RESEARCH ARTICLE

Influencing factors and strategy to the career planning of operating room nurses

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Abstract

Aim: This study aims to investigate the status quo of self-career planning of nurses working in operating rooms (OR) and analyse the influencing factors.

Methods: A total of 1,418 nurses working in OR were selected and surveyed using a general data questionnaire, a nurse career planning questionnaire and an organizational career management questionnaire.

Results: Multiple linear regression analysis showed that organizational career management perception, hospital-grade and monthly income were the influencing factors of self-career planning score of nurses working in OR, which could explain the 56.6% variation of career organization management.

Conclusion: The status quo of self-career planning in OR nurse was at the middle level, and the scores of different dimensions were not balanced. Reasonable self-career planning helps the OR nurses improve their professional skills and increase their commitment to work and satisfaction.

KEYWORDS

Career planning, influencing factors, job satisfaction, nurse characteristics, nurse management, OR nurse, professional role, status quo

1 | INTRODUCTION

With the development of science and technology and the transformation of nursing models, the requirements for medical care services are increasing. As the majority of locations for applying advanced medical technologies, operating rooms (ORs) are high-risk zones in hospitals, which provide surgery for patients to alleviate even impede the progression of diseases (Lyons & Wing, 2015). During surgery, technical performance of OR staff, including anaesthetist, surgeon, and nurses, could directly affect the safety and health-related outcomes of patients (Fecso et al., 2017; Ugur et al., 2016). In particular, the responsibility of OR nurses for patient safety has been extended, which contains

the periods before and after surgery (Niu et al., 2017). Based on these, OR nursing has the characteristics of high load, high risk, heavy responsibility and high pressure. The OR nurses not only have to face intense and heavy work, but also face various occupational hazards, which can easily lead to physical and psychological fatigue (Fang et al., 2010). Increasing studies demonstrated that the OR nurses had more job-related stressors and higher depression and anxiety levels compared to the ward nurses (Cho et al., 2019). As a high-risk occupational group, under the existing conditions, nurses have low overall job satisfaction, strong sense of burnout, high psychological pressure and high turnover rate, which has become a worldwide problem (Carayon & Gurses, 2008; Hall et al., 2004).

2 | BACKGROUND

Career planning is a part of human resources, which intends to explore needs, aspirations, and opportunities for individuals' careers and the execution of planning and developing human resource programs to promote that career (Chowhan, 2016). Career planning can create a culture of career development at work that encourages employees to learn for life and enables staff to be brave enough to articulate their career aspirations, thereby contributing to the common development of staff and the company (Donner & Wheeler, 2005). Several studies reported that the lack of career development opportunities is one of the main factors determining the departure (Chen et al., 2018; Hafsteinsdóttir et al., 2017). The high turnover rate of nurses is generally considered as a negative phenomenon in the hospital that should be avoided from the human resource management perspective (Tomietto et al., 2015). Walsh and Weeks (1995) found a career development plan among nursing staff, which reduced the turnover rate of nursing staff in the past 10 years by 8%. Hall et al. (2004) found that career planning can help nurses understand the development trend of nursing career and establish a career plan that suits them, and can also improve the satisfaction of nurses in their profession.

Nursing work in OR is highly professional and has high requirements for nurses. The turnover of OR nurses may not only waste the educational resources of nursing, but also indirectly strengthen the workload, pressure and burnout of the remaining nurses, which provokes the turnover intention, conducting to a vicious circle (Yang et al., 2017). Scientific and rational self-career planning of nurses can improve the overall quality of OR nurses, promote work efficiency and job satisfaction, maximize their enthusiasm, and promote the long-term development of nursing, and as a result, contribute to reducing turnover and addressing the shortage of nurses effectively. Nevertheless, as far as we know, there is no study about the status quo and influence of self-career planning in only OR nurses. Given this situation, this study sought to understand the status quo of self-career planning in OR nurses and analyse the influence of this status on OR nurses, thereby providing scientific information for hospital administrators to develop effective measures in addressing nurse shortage.

3 | METHODS

3.1 | Study design

This is a cross-sectional survey conducted in February 2019, which included 1,418 OR nurses working at various hospitals within Shandong Province.

3.2 | Target population and sampling setting

A total of 1,418 OR nurses working at secondary and tertiary hospitals were recruited in this research, who were selected by a convenience sampling method. The inclusion criteria were as follows: (a) have a nurse practitioner certificate; (b) be engaged in OR for more than 1 year; (c) sign the informed consent form. Meanwhile, our research excluded nurses in line with the following criteria: unemployed workers including (a) those on refresher courses or in training; (b) those on maternity leave or sick leave.

3.3 | Data collection

Data collection was conducted between February and April 2019. The research team contacted each hospital to introduce them the purpose and content of this survey prior to data collection. The data collection tools in this survey comprised three questionnaires, which included a general information form, nurse career planning questionnaire and the organizational career management questionnaire.

The nurse career planning questionnaire and the organizational career management questionnaire were self-designed on the basis of Individual Career Management Questionnaire designed by Long and colleagues (Long, 2002), and determined the reliability using the test–retest approach. For the determination of questionnaire reliability, 20 nurses were randomly chosen to finish the questionnaires; afterwards, the same nurses were asked to complete the questionnaire again two weeks later.

Questionnaires were delivered to selected nurses by the research staff, and all participants finished questionnaires individually and anonymously in a week. A total of 1,430 questionnaires were retrieved, 12 of which were incomplete, and were excluded. Finally, 1,418 samples were included in this survey. All data from the collected questionnaires were recorded, coded and stored securely.

3.3.1 | The general information questionnaire for the OR nurses

The questionnaire was self-designed and included 10 items, such as hospital-grade, age, length of service, professional title, position, job duty, education level, employment way, marital status and monthly income.

3.3.2 | Nurse career planning questionnaire

This questionnaire evaluates the planning of nurses' career development from multiple perspectives. It consists of 5 dimensions for a total of 14 items, namely, establishing career goals and strategies (4 items), continuing learning (4 items), focusing on relationships (3 items), and self-presentation (3 items). The 4-level scoring method was adopted, with 1 point for "non-conformity", 2 points for "less match", 3 points for "comparable", and 4 points for "conformity". The total score ranges from 14 to 56, and the higher the score, the better the nurse's self-career planning. The questionnaire has a test–retest reliability of 0.90 and a total Cronbach's α coefficient of 0.91. Since

the total scores of each dimension are different, the average score rate was used as the evaluation criteria and the scores of each dimension were compared. Average score rate = mean/total score × 100%, >80% is excellent, 60%~80% is medium, <60% is poor.

3.3.3 | Organizational career management questionnaire

The questionnaire consists of four dimensions, namely, promotion fairness, training, providing career information, and focusing on career development, which was used to assess the organizational career management perception of nurse. There are 4 entries in each dimension, for a total of 16 entries. The 4-level scoring method was adopted, with 1 point for "non-conformity", 2 points for "less match", 3 points for "more conforms", and 4 points for "compliance", and the total score ranged from 16 to 64 points. The higher the score, the better the organizational career management perceived by the nurse. The questionnaire had a test-retest reliability of 0.88 and a total Cronbach's α coefficient of 0.92.

3.4 | Ethical considerations

Research Ethics Committee approval was granted by the Institutional Review Board of Qilu Hospital of Shandong University prior to the commencement of the research study. Informed consent was obtained from all participants who voluntarily agreed to participate in the study. Participants were also given the autonomy to withdraw from the study at any time. All personal identifiers remained strictly confidential, and pseudonyms were assigned to each participant to maintain anonymity.

3.5 | Statistical analysis

After eliminating the invalid questionnaire, the data conforming to the standard was uniformly coded and reviewed, and the data were independently entered by the two persons. Statistical analysis was performed using SPSS20.0. The number of cases was counted and the percentage was described. The measurement data were statistically described by mean ± standard deviation ($\chi \pm s$). The one-way

analysis of t test and variance were performed on the items of nurse general information in relation to career planning scores. Then, those statistically significant items and the nurse organization's career management score were selected as independent variables to carry out multiple linear regression analysis for the exploration of factors affecting self-career planning in OR nurse. $p < .05$ indicates that the difference is statistically significant.

4 | RESULTS

4.1 | The status of self-career planning scores in OR nurses

In this survey, the average self-career planning score of OR nurses was 43.33 ± 9.00. As shown in Table 1, among the four dimensions of self-career planning, "continue learning" has the highest rate of average score (81.25%), which was followed by "establish career goals and strategies" (76.81%) and "self-presentation" (76.58%); "focus on relationships" had the lowest average score rate (73.75%). The results suggested that OR nurses were more willing to devote themselves to "continue learning" during self-career planning. "Focus on relationships" is the most overlooked dimension of self-career planning in OR nurses.

4.2 | Univariate analysis of self-career planning scores of OR nurses with different characteristics

Univariate analysis was performed to investigate the distribution of self-career planning scores of OR nurses in each characteristic. The results are depicted in Table 2. As we can see, the OR nurses working at tertiary hospital (43.33 ± 8.85) had significantly higher self-career planning scores than those working at secondary hospitals (41.18 ± 9.35) ($p = .0039$). Besides, self-career planning scores of OR nurses with different ages were significantly and statistically different ($p < .001$). The OR nurses under 25 years old had the highest self-career planning scores (47.27 ± 8.24) compared with OR nurses of other ages. For the length of service, the OR nurses with work experience shorter than 5 years had the highest self-career planning scores (45.11 ± 8.58), and the self-career planning scores were obviously declined as the length of service increases ($p < .001$). For

TABLE 1 Status of self-career planning scores in operating room nurses

Subjects	Actual score ($\chi \pm s$)	Total score	Average score rate (%)	Descending sort
Continuing learning	13.00 ± 2.49	16	81.25%	1
Establish career goals and strategies	12.29 ± 2.99	16	76.81%	2
Self-presentation	9.19 ± 2.29	12	76.58%	3
Focus on the relationship	8.85 ± 2.20	12	73.75%	4
Total	43.33 ± 9.00	56	77.38%	—

TABLE 2 Univariate analysis of self-career planning scores of operating room nurses with different characteristics (n = 1,418)

Subjects	frequency	Percentage (%)	Career planning score	T or F value	P value
Hospital-grade					
Secondary hospitals	435	30.68	41.18 ± 9.35	2.764	0.0039
Tertiary hospital	983	69.32	43.33 ± 8.85		
Age (years)					
≤25	172	12.13	47.27 ± 8.24	11.701	<0.001
26 ~ 30	383	27.01	43.79 ± 9.56		
31 ~ 40	522	36.81	42.30 ± 9.40		
41 ~ 50	289	20.38	42.21 ± 7.49		
>50	52	3.67	43.63 ± 7.02		
Length of service(years)					
≤5	397	28.00	45.11 ± 8.58	7.832	<0.001
6 ~ 10	359	25.32	43.10 ± 9.99		
11 ~ 20	352	24.82	42.54 ± 9.41		
>20	310	21.86	42.22 ± 7.42		
Professional title					
Nurse	309	21.79	45.86 ± 9.11	10.985	<0.001
Primary Nurse	498	35.12	42.87 ± 9.46		
Nurse-in-charge	495	34.91	42.56 ± 8.68		
Co-chief superintendent nurse or above	116	8.18	41.90 ± 6.54		
Position					
Front-line nurse	1,129	79.62	43.10 ± 7.17	0.493	0.622
Managerial position	289	20.38	43.39 ± 9.42		
Job duty					
Scrub nurse	506	35.68	43.66 ± 9.38	1.553	0.184
Circulating nurse	483	34.06	43.09 ± 9.61		
Position management	269	18.97	43.19 ± 7.13		
Equipment, consumables and other auxiliary positions	76	5.36	41.59 ± 8.87		
Others	84	5.92	44.82 ± 8.51		
Education level					
Associate degree	245	17.28	46.27 ± 8.81	17.283	<0.001
Bachelor's degree	1,153	81.31	42.77 ± 8.95		
Master's degree	20	1.41	39.75 ± 7.17		
Employment way					
Contractual system	722	50.92	43.80 ± 9.56	5.965	0.003
Personnel agency system	179	12.62	44.49 ± 8.76		
Formal establishment	517	36.46	42.29 ± 8.15		
Marital status					
Unmarried	294	20.73	45.81 ± 8.75	14.291	0.003
Married (without kids)	113	7.97	42.61 ± 9.65		
Married (with kids)	1,011	71.30	42.69 ± 8.88		
Monthly income					
≤5,000	541	38.15	43.80 ± 9.57	4.777	0.009
5,001 ~ 10,000	804	56.70	43.29 ± 8.62		
>10,000	73	5.15	40.34 ± 8.33		

the professional title, the distribution of self-career planning scores of OR nurses was also significantly different ($p <.001$); the scores of level of professional title and career planning seemed to be negatively correlated. The OR nurses with the professional title of "nurse" had the highest self-career planning scores (45.86 ± 9.11) while those with the professional title of co-chief superintendent nurse or above had the lowest self-career planning scores (41.90 ± 6.54). The distribution of self-career planning scores of OR nurses in education level was similar to that in professional title, which showed that the OR nurses who received an associate degree (46.27 ± 8.81) had obviously higher self-career planning scores than those who received a bachelor's degree (42.77 ± 8.95) or master's degree (39.75 ± 7.17) ($p <.001$). The self-career planning scores of OR nurses with different employment ways were also significantly different ($p =.003$). The OR nurses employed by the personnel agency system (44.49 ± 8.76) had observably higher self-career planning scores than the others. Moreover, the distribution of self-career planning scores in marital status and monthly income were also statistically different ($p =.003$ and $p =.009$). Among the OR nurses (unmarried and married with/without kids), the unmarried OR nurses had the highest self-career planning scores (45.81 ± 8.75). For the monthly income, the OR nurses whose monthly income below 5,000 CNY (43.80 ± 9.57) had significantly higher self-career planning scores than other participants. The scores of other items (position and job duty) were not statistically different.

4.3 | Multiple linear regression analysis of factors affecting self-career planning in OR nurses

To explore factors affecting self-career planning in OR nurses, a multiple linear regression model of impact factors associated with self-career planning was constructed. Taking the self-career planning score as a dependent variable and the statistically significant variables in the univariate analysis and the organizational career management score as independent variables, multiple linear regression analysis was performed (Table 3). The results showed that organizational career management perception, hospital-grade and monthly income were the influencing factors of self-career planning scores in OR nurses, which could explain the 56.6% variation in self-career planning. We found that involvement in organizational career management perception and perception hospital-grade showed a positive correlation in the prediction of self-career

planning scores, indicating that OR nurses with higher organizational career management perception ($\beta = 0.753$, $p <.001$) and those working at tertiary hospitals ($\beta = 0.042$, $p =.022$) pay more attention to self-career planning. Monthly incomes ($\beta = -0.563$, $p =.045$) could negatively predict the intention of nurses to conduct a self-career planning.

5 | DISCUSSION

5.1 | Current status of self-career planning in OR nurses

In this study, the average score of self-career planning for the OR nurses was 43.33 ± 9.00, and the score rate was 77.38%. According to the score evaluation criteria, the self-career planning of the OR nurses in Shandong Province was at a medium level. Comparing the scores of each dimension, the score of "continuing learning" dimension was the highest. Studies have shown that continuing professional education is very important for nurses, and it can update the knowledge and skills of nurses to keep up with the pace of change (Drey et al., 2009; Garafalo, 2012; Levett-Jones, 2005). The OR nursing work is highly professional, and the OR nurses need to constantly update their knowledge to adapt to the rapid development of medical technology. Therefore, the demand for "continuing learning" in the OR nurses is high. In recent years, the education levels of nurses have been continuously improved; undergraduates are the overwhelming majority, and the number of graduate students is also on the rise (Buerhaus et al., 2016). The novice nurses with relatively higher education level have brought pressure to nurses with a certain number of working years and low education level. This may be the other reason why OR nurses were more focused on "continuing learning" during self-career planning. "Focus on the relationship" in the four dimensions had the lowest score rate of 73.75%, indicating that most nurses neglect to establish good interpersonal relationships in their career planning. Interpersonal relationships in an organization are relationships established in the organization with the goal of work interests, usually including subordinate relationships and peer relationships, which can promote career development by exchanging resources, and can also give emotional support (Sheikhi et al., 2016). Interpersonal interaction has a very important impact on career development (Bozionelos, 2003; Gong & Li, 2019; Yi & Tjosvold, 2010). Nurses should pay attention to the establishment

TABLE 3 Multiple linear regression analysis of factors affecting self-career planning in operating room nurses

Independent variable	B	SE	β	t	P
constant	13.809	1.071	—	12.898	<0.001
Organizing career management perception	0.609	0.014	0.753	42.830	<0.001
Hospital-grade	0.816	0.356	0.042	2.295	0.022
Monthly income	−0.563	0.287	−0.036	−1.960	0.045

Note: Remark: $F = 616.666$, $p <.001$, decisive factor $R^2 = 0.567$, adjusted $R^2 = 0.566$.

of interpersonal relationships in the organization and give a strong support system for their career development.

5.2 | Influencing factors of self-career planning in OR nurses

5.2.1 | Organizational career management perception

The results of multiple linear regression showed that organizational career management perception was one of the influencing factors of self-career planning. In order to improve professional ability of employees and talent reserve, the organization can adopt corresponding career management measures to encourage and develop employees (Weng et al., 2010). The implementation of organizational career management can guide employees to form a better self-career planning (Wesarat et al., 2014). Organization is the carrier of the existence and development of personal career, which can create an atmosphere, physical and psychological support for self-career planning of employees. To enhance the self-career planning of OR nurses, organization administrators should assist nurses to make career planning as early as possible to the greatest extent, and give nurses a career goal with a sense of accomplishment and a way to achieve them, thereby enhancing the adaptability of OR nurses to work pressure and reducing turnover rate.

5.2.2 | Impact of hospital-grade on self-career planning

Univariate analysis showed that the self-career planning scores of the OR nurses in tertiary hospitals were higher than those in the secondary hospitals. In addition, the results of multiple linear regression analysis showed that hospital-grade was the influencing factor of self-career planning. Compared with secondary hospitals, tertiary hospitals have better medical equipment and professional technicians, which can give a better platform for the career development of nurses (Wyllie et al., 2019). At the same time, nurses in tertiary hospitals have a higher chance of going out for further studies, which is conducive to broadening their horizons and forming a plan suitable for their career development. Therefore, secondary hospitals should strengthen the organization of career management under the existing conditions, give more learning opportunities for the OR nurses, and guide the nurses to form career planning that suits their own characteristics.

5.2.3 | The impact of income on self-career planning

This study found that income was negatively correlated with self-career planning scores, and nurses with incomes below 5,000 CNY had higher self-career planning scores. The main reason may be that

the OR nurses in this income group are generally in 2 years of working time and unmarried. They have high expectations for their own career development and strong ideas for career stability. These OR nurses strive to improve their abilities and academic qualifications, and actively demonstrate themselves to gain recognition from their superiors. The OR nurse in the group with a monthly income of more than 10,000 CNY is generally a senior nurse with a high working age and high professional title. This group of OR nurses have been able to stand on their own in daily work, and their professional titles and positions have reached a certain height. Based on these, the lack of motivation to learn new knowledge and their space for career advancement is limited, so their score of self-career planning is relatively low.

5.2.4 | Other influencing factors

Other factors that affect the self-career planning of OR nurses are age, length of service, professional title, education level, employment way and marital status. Younger OR nurses with shorter working experience have more expectations for their development in the nursing profession, so they are more focused on self-career planning, such as pursuing higher educational and professional skills, to achieve development goals (Pool et al., 2013). Nurses with higher professional titles generally have longer length of service and certain working ability (I. Pool et al., 2013); however, they encounter bottlenecks in the promotion of professional titles and positions, which let them easily give up, conducting to reasonable self-career planning for their career development. The contract nurses have a strong sense of professional crisis and expect to obtain a higher level of education and pay attention to the improvement of their professional ability, in order to obtain the same benefits, promotion opportunities and social security as the formal employed nurses (Yun et al., 2010). The influence of marital status on self-career planning mainly comes from the traditional gender role beliefs. Affected by traditional concepts, married nurses will focus on the family, thereby lacking reasonable planning in career development. Nursing managers should give career planning guidance according to the different characteristics of nurses at each stage, and assist them in formulating career planning suitable for their actual situation (Pool et al., 2015; Sheikhi et al., 2015).

Based on these findings, we suppose that nursing managers should establish a fair assessment promotion mechanism and give career planning guidance according to the characteristics of OR nurses.

6 | LIMITATIONS

It should be acknowledged that our study presents some limitations. As a cross-sectional survey, the current study only showed a time-point status, which could not determine causal relationship between the associations. Besides, our study excluded nurses who are on

refresher courses or in training, which might slightly bias our results. Since our study was merely carried out in Shandong province, caution should be paid about the generalizability of the study results. In future, further studies covering more OR nurses in different provinces are required to confirm the generalizability.

7 | CONCLUSIONS

Reasonable self-career planning helps the OR nurses improve their professional skills and increase their commitment to work and satisfaction. The OR nurses in different occupational stages have their own characteristics in self-career planning. Nursing managers should strengthen career planning management, conduct career planning training, establish a fair assessment promotion mechanism, give a diversified career development path, give career planning guidance according to the characteristics of the nurses, and assume the role of career planning leader.

ETHICS APPROVAL
Research Ethics Committee approval was granted from the Institutional Review Board of Qilu Hospital of Shandong University prior to the commencement of the research study. Verbal informed consents were obtained from all participates who voluntarily agreed to participate in the study. Participants were also given the autonomy to withdraw from the study at any time. All personal identifiers remained strictly confidential, and pseudonyms were assigned to each participant to maintain anonymity.

CONFLICT OF INTEREST
The authors have no conflicts of interest relevant to this article.

AUTHOR CONTRIBUTIONS
Study design: LL, YZ; Data collection: JT, TZ; Data analysis: JT, TZ; Study supervision: YZ; Manuscript writing: LL, YY; Critical revisions for important intellectual content: LL, YY, YZ.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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REFERENCES
Bozionelos, N. (2003). Intra-organizational network resources: Relation to career success and personality. _International Journal of Organizational Analysis_, 11(1), 41–66. https://doi.org/10.1108/eb028962
Buerhaus, P. I., Auerbach, D. I., & Staiger, D. O. (2016). Recent changes in the number of nurses graduating from undergraduate and graduate programs. _Nursing Economic$_, 34(1), 46–48.
Carayon, P., & Gurses, A. P. (2008). Nursing workload and patient safety—a human factors engineering perspective. In R. G. Hughes (Ed.),

Patient Safety and Quality: An Evidence-Based Handbook for Nurses. (203–216).Rockville (MD): Agency for Healthcare Research and Quality (US). Chapter 30. Advances in Patient Safety. https://www.ncbi.nlm.nih.gov/books/NBK2657/
Chen, H., Li, G., Li, M., Lyu, L., & Zhang, T. (2018). A cross-sectional study on nurse turnover intention and influencing factors in Jiangsu Province, China. _International Journal of Nursing Sciences_, 5(4), 396–402. https://doi.org/10.1016/j.ijnss.2018.09.012
Cho, S., Park, W. J., Kang, W., Lim, H. M., Ahn, J. S., Lim, D. Y., & Moon, J. D. (2019). The association between serum dehydroepiandrosterone sulfate (DHEAS) levels and job-related stress among female nurses. _Ann Occup Environ Med_, 31, e18. https://doi.org/10.35371/aoem.2019.31.e18
Chowhan, J. (2016). Unpacking the black box: Understanding the relationship between strategy, HRM practices, innovation and organizational performance. _Human Resource Management Journal_, 26(2), 112–133. https://doi.org/10.1111/1748-8583.12097
Donner, G. J., & Wheeler, M. M. (2005). Building and sustaining a career culture. _Can Nurse_, 101(8), 30–31.
Drey, N., Gould, D., & Allan, T. (2009). The relationship between continuing professional education and commitment to nursing. _Nurse Education Today_, 29(7), 740–745. https://doi.org/10.1016/j.nedt.2009.03.008
Fang, J., Kunaviktikul, W., Olson, K., Chontawan, R., & Kaewthummanukul, T. (2010). Factors influencing fatigue in Chinese nurses. _Nursing & Health Sciences_, 10(4), 291–299. https://doi.org/10.1111/j.1442-2018.2008.00407.x
Fecso, A. B., Szasz, P., Kerezov, G., & Grantcharov, T. P. (2017). The effect of technical performance on patient outcomes in surgery: A systematic review. _Annals of Surgery_, 265(3), 492–501. https://doi.org/10.1097/sla.0000000000001959
Garafalo, L. (2012). Continuing nursing education: A partnership between learner and teacher. _The Journal of Continuing Education in Nursing_, 43(1), 15–16. https://doi.org/10.3928/00220124-20111228-03
Gong, Z., & Li, T. (2019). Relationship between feedback environment established by mentor and nurses' career adaptability: A cross-sectional study. _Journal of Nursing Management_, 27(7), 1568–1575. https://doi.org/10.1111/jonm.12847
Hafsteinsdóttir, T. B., van der Zwaag, A. M., & Schuurmans, M. J. (2017). Leadership mentoring in nursing research, career development and scholarly productivity: A systematic review. _International Journal of Nursing Studies_, 75, 21–34. https://doi.org/10.1016/j.ijnurstu.2017.07.004
Hall, L. M., Waddell, J., Donner, G., & Wheeler, M. M. (2004). Outcomes of a career planning and development program for registered nurses. _Nursing Economics_, 22(5), 231–238, 227.
Levett-Jones, T. L. (2005). Continuing education for nurses: A necessity or a nicety? _Journal of Continuing Education in Nursing_, 36(5), 229–233. https://doi.org/10.3928/0022-0124-20050901-10
Long, L. R. (2002). _Research on the structure and relationship of career management_. Central China Normal University Press.
Lyons, V. E., & Wing, T. (2015). Getting ready for emerging perioperative technologies. _AORN Journal_, 102(6), 647–652. https://doi.org/10.1016/j.aorn.2015.09.007
Niu, L., Li, H. Y., Tang, W., Gong, S., & Zhang, L. J. (2017). Evolving safety practices in the setting of modern complex operating room: Role of nurses. _Journal of Biological Regulators and Homeostatic Agents_, 31(3), 659–665.
Pool, I. A., Poell, R. F., Berings, M. G., & ten Cate, O. (2015). Strategies for continuing professional development among younger, middle-aged, and older nurses: A biographical approach. _International Journal of Nursing Studies_, 52(5), 939–950. https://doi.org/10.1016/j.ijnurstu.2015.02.004
Pool, I., Poell, R., & ten Cate, O. (2013). Nurses' and managers' perceptions of continuing professional development for older and younger

nurses: A focus group study. *International Journal of Nursing Studies*, *50*(1), 34–43. https://doi.org/10.1016/j.ijnurstu.2012.08.009

Sheikhi, M. R., Fallahi Khoshknab, M., Mohammadi, F., & Oskouie, F. (2015). Nurse Leaders' experiences of implementing career advancement programs for nurses in Iran. *Global Journal of Health Science*, *7*(5), 73–79. https://doi.org/10.5539/gjhs.v7n5p73

Sheikhi, M. R., Fallahi-Khoshnab, M., Mohammadi, F., & Oskouie, F. (2016). Skills required for nursing career advancement: A qualitative study. *Nursing and Midwifery Studies*, *5*(2), e30777. https://doi.org/10.17795/nmsjournal30777

Tomietto, M., Rappagliosi, C. M., Sartori, R., & Battistelli, A. (2015). Newcomer nurses' organisational socialisation and turnover intention during the first 2 years of employment. *Journal of Nursing Management*, *23*(7), 851–858. https://doi.org/10.1111/jonm.12224

Ugur, E., Kara, S., Yildirim, S., & Akbal, E. (2016). Medical errors and patient safety in the operating room. *The Journal of the Pakistan Medical Association*, *66*(5), 593–597.

Walsh, K., & Weeks, L. C. (1995). PACE: A unique career development program. *Journal of Nursing Administration*, *25*(1), 10–11.

Weng, Q., Mcelroy, J. C., Morrow, P. C., & Liu, R. (2010). The relationship between career growth and organizational commitment. *Journal of Vocational Behavior*, *77*(3), 391–400. https://doi.org/10.1016/j.jvb.2010.05.003

Wesarat, P.-O., Sharif, M., & Majid, A. (2014). A review of organizational and individual career management: A dual perspective. *International Journal of Human Resource Studies*, *4*, 101. https://doi.org/10.5296/ijhrs.v4i1.5331

Wyllie, A., Levett-Jones, T., DiGiacomo, M., & Davidson, P. (2019). Exploring the experiences of early career academic nurses as they shape their career journey: A qualitative study. *Nurse Education Today*, *76*, 68–72. https://doi.org/10.1016/j.nedt.2019.01.021

Yang, H., Lv, J., Zhou, X., Liu, H., & Mi, B. (2017). Validation of work pressure and associated factors influencing hospital nurse turnover: A cross-sectional investigation in Shaanxi Province, China. *BMC Health Services Research*, *17*(1), 112. https://doi.org/10.1186/s12913-017-2056-z

Yi, F. C., & Tjosvold, D. (2010). Participative leadership by American and Chinese Managers in China: The role of relationships. *Journal of Management Studies*, *43*(8), 1727–1752.

Yun, H., Jie, S., & Anli, J. (2010). Nursing shortage in China: State, causes, and strategy. *Nursing Outlook*, *58*(3), 122–128. https://doi.org/10.1016/j.outlook.2009.12.002