



Research Article

Trajectories of Work Adjustment and Influencing Factors Among Newly Registered Nurses



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ARTICLE INFO

Article history:

Received 11 October 2023

Received in revised form

12 December 2023

Accepted 21 January 2024

Keywords:

adjustment

hope

nurses

social support

work

SUMMARY

Purpose: This study explored the work adjustment trajectory and its predictors and characteristics among newly registered nurses.

Methods: A total of 245 newly registered nurses working in a university hospital provided general baseline characteristics and completed a work adjustment questionnaire along with self-report measures of clinical competency, psychological capital, preceptor exchange, social support, and role conflict when they started working independently (baseline) and at 7 and 12 months after employment. Data were collected from July 2020 to August 2022. The collected data were subjected to a group-based trajectory model, χ^2 test, F test, one-way ANOVA, and multiple logistic regression using SAS 9.4, and SPSS 25.0.

Results: Group-based trajectory modeling classified three newly registered nurse groups: nurses with a high work adjustment level in all subscales from the beginning of employment (early adjustment group, 16.1%), nurses with a moderate level of adjustment from beginning to end (standard adjustment group, 60.6%), and nurses with a low level of work adjustment from early to mid-term, rising later (delayed adjustment group, 23.3%). Higher hope, optimism, and emotional support predicted early and standard adjustments.

Conclusions: Based on the trajectory characteristics, newly registered nurses need to improve their work adjustment. The early and standard adjustment groups should continuously monitor their levels of work adjustment while monitoring their hopes, optimism, and emotional support. In particular, the delayed adjustment group required customized educational programs and strengthened peer support.

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Introduction

Work adjustment is a continuous and dynamic process through which individuals achieve and maintain harmony with their work environment [1]. It can be challenging for newly registered nurses to transition from students to practicing nurses [2]. Nevertheless, the achievements and experiences accumulated during this period are crucial for establishing oneself as a competent nurse [2]. Previous studies on newly registered nurses have identified factors that influence work adjustment. Positive psychological capital

(PsyCap) [3], nursing knowledge [4], clinical competency [5], self-efficacy [6], and resilience primarily [6] affected workplace adjustment. Simultaneously, leadership [7], organizational culture [7], social support [8,9], preceptor [8], job stress [10], and role conflict [10] were significant predictors of organizational adaptation.

However, most studies on new registered nurses' work adjustment assume that they are a single homogeneous population [3–10]. They focused on the characteristics of the newly registered nurse period, based on cross-sectional data. Few studies have

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<https://doi.org/10.1016/j.anr.2024.01.005>

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viewed work adjustment as an ongoing process or investigated the changes and differences between individuals or groups over time. Consequently, extant studies may have overlooked the changes in and characteristics of work adjustment within the new nursing population. As a result, training programs for new nurses in most medical institutions based on existing studies tend to be unilaterally designed, assuming a homogeneous population, and do not effectively promote the work adjustment of new nurses [11].

Due to these previous studies' limitations, several longitudinal studies have been conducted in Korea to track the trajectories of changes in newly registered nurses [12–14]. However, most longitudinal studies on newly registered nurses have primarily focused on identifying the factors associated with turnover intention. Kim and Yon [12] found that changes in job stress, job satisfaction, and work competence among new nurses differed according to personality type. Ki [13] and Yoo [14] divided groups according to turnover intention and investigated related factors. Because these studies focused on new nurses' turnover within a few months, it was difficult to identify changes in work adjustment. Therefore, studies have explored the changes in work adjustment during the new nurse period, categorizing the patterns of changes, and identifying the required associated factors. Observing and clustering the trajectories of work adjustment during the first year as a new nurse and recognizing the traits and predictors of trajectories would be conducive to developing effective training programs that promote new nurses' work adjustment and growth.

Based on this context, this study attempted to identify the characteristics of work-adjustment trajectories using the main variables reported in previous studies. Previous studies have reported that clinical competency is a significant work competence required for adjustment [8]. Positive PsyCap is a personality trait related to organizational commitment and job satisfaction [3]. Furthermore, social support [9], and role conflict [10], preceptor [15] have been reported as job satisfaction and organizational socialization predictors. Based on these findings, these variables were selected as related factors and the trajectories of work adjustment and their characteristics were investigated among new registered nurses.

This study was conducted to better understand work adjustment patterns and their related factors. This study aimed to (1) identify distinct patterns of work adjustment changes among newly registered nurses over 12 months and (2) describe the characteristics associated with distinct work adjustment trajectories over time.

Methods

Study design

This prospective cohort study aimed to examine the different trajectories of work adjustment among newly registered nurses and identify their differences and predictors using data collected at three time points at five-month intervals from two months after employment.

Study population

The participants were newly registered nurses hired at a university hospital in South Korea between 2020 and 2021. Newly registered nurses were eligible to participate if they (a) provided direct care to patients, (b) worked rotating shifts, or (c) had been working for 2–12 months since employment. The exclusion criteria were (a) nurses who primarily performed educational and administrative work and (2) were hired in fixed-term or temporary positions. Additionally, nurses who resigned during the data

collection period, those who did not provide contact information for cohort follow-up, and those who did not respond to the follow-up questionnaire survey were excluded from the study. This study was designed by referring to the prospective longitudinal study by Part et al. [16] that conducted group-based trajectory modeling and a study by Fan [17] that suggested that the moderate sample size of the growth trajectory was ($N = 100$ – 200). Additionally, we considered the potential withdrawal rate was set at 33% in the 17.0%–19.5% turnover rate on newly registered nurses in tertiary hospitals in 2019–2020 [18] and 30.6% in another longitudinal study on newly registered nurses [19]. Consequently, 373 newly registered nurses were recruited, of which 128 were excluded due to resignation before the follow-up, insufficient response, or being in the same department as the researcher; thus, the final analysis included 245 participants.

Data collection and procedure

This study was approved by the Institutional Review Board (No: AJIRB-MED-SUR-19-541) of the authors' hospital. All participants were informed about the study's purpose and procedures and asked to complete a questionnaire. The participants provided signed informed consent forms and all participants remained anonymous. Data were collected from newly registered nurses who signed an informed consent form through three survey rounds from July 1, 2020, to August 31, 2022. Informed consent was obtained from all 373 participants before the start of work. The baseline survey (T1) was performed two months after employment, which was the point at which official training of newly registered nurses was completed at the study hospital, and newly registered nurses began to work independently. Of the 373 nurses, 302 completed the questionnaire (81.0%). The second survey (T2) was conducted seven months after employment, and 255 questionnaires were retrieved (68.4%). The third survey (T3) was conducted 12 months after employment, when the newly registered year ended, and 245 questionnaires were retrieved (65.6%) and included in the final analysis.

Instruments

Work adjustment

Work adjustment was assessed using an instrument developed to measure work adjustment among new employees based on the work adjustment theory in the social sciences [20,21]. This instrument comprises 18 items in four domains: job satisfaction (five items), work performance (five items), interpersonal relationships (five items), and organizational adjustment (three items). This study revised the term “company” to “hospital” for use by nurses. Each item was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating a higher level of the corresponding factor. The reliability (Cronbach's α) of the tool was .76–.89 in the developmental study [20] and .92 in this study.

Clinical competency

Clinical competency was assessed using the modified Korean version of the instrument developed by Blanzola, Lindeman, and King [22] to measure nurses' knowledge and skills. The 26-item tool comprises seven domains: nursing diagnosis (two items), routine care (ten items), core skills (five items), fairness (two items), teamwork (two items), initiative (one item), and communication (four items). Each item was rated on a five-point scale ranging from 1 (more effort needed) to 5 (very good), with a higher score indicating better clinical performance and competency. The reliability

(Cronbach's α) of the tool was .84 at the time of development, .96 in the study by Lee [23], and .94 in this study.

Psychological capital

PsyCap was assessed using the Korean version of the Psychological Capital Questionnaire developed by Luthans et al. [24]. This 24-item tool comprises four domains: self-efficacy (six items), hope (six items), optimism (six items), and resilience (six items). Each item was rated on a five-point Likert scale consisting of 1 (not at all true), 2 (not true), 3 (neutral), 4 (generally true), and 5 (very true), with a higher score indicating a higher PysCap. Items 3, 8, and 19 were negatively worded and were reverse-scored. The reliability (Cronbach's α) of the tool was .89 at the time of development, .93 in the study by Choi [25], and .93 in this study.

Preceptor exchange

Preceptor exchange was assessed using the Korean version of the Leader-Member Exchange Multi-Dimensional Measure (LMX-MDM) developed by Liden and Maslyn [26] by setting leader to preceptors and member to new registered nurses. This 11-item tool comprises four factors: affect (three items), loyalty (three items), contribution (two items), and professional respect (three items). Following Kim [24], this study used a four-point Likert scale to reduce middle response bias. Each item was rated on a five-point Likert scale consisting of 1 (not at all true), 2 (not true), 3 (neutral), 4 (generally true), and 5 (very true), with a higher score indicating better preceptor exchange. The Cronbach's α was .91 in a study by Kim [27] and .90 in this study.

Social support

Social support was assessed using the Social Support Scale developed by Park [28] and modified by Jo et al. [29]. This 23-item tool comprises five domains: emotional support (nine items), informational support (seven items), material support (two items), and evaluative support (five items). Each item was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating greater social support. The Cronbach's α was .98 in the study by Jo et al. [29] and .96 in this study.

Role conflict

Role conflict was assessed using a tool developed by Rizzo et al. [30] and adapted and modified by Lee [31] for use by nurses in Korea. Each of the 16 items was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating higher role conflict. The Cronbach's α was .89 at the time of development and 0.91 in this study.

Data analysis

Group-based trajectory modeling, using PROC TRAJ in SAS 9.4, identified distinct patterns of work adjustment in newly registered nurses from two months to 12 months after employment. The PROC TRAJ was developed to classify cases with similar change patterns over time [32]. In this study, a censored-normal distribution method was applied after a normality test of the work-adjustment score. Following this, the group-based trajectory models with two to five trajectory groups were tested by applying linear, cubic, and quadratic forms. The final number of trajectories was selected based on the Bayesian information criterion (BIC) value. Since higher BIC values indicate a better model fit, the value closest to 0 is

the most appropriate [32]. According to Micheline et al. [33] who reported that several model fit criteria were needed to be presented, we considered the importance of the estimated model parameters and BIC values. Additional model selection criteria included the sample proportion, which should be at least 10%, and the posterior probability of a participant belonging to a particular trajectory group, which should average at least 0.70 for each trajectory group [34].

χ^2 test and F test were used to explore the differences in general characteristics between the trajectory groups. Multinomial logistic regression analysis was used to determine the odds ratios (ORs) and 95.0% confidence intervals (CIs) for the associations between trajectory groups, general characteristics, and study variables. SAS 9.4 and IBM SPSS Statistics 25.0 were used for all statistical analyses and the internal consistency reliability of the instruments used in the study was analyzed using Cronbach's α .

Results

Model selection for work adjustment trajectories

The trajectories of work adjustment were analyzed using group-based trajectory modeling (GBTM), and the model was selected based on the absolute value of BIC and $\geq 10.0\%$ of participants in each trajectory group with reference to Nagin and Odgers [32]. Three groups that satisfied the two conditions were selected as the best-fit model for the work-adjustment trajectories (Table 1). The trajectory functions of the three groups were optimized and the significance of the trajectory graphs were examined. The intercept-function model exhibited a significant trajectory function (Table 2).

Types of work adjustment change

Figure 1 illustrates the work adjustment trajectories identified by the GBTM. The vertical axis represents the work adjustment score, and the horizontal axis represents the time since employment. Table 2 presents the total work adjustment score and the scores for each work adjustment domain in the three groups at two months (T1), seven months (T2), and 12 months (T3) after employment.

Group 1 consisted of nurses showing a consistently high level of work adjustment concerning the total work adjustment score and each domain score since employment; 16.1% of the participants were in this group. Therefore, Group 1 showed a higher level of work adjustment at T1, T2, and T3 than the other groups. The average total score decreased slightly from T1 to T2 and was maintained at T3. Additionally, Group 1 showed higher scores in all domains of work adjustment than the other groups. Thus, group 1 was named the "Early adjustment group with high scores in all domains" (early adjustment group). These nurses scored the highest on work adjustment from an early stage and consistently showed high work adjustment until 12 months after employment.

Table 1 Model Selection Results for Growth of 245 Newly Graduated Nurses.

Model (no. of groups)	BIC	Estimated probability (% in each group)				
		1	2	3	4	5
2	-464.45	40.5	59.5			
3	-447.73	23.3	60.6	16.1		
4	-446.25	7.3	34.8	49.4	8.5	
5	-447.85	6.6	30.7	13.9	47.6	1.2

Note. BIC = Bayesian Information Criterion.

Table 2 Descriptive Statistics of Work Adjustment on Trajectories by Times.

Work adjustment	Group	M ± SD		
		T1	T2	T3
Total	Early adjustment	3.92 ± 0.42	3.87 ± 0.29	3.86 ± 0.35
	Standard adjustment	3.35 ± 0.34	3.28 ± 0.31	3.29 ± 0.33
	Delayed adjustment	2.70 ± 0.34	2.68 ± 0.35	2.74 ± 0.37
Job satisfaction	Early adjustment	4.05 ± 0.50	3.88 ± 0.38	3.83 ± 0.40
	Standard adjustment	3.44 ± 0.45	3.28 ± 0.43	3.30 ± 0.43
	Delayed adjustment	2.69 ± 0.45	2.56 ± 0.47	2.61 ± 0.53
Job performance	Early adjustment	3.59 ± 0.51	3.74 ± 0.32	3.82 ± 0.37
	Standard adjustment	2.99 ± 0.44	3.17 ± 0.38	3.24 ± 0.42
	Delayed adjustment	2.39 ± 0.41	2.70 ± 0.45	2.87 ± 0.45
Interpersonal relationship	Early adjustment	4.03 ± 0.45	4.11 ± 0.32	4.12 ± 0.42
	Standard adjustment	3.62 ± 0.40	3.61 ± 0.39	3.63 ± 0.44
	Delayed adjustment	3.10 ± 0.50	3.02 ± 0.51	3.15 ± 0.50
Organizational adaptability	Early adjustment	4.07 ± 0.68	3.67 ± 0.67	3.55 ± 0.64
	Standard adjustment	3.35 ± 0.66	2.92 ± 0.61	2.80 ± 0.65
	Delayed adjustment	2.59 ± 0.74	2.27 ± 0.63	2.07 ± 0.63

Note. M = Mean; SD = Standard deviation; T1 = 2 month; T2 = 7 month; T3 = 12 month.

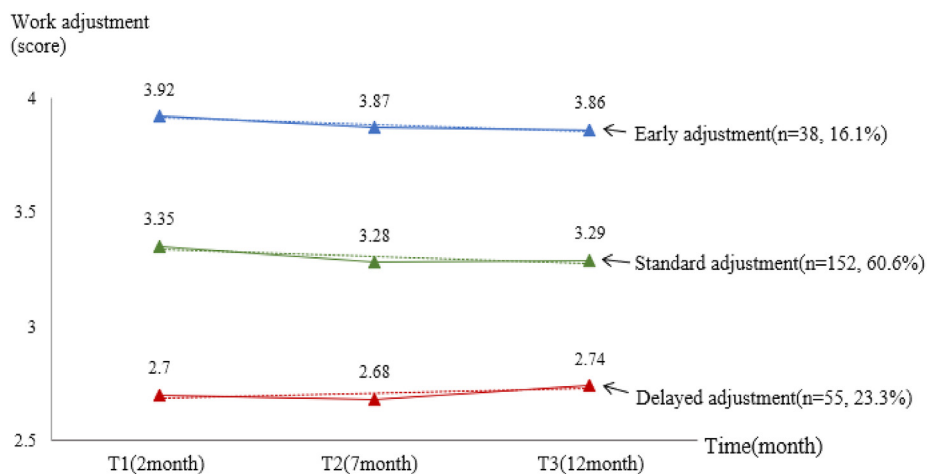


Figure 1. Predicted and Observed overall Work Adjustment for each Trajectory Group. Solid lines present the mean percentage overall work adjustment based on raw data, and dashed lines present the predicted mean percentage overall work adjustment based on trajectory modeling.

Group 2 consisted of nurses with an approximately medium total score, with the highest score in the interpersonal domain; 60.6% of the participants were in this group. Therefore, Group 2 showed a lower total work adjustment score than Group 1 but a higher total work adjustment score than Group 3, and the interpersonal score was higher than all other domains. Thus, this group was named the “interpersonally driven standard adjustment group” (standard adjustment group). These nurses adjusted to work while maintaining a relatively high interpersonal adjustment score compared to other domains. The highest percentage of nurses belonged to this group; therefore, this group can be considered the standard type of work adjustment.

Group 3 consisted of nurses with a low total score at all time points with a high degree of improvement in the job performance domain across the time points; 23.3% of the participants were in this group. In other words, Group 3 had a lower total work adjustment score than the other groups at T1, T2, and T3. Their scores slightly decreased from T1 to T2 but improved at T3. Regarding domain, their job performance scores increased continuously from T1 to T3, with the most significant improvement at T3. Thus, Group 3 was named the “Delayed adjustment group

with delayed growth of practical competencies” (delayed adjustment group). These nurses demonstrated considerable growth in the job performance domain later in the year, a consistently low level of work adjustment throughout most of the year, and higher work adjustment at the 12-month mark, thereby demonstrating delayed work adjustment compared to other groups.

The posterior probability was computed to examine whether participants were assigned to the group that most accurately resembled their longitudinal work adjustment trajectory. The posterior probability was calculated for each participant in the trajectory groups and the participants were assigned to the group with the highest posterior probability. A value closer to one signified a better participant fit in the group set and indicated that the participant was assigned to the most appropriate group [31,34]. According to the analysis results, there was an 82.0% probability that participants in the early adjustment group would be appropriately assigned, an 88.0% probability that participants in the standard adjustment group would be appropriately assigned, and an 86.0% probability that participants in the delayed adjustment group would be appropriately assigned. Therefore, the participants were appropriately assigned to each trajectory group, and each

Table 3 Differences in Work Adjustment Trajectories According to the General Characteristics.

Characteristics	Total (N = 245)	Early adjustment (n = 38)	Standard adjustment (n = 152)	Delayed adjustment (n = 55)	χ^2	p
Gender						
Men	19 (7.8)	6 (15.8)	12 (7.9)	1 (1.8)		.014 ^{a, *}
Women	226 (92.2)	32 (84.2)	140 (92.1)	54 (98.2)		
Religion					3.17	.205
Yes	76 (31.0)	15 (39.5)	41 (27.0)	20 (36.4)		
No	169 (69.0)	23 (60.5)	111 (73.0)	35 (63.6)		
Living with family					1.27	.531
Yes	63 (25.8)	12 (32.4)	36 (23.7)	15 (27.3)		
No	181 (74.2)	25 (67.6)	116 (76.3)	40 (72.7)		
Perceived Health						<.001 ^{a, **}
Yes	173 (70.9)	38 (100.0)	111 (73.0)	24 (44.4)		
No	71 (29.1)	0 (0.0)	41 (27.0)	30 (55.6)		
Desired department					8.56	.014*
Yes	176 (71.8)	30 (78.9)	115 (75.7)	31 (56.4)		
No	69 (28.2)	8 (21.1)	37 (24.3)	24 (43.6)		
Department					5.91	.052
General ward	97 (39.6)	16 (42.1)	52 (34.2)	29 (52.7)		
Others (ICU, OR, ER, etc.)	148 (60.4)	22 (57.9)	100 (65.8)	26 (47.3)		
Department satisfaction						<.001 ^{a, **}
Yes	217 (89.3)	38 (100.0)	142 (93.4)	37 (69.8)		
No	26 (10.7)	0 (0.0)	10 (6.6)	16 (30.2)		
Salary satisfaction						<.001 ^{a, **}
Yes	203 (82.9)	36 (94.7)	132 (86.8)	35 (63.6)		
No	42 (17.1)	2 (5.3)	20 (13.2)	20 (36.4)		
Perceived workload					6.13	.047*
Overload	162 (66.4)	19 (50.0)	103 (67.8)	14 (25.9)		
Manageable	82 (33.6)	19 (50.0)	49 (32.2)	40 (74.1)		

Note. ER = emergency room, ICU = intensive care unit, OR = operation room.

* $p < .05$.

^a Fisher's exact test.

participant showed a similar work adjustment pattern to their group trajectory.

Differences in work adjustment trajectory according to participants' general characteristics

Table 3 presents the differences in work adjustment trajectories according to the participants' general characteristics. There were significant differences in the work adjustment trajectory according to sex ($p = .014$), perceived health ($p < .001$), assignment to the desired unit ($\chi^2 = 8.56$, $p = .014$), satisfaction with the assigned unit ($p < .001$), satisfaction with wages ($p < .001$), and perceived workload ($\chi^2 = 6.13$, $p = .047$). Regarding perceived health, 38 (100%) in the early adjustment group, and 111 (73.0%) in the standard adjustment group perceived themselves as healthy, and 30 (55.6%) in the delayed adjustment group perceived themselves as unhealthy. Regarding assignment to the desired unit, 30 participants in the early adjustment group (71.8%), 113 (78.9%) in the standard adjustment group, and 31 (56.4%) in the delayed adjustment group stated that they had been assigned to their desired units. Regarding satisfaction with the assigned unit, 38 (100.0%) participants in the early adjustment group, 142 (93.4%) in the standard adjustment group, and 37 (69.8%) in the delayed adjustment group were satisfied with their assigned units. Regarding wages, 36 (94.7%) in the early adjustment group, 132 (86.6%) in the standard adjustment group, and 35 (36.4%) in the delayed adjustment group were satisfied with their wages. The perceived workload was overloaded by 19 (50.0%) participants in the early adjustment group and 103 (67.8%) in the standard adjustment

group, while the workload was perceived as manageable by 40 (74.1%) participants in the delayed adjustment group.

Predictors of work adjustment trajectory

Table 4 presents the results of the multinomial logistic regression analysis used to identify predictors of work adjustment trajectory. Multinomial logistic regression was performed using the general characteristics that differed significantly across the three groups, namely sex, assignment to the desired unit, satisfaction with wages, and perceived workload, as control parameters, and the major study variables, namely clinical competency, PysCap, role conflict, preceptor exchange, and social support, as covariates. Perceived health and department satisfaction were excluded from the analysis because none of the participants answered no in the early adjustment group.

Logistic regression analysis identified the hope and optimism domains of PsyCap, social support, and salary satisfaction as significant predictors. The Cox and Snell R² was 0.55 and the Nagelkerke R² was 0.65. The regression model showed a good fit ($\chi^2 = 192.12$, $p < .001$).

Compared to the delayed adjustment group, newly registered nurses in the early adjustment group had a higher hope domain for PsyCap and a higher emotional support domain for social support. Participants who expressed higher hope OR = 106.13, 95% CI = 4.95–2275.76] were more likely to have an early adjustment, similar to participants who experienced higher emotional support (OR = 78.04, 95% CIs = 2.48–2452.70). Compared to the delayed adjustment group, newly registered nurses in the standard

Table 4 Influencing Factors on Work Adjustment Trajectories: Multinomial Logistic Regression Analysis.

Factors	Early adjustment (ref. delayed)				Standard adjustment (ref. delayed)				Early adjustment (ref. standard)			
	β	<i>p</i>	OR	95% CI	β	<i>p</i>	OR	95% CI	β	<i>p</i>	OR	95% CI
Gender (ref. women)	-1.36	.452	0.26	0.01–8.88	-1.72	.249	0.18	0.01–3.34	0.36	.727	1.43	0.19–10.80
Desired dept. (ref. no)	-0.91	.270	0.40	0.08–2.03	-0.44	.352	0.65	0.26–1.62	-0.48	.493	0.62	0.16–2.42
Salary satisfaction (ref. no)	0.67	.182	5.31	0.46–61.51	0.90	.073	2.46	0.92–6.58	0.77	.510	2.16	0.22–21.25
Perceived workload (ref. overload)	-0.33	.68	0.72	0.15–3.42	-0.29	.747	0.75	0.26–2.11	-0.04	.946	0.96	0.29–3.15
Clinical competency	0.65	.475	1.91	0.33–11.22	0.67	.311	1.96	0.53–7.19	-0.03	.967	0.97	0.28–3.42
Psychological capital												
Self-efficacy	0.48	.675	1.62	0.17–15.43	1.01	.181	2.74	0.63–11.99	-0.53	.564	0.59	0.10–3.52
Hope	4.67	.003*	106.13	4.95–2275.76	0.50	.540	1.65	0.34–8.10	4.17	.002*	64.48	4.47–930.11
Optimism	1.85	.058	6.37	0.94–43.28	1.18	.040*	3.25	1.06–9.98	0.67	.416	1.96	0.39–9.95
Resiliency	1.51	.215	4.50	0.42–48.59	0.05	.945	1.05	0.25–4.55	1.45	.138	4.28	0.63–29.13
Preceptor exchange												
Affect	1.12	.297	3.06	0.37–25.15	0.54	.271	1.71	0.66–4.45	0.58	.549	1.79	0.27–12.00
Royalty	-0.14	.872	0.87	0.15–4.94	-0.35	.458	0.71	0.28–1.77	0.21	.789	1.23	0.28–5.49
Contribution	-0.24	.770	0.78	0.15–4.01	-0.47	.363	0.63	0.23–1.77	0.23	.736	1.25	0.34–4.63
Professional respect	-0.70	.643	0.50	0.03–9.45	0.02	.973	1.02	0.32–3.28	-0.72	.607	0.49	0.03–7.47
Social support												
Emotional support	4.36	.013*	78.04	2.48–2452.70	1.41	.127	4.08	0.67–24.94	2.95	.053	19.11	0.96–380.52
Informational support	-0.51	.683	0.60	0.05–6.95	0.54	.418	1.71	0.47–6.30	-1.05	.328	0.35	0.04–2.86
Tangible support	-0.82	.346	0.44	0.08–2.42	0.04	.932	1.04	0.39–2.83	-0.86	.236	0.42	0.10–1.76
Appraisal support	-0.76	.611	0.47	0.03–8.71	-0.85	.326	0.43	0.08–2.37	0.09	.945	1.09	0.09–12.73
Role conflict	-0.84	.296	0.43	0.09–2.08	-0.44	.343	0.64	0.26–1.61	-0.39	.554	0.68	0.18–2.48
Likelihood ratio test $\chi^2 = 192.12, p < .001, \text{Cox \& Snell } R^2 = 0.55, \text{Nagelkerke } R^2 = 0.65$												

Note. CI = confidence interval; OR = odds ratio; ref. = reference.

**p* < .05.

adjustment group had a higher PsyCap optimism domain. Participants who expressed higher optimism were more likely to have a standard adjustment than a delayed adjustment (OR = 3.25, 95% CIs = 1.06–9.98). Compared to the standard adjustment group, newly registered nurses in the early adjustment group had a higher hope domain for PsyCap. Participants who expressed higher hope were more likely to have an early adjustment (OR = 64.48, CIs = 4.47–930.11).

Discussion

This study used trajectory analysis to identify groups of newly registered nurses with work adjustment patterns. The results indicated that changes in overall work adjustment after employment could be classified into three groups: early adjustment, standard adjustment, and delayed adjustment. All groups maintained a similar level of adjustment at all time points. These results were consistent with the findings of Park and Lee [35], in which the degree of reality shock experienced by newly registered nurses remained unchanged throughout the registration period. Based on their results, the authors suggested that reducing reality shock in the early days of employment can effectively prevent the turnover of newly registered nurses. Since the early work adjustment level was maintained for 12 months, effective strategies must be implemented in the early stages to facilitate work adjustment.

The early-stage group had the lowest number of participants (16.1%). All the nurses in this group had good perceived health, were satisfied with their unit, and most were satisfied with their salaries. The predictors of the early adjustment trajectory were hope and emotional support compared to the delayed group, and hope compared to the standard group. Previous studies [36–38] found that higher hope levels of new nurses increased organizational commitment and socialization while reducing job stress, suggesting that hope is an essential predictor for this group. However, this group's work adjustment level declined over time. Ju et al. [39] reported that newly registered nurses were strongly motivated to work in the early months after employment; however, various factors that caused disappointment throughout their careers diminished their organizational commitment. Thus, it was

necessary to identify the disappointment factors and prevent their adjustment from being reduced.

The largest group was the standard group (60.6%), which scored the highest in the interpersonal domain of work adjustment. In other words, these nurses adjust to the workplace through interpersonal relationships, consistent with previous findings suggesting that the interpersonal competencies of newly registered nurses are significantly correlated with organizational socialization [31,40]. Therefore, to help them maintain a high level of adjustment, organizations need to recognize interpersonal relationships' vital role in their adjustment and implement measures to help newly registered nurses build relationships. Additionally, the predictor of this group was optimism compared to the delayed adjustment trajectory. This study's results were similar to previous findings suggesting that optimism significantly predicts field adjustment [41]. As the largest population, they were potential candidates for early and delayed adjustments, making it essential to foster an environment that assists newly registered nurses in maintaining their optimism and good relationships.

Additionally, the delayed group (23.3%) had the lowest level of work adjustment, and their improvement was significantly delayed, requiring more attention than the other groups. Notably, the 12-month job performance of this group showed remarkable growth, indicating that work adjustment improved with job performance. Regarding general characteristics, a substantial percentage of the nurses in this group perceived themselves as having poor health, were not assigned to their desired unit, and wished to transfer to a different department or leave their jobs. In addition, several nurses in this group were unsatisfied with their salary compared to other groups and stated that their workload was manageable. However, in the other groups, a significant number considered their workload to be excessive. These results indicated that nurses in this group tended to evaluate their work environments and themselves negatively. The predictors for this group were low levels of hope, optimism, and emotional support compared to the other groups. The negative disposition in delayed adjustment can be understood based on previous studies, which suggested that work engagement significantly predicted organizational commitment [42–46]. In other words, expecting new registered nurses with negative and unenthusiastic attitudes

toward their work from the beginning of their careers to adapt seamlessly to the organization and its environment may be unrealistic. Thus, means to enhance positivity and tailoring education must be employed to facilitate work adjustment in this group. For example, identifying the areas of practice in which these newly registered nurses show weaknesses before the end of their preceptorship or before their employment and providing education tailored to promptly improve such areas would assist in boosting their work adjustment. Evelyn et al. [47] suggested mastery learning and self-regulation as individualized strategies for enhancing clinical competence. Mastery learning is an individual educational method in which learners learn at their own pace and develop learning skills. Self-regulation is an educational strategy in which learners promote behaviors that include organizing information, receiving help from others, and practicing skills. An application of mastery learning and self-regulation for delayed groups and future studies on implementation and effectiveness are needed. Predictors of delayed adjustment include low levels of hope, optimism, and emotional support; this group is more likely to have poor job performance and negative attitudes. Consequently, interventions that foster hope and optimism within a supportive environment and focus on clinical competence are imperative for improving the work adjustment of individuals in this group. Yoo et al. [43] suggested that solely targeting newly registered nurses may be ineffective, as individual dispositions can easily permeate organizational culture [42]. Therefore, interventions involving a broad range of individuals such as preceptors, senior nurses, and managers may promote positivity among newly registered nurses. Simultaneously, departmental and organizational efforts emphasizing empathy, positive encouragement, and psychological support are crucial for creating a supportive work culture.

This study has some limitations. First, data collection was only conducted at one hospital. Second, clinical competency, preceptor exchange, and role conflict, which have been reported as influencing factors in previous studies, were not significant predictors in this study. This might be because the target hospital provides similar levels of training and preceptorship to all new nurses until two months of employment. In other words, the clinical competency and preceptor exchange of participants who received a similar quantity and quality of training and preceptorship at two months might not have had a significant effect on work adjustment changes in the following 12 months. Role conflicts among nurses are caused by the limitations of their roles and the complexity of clinical practice when performing tasks in hospitals [48]. Therefore, role conflict among new nurses with little work experience may not be significant. Based on these limitations, further studies in various medical institutions with large sample sizes and long-term follow-ups are required to generalize this study's results and derive additional trajectories for new nurses.

In summary, it is necessary to develop timely, effective, and intensive education programs and strategies that address the unique characteristics of each type of work adjustment trajectory to prevent delayed and ineffective adjustment in newly registered nurses. Customized education and training programs should be designed to screen for and address delayed adjustment, focusing on nurturing positive interpersonal relationships and considering individual capabilities. In addition, understanding the distinctive features of each work adjustment trajectory and implementing tailored interventions are important. Continued monitoring of levels of hope, optimism, and emotional support among nurses who exhibit early and standard adjustment is vital for preventing a decline in their adjustment levels. In contrast, nurses exhibiting delayed adjustment, who often display negative attitudes toward their work and environment, require interventions that foster empathy, positive encouragement, and psychological

support, such as peer support programs, at the departmental and organizational levels.

Conclusions

This study aimed to identify work adjustment trajectories among newly registered nurses, categorize them, and examine the predictors and characteristics of each trajectory. This study identified three work adjustment trajectory groups for newly registered nurses: early, standard, and delayed. Based on the analyses, the predictors of early adjustment compared to delayed adjustment were identified as hope and emotional support, whereas the standard adjustment predictor was identified as optimism. This study's results highlight the need to implement effective and intensive educational interventions to promote early work adjustment among newly registered nurses. Moreover, continuous monitoring of hope, optimism, and emotional support in nurses who make early and standard adjustments is essential. Nurses who display delayed adjustment and require the most attention should be supported by organizational measures that provide effective and substantial training, empathy, positive encouragement, and psychological support, such as tailored education and peer-support programs, to accelerate the improvement of nursing competencies.

Source

This manuscript was a revision of the first author's doctoral dissertation from Ajou University. Year of approval 2023.

Funding source

This study was financially supported by the global korea nursing foundation (GKNF) scholarship-2021 Sooji Kim Fellowship from the Global Korea Nursing Foundation, Republic of Korea.

Conflict of interest

None declared.

Acknowledgments

We thank the nurses who participated in this study and helped us collect the data for this study.

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