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Review Article

A Meta-Analysis of Factors Related to Job Satisfaction: Focused on Korean Nurses

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Abstract

Background: Nurses comprise the majority of the healthcare workforce, and their job satisfaction can have a substantial impact on patient health.

Methods: This study aimed to provide a comprehensive overview of studies that performed statistical analyses focused on the job satisfaction of nurses and relevant factors, as well as synthesizing existing data. Overall, 144 studies published between 1986 and 2018 were reviewed for qualitative synthesis.

Results: The most frequently measured variable was job stress, followed by burnout and turnover intention. Overall, 53 studies published between 1994 and 2018 were reviewed for quantitative synthesis. In the meta-analysis, the weighted mean effect size using a random-effects model was moderate for all variables: -0.539, -0.484, and -0.395 for burnout, turnover intention, and job stress, respectively.

Conclusion: The results revealed a long history of variables related to job satisfaction among Korean nurses since data retrieval was not subject to any restrictions. These findings can be used as evidence for the formulation of policies to enhance the retention of nurses committed to their profession. Further, they can facilitate stable workforce management in healthcare.

Keywords: Nurse; Job satisfaction; Job stress; Burnout; Personnel turnover

Introduction

Nurses comprise the majority of the healthcare workforce, and the quality of nursing care and nurse staffing levels in clinical practice are major factors that impact patient health (1-3). In most Organization for Economic Cooperation and Development (OECD) countries, nurses are playing an increasingly important role not only in traditional healthcare environments such as hospitals and long-term care facilities but also in health management in primary care (4). The OECD average of practicing nurses per capita increased from 7.3 per 1,000 population in 2000 to 9 per 1,000 population in 2015; the corresponding growth in Korea was nearly twofold but far lower-from 3 nurses per 1,000 population to 5.9 (5).

Job satisfaction refers to a pleasant emotional state that results from performing one's job or evaluating one's job experiences and is defined as an attitude that perceives one's work as fun and positive

(6). Nurses with high job satisfaction enhance an organization's productivity by committing to their job with a positive attitude, thus reducing turnover (3). Nurses' job satisfaction is an important issue in hospital management because job dissatisfaction in this population not only increases turnover and personnel management costs but also poses a risk to patients (7-9). Moreover, retaining older nurses is crucial to preventing nursing shortages; the loss of knowledge associated with these experienced veterans may lead to high costs in terms of patient outcomes and safety (10). The diverse factors related to the job satisfaction of nurses include turnover, turnover intention, stress, burnout, empowerment, job flow, organizational factors, personal characteristics, and financial conditions (2,3,11).

In Korea, there have been some literature reviews pertinent to the job satisfaction of nurses (2,3,12), but no study has adequately synthesized findings since the one performed by Chu (13). A relatively recent meta-analysis of the relationship between Korean nursing organizational culture and job satisfaction found that an enterprising and friendly culture positively influences the job satisfaction of nurses (14). From numerous cross-sectional studies about the job satisfaction of nurses in recent years, it is necessary to combine their findings to identify the nurses' job satisfaction owing to changes in healthcare settings to devise strategies to boost their job satisfaction.

Materials and Methods

Data selection and collection

This study is a systematic review and meta-analysis based on PRISMA guidelines (15,16). The key research question established before the study was "What are the factors related to the job satisfaction of Korean nurses?" when the ratio of nurses per capita engaged in clinical practice is lower than the OECD average. The studies for analysis were selected per the Population, Intervention, Comparison, and Outcome criteria, but as this study does not attempt to combine intervention effects, the literature searches were performed based only on participants (nurses) and outcomes (job satisfaction). The search was limited to studies published in Korean journals (updated as of Sep 2018 on the search engines) and reporting correlation coefficients for factors related to job satisfaction and sample size.

When the Research Information Sharing Service and the Korean Information Service System were searched using the keywords "nurse" and "job satisfaction" or "nurse" and "work satisfaction," 144 studies were identified, and 53 studies that addressed the three most frequently measured variables for quantitative synthesis—job stress, burnout, and turnover intention—were reviewed (Fig. 1).

Quality assessment of the selected studies

The quality of the 144 selected studies was rated through a review and agreement process between the two researchers using the Joanna Briggs Institute (JBI) criteria. The quality of one intervention study was rated using nine items from the JBI Checklist for Quasi-Experimental Studies (17).

Data analysis

A random effects model was used because the study population could not be considered homogeneous. If the moderators did not explain study heterogeneity, a hierarchical cluster analysis was performed using the complete linkage method based on the Euclidean distance (18). The R software was used for analysis, with the "metacor" function in the "meta" package (19) and the "escalc" function in the "metafor" package (20). The fail-safe N (Nfs) was calculated to verify the reliability of publication bias and prove the robustness of a pooled effect size (21).

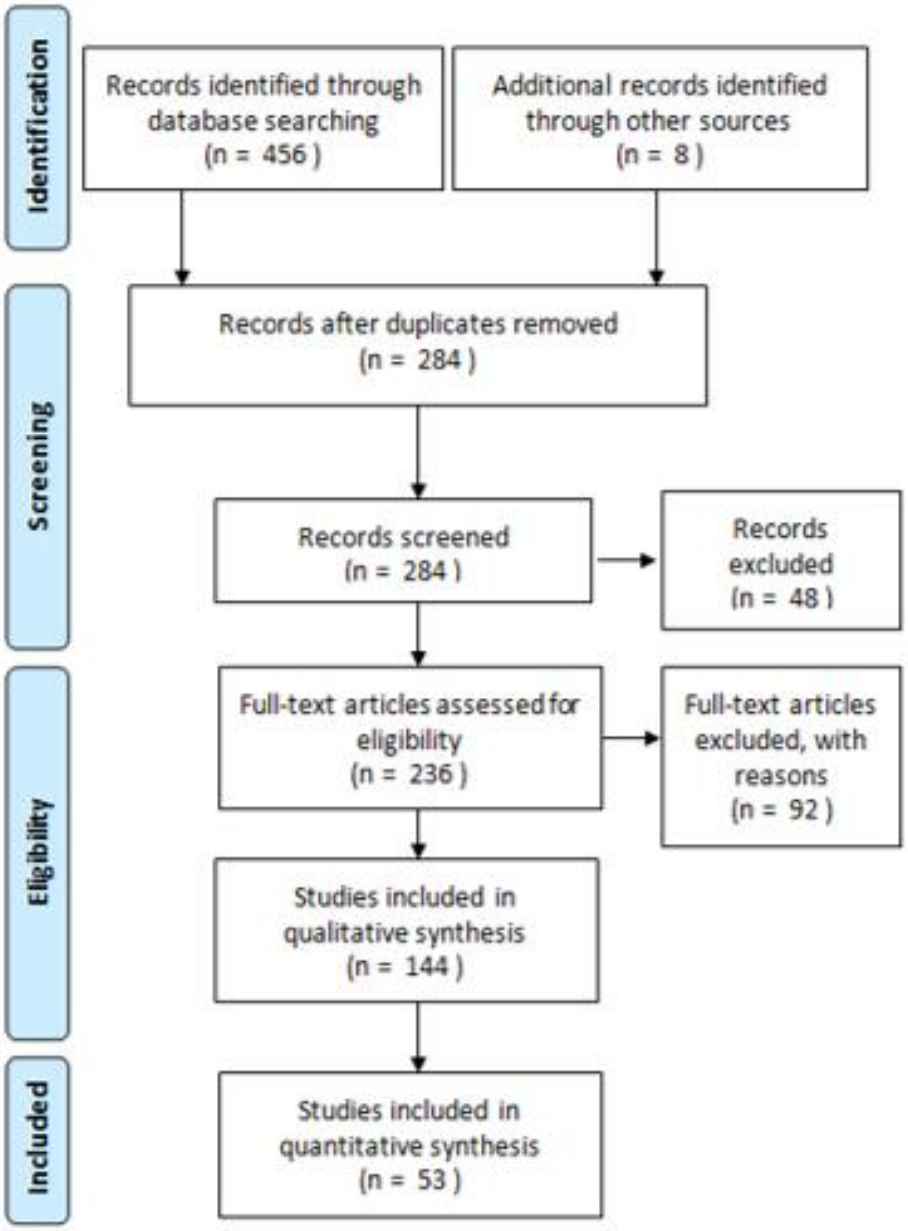

Fig. 1: Flow of studies included from database search

Results

General characteristics of studies selected for systematic review and meta-analysis

Overall, 144 prior studies were reviewed. The majority of the studies were published after 2010 (*n*=75), followed by those in the 2000s (*n*=56), 1990s (*n*=11), and between 1986 and 1989 (*n*=2). The most frequently used instrument was the Index of Work Satisfaction by Slavitt et al. (22), used in 54 studies. Job stress (*n*=33), burnout (*n*=15), and turnover intention (*n*=11) were the most frequently assessed (Table 1).

Fifty-three studies (meta-analyzed) published between 1994 and 2018 were found to have addressed the three major factors related to the job satisfaction of nurses (Table 2).

Table 1: General characteristic of qualitative synthesis (n=144)

Variable	*Frequency*	*%*
Publication year		
1986-1989	2	1.4
1990-1999	11	7.6
2000-2009	57	39.6
2010-2018	74	51.4
Study design		
Cross-sectional survey	142	98.6
Mixed method	1	0.7
Non-randomized controlled trial	1	0.7
Gender		
All included	44	30.6
Female only	9	6.2
Male only	1	0.7
Not reported	90	62.5
Marital status		
All included	126	87.5
Married only	3	2.1
Not reported	15	10.4
Workplace		
Hospital nurse	125	86.8
Community nurse	13	9.0
Army nurse	1	0.7
Correctional nurse	1	0.7
School nurse	1	0.7
Community + Hospital nurse	2	1.4
Correctional + Hospital nurse	1	0.7
Work shift type		
All included	43	29.9
Day only	16	11.1
Shift only	1	0.7
Not reported	84	58.3
Sample size calculation		
Yes	49	34.0
No	95	66.0
Measurements for job satisfaction		
Slavitt et al. (1978)	54	37.5
Stamps et al. (1978)	21	14.6
Others	69	47.9
Related variables		
Job stress	33	9.4
Burnout	15	4.3
Turnover intention	11	3.1
Others	293	83.2

Table 2: General characteristic of quantitative synthesis (n=53)

ID	*First author*	*Year*	*Studies*	*Sample*							*Related variables*	*Quality score*
				Gender	Age (group or M±SD)	Marital status	Work place	Work type	n	Cal.		
1	Noh	2018	[23]	All	All	All	H	All	239	+	JS	8
2	Kwon	2017	[24]	NR	All	All	School	D	131	+	B	6
3	Hwang	2017	[25]	All	All	NR	H	All	85	-	TI	6
4	Ko	2016	[26]	NR	All	All	H	NR	130	+	JS	6
5	Kim	2016	[27]	NR	All	All	Com	D	70	+	JS	6
6	Oh	2016	[28]	NR	All	All	H	NR	200	+	JS, B	6
7	Jang	2016	[29]	All	28.7±3.9	All	H	All	136	+	JS, B	8
8	Jun	2016	[30]	NR	All	All	H	S	292	+	JS	6
9	Jeong	2016	[31]	All	All	All	H	All	100	+	TI	8
10	Park	2015	[32]	All	41.8±9.3	All	H	All	206	+	B	8
11	Yi	2015	[33]	NR	All	All	H	All	312	+	JS	6
12	Chae	2015	[34]	All	29.5	All	H	All	154	+	TI	8
13	Kim	2014	[35]	All	All	All	H	NR	142	-	JS	8
14	Park	2014	[36]	NR	38.5	All	Com	D	237	-	TI	6
15	Son	2014	[37]	All	31.4±5.2	All	H	D	153	+	JS	8
16	Yi	2014	[38]	NR	All	All	H	All	312	+	TI	6
17	Chung	2014	[39]	All	32.9±9.3	All	H	NR	63	+	B	8
18	Jung	2014	[40]	All	All	All	H	NR	220	+	TI	8
19	Choi	2014	[41]	All	All	NR	H	All	240	+	TI	6
20	Kim	2013	[42]	NR	All	All	H	NR	285	-	JS	6
21	Kim	2013	[43]	NR	27.5±4.6	All	H	All	205	+	B	4
22	Park	2013	[44]	F	41.7±5.7	All	Com	D	149	+	JS	8
23	Lee	2013	[45]	NR	30.2±7.6	All	H	NR	210	+	JS	6
24	Lim	2013	[46]	All	40.8±7.1	All	Com	All	201	+	JS	8
25	Oh	2012	[47]	All	All	NR	H	NR	356	+	JS	6
26	Kim	2011	[48]	All	30.2±6.9	All	H	NR	433	-	JS	8
27	Kim	2011	[49]	NR	37.2	All	Com	D	109	-	JS	6
28	Park	2011	[50]	NR	27.9±5.3	All	H	NR	300	-	JS	6
29	Baik	2011	[51]	NR	34.1±7.1	All	H	NR	337	-	B	6
30	Lee	2011	[52]	All	36.4±7.4	All	H	All	206	+	TI	8
31	Han	2011	[53]	All	29.3±6.4	All	H	NR	240	+	B	8
32	Kang	2010	[54]	NR	26.9±6.4	All	H	All	218	-	JS	6
33	Kim	2010	[55]	NR	37.9±7.2	All	Com	All	78	+	JS, TI	4
34	Kim	2010	[56]	All	All	All	Cor+H	NR	122	-	JS	8
35	Shin	2009	[57]	F	24.9±1.7	NR	H	NR	32	-	B	8
36	Choi	2009	[58]	NR	All	All	H	NR	203	-	TI	6
37	Sung	2008	[59]	All	28.5±5.3	All	H	NR	153	-	B	8
38	Kim	2007	[60]	NR	All	All	H	D	139	-	JS, B	6
39	Kim	2007	[61]	NR	28.7±7.0	All	H	NR	123	-	JS	6
40	Park	2007	[62]	NR	All	All	H	D	225	-	JS	6
41	Sung	2007	[63]	NR	All	All	H	NR	302	-	JS	6
42	Sung	2007	[64]	NR	26.6	All	H	NR	280	-	JS, B	6
43	Kang	2006	[65]	NR	All	All	H	NR	173	-	JS	6
44	Kim	2005	[66]	NR	28.0±5.6	All	H	NR	302	-	JS	6
45	Kim	2005	[67]	F	33.3	All	H	All	205	-	JS, B	8
46	Lee	2004	[68]	NR	28.6±6.5	All	H	NR	220	-	TI	6
47	Lee	2003	[69]	NR	28.5±5.7	All	H	All	126	-	JS	6
48	Choi	2003	[70]	NR	34.6	NR	H	D	154	-	JS	6
49	Lee	2001	[71]	NR	NR	NR	H	NR	131	-	JS	6
50	Song	1998	[72]	NR	28.8	All	H	All	225	-	B	6
51	Yang	1998	[73]	NR	30.3	All	H	NR	367	-	JS	6
52	Lee	1996	[74]	NR	All	All	H	NR	132	-	JS	6
53	Lee	1994	[75]	NR	27.4	All	H	NR	104	-	B	6

B, burnout; Cal, calculation; Com, community; Cor, correctional; D, day only; F, female; H, hospital; JS, job stress; NR, not reported; S, shift only; TI, turnover intention.

Meta-analysis

Although 33 studies examined the correlation between the job satisfaction of nurses and job stress, a meta-analysis was performed on 37 studies because four studies presented correlation coefficients for job satisfaction and job stress for two different nurse groups. The overall effect size was -0.395, but there was heterogeneity among studies (I^2=85%; r^2=0.033, P<.001). A meta-regression was performed to determine whether gender, marital status, workplace, and work shift type explained the correlation between job satisfaction and job stress. The amount of heterogeneity accounted for was 0%, and the test of moderators was not statistically significant (Q_m=4.372, P=.822). Figure 2 shows the results of the hierarchical cluster analysis with five clusters.

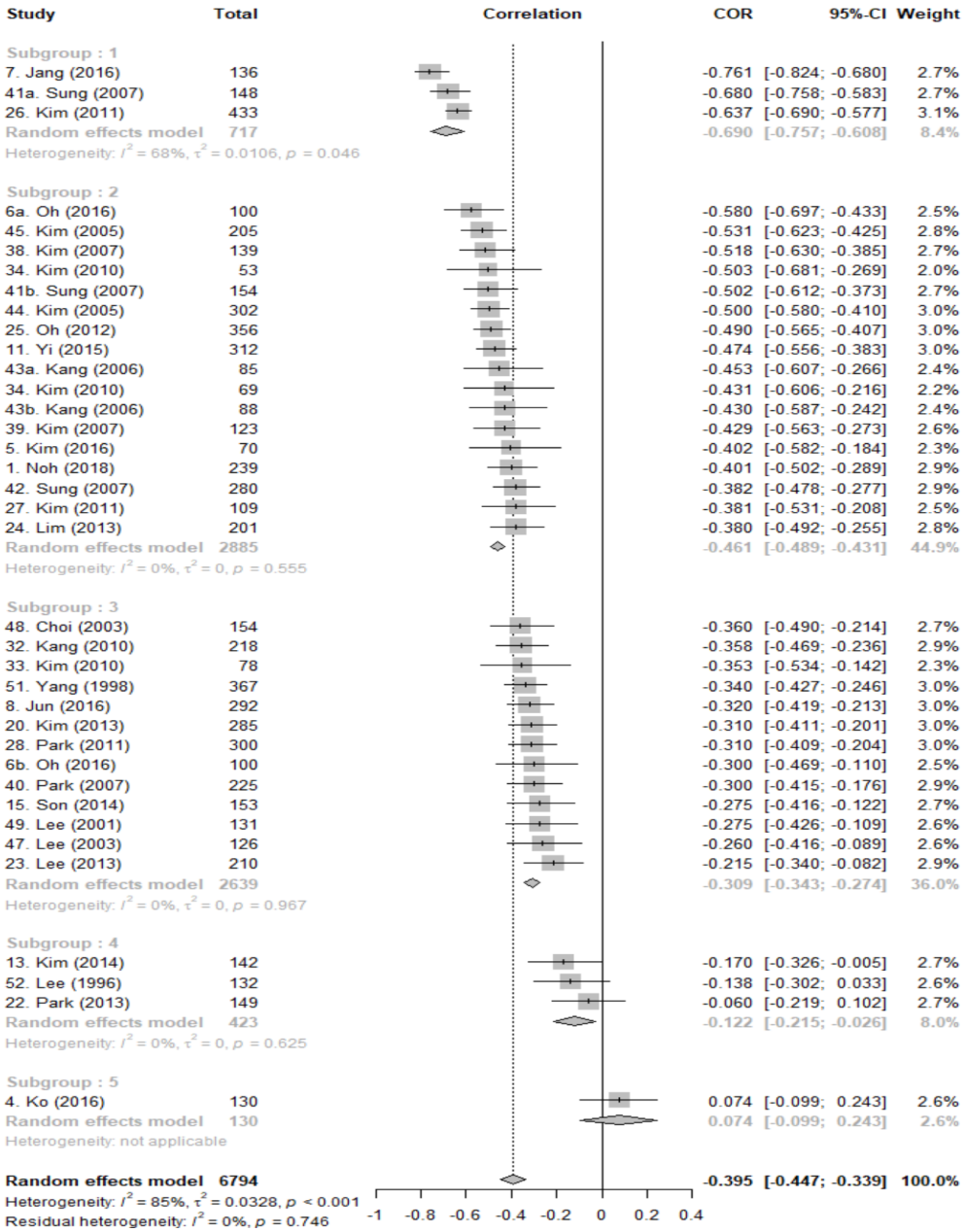

Fig. 2: The forest plot between job satisfaction and job stress

Fifteen studies assessed the correlation between the job satisfaction of nurses and burnout; however, a meta-analysis was performed on 16 studies because ID 6 (28) presented findings on both intensive care unit and general ward nurses. The overall effect size was -0.539, indicating a negative correlation of moderate size, but there was heterogeneity among the studies (I^2=90%; r^2=0.059, P<.001). In the meta-regression, the amount of heterogeneity accounted for was 3%, and the test of moderators was not statistically significant (Q_m=6.636, P=.356). Hierarchical cluster analysis with three clusters showed that all studies with subgroups were homogeneous (Fig. 3).

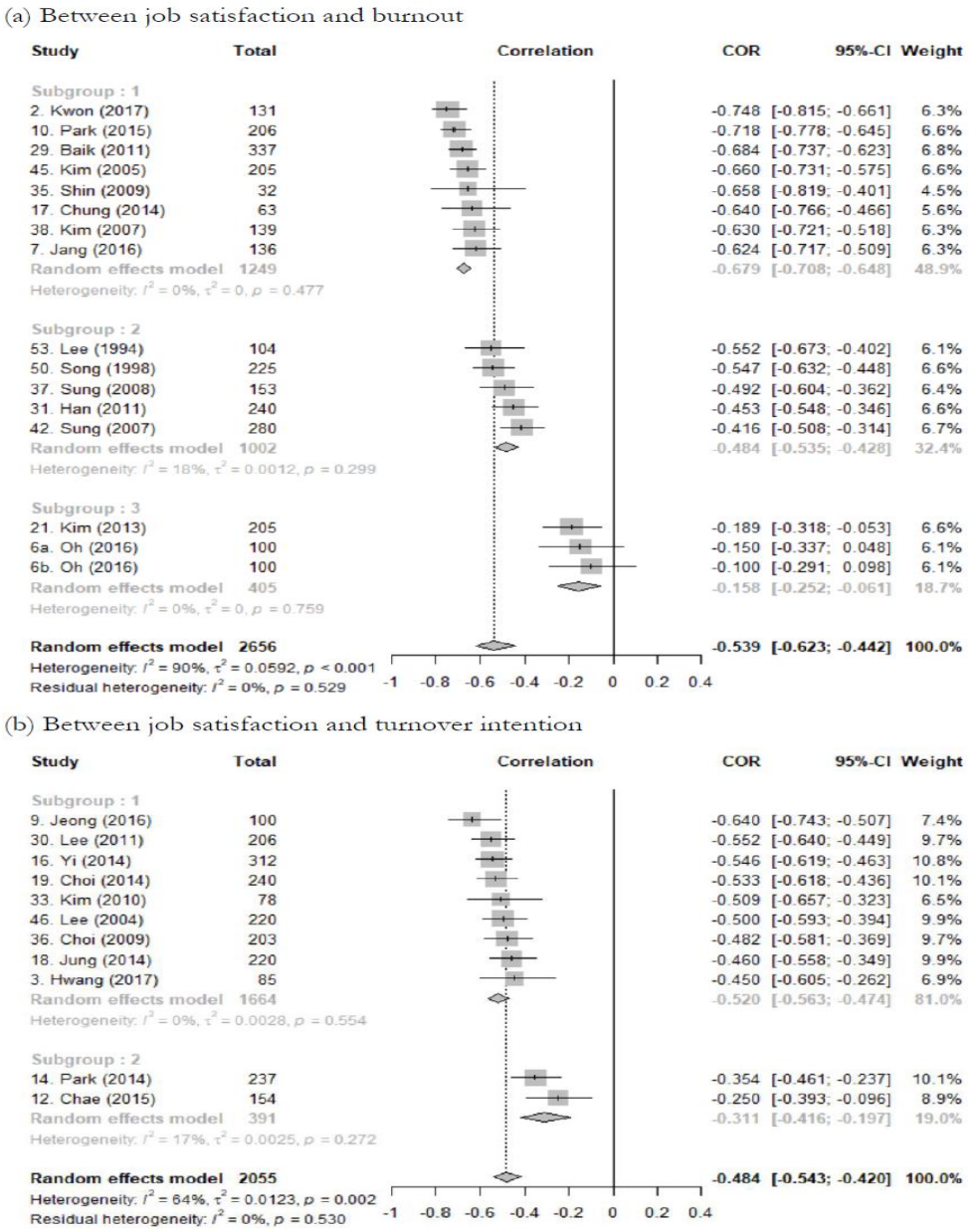

Fig. 3: The forest plot between job satisfaction, burnout and turnover intention

Eleven studies assessed the correlation between the job satisfaction of nurses and turnover intention. The overall effect size was -0.484, indicating a negative correlation of moderate size, but there was heterogeneity among the studies (I^2=64%; r^2=0.010, P=.002). In the meta-regression analysis, R^2 was 0%, and the test of moderators was not statistically significant (Q_m=1.595, P=.902). Hierarchical cluster analysis with two clusters showed that all studies with subgroups were homogeneous (Fig. 3).

Discussion

The studies reviewed were published between 1986 and 2018, with the majority being published after 2010, which suggests that the job satisfaction of nurses has become an increasingly significant problem in Korea. This highlights the rising importance of studies examining job satisfaction of Korean nurses in terms of management of healthcare personnel (3). Of the studies reviewed, 98.6% were cross-sectional and 86.8% enrolled only hospital nurses, which warrants more diverse methodologies. Moreover, a considerable percentage (66.0%) did not present evidence for sample size computation in their data collection, possibly due to the inclusion of several older studies that did not provide this information, and this factor should be addressed in future research.

Thirty-one instruments were used to assess the job satisfaction of nurses, and the Index of Work Satisfaction developed by Slavitt et al. (22) was the most frequently used. The most frequently assessed factor related to the job satisfaction of nurses was job stress, followed by burnout and turnover intention. This differs from the factors identified by Blegen (76), namely, stress and organizational commitment, as well as those identified by Zangaro and Soeken (77), namely, job stress, nurse-physician collaboration, and autonomy. Further, this finding also differs from the factors identified by Chu (13), namely, organizational commitment, leadership styles, professional self-concept, organizational characteristics, and autonomy. This result is significant in that it elucidates the factors on which Korean researchers have focused in recent years.

The overall effect size for burnout was -0.539, which was higher than the mean observed correlation (-0.40) and mean corrected correlation (-0.50) (78) among psychiatric nurses. The overall effect size for the turnover intention was -0.484, markedly higher than that found by Yin and Yang (79) (-0.23) among Taiwanese nurses. Further, it differed slightly from that for intent to leave (-0.54) (80). The overall effect size for job stress was -0.395, which was lower than that (-0.609) found by Blegen (76) among nurses, that (-0.43) found by Zangaro and Soeken (77) among nurses, and that (-0.43) found by Saber (9) among frontline nurses. According to Cohen (81), job stress, burnout, and turnover intention, all have moderate effect sizes. Statistically, significant heterogeneity was found for all three factors, which suggests that, although the data show a moderate effect size, there are substantial differences between individual studies. This is consistent with a previous report (9) indicating that studies may differ in their characteristics, such as patient management unit, geological location, and work environment type. Moreover, heterogeneity between studies was expected owing to differences in study contexts, as the years of publication ranged from 1994 to 2018, as well as due to differences in the methods of analysis. Despite heterogeneity, the lowest Nfs for the three factors was 2,576.

Negative emotions among nurses result in job dissatisfaction and ultimately hinder organizational growth (3). Job dissatisfaction not only worsens the already low retention of nurses but may also serve as a primary predictor of intent to leave (11). Organizations should note that patient satisfaction is markedly low in institutions with a high percentage of nurses burnt out and dissatisfied with their work (8). Multilateral attempts to reduce job stress, burnout, and turnover intention among nurses in Korea would increase nurse retention, and boost patient satisfaction and improve quality of care.

Finally, this study included only Korean publications, most of which employed cross-sectional designs and analyzed the correlations between job satisfaction and other major factors in the entire nurse population without restrictions on work shifts or places of work. Therefore, these results should be interpreted and generalized with caution. Subsequent studies should conduct a meta-analysis of the major factors predicting the job satisfaction of Korean nurses to shed light on specific effect sizes by the predictor.

Conclusion

As nurses account for the majority of healthcare personnel, exploring measures to increase their job satisfaction is crucial in managing the quality of healthcare services. In this study, the job satisfaction of Korean nurses was directly correlated with job stress, burnout, and turnover intention. It is, therefore, essential to make integrated efforts at the individual, institutional, and governmental levels to help regulate the variables directly related to nurses' job satisfaction, along with demanding further professional commitment from them. It is also important to reduce turnover intention in a workforce that is already below the OECD average.

Journalism Ethics considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interests

The authors declare that they have no conflicts of interest.

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