The selection phase is based on full-text availability and eligibility.
Step 4: Studies included in the review.

Data analysis

The variables and information regarding the factors of healthcare workers' dissatisfaction were extracted from the studies. Literature search results and data extraction were descriptively summarized. Mendeley application was used to exclude possible duplicate articles. A narrative synthesis was generated, taking into consideration the total number of studies reporting results, the methodological quality, and the quality of evidence of the outcomes. The general characteristics of literature search extracted were used as exploratory variable PRISMA scores, which include authors, type of healthcare workers and study characteristics (type of study, country, sample size (n) and type of healthcare facilities), demographic characteristics of participants (mean age, gender, type of healthcare worker, type of employment and type of healthcare facilities), intervention, factors of healthcare worker dissatisfaction and outcome of the dissatisfaction.
All cross-sectional studies were assessed using a 13-point score in three methodological core areas. In term of sampling, score was given to probability of sample used, representativeness, sample size, multisite sampling, adjustment by statistic and response rate (>50%). In terms of measurement, score was given to dependent variable directly measured, dependent variable reliability and dependent variable validity. In terms of statistical analysis, score was given on appropriate test used, P-values reported, and confidence interval (CI) reported. The score obtained for each study then classifies into one of four categories of methodological quality: weak (≤ 0.50), low-moderate (0.51-0.65), high-moderate (0.66-0.79), or strong (≥0.80). The methodological criteria was developed by De Vet and colleagues in 1997[12].

Ethical considerations

The study was conducted after obtaining permission from the Universiti Kuala Lumpur ethical committee. The study will be guided by the principle of ethics, whereby only studies that meet the inclusion criteria will be evaluated in terms of their methodological quality, potential risks and ethical compliance, including obtaining informed consent from human subjects.

Results

Overall, 462 citations were identified using the search strategy (figure 1), of which duplicates were removed using Mendeley. 368 articles, titles and abstracts were screened of which 311 articles were excluded for ineligibility (20 articles were not an empirical study, 276 articles did not include satisfaction or dissatisfaction factors, 11 articles were not in English language and 4 articles published before year 2000). 57 articles were identified for review; however, 44 articles were then removed due to unavailability of a full text. The articles were further screened, and the final 13 articles were eligible for full review.

Sociodemographic characteristics of the study samples

Total number of samples from the 13 studies were 18,770 of which 10,708 (57.7%) were nurses, 6890 (37.1%) were doctors and the rest were dental services workers (4.1%), pharmacist (1.1%), and paramedics (0.1%). Only 2 studies included the regular staff as samples (1.2%) (Table 1). It was shown that there were 3 distinct types of contract employment in this study. Type 1 is a contract employment with temporary workers and permanent workers as applied in Spain, Greece, and the United Kingdom. The healthcare workers employed in this contract system can be either temporary workers with short-duration time-defined contracts, which may

or may not continue once the contract expires, or they may be given permanent contracts. These workers are guaranteed a job if the workers follow the terms and conditions and can work until retirement age. This system has been applied by the National Health Services in the United Kingdom. Type 2 is an employment system in the form of contractual, temporary, or regular permanent employment as applied in China and India. Healthcare workers in public health services can be either bound by time-defined contractual employment, or regular permanent employment, which is state-guaranteed lifetime employment if the healthcare workers adhere to the working terms and conditions. On the other hand, type 3 is a performance-based contractual employment system. In this system, healthcare workers are given incentives and advantages according to the workers' performance as applied in Russia. The duration of employment will be based on the workers' performance.

Almost all nurses from the study in Spain were given a temporary contract employment (96.5%) [13], while nurses in the study from China were given state-guaranteed lifetime contract [14]. All GP doctors in UK were on contract employment [15-17], whereas in Greece, the majority of doctors (72%) were on permanent contract employment [18]. Many countries offer more permanent contracts to their healthcare workers, especially in critical areas. For example, Wales 100% dental service workers had permanent contracts [19], and in England 100% of Dental GPs has permanent contracts [20]. In Northern Greece, 67.1% of total samples has permanent contracts [21] and in North India 69.8% of total samples had permanent contracts [22].

Methodological quality assessment of the quantitative studies

There were 12 quantitative studies selected in this review of which out of 2 were experimental and 10 were cross-sectional studies. Based on the quality assessment score, 3 of the studies were rated as having strong quality, 7 were high-moderate, one was rated as low-moderate, and one was deemed weak (Table 2).

Job satisfaction score and outcome factors

Different tools were used to measure the job satisfaction score as seen from this review (Table 3). Most of the studies were using different sets of satisfaction questionnaire with reliability index (Cronbach's alpha) of more than 0.7, which was satisfactory. Six studies provide the satisfaction score, ranging from the lowest (54%) among contract health workers at urban heath center in Delhi [22] to the highest (70.5%) among contract health workers in public hospitals in Greece [21]. However, contract workers in health care dispensaries in Delhi, India, seemed to be more satisfied (70%) compared to their counterpart in urban health center [3]. The cohort study in England showed that the GPs in England became more satisfied with the contract work after some changes made to the contract policy. The satisfaction score increased from 65.4% in 2004 to 73.9% in 2005[16].

Factors associated with job satisfaction and job dissatisfaction among healthcare workers on contracts employment.

In the 13 articles reviewed, many factors have been identified that contribute to job satisfaction. It can be categorized into two main groups, extrinsic and intrinsic factors. The extrinsic factors are external factors that influence an individual's satisfaction such as physical environment, safety, facilities and infrastructure, factors related to employer and organization, workload and work hours, remuneration and benefits, factors related to patients, career and personal development and factors related to working colleagues. The intrinsic factors, on the other hand, are the attitude of the individuals towards her/his job such as work-related stress, job participation, job performance, HCW identity and personality, working experience and feelings of job insecurity or worrying. Low or lack of these factors generally may lead to job dissatisfaction.

Of 13 studies reviewed, Kumar et al. 2013, studied most of extrinsic and intrinsic factors

among contract workers and found a high satisfaction score [3]. The outcomes of the study were shown on Table 3.

Table 4 showed the factors associated with job satisfaction and job dissatisfaction among health contract workers. Contract nurses in Spain felt satisfied with the facilities, their participation in the health team, their own performance, and the supervision from their superiors [13]. Contract doctors in Greece did not have factors associated with their satisfaction, but salary, job security, career and personality development were lined to job dissatisfaction [18]. Contract dental service workers were satisfied with the additional time given to them to see patients and good clinical facilities. However, they were dissatisfied with their low salary, lack of freedom in making clinical decisions, lack of IT provisions or non-clinical support, lack of clinical professional development (CPD), and burdened with many clinical audits and administrative works [19]. Contract health workers in North India seemed satisfied with the health facilities, privileges, interpersonal relationships, career development and promotion [23].

Contract general dental practitioner in England had satisfaction with patient's quality of care, respect by colleagues and ability to develop oneself skill [20]. Contract doctors in Moscow seemed to be satisfied with their salary, working conditions and career development but had dissatisfaction with the lack of medical equipments and heavy workload [24]. Although the satisfaction score was high among contract workers in Delhi, India, no specific satisfaction factors were recorded. Mostly dissatisfaction factors were mentioned including leave, provident fund, pensions benefits, children's education, housing, interpersonal relationship etc. [3]. Almost similar dissatisfaction factors related to human resources issues were reported in another study in Delhi, India [22]. Contract nurses in China had no satisfaction factors, however dissatisfaction factors include remuneration and benefits. Contract doctors in England found satisfaction in interpersonal relationships, salary, variability in job, working conditions, flexible working hours and recognition. However, increasing administrative work, high work demands, and insufficient resources become dissatisfaction factors for them [15-16].

Qualitative aspects of job satisfaction among the selected studies

Only one qualitative study was included. The study explored the importance of a doctor patient relationship with job satisfaction [17]. It was found that developing and maintaining doctor-patient relationships, and interpersonal aspect of care will lead to job satisfaction among doctors.

Discussion

Intrinsic job satisfaction

The reviewed results showed intrinsic and extrinsic factors of job satisfaction and dissatisfaction. The intrinsic factors most affecting job satisfaction were job performance and working experience.

The relationship between job performance and job satisfaction is complex, and researchers debate the unidirectional and bidirectional relationship between the two factors. Job satisfaction can lead to job performance, and job performance can lead to job satisfaction. Researchers have linked a positive relationship between job performance and job satisfaction, especially when there is an effective monetary reward mechanism in place. This relationship accounts for adequate motivation to ensure job performance [25].

The relationship between working experience and job satisfaction was also observed in a study on the employees of different business organizations in Noida, India. The survey and regression analysis showed that the relationship between job satisfaction and employee experience is, to some extent, dependent on the employee experience [26].

Intrinsic job dissatisfaction

The intrinsic factors of job dissatisfaction mentioned most are the feeling of job insecurity or worrying. These feelings of job insecurity or worrying regarding the contract are consistent with the nature of temporary employment, which inherently carries a level of uncertainty. . Job insecurity is a significant intrinsic factor contributing to job dissatisfaction. No articles reviewed on contract employment mentioned job satisfaction in the absence of job insecurity because, in the review, the articles investigated contract employment which reported on job insecurity. The negative effect of job insecurity on job satisfaction is consistent with a study conducted among managers in the United States of America, that showed job insecurity was negatively related to job satisfaction. In this study, the researchers also tested a model of the effects of job insecurity on job satisfaction, organizational citizenship behavior, deviant behavior, anxiety, anger, and burnout using structural equation and regression analyses. Their findings indicated that job satisfaction partially mediates the effects of job insecurity on the outcomes investigated [27].

The negative effect of job insecurity on job satisfaction is also consistent with a study on employees of state-run electric power companies and licensed chemical companies in central Hubei Province in China. The association was measured using confirmatory factors analysis, and the results revealed that the negative effect of job insecurity on job satisfaction is significant [28].

Emotional exhaustion is an important intrinsic factor contributing to job dissatisfaction. In the review, emotional stress and emotional exhaustion were significant factors and had a negative dose-response relationship with job satisfaction. The reduction of emotional stress was noted to cause job satisfaction, and the presence of emotional exhaustion and stress directly causes job dissatisfaction.

The review's outcome is consistent with a study investigating the relationship between work-related stress and job satisfaction among Malaysian peacekeeping personnel in a conflicting Middle Eastern country. The soldiers who reported a higher level of job stress also reported higher levels of emotional exhaustion and job dissatisfaction. Soldiers who reported being dissatisfied with various aspects of their job such as works conditions and job demands were more likely to experience stress and emotional exhaustion. Confirmatory factor analysis showed a significant association between work-related stress and job satisfaction in this organization [29].

Extrinsic job satisfaction and job dissatisfaction

a. Remuneration and benefits

The review shows remuneration and job benefits play a significant role in achieving job satisfaction, and the absence or inappropriate rate of remuneration and lack of benefits will contribute to job dissatisfaction. A meta-analysis investigating the relationship between pay and job satisfaction indicated that pay level positively correlates with overall job satisfaction. However, the meta-analysis demonstrated that the pay level was only marginally related to job satisfaction [30]. The meta-analysis had also shown that the positive correlation was similar between the United States and international samples. However, the correlation was lower in other countries such as Great Britain, India, Australia, and Taiwan, but the difference was not significant. In general, remuneration and benefits play a critical role in determining employee job satisfaction level as such employers may consider offering competitive salaries and benefits to promote positive employee experiences and increase job satisfaction.

b. Workload

The review also showed that workload has a linear effect on job satisfaction, where the decline in workload contributes to satisfaction, and the increase in workload causes job dissatisfaction. Ilies et al. (2007) explained that workload is a job stressor that reflects the demands placed on

employees in their jobs that are associated with adverse outcomes since meeting up with work with high demands needs much effort [31]. Svedberg et al. (2018) have earlier reported in their studies among twins of Swedish origin that unevenly distributed home duties coupled with a heavy workload was the reason why women experience home-work conflict more than men [32]. The findings parallel with the result of a study that investigates the effect of the workload of 40 educational support staffs in Indonesia on job satisfaction that showed work stress and workload simultaneously affect job satisfaction substantially [33].

Kohlfürst et al. (2020) evaluated different factors contributing to workload and job satisfaction among Austrian pediatricians and showed that lower job satisfaction was significantly associated with longer working hours, indicating increased workload [34]. In contrast, a study conducted among pharmaceutical company employees in Thailand investigated the influence of workload and co-worker attitude on job satisfaction found that workload did not significantly influence job satisfaction [35]. It seems that the findings of the review and the previous study on workload were not consistent and did not support the cause-effect relationship. The possible reasons for the discrepancies include the different operational definition of workload was used by different researchers, variation in job characteristics in different work setting (high-stress environment vs. relaxed workplace), personality and culture of the people and different in research methodology).

Relationship between type of employment contract and job satisfaction

In recent years, there has been a growing concern about the type of employment contract of healthcare workers. The healthcare sector employs various types of employment contracts, including permanent contracts, fixed-term contracts, agency work, and casual work. Permanent contracts provide job security, regular income, and benefits such as health insurance and retirement plans. Fixed-term contracts are for a specific period, and the terms and conditions of employment are predetermined. Agency work involves hiring healthcare workers through an employment agency, and the healthcare worker is not directly employed by the healthcare organization. Casual work involves hiring healthcare workers on an as-needed basis, and the terms and conditions of employment are not predetermined. Fixed-term contracts and agency work have become increasingly prevalent in the healthcare sector nowadays.

Many studies have shown that the type of employment contract of healthcare workers is an important determinant of job satisfaction. Healthcare workers with permanent contracts have higher job satisfaction than those with temporary contracts [21]. It means that job security is an important factor differentiating the job satisfaction between flexible and permanent contracts [36]. It is known that job security is lacking in temporary employment contract. However, a study among doctors in UK with different type of salaried payments, showed that similar job satisfaction had been achieved by practitioners using different contract and payment system [37]. It means that job satisfaction is not only related to job security only but also to a complex interaction between various factors such as work environment, structural empowerment, organizational commitment, professional commitment, job stress, patient satisfaction, patient-nurse ratios, social capital, evidence-based practice, and ethnic background [38]. Various mediating or moderating pathways and enabling factors have been identified in relation to nurses' job satisfaction.

The turnover of the workforce is a significant challenge in the healthcare sector. High turnover rates can lead to a shortage of healthcare workers and affect the quality of care provided to patients. Studies have shown that the type of employment contract of healthcare workers is an important determinant of turnover. Healthcare workers with temporary contracts have higher turnover rates than those with permanent contracts [39-40] A study among Indian healthcare workers with

temporary contracts had higher turnover intentions than those with permanent contracts [3]. The study also found that job satisfaction was negatively associated with turnover intentions.

The type of employment contract of healthcare workers is an important determinant of job satisfaction, turnover, and patient outcomes. Healthcare organizations should consider the impact of employment contracts on their workforce and patient outcomes when making employment decisions. Policies that promote job security, regular income, and benefits can lead to increased job satisfaction, reduced turnover, and improved patient outcomes' behavior, anxiety, anger, and burnout. They found out that job satisfaction partially mediates the effects of job insecurity on the outcomes investigated [27]

Implementation of contract employment system

This review has shown that Malaysia is not the only country applying the contract type employment or temporary employment system. Various other country has used the contract employment system, such as the UK, Spain, India, China, Greece, and Russia. In this review shows that employment which is temporary in nature is most likely to cause decrease in job satisfaction. It is known that temporary employment is always related to lack of occupational benefits, inadequate job security, erosion of income, and lack of career development prospects, however, not all temporary employment types have inferior status and high insecurity [4]. A study in the Tuscan nursing home among labor contract nurses showed that temporary position nurses offer greater satisfaction than that of the permanent position. The contract nurses believed that they would continue working in the same place in the case of good performance [41]. This research indicates that job insecurity does not necessarily correlate with job satisfaction but the trust between the employer and employees is vital to support job satisfaction.

Some research has suggested that temporary workers have the benefits of the ability to control their working time and use their temporary employment as a steppingstone to acquire permanent employment [42-44]. Permanent employment is more stable and can offer a better level of job satisfaction, which can improve a worker's performance. There is a growing number of countries that use contract employment to attract specific talent from other organizations or specialty to develop a program or center. The contract employment provides mutual benefits for both employer and employees.

The performance-based contract employment applied widely in public and private practice in Russia shows growing satisfaction level of healthcare workers [45]. This type of contract provides mutual benefits to the employer where the employer will be given benefits and advantage more to the worker with better performance, and the employees will receive the benefits based on their performance and productivity. This type of contract has provided life security to the healthcare workers, especially insurance coverage, provident fund, SOCSO scheme etc.

Compared with the situations in Malaysia, the contract doctors were offered neither in the position of temporary nor permanent because of poor consultation with the recipients, lack of explanation and improper planning for the contract doctor's career pathway in government healthcare services. The working hours and work burden of contract doctors and permanent doctors in Malaysia were similar despite the differences in salary ladders, promotional ladders, and additional benefits. This has led to growing dissatisfaction, low motivation and resignations. The discontent has led the doctors to go on strike. The contract doctors' strike aimed to push for a reform in the employment system, which they claimed hindered their career progress and offer no job security [46]. The protest shows discontentment regarding services, the contract terms, and the lack of transparency career ladder progress and criteria for eligibility for permanent employment. With the unstable nature of the contract employment and no standardized terms

of employment or outcomes of employment, the job can be considered precarious. Precarious employment is known to affect the worker's health, result in poor quality service provision, and may ultimately affect the population's health as well [47].

Conclusion

Job satisfaction is a multidimensional phenomenon that is not solely dependent on a single factor and is closely affected by the job dissatisfaction factors. High job satisfaction and less job dissatisfaction are achievable through careful consideration of intrinsic and extrinsic factors experienced by the contract health workers.

The use of contract employment among healthcare workers in Malaysia is necessary to optimize cost and increase labor market flexibility. However, it is important to note that temporary employment does not inherently imply precarity. This review provides evidence of the presence of intrinsic and extrinsic factors influencing job satisfaction and dissatisfaction among healthcare contract workers. Job performance and working experience serve as the intrinsic factors of satisfaction. Work- related stress and job insecurity contribute to job dissatisfaction. Remuneration and job benefits served as the main factors for job satisfaction and dissatisfaction; however, the evidence lacks the statistical significance. The workload was identified as another important factor that led to job dissatisfaction; however, evidence shows a lack of consistency with previous studies.

Contract versus non-contractual is important if it provides adequate benefits and the provision of good environment at workplace to reduce the precarity of employment. Permanent employment offers better job security, however, with the economic crisis, many governmental and non-governmental bodies are unable to provide such security and luxury. The workers must give their best performance and compete for better terms of contract employment whether as temporary or permanent employment.

It is recommended that the responsible body from governmental or semi-governmental bodies who are directly involved in the pavement of the career ladder of the HCW must consider fair and transparent employment contract terms and criteria for absorbing contract HCW into a permanent post. There should be fairness and justice in the ratio and equal chances to obtain permanent positions among different types of HCWs to ensure the security and stability of healthcare services and, contribute to the country's growth. The government of Malaysia should also explore the application of performance-based contract employment to increase job satisfaction among contractual healthcare workers. Further research is required, involving the current contract health workers from various regions, to identify specific factors that impact job satisfaction and evaluate interventions designed to improve workplace satisfaction, taking into consideration the local culture and organizational behaviors.

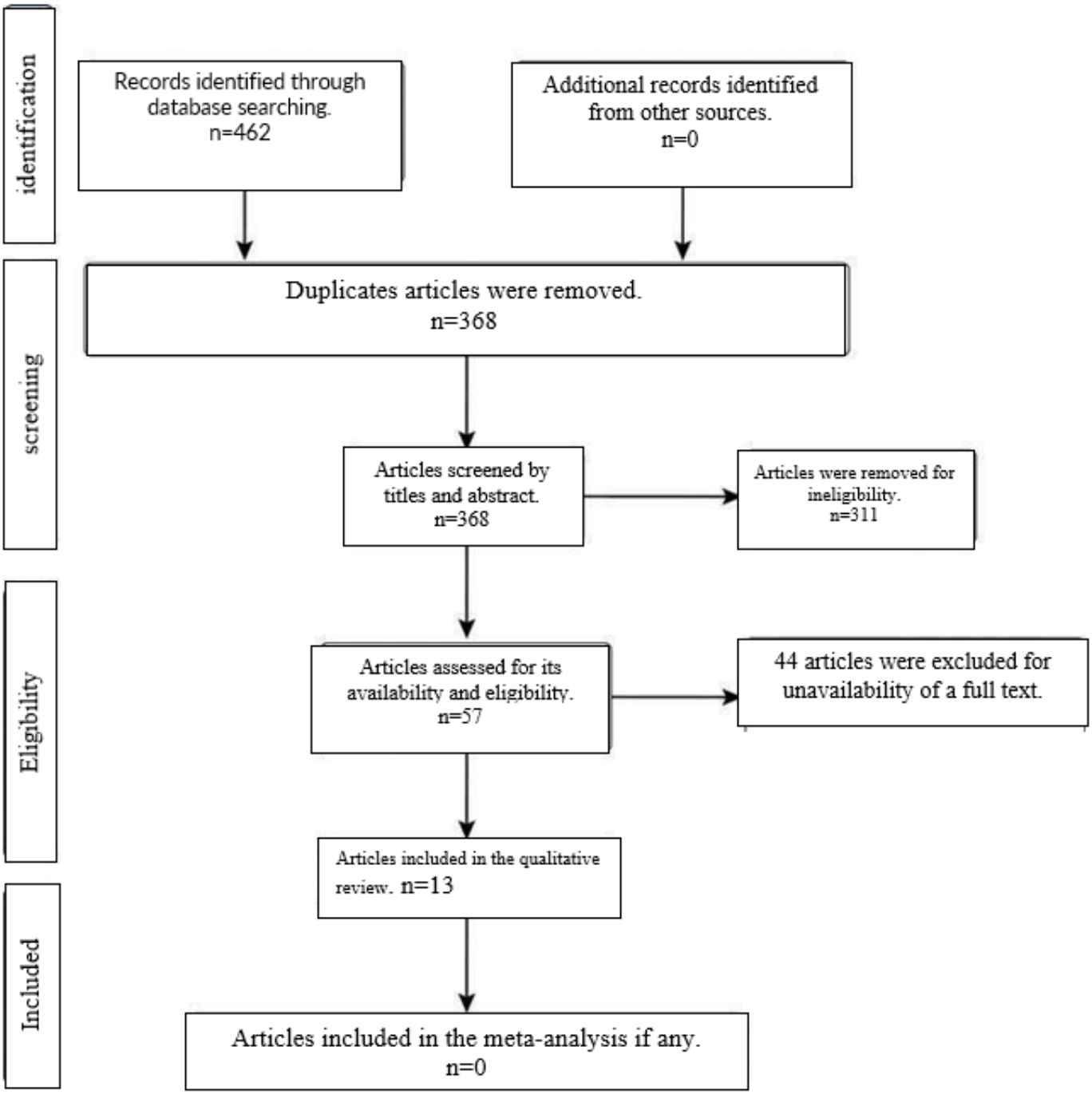

Figure 1. PRISMA flow chart for scoping process

Table 1. Sociodemographic characteristics of the study samples.

no	author	country	sample size	type healthcare facilities	mean age	sex	type of healthcare worker (n)	type of employment (n)
1	Acea-López, L et al. 2020	Spain	228	Hospital, Public Primary Healthcare Center, Private Healthcare Center, Nursing Home	37.11	M 41 F 187	Nurses (228)	TC (220) PC (8)
2	Bazoukis et al, 2018	Greece	143	Tertiary Hospital, Teaching University	NR	M 73 F 70	Doctors (143)	PC (103) non-PC (40)
3	Chestnut IG et al 2008	Wales, UK	417	NR	NR	M 292 F 125	Dental Service Workers (417)	PC (417)
4	Dixit J et al 2015	North India	354	Subcentres, Primary healthcare centre, Community Health center, Civil Dispensaries, Polyclinic, Governmental Hospital	NR	M 87 F 267	Nurses (168), Lab technician (19), Pharmacist (83), Doctors (78), P.Health consultants (6)	CS (247) RS (107)
5	Harris R et al. 2006	England, UK	337	Private practice, UK National Health Service	42.7	M 217 F 120	General Dental Practitioner	PC (337)
6	Illiopoulus E & Priporas CV 2010	Northern Greece	450	Public hospitals	38.77	M 152 F 298	Nurses (226), doctor (166), paramedic (58)	PC (302) TDC (148)
7	Kuchits S et al. 2019	Moscow Russia	1876	State hospitals, multidisciplinary department clinics, private clinics.	NR	NR	Doctor (1876)	Performance-based contract (1876)
8	Kumar P et al. 2013	Delhi, India	227	Primary healthcare dispensaries	NR	NR	Doctor (39), nurse (106), pharmacist (45), lab assistant and technician (37)	PC (109) TC (118)
9	Kumar P et al.2014	Delhi, India	333	Primary urban health centre	35	M 119 F 214	Doctor (101), aux. nurse & midwives (114), pharmacist (85), lab ass & tech (33)	CS (215) RS (118)
10	Shang J et al. 2014	China	9698	Municipal hospital, university hospital & provincial hospital	CS 25.7 Bianzhi 32.6	NR	Nurse (9698)	CS (4988) Bianzhi (state-guaranteed lifetime)
11	Whalley et al 2006	England, UK	1035	General Practice (GP)	46.4	M 663 F 372	Doctors (1035)	Contract employment (1035)
12	Whalley et al 2008	England, UK	3433	General Practice (GP)	47.6	M2257 F 1176	Doctors (3433)	Principal C (3369) Salaried C (59)
13	Fairhurst K et al. 2004	Edinburgh, UK	19	General Practice (GP)	NR	M 10 F 9	Doctors (19)	Contract employment (19)

TC = temporary contract, PC=permanent contract, TDC= time-defined contract, CS= contractual staff, RS=regular staff, NR=Not recorded

Table 2. Methodological quality assessment of the quantitative sampled studies (12 studies)

First author, year	sample						measurement			statistical analysis				total points	score	quality	scoring
	probability sample used	representative	sample size appropriate for power	sample drawn >1 site	statistically adjusted	response rate ≥50%	dependent variable directly measured/administrativ	dependent variable reliability	dependent variable validity	appropriate test used	p values reported	CI reported	missing data managed appropriately				
Acea-López, L et al. 2020	0	0	0	1	0	1	1	0	1	1	0	0	0	5/13	0.38	weak	Weak ≤0.5, Low-Moderate 0.51-0.65, High-moderate 0.66-0.79, Strong ≥0.80
Bazoukis et al, 2018	0	0	1	1	0	1	1	1	1	1	1	1	0	9/13	0.69	high-moderate	
Chestnut IG et al 2008	1	1	1	1	0	1	1	1	1	0	0	0	0	8/13	0.61	moderate	
Dixit J et al 2015	1	1	1	1	1	1	0	1	1	1	1	1	1	12/13	0.92	high-moderate	
Harris R et al. 2006	0	1	1	1	0	1	1	1	1	1	1	1	0	10/13	0.77	high-moderate	
Iliopoulos E and Priporas CV ,2010	1	0	1	1	0	1	1	1	1	0	1	0	1	9/13	0.69	high-moderate	
Kuchits S et al. 2019	1	1	1	1	0	1	1	0	1	1	1	0	1	10/13	0.77	high-moderate	
Kumar P et al 2013	1	1	1	1	0	1	1	1	1	1	1	0	0	10/13	0.77	high-moderate	
Kumar P et al 2014	1	1	1	1	0	1	1	1	1	1	1	0	0	10/13	0.77	high-moderate	
Shang J et al 2014	0	1	1	1	0	1	1	0	1	1	1	1	0	9/13	0.69	high-moderate	
Whalley et al 2006	1	1	1	1	1	1	1	1	0	1	1	0	1	11/13	0.85	strong	
Whalley et al 2008	1	1	1	1	0	1	1	1	1	1	1	1	0	11/13	0.85	strong	

Table 3. Job satisfaction score and outcome factors

Author (year)	Study design	Tools/instrument used	Tool's reliability	Mean Job satisfaction score (JSS)	Outcome factors	Quality of study
Acea-López, L et al. 2020	Cross-sectional	-Job satisfaction S20/23 -Maslach burnout inventory	NR	107.9/160 (67.4%)	Intrinsic job satisfaction, emotional fatigue, depersonalization, personal achievement/fulfilment, satisfaction with the physical environment, satisfaction with participation, performance satisfaction, satisfaction with nursing supervision.	weak
Bazoukis et al, 2018	Cross-sectional	Self-referencing questionnaire	CA>0.7	NR	Wage, professional job security factor, development opportunities	High-moderate
Chestnut IG et al 2008	experiment	Self-administered 57 items questionnaire	NR	NR	General contract issues, financial aspect, method of remuneration, patient charge, Dentists' perception of the impact of the new contract on patients, freedom in treatment and clinical decisions, prioritization of treatment for children and exempt patients, treatment incentives, introduction of treatment and preventions innovations, Dentists' perceptions of their current working environment	strong
Dixit J et al 2015	Cross-sectional	Self-referencing questionnaire	CA>0.91	NR	Organizational facilities, privileges attached to the job, Interpersonal relations, work related matters, relationship between management and employees, career development, chances of promotion, human resources issues, attention to the suggestions	strong
Harris R et al. 2006	experiment	Self-referencing questionnaire	CA>0.88	NR	Restriction to provide quality care, respect from being a dentist, control of work, running a dental practice, developing clinical skills.	High-moderate
Illiopoulus E & Priporas CV 2010	Cross-sectional	-Foreman and Money's scale (internal marketing) -Stamps and Piermonte (job satisfaction)	CA>0.91 CA>0.74	35.98/51 (70.6%)	Internal marketing	High-moderate
Kuchits S et al. 2019	Cross-sectional	Self-developed closed questionnaire	NR	NR	Salary satisfaction, satisfaction with working conditions, team atmosphere satisfaction	High-moderate
Kumar P et al. 2013	Cross-sectional	Job satisfaction questionnaire (25 items)	CA>0.84	3.5/5 (70%)	Extrinsic factors - Physical working conditions, salary and allowances, materials and means of working, training policy and practices in the organization, supervision by seniors, recognition and appreciation of work by seniors, working hours, working in the community, working with co-workers, working space, equipment and infrastructure, opportunity of professional advancement in the organization, opportunity of career growth & promotion, chance of obtaining new skills, chance of getting official trainings for skill development, professional satisfaction with present job content, management of patients and implementation of health program, appreciation system for the well-accomplished job, up-to-date information and instructions about our job, Higher study leave related issues, transfer policy and practices in the organization, prevailing retirement age for health-care personnel, support for family related problems/issues, recognition by the community and overall satisfaction. Intrinsic factors - Personal satisfaction, pride of job, sense of job well done, thinking of improving job effectively and feeling happy if work not up to standards.	High-moderate
Kumar P et al.2014	Cross-sectional	Job satisfaction questionnaire (49 items)	CA>0.84	Regular 3.3/5 (67%) Contrac	Privileges attached to the job, Interpersonal relations, and cooperation. patient relationship, organizational facilities, career development, human resource issues and working	High-moderate

				t 2.7/5 (54%)	environment.	
Shang J et al. 2014	cohort	-Pennsylvania multistate nursing care study -Maslach burnout inventory	NR	NR	Satisfaction with salary, satisfaction with health insurance, satisfaction with pension, satisfaction with tuition benefits, emotional exhaustion.	High-moderate
Whalley et al 2006	Cross-sectional	Warr-Cook-Wall job satisfaction questionnaire	CA>0.91	4.62/7 (66%)	Relationship with colleagues and fellow workers, amount of variety in job, amount of responsibility given, physical working conditions, opportunity to use abilities, freedom to choose own working method, remuneration, recognition for good work and hours of work	strong
Whalley et al 2008	cohort	Warr-Cook-Wall job satisfaction questionnaire	CA>0.91	4.58/7 (65.4% in 2004) 5.17/7 (73.8% in 2005)	Same as above	strong
Fairhurst K et al. 2004	qualitative	Semi structured interview	NR	NR	Developing and maintaining relationships with patients, interpersonal aspect of patient care, maintaining identity as "good" doctors	

Table 4. Factors associated with job satisfaction and job dissatisfaction among healthcare workers on contracts employment.

Author	Country	Type of healthcare worker (n)	Factors associated with job satisfaction	Factors associated with job dissatisfaction
Acea-López, L et al. 2020	Spain	Nurses (228)	Intrinsic factor - physical environment, job participation, performance satisfaction, nursing supervision	None
Bazoukis et al, 2018	Greece	Doctors (143)	None	Wages, feeling of job insecurity, career development opportunities, personality development.
Chestnut IG et al 2008	Wales, UK	Dental Service Workers (417)	Less of out-of-hours commitment, more time available to spend with patients, good quality care provision, good clinical facilities	Poor remuneration, lack of freedom in making clinical decisions, lack of provision in the level of information and technology (IT) or non-clinical staff support, lack of time for continuous professional development, Clinical audit/clinical governance and high administrative work
Dixit J et al 2015	North India	Nurses (168), Lab technician (19), Pharmacist (83), Doctors (78), Public Health consultants (6)	Organizational facilities, privileged attached to the job, interpersonal relations, work-related matters, relationship between management and employees, career developments, chance of promotion, human resources issues.	none
Harris R et al. 2006	England, UK	General Dental Practitioner	Restriction of ability to provide quality of care to patients, respect by colleagues, control over clinical practice, developing clinical skills	none
Illiopoulus E & Priporas CV 2010	Northern Greece	Nurses (226), doctor (166), paramedic (58)	Internal marketing	none
Kuchits S et al. 2019	Moscow Russia	Doctor (1876)	Salary, long working experience/seniority, working condition, team atmosphere, career growth and development	Lack availability of medical equipment and resources, higher workload
Kumar P et al. 2013	Delhi, India	Doctor (39), nurse (106), pharmacist (45), lab assistant and technician (37)	none	Leave provisions, salary and allowances match expectations, provident fund/gratuity provisions, pensions benefits, facility for housing loans, maternity/paternity leave benefits, children education assistance, facility for transportation reimbursement, residential accommodation, working with co-workers, subordinate respect to authority, physical working conditions.
Kumar P et al.2014	Delhi, India	Doctor (101), aux. nurse & midwives (114), pharmacist (85), lab ass & tech (33)	Increase job experience	Physical working conditions, salary and allowances, materials and means of working, training policy and practices in the organization, supervision by seniors, recognition and appreciation of work by seniors, working hours, working in the community, working with co-workers, working space, equipment and infrastructure, opportunity of professional advancement in the

				organization, opportunity of career growth & promotion, chance of obtaining new skills, chance of getting official trainings for skill development, professional satisfaction with present job content, management of patients and implementation of health program, appreciation system for the well-accomplished job, up-to-date information and instructions about our job, Higher study leave related issues, transfer policy and practices in the organization, prevailing retirement age for health-care personnel, support for family related problems/issues, recognition by the community.
Shang J et al. 2014	China	Nurse (9698)	none	Remuneration and benefits (health insurance benefits, pension benefits, tuition benefits, salary, and wages high emotional exhaustion
Whalley et al 2006	England, UK	Doctors (1035)	Colleagues and fellow worker, amount of responsibility, remuneration, variety in job, opportunity to use abilities, physical working conditions, freedom of choosing method of working, hours of work, recognition for good work	Paperwork, increasing workload, insufficient time for job, increasing job demands, insufficient resources, long working hours, disturbance of family/home life
Whalley et al 2008	England, UK	Doctors (3433)	Lower job stress, involvement in decision making, increase interest and performance satisfaction, ability to meet conflicting demands	Working hours, recognition for good work and remuneration, pressure from paperwork, Increasing workload and insufficient times.
Fairhurst K et al. 2004	Edinburgh, UK	Doctors (19)	Interpersonal relationship between doctor and patient, doctors' identity and personal development, patient outcome	none

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