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Current Status and Related Factors of Job Satisfaction of Clinical Research Coordinators in South Korea

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Purpose: This study aimed to investigate different aspects of job satisfaction (JS) among clinical research coordinators (CRCs) in South Korea. These aspects included the current status of and factors related to JS; the relationship between JS and the intention to stay; or the willingness to recommend the job to others. **Methods:** A total of 509 CRCs were enrolled in this secondary data analysis study. Data were composed of general characteristics (4 items), job-related characteristics (8 items), and JS-related characteristics (5 items). These were analyzed using descriptive statistics, t-test, ANOVA, and multiple linear regression. **Results:** Among the subjects, 65.2% were satisfied with their jobs. The mean JS score was 3.07 out of 5 points. Among the JS subscales, job pleasure was the highest (3.73 points) and promotion possibility was the lowest (2.02 points). As job satisfaction increased, the intention to stay and willingness to recommend the job to others significantly increased (both $p<.001$). Job satisfaction was statistically related to the type of employment ($p=.001$), public insurance support ($p=.011$), number of working hours per week ($p=.008$), and annual salary ($p=.024$). **Conclusion:** The CRCs' JS has a positive effect on job continuity. To increase the JS of CRCs, organizational efforts to improve possibilities for promotion, adequacy of pay, and job security are required. Types of employment offering a guaranteed job until retirement age are highly recommended.

Key Words: Clinical research coordinator; Job satisfaction; Personnel turnover

INTRODUCTION

As South Korea is one of the countries that actively conducts clinical trials (CTs), the number of domestic CTs approved by the Korean Ministry of Food and Drug Safety has rapidly increased from 136 in 2004 to 679 in 2018 [1], and the cumulative number of CTs registered in a global database from February 29, 2000 to September 27 was second only to China in Asia [2]. In addition, the number of clinical research coordinators (CRCs) has also been rapidly increasing from 1,876 CRCs in 2010 [3] to 3,811 CRCs in 2017, South Korea [4]. CRCs are the largest clinical research human resource and well-known key players in conducting high-quality CTs [5,6], contributing to ethically and scientifically successful CTs [7].

Job satisfaction (JS) is described as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences [8]" and represents the degree of positive mindset towards work behavior within working places [9]. It has been found to play a pivotal role in preventing nursing staff from leaving their jobs and maintaining the quality of nursing care [10]. Therefore, to maintain the stability of the CRC workforce and ensure quality of CTs, it is crucial to understand the current status of JS and factors related to CRCs. In the 2010 survey, 64.2% were satisfied and 9.5% of them were not. The mean JS score was 3.14 out of 5 points [11].

Fortunately, a recent study in 2017 reported that the working conditions of CRCs, although not significant, showed some improvement at the institutional level compared to those in 2010 [4]. For example, the number of sites with a clear recruitment standard, full-time employment, and promotion systems for CRCs have increased from 66.7% to 78.8%, 25.0% to 48.5%, and 50.0% to 72.7%, re-

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spectively [4]. According to a recent literature review on factors related to nurses' JS, work environment and administrative support showed substantial to very strong or moderated to substantial relationships with JS [12]. Therefore, additional studies are needed to identify whether CRCs' JS also increases as the work environment improves after 2010.

In addition to improvement in working conditions, the median number of retirees and retirement rate per site decreased from 4 to 1, and 18.2% to 1.7%, respectively; the total work tenure until retirement increased slightly from 15.6 months to 19 months [4]. For retire of CRC, it is very encouraging to decline in the number of retirees and retirement rate in terms of an increase in experienced CRCs. In fact, turnover intentions or turnover may also be affected by the social environment, such as employability [13]. The overall unemployment rate at the national level was 3.1% in 2013, which continued to increase to 3.7% in 2017 [14], which can decrease perceived employ ability among CRCs. Therefore, it is difficult to know whether the decrease in the retirement rate of CRCs is due to low perceived employability or increased JS. In this case, the CRC turnover could increase due to changes in the social situation, affecting the stable acquisition of qualified CRCs. Therefore, we cannot assume that the decreasing retirement rate was due to the increasing JS. However, several studies have indicated that turnover intention is related to JS among healthcare professionals [15-17]. Accordingly, this study aimed to investigate the distribution and related factors of JS, the relationship between JS and the intention to stay or willingness to recommend to others among CRCs in South Korea.

METHODS

1. Study Design

This study employed secondary data analysis using previously collected data for the "2017 survey of current status and analysis of job change among CRCs in Korea," supported by the Korea National Enterprise for Clinical Trials (KoNECT) in 2018[18].

2. Study Dataset and Subjects

The dataset comprised 607 randomly sampled CRCs working at 184 clinical trial centers registered with the Korea Ministry of Food and Drug Safety (MFDS) as of September 2017 and 2 site management organizations (SMOs). Among them, the subjects for this study were 509 CRCs working at investigator sites (not SMOs), holding the position of a CRC or research nurse (not laboratory workers, physician assistant), and employed for 6 months or longer. The detailed data collection procedure was described in previous studies [18,19]. To reiterate the same briefly, 186 CRC managers who agreed to participate in the study recruited the subjects through bulletin boards at their centers and distributed consent forms and questionnaires. The filled in consent forms and questionnaires were collected individually or collectively by the managers and returned by post or e-mail. All participants were provided with a prescribed gift.

3. Study Variables

The original dataset was developed by the research team and was revised by conducting a preliminary survey on the appropriateness of questions, understandability of questions, and adequacy of the survey from seven CRC managers affiliated with the Korean Association of Clinical Research Coordinators [18]. It consisted of three domains: general characteristics (9 items), job-related characteristics (32 items), and JS-related characteristics (8 items), and we used 17 items among three domains based on a previous study to identify the CRCs' JS [11].

Specifically, the general characteristics included 4 items such as gender, age, educational background, license, and job-related characteristics, including 8 items such as years of experience as CRCs, type of employment, belonging, number of trials in charge, working hours per week, annual salary, having CRC-related certificates, and having public insurance support (including pension). JS-related characteristics included 5 items such as JS, the most satisfying and unsatisfying items regarding JS, intention to stay, and willingness to recommend. JS was composed of 20 items: job diversity, job clarity, job difficulty, job pleasure, job stress, working hours, workload, pay adequacy, workload to pay, job autonomy, job authority, job suitability, staffing adequacy, size of workspace, job importance, job security, promotion possibility, CRC-investigator relationship, career advancement, and social recognition of CRCs. Each item was measured on a 5-point scale ranging from ''very unsatisfied'' (1 point) to ''very satisfied'' (5 points). The total score ranged from 20 to 100, and the higher the score, the higher the JS. The internal consistency of the specific JS was .880 in Cronbach's α. The most satisfying and unsatisfactory items regarding JS were asked to choose the two items among the 20-items of JS. The intention to stay and willingness to recommend to others were measured on a two-point scale with yes or no.

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4. Ethical Consideration

The Pusan National University Institutional Review Board (approval no. PNU IRB/2017_114_HR) approved the primary study. All subjects were recruited on a voluntary basis, and each provided signed informed consent. Additionally, they were informed of their liberty to withdraw from the study at any point without any repercussions. For this study, we obtained the approval of being "exempt" and a waiver for informed consent from the Pusan National University Institutional Review Board (approval no. PNU IRB/2019_125_HR).

5. Data Analysis

The collected data were coded and analyzed using SPSS Version 23.0 for Windows (SPSS Inc., Chicago, IL). All statistical tests were performed at a .05 level of significance for 2-tailed tests. The subjects' general and job-related characteristics, JS, intentions to stay, and willingness to recommend to others were analyzed using mean and standard deviations for continuous variables and frequencies and percentages for categorical variables.

The relationship between the JS quartile and the intention to stay and willingness to recommend to others were analyzed using the Chi-squared test for trends. The JS quartile 1 was ≤54 points, quartile 2 was 54.1~61.0 points, quartile 3 was 61.1~69.0 points, and quartile 4 was >69.0 points. JS scores according to general and job-related characteristics were analyzed using t-test and ANOVA, followed by Scheffé post-hoc test.

Stepwise multiple linear regression was used to identify the factors related to JS using seven variables (age, education, type of employment, belonging, working hours per week, annual salary, and public insurance support), which were significant in the bivariate analysis. Variables other than age and working hours per week were entered into a regression analysis in dichotomous dummy variables. We confirmed no violation from the assumption of linearity and equal variance, independence, multivariate normality, and multi-collinearity using residual scatter plot, Durbin-Watson score less than 2, Q-Q plot, and tolerance ranged from .3 to .9, respectively.

RESULTS

1. General and Job-related Characteristics of the Subjects

Among the subjects, 99.2% were female, 56.4% were 30~39 years old (mean: 33.6 years), 68.8% had bachelor's degrees, 91.2% had nurse licenses, 39.9% worked as CRCs for more than 5 years (mean: 4.4 years), and only 10.6% were in a guaranteed job until retirement age. About half of them (51.5%) belonged to clinical trial centers, the median number of trials they were in charge of was 6.5, median working hours per week was 40, annual salary of more than half of them (58.4%) was less than 30,000 thousand won, only 18.9% of them had CRC-related certificates, and 41.1% of them had public insurance support (health, employment, workers, and national pension) (Table 1).

2. Distribution and Rank of Job Satisfaction according to 20 Items

According to Table 2, the total JS score was 61.45 out of 100 points, and the mean score was 3.07 out of 5 points. The 3 items showing higher JS included job pleasure (3.73), job diversity (3.72), and working hours (3.71). In comparison, the 3 items showing lower scores were: promotion possibility (2.02), pay adequacy (2.36), and job security (2.41). When subjects were asked to choose the two most satisfying and the two most unsatisfying items regarding JS, working hours (40.9%) and pay adequacy (37.3%) took first place.

3. Relationship between Job Satisfaction and Intention to Stay or Willingness to Recommend to Others

Among the subjects, 85.5% had intentions to stay, and 72.7% were willing to recommend to others. As shown in Figure 1, when the JS was divided into four quartile groups, both the intention to stay and willingness to recommend to others were the highest in the quartile 4 group (96.6% and 93.3%, respectively) and the lowest in the quartile 1 group (64.9% and 43.8%, respectively). As JS increased, those with the intention to stay and willingness to recommend to others significantly increased (both $p<.001$).

4. Factors related to Job Satisfaction

Table 3 shows differences in JS based on the age group ($p=.047$), educational background ($p=.034$), type of employment ($p<.001$), belonging ($p=.004$), working hours per week ($p<.001$), annual salary ($p=.001$), and public insurance support ($p<.001$) in a bivariate analysis.

According to multiple regression analysis, JS was statistically related to the type of employment ($p=.001$), with public insurance support ($p=.011$), working hours per week

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Table 1. General and Job-related Characteristics of the Subjects (*N*=509)

Characteristics	Categories	n (%)	M±SD	Median	IQR
Sex	Female	505 (99.2)			
	Male	4 (0.8)			
Age (year)	<30	145 (28.6)	33.6±6.2	33	29~37
	30~39	286 (56.4)			
	≥40	76 (15.0)			
Educational background	Associate degree	101 (19.8)			
	Bachelor's degree	350 (68.8)			
	Master's degree and higher	58 (11.4)			
Licensure	Registered nurse	464 (91.2)			
	Others †	35 (6.9)			
	None	10 (2.0)			
Working experience as a CRC (year)	<1.0	47 (9.2)	4.4±3.2	3.7	1.7~6.2
	1.0~2.9	162 (31.8)			
	3.0~4.9	97 (19.1)			
	≥5.0	203 (39.9)			
Type of employment	A guaranteed job until retirement age	54 (10.6)			
	Periodic contract	454 (89.4)			
Belong to	Clinical trial center	262 (51.5)			
	Medical department	59 (11.6)			
	Individual investigator	188 (36.9)			
Number of trials headed	≤4	133 (27.8)	7.7±5.4	6.5	4.0~10.0
	5~9	206 (43.0)			
	≥10	140 (29.2)			
Working hours per week	<40	71 (14.1)	38.8±7.6	40	40~40
	40	352 (70.1)			
	>40	79 (15.7)			
Annual salary (thousand won)	<20,000	45 (8.9)			
	20,000~29,999	251 (49.5)			
	30,000~39,999	147 (29.0)			
	≥40,000	64 (12.6)			
Hold CRC-related certificate		96 (18.9)			
Public insurance support		209 (41.1)			

† Laboratory technician/medical recorder, etc.; IQR=interquartile range; CRC=clinical research coordinator.

(p=.008), and annual salary (p=.024). Those with a guaranteed job until retirement age had more public insurance support, shorter working hours, and an annual salary of 30,000~39,999 thousand won showed a higher JS than the others (Table 4). A total of 5.9% of the variability in job satisfaction was explained by the variability in four variables (F=8.77, p<.001).

DISCUSSION

This study investigated the current status and related factors of JS among CRCs in South Korea with experience in clinical research support for at least six months to provide directions for the future, enabling increased JS.

Regarding JS, the mean JS score was 3.07 on a 5-point scale, slightly lower than 3.14 in the previous study [11]. According to previous studies, Korean nurses' JS ranged from 2.91 to 2.99 out of 5 [20,21]. That is, the CRCs' JS was slightly higher than that of nurses who formed the majority of CRCs in Korea. However, care must be taken to compare JS between CRCs and nurses because of different subjects' characteristics and tools to measure JS.

Among the 20 items regarding JS, pleasure, diversity, working hours, suitability, and autonomy showed higher scores than others, similar to the previous study [11], except working hours. This finding showed a similar pat-

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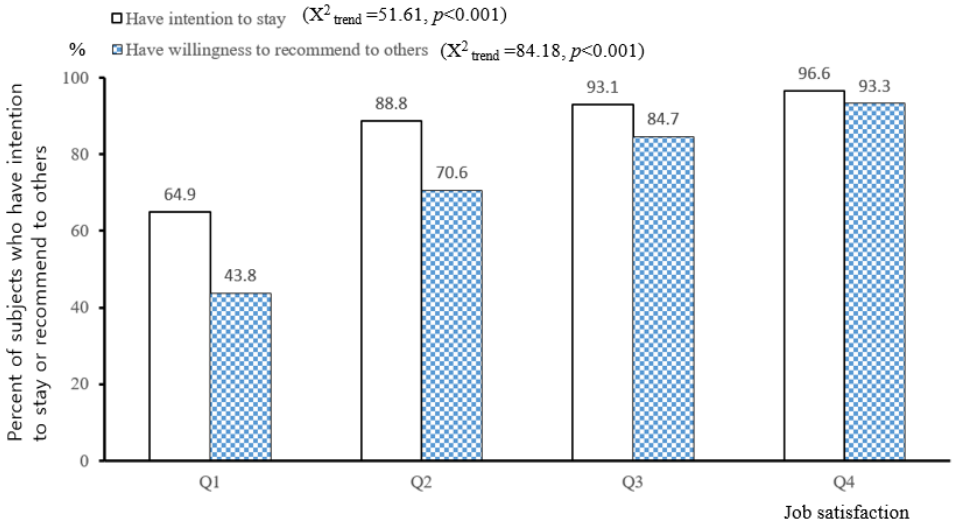
Table 2. Distribution and Rank of Job Satisfaction according to 20 Items (*N*=509)

Components	M±SD	Top 2 items for ††	
		Job satisfaction (%)	Job dissatisfaction (%, rank)
Job pleasure	3.73±0.75	34.0 (3)	0.2 (20)
Job diversity	3.72±0.80	17.7 (4)	0.6 (19)
Working hours	3.71±0.94	40.9 (1)	1.6 (16)
Job suitability	3.68±0.82	11.6 (6)	0.8 (18)
Job autonomy	3.66±0.93	39.7 (2)	1.6 (17)
Job importance	3.64±0.90	13.4 (5)	3.5 (15)
CRC-investigator relationship	3.49±0.85	5.3 (8)	3.7 (14)
Job difficulty	3.33±0.88	4.1 (10)	4.1 (12)
Job authority	3.16±0.97	1.8 (15)	4.1 (13)
Career advancement	3.13±0.98	8.6 (7)	6.1 (10)
Job clarity	3.08±1.00	4.7 (9)	6.9 (9)
Workload	3.00±1.03	2.9 (13)	5.3 (11)
Size of workspace	2.86±1.16	3.3 (11)	9.6 (7)
Staffing adequacy	2.75±0.92	0.4 (19)	9.4 (8)
Job stress	2.75±1.01	2.0 (14)	14.1 (5)
Social recognition	2.52±0.97	1.0 (18)	11.4 (6)
Workload proportional to pay	2.45±0.99	1.2 (17)	19.8 (4)
Job security	2.41±1.18	3.1 (12)	36.7 (2)
Pay adequacy	2.36±1.00	1.6 (16)	37.3 (1)
Promotion possibility	2.02±0.97	0.2 (20)	21.6 (3)
Total	61.45±10.60		
Total /20 items	3.07±0.53		

†Subjects were asked to choose two of the 20 items; ††( ) indicates rank order.



Q1=quartile 1; Q2=quartile 2; Q3=quartile 3; Q4=quartile 4.

Figure 1. The relationship between job satisfaction and intention to stay or willingness to recommend to others.

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Table 3. Job Satisfaction according to General and Job-related Characteristics of the Subjects (*N*=509)

Characteristics	Categories	Mean	t or F	*p*
Sex	Female Male	61.46±10.64 61.00±1.16	-0.61	.557
Age (year)	<30[a] 30~39[b] ≥40[c]	60.29±11.16 61.36±10.20 63.98±10.73	3.07	.047 (a<c)
Educational background	Associate degree Bachelor's degree Master's degree and higher	62.80±10.14 60.66±10.80 63.92±9.69	3.40	.034
Licensure	Registered Nurse Others None	61.51±10.62 59.04±10.00 67.10±10.12	2.35	.097
Working experience as a CRC (year)	<1.0 1.0~2.9 3.0~4.9 ≥5.0	58.96±11.27 61.53±10.06 60.68±10.50 62.34±10.87	1.52	.209
Type of employment	A guaranteed job until retirement age Periodic contract	66.94±9.14 60.81±10.59	4.07	<.001
Belong to	Clinical trial center[a] Medical department[b] Individual investigator[c]	62.93±11.21 59.27±8.35 60.07±10.09	5.50	.004 (a>c)
Number of trials headed	≤4 5~9 ≥10	62.32±10.11 61.07±10.32 60.86±11.20	0.80	.451
Working hours per week	<40[a] 40[b] >40[c]	60.80±9.53 62.48±10.82 57.20±9.77	8.33	<.001 (b>c)
Annual salary (thousand won)	<20,000[a] 20,000~29,999[b] 30,000~39,999[c] ≥40,000[d]	58.78±10.43 60.05±9.88 63.42±11.47 64.04±10.33	5.51	.001 (b<c)
Hold CRC-related certificate	Yes No	61.94±10.00 61.34±10.74	-0.50	.618
Public insurance support	Yes No	62.83±11.13 59.47±9.50	3.65	<.001

CRCs=clinical research coordinators.

Table 4. Job Satisfaction Related Factors by Multiple Regression Analysis (*N*=509)

Variables	b	SE	B	t	*p*
A guaranteed job until retirement age (yes=1)	5.05	1.56	0.14	3.24	.001
Public insurance support (yes=1)	2.61	1.02	0.12	2.57	.011
Working hours per week (hour)	-0.17	0.06	-0.12	-2.67	.008
Annual salary (30,000~39,999 thousand won=1)[†]	2.40	1.06	0.10	2.26	.024
		Adjusted R^2=.06, F=8.77, p<.001			

[†] ref: <20,000 thousand won; SE=standard error.

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tern, but some differences in ranking compared to results from choosing the two most satisfying items. For example, working hours were the third highest average score, but the first for choosing two most satisfying items.

Working in shifts was one of the most important factors decreasing the JS and increasing nurses' turnover intention [22,23]. The CRCs' high satisfaction with working hours may be because they seldom work in shifts and can flexibly arrange their working hours according to the progress of CTs. In the survey on the JS of CRCs at the Clinical and Translational Science Awards (CTSA) centers of the United States (US) in 2008, one of the top positive factors about the CRC job was diversity/variety (18%), contribution to medical advancement (16%), and flexibility and autonomy (15%) [24]. That is, CRCs both in Korea and in the US showed common positive positions on job diversity and flexible working hours.

The five items with lower JS scores included promotion possibility, pay, job security, workload to pay, and social recognition, exactly the same as in the previous study [11], but some differences in ranking, despite the time gap. Pay is a well-known factor that decreases JS or increases the intention to leave among nurses [12], and the same was true for CRCs [24].

In Korea, nurses are hired or promoted under human resource management policies at the site level, and retirement age is guaranteed unless specific problems arise. However, most CRCs are temporarily employed by the Medical Department or individual investigators who conduct CTs, leaving the CRCs dissatisfied with the job security or offering little scope for promotions. As the atmosphere for the transition of non-regular work to regular work is spreading at the national level [25], changes in the type of employment among CRCs are expected.

Social recognition may be related to the negative attitude towards CTs among the general population. According to a nationwide survey with 1300 persons who had or had not participated in the CTs in Korea, less than half showed a positive attitude towards CTs [26]. The predominant reason for this negativity was concerns about side effects (adverse reactions), followed by the perception that participation in CTs entails being subjects for bio-experiments ("Maruta"), and the discomfort caused by frequent visits and tests. Lack of career advancement was reported as one of the top reasons for quitting the position of CRCs in the US [24]. However, career advancement ranked seventh in this study's JS score, which may be because any CRC can participate in training and have opportunities to earn certification for CTs [27,28].

The factors related to CRC JS in this study were employment type, public insurance support, working hours, and annual salary. Among these, employment type had the greatest influence on JS. Regarding a guaranteed job until retirement age, job security is maintained based on the premise of retirement age, public insurance support are mandatory, and overtime can be minimized in line with government policies. For this reason, workers with this benefit showed higher JS by about five points than that of contract workers when other related factors were controlled. Although the sites hiring full-time CRCs, offering a guaranteed job until retirement age, and a promotion system in place are increasing, about half of the sites registered by the Korea MFDS still have no or a separate promotion system for CRCs [11]. Further, only 10% of the CRCs were employed as retirement age-guaranteed type of workers. In the regression analysis, the variance explained by the four significant variables was as low as 5.9% of the total JS variance. This result may be because JS is influenced by various working environments such as structural empowerment, organizational career management, collegiality, pay, promotion, and work-family balance [12,29].

JS is a well-known predictor of the intention to leave [10,12,14-16]. This is also evident in this study's results because the group with higher JS showed higher intentions to stay and willingness to recommend CRC work to others. In addition, the average number of years of working as CRCs was 4.4 years in this study, which was much higher than 2.4 years in 2020 [11].

To my knowledge, studies on the JS of CRCs have been very limited in Korea and internationally. Hence, it is meaningful to identify the current status and related factors of JS of CRCs using data from approximately 13% of the estimated number of Korean CRCs and the changes in their JS over the last 7 years. However, as the JS-related data were collected through self-reports, some items of JS, such as CRC-investigator relationship, workload could be easily changed according to the work situation at the time of the survey. Consequently, there may have been an underestimation or overestimation.

CONCLUSION

This study investigated the current status and related factors of JS among CRCs in South Korea with experience in clinical research support for at least six months. CRCs were satisfied with job pleasure, job diversity, and working hours, but dissatisfied with the possibility of promotion, pay adequacy, and job security. As the CRCs' JS has a positive effect on job continuity, organizational efforts to

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improve promotion possibilities, pay adequacy, and job security are required to increase the JS of CRCs. Considering that these items were related to the type of employment, a guaranteed job until retirement is highly recommended. Further studies to identify the changes in the type of employment and JS among CRCs as an effect of national labor policy to transit non-regular work to regular work are also recommended.

CONFLICTS OF INTEREST

The authors declared no conflict of interest.

REFERENCES

1. Korea National Enterprise for Clinical Trials (KoNECT). Status of clinical trials [Internet]. Seoul: Author; 2018 [cited 2019 September 27]. Available from: https://www.koreaclinicaltrials.org/kr/contents/datainfo_data_01_tab02/view.do
2. US National Library of Medicine. Map of all studies on Clinical Trials.gov. [Internet]. 2019 Bethesda: Author; 2019 [cited 2019 September 27]. Available from: https://ClinicalTrials.gov
3. Jeong IS, Choe SM, Shon JH, Kim WO. Current status of clinical research coordinator's employment. Journal of Korean Society for Clinical Pharmacology and Therapeutics. 2011;19(1):40-51.
4. Jeong IS, Hwang YS, Jeong JH, Youn JH. Changes in the number and employment conditions of clinical research coordinators in South Korea. Therapeutic Innovation & Regulatory Science. 2019;53(5):678-83. https://doi.org/10.1177/2168479018803093
5. Whalen MD, Fedor CA. Clinical research coordinators: Careers and trends. Clinical Research. 2005;5:23-5.
6. Davis AM, Hull SC, Grady C, Wilford BS, Henderson GE. The invisible hand in clinical research: the study coordinators' critical role in human subjects protection. The Journal of Law, Medicine & Ethics. 2002;30:411-9.
7. Poston RD, Buescher CR. The essential role of the clinical research nurse. Urologic Nursing. 2010;30(1):55-63.
8. Locke EA. The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago, IL: Rand McNally; 1976. p. 1297-49.
9. Utriainen K, Kyngäs H. Hospital nurses' job satisfaction: A literature review. Journal of Nursing Management. 2009;17(8):1002-10. https://doi.org/10.1111/j.1365-2834.2009.01028.x
10. Amendolair D. Caring behaviors and job satisfaction. Journal of Nursing Administration. 2012;42:34-9.
11. Jeong IS. Working conditions, job perceptions, job satisfaction, and intentions to stay at the job for clinical research coordinators in the Republic of Korea. Drug Information Journal. 2012;46(3):303-12.
12. Lu H, Zhao Y, While A. Job satisfaction among hospital nurses: A literature review. International Journal of Nursing Studies. 2019;94:21-31. https://doi.org/10.1016/j.ijnurstu.2019.01.011
13. Acikgoz Y, Sumer HC, Sumer N. Do employees leave just because they can? Examining the perceived employability-turnover intentions relationship. Journal of Psychololology. 2016;150(5):666-83. https://doi.org/10.1080/00223980.2016.1160023
14. Statistics Korea. Unemployment rate. [Internet]. Daejeon: Author; 2018 [cited 2019 September 27]. Available from: http://www.kostat.go.kr/portal/korea/index.action
15. Jiang H, Ma L, Gao C, Li T, Huang L, Huang W. Satisfaction, burnout and intention to stay of emergency nurses in Shanghai. Emergency Medicine Journal. 2017;34(7):448-53. https://doi.org/10.1136/emermed-2016-205886
16. Ramoo V, Abdullah KL, Piaw CY. The relationship between job satisfaction and intention to leave current employment among registered nurses in a teaching hospital. Journal of Clinical Nursing. 2013;22(21-22):3141-52. https://doi.org/10.1111/jocn.12260
17. Wen T, Zhang Y, Wang X, Tang G. Factors influencing turnover intention among primary care doctors: a cross-sectional study in Chongqing, China. Human Resources for Health. 2018;16(1):10. https://doi.org/10.1186/s12960-018-0274-z
18. Jeong IS. 2017 survey of current status and analysis of job change among CRC's in Korea. Seoul, Korea: Korea National Enterprise for Clinical Trials; 2017.
19. Jeong IS, Jeong JH, Hwang YS, Youn JH. Clinical research coordinators' attitude toward risk-based monitoring. Therapeutic Innovation & Regulatory Science. 2019;53(5):691-5. https://doi.org/10.1177/2168479018793132
20. Choi S, Kim M. Effects of structural empowerment and professional governance on autonomy and job satisfaction of Korean nurses. Journal of Nursing Management. 2019;27(8):1664-72. https://doi.org/10.1111/jonm.12855
21. Hwang E. Effects of the organizational culture type, job satisfaction, and job stress on nurses' happiness: A cross-sectional study of the long-term care hospitals of South Korea. Japan Journal of Nursing Science. 2019;16(3):263-73. https://doi.org/10.1111/jjns.12235
22. van Dam K, Meewis M, van der Heijden BI. Securing intensive care: Towards a better understanding of intensive care nurses' perceived work pressure and turnover intention. Journal of Advanced Nursing. 2013;69(1):31-40. https://doi.org/10.1111/j.1365-2648.2012.05981.x
23. Wu X, Li J, Liu G, Liu Y, Cao J, Jia Z. The effects of emotional labor and competency on job satisfaction in nurses of China: a nationwide cross-sectional survey. International Journal of

www.kci.go.kr

Nursing Science. 2018;5(4):383-9. https://doi.org/10.1016/j.ijnss.2018.08.001

24. Speicher LA, Fromell G, Avery S, Brassil D, Carlson L, Stevens E, et al. The critical need for academic health centers to assess the training, support, and career development requirements of clinical research coordinators: Recommendations from the Clinical and Translational Science Award Research Coordinator Taskforce. Clinical and Translational Science. 2012;5(6):470-5. https://doi.org/10.1111/j.1752-8062.2012.00423.x
25. Ministry of Labor. Guideline for the transition to regular work for non-regular workers in the public sector [Internet]. Sejong: Author; 2017 [cited 2020 March 12]. Available from: http://www.korea.kr/archive/expDocView.do?docId=37729
26. Korea National Enterprise for Clinical Trials (KoNECT). 2016 Survey results on perception toward clinical trials [Internet]. Seoul: Author; 2017 [cited 2019 September 28]. Available from: https://www.konect.or.kr/
27. Ministry of Food and Drug Safety. Regulations on the designation of sites for education and education of workers, such as clinical trial of medicines, etc. [Internet]. Osong: Author; 2017 [cited 2019 September 30]. Available from: http://www.mfds.go.kr/
28. Korea National Enterprise for Clinical Trials (KoNECT). Information on accreditation for clinical trial experts [Internet]. Seoul: Author; 2019 [cited 2019 September 30]. Available from: http://lms.konect.or.kr/
29. Yu Y, Wang Y, Zhang J. Relationship between work-family balance and job satisfaction among employees in China: A moderated mediation model. Psych Journal. 2017;6(3):194-204. https://doi.org/10.1002/pchj.174

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