The Effect of Nurses’ Characteristics and Motivation on the Development of Their Career Intentions

Genta Sunagawa¹, Hironori Yada²*, Ryo Odachi³ and Keiichiro Adachi⁴

¹ Department of Nursing, Yamaguchi University Hospital. Minami-Kogushi, Ube 755-8505, Japan
² Department of Nursing, Faculty of Fukuoka Medical Technology. Teikyo University, Misakimachi, Omuta 836-8505, Japan
³ Division of Health Sciences, Graduate School of Medicine, Osaka University. Yamadaoka, Suita 565-0871, Japan
⁴ Department of Fundamental Nursing, Yamaguchi University Graduate School of Medicine. Minami-Kogushi, Ube 755-8505, Japan

Abstract: The aim of this study is to enrich nursing education by clarifying the relationship between personality traits, motivation, and career paths in professional nursing. This cross-sectional study surveyed 150 nurses from a polyclinic in Japan that performs internal medicine and surgery. The survey covered several aspects of personality, work motivation, and career development using the Ten-Item Personality Inventory, Work Motivation Scale, and Nurses’ Job Career Scale. The demographics of the participants were also recorded. Multiple regression analysis revealed that the personality traits extraversion and agreeableness had a direct and positive impact on nurses’ interest in team collaboration, but not on career development. Interest in career improvement was related to conscientiousness as a power toward purpose and openness as an aspect of curiosity. Conscientiousness and openness were indirectly related to the development and adjustment of interpersonal relationships and self-capability development through interest in career improvement. Interest in patient support positively impacted the implementation and pursuit of quality nursing. The findings highlight the need to account for individual differences in personality and motivation to support nurses’ success during their nursing education and in the workplace.

Keywords: career development, nursing education, work motivation, personality.

(Received May 19, 2021, accepted September 6, 2021)

Introduction

Nurses are required to have extensive education before beginning to work and to continue their education throughout their career. Nurses work in many different healthcare environments, such as emergency departments, surgery, internal, chronic, psychiatric, and pediatric departments, hospital wards, and more. They need to realize their strengths and interests to develop an appropriate career. Several factors, including individual personalities and abilities, play a role in the development of a nurse’s career.

Recent studies have examined career development in professional nursing [1, 2]. Research has shown that a nurse’s career development is influenced by their individual motivation, which is influenced by their personality [3], and that their career development is also directly related to their personality [4]. A "career"
is defined as “the individually perceived sequence of attitudes and behaviors associated with work-related experiences and activities over the span of the person’s life” [5].

Motivation is classified into intrinsic and extrinsic motivation [6]. Intrinsic motivation targets internal rewards, such as doing an activity for its inherent satisfaction, while extrinsic motivation is related to its instrumental value [7]. Intrinsic motivation is a very important factor that leads to high-quality learning and creativity [7]. Personality consists of the innate temperament and the acquired characteristics that mature under the influence of the environment [8]. Personality is known for predicting various subsequent behaviors [9]. If a relationship exists between career development, personality, and motivation, as mentioned above, it may be possible to provide nursing education that takes these relationships into account, but studies on the relationship between personality, work motivation, and career development are limited. We therefore aimed to clarify the relationships between a person’s personality traits, their motivation, and their development as related to the field of professional nursing.

Materials and Methods

Sample and Procedure
A total of 150 Japanese nurses from a polyclinic that performs internal medicine and surgery in a certain city participated in this study. We chose polyclinic nurses to ensure homogeneity of the data due to the wide range of clinical departments. The researchers requested the cooperation of the nursing directors at this hospital, both in writing and verbally, and anonymous self-report questionnaires were distributed and recovered by nursing managers in September, 2018. Eligible participants were determined on September 5, 2018, and the survey was conducted over two weeks, from September 5–19. The participants were informed of the purpose of the study in writing, assured that their privacy would be protected, and told that their participation would not result in unfair treatment. Their written consent was obtained. Each participant was provided an envelope with sealed questionnaires to protect their privacy. The study was approved by the Ethics Review Board at Yamaguchi University Graduate School of Medicine, School of Health Sciences (Approval number: 540).

Inclusion and Exclusion Criteria
Japanese registered nurses and assistant nurses were initially eligible for this study. Those who could not understand Japanese language were excluded from the study.

Design
A cross-sectional study using a questionnaire was performed to obtain data from the participants.

Measures
The survey used in this study recorded basic attributes of the participants, such as age, sex, educational background, and years of experience as a nurse. It also included the Japanese version of the Ten-Item Personality Inventory (TIPI-J)[10], the Work Motivation Scale (WMS)[11], and the Nurses’ Job Career Scale (NJCS) [12].

The TIPI-J is the Japanese version of Gosling et al’s inventory [13], measuring the Big Five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness. Extraversion refers to a person’s positivity, sociability, and activity; agreeableness relates to whether a person is caring, kind, and dedicated; conscientiousness means that an individual exhibits self-discipline, care, and caution; neuroticism means that a person experiences stress, anxiety, and impulsivity; and openness refers to a person’s curiosity and preference for ideas. The TIPI-J has sufficient test-retest reliability, concurrent validity, and discriminant validity [10]. Each item was answered using a 7-point Likert scale, with higher scores reflecting a greater level of each personality trait.

This study also used a scale that focuses on intrinsic motivation. The WMS consists of four subscales on the interest in team collaboration, patient support, career improvement, and risk avoidance. The scale’s convergent validity, model suitability, and ω reliability are good [11]. Each item was answered using a 4-point Likert scale, with higher scores indicating higher work motivation.

The NJCS consists of the four subscales of the implementation and pursuit of quality nursing, develop-
ment and adjustment of interpersonal relationships, self-capability development, and accumulation of diverse experiences. The Cronbach’s alpha value and a thorough cross-validation of the NJCS have indicated its high reliability [12]. Each item was answered using a 5-point Likert scale, with lower scores reflecting the recognition of the importance of one’s career.

Statistical Analysis
The mean, standard deviation (SD), and number (N) were calculated for the participants’ demographic characteristics. The ceiling and floor effects (using the mean ± 1 SD), skewness, and kurtosis were examined for the items of each scale. Multiple regression analysis was used to confirm the relationships between each variable. In particular, the influence of the TIPI-J and the WMS on the NJCS, as well as the influence of the TIPI-J on the NJCS were confirmed. SPSS 24.0 for Windows (IBM Corp., Armonk, New York, USA) was used for all statistical analyses. The significance level was set at \( P < .05 \) for all analyses.

Results

Characteristics of the Participants’
In total, 149 nurses participated in this study (response rate: 99.3%), out of which 145 nurses who provided informed consent for the investigation were accepted as participants for the analysis (effective response rate: 97.3%). The participants’ mean age ± SD was 39.2 ± 10.6 years. There were 4 males (2.8%) and 141 females (97.2%). Regarding their educational levels, 9 were university graduates (6.2%), 9 were nursing junior college graduates (6.2%), 126 were nursing school graduates (86.9%), and 1 fell into the “other” category (0.7%). Their mean years of experience as a nurse ± SD was 15.3 ± 10.2 years (two were unknown). Regarding affiliations, 36 nurses worked in outpatient clinics (24.8%), 96 worked in wards (66.2%), and 13 were unknown (9.0%). Job positions included managers (18 participants, 12.4%), non-managers (125 participants, 86.2%), and “unknown” (two participants, 1.3%). The demographics of the participants are shown in Table 1.

| Table 1. Participants’ demographic characteristics (N = 145) |
|------------------------------------------------------------|
| Mean ± SD | N (%) |
|---|---|
| Age | 39.2 ± 10.6 | – |
| Sex | – | – |
| Male | – | 4 (2.8%) |
| Female | – | 141 (97.2%) |
| Education level | – | – |
| Bachelor | – | 9 (6.2%) |
| Junior college graduate | – | 9 (6.2%) |
| Nursing school | – | 126 (86.9%) |
| Other | – | 1 (0.7%) |
| Mean years of experience (Missing data n = 2) | 15.3 ± 10.2 |
| Affiliation | – | – |
| Outpatient Clinics | – | 36 (24.8%) |
| Ward | – | 96 (66.2%) |
| Missing value | – | 13 (9.0%) |
| Job Position | – | – |
| Manager | 18 (12.4%) |
| Non-Manager | 125 (86.2%) |
| Missing value | 2 (1.3%) |

SD: standard deviation. Manager was Director of Nursing, head nurse, or chief nurse.

Item Characteristics
There were no ceiling or floor effects in any of the items of the scales. Normal distribution was assumed because the skewness and kurtosis values did not exceed ±2 [14], and no item had a skewness exceeding ±2. All of the items were therefore used in the subsequent analysis. The distribution of scores on each scale is shown in Figure 1.

The Effect of Personality and Work Motivation on Career Development
Table 2 illustrates the relationships that personality and motivation have with career development. One notable result was that positive implementation and pursuit of quality nursing was significantly affected by positive interest in patient support (\( \beta = -.276, P = .010 \)). Positive development and adjustment of interpersonal relationships and self-capability development were significantly affected by the positive interest in career improvement (\( \beta = -.239, P = .022; \beta = -.306, P = .005 \)). The adjusted \( R^2 \) were from .030 to .152 (Table 2).
Table 3 demonstrates the relationship between personality traits and nurses’ motivation toward work. Extraversion and agreeableness had a significant positive impact on interest in team collaboration ($\beta = .310$, $P = .001$; $\beta = .188$, $P = .018$). Conscientiousness and openness had a significant positive impact on interest in career improvement ($\beta = .190$, $P = .033$; $\beta = .209$, $P = .013$). Conscientiousness and openness had indirect positive impacts on development and adjustment of interpersonal relationships and self-capability development, via interest in career improvement. The adjusted $R^2$ were from .041 to .199 (Table 3).

Discussion

Similar to previous studies [3,4], our findings demonstrate that there are clear relationships between nurses’ personalities, their work motivation, and their career development. Nonetheless, we also found that career development can be affected by specific types of motivation and personality traits.

Extraversion and agreeableness had a direct positive impact on interest in team collaboration, but they did not have direct impacts on career development. In other words, it can be understood that extraversion and agreeableness were not related to career development.

The interest in career improvement is related to an aspect of conscientiousness as a power toward purpose.
### Table 2. Effects of Personality Traits on the Work Motivation on Career of the Nurses

| Objective variable: Career development | Implementation and pursuit of quality nursing | Development and adjustment of interpersonal relationships | Self-capability development | Accumulation of diverse experiences |
|---------------------------------------|---------------------------------------------|-----------------------------------------------------|-----------------------------|----------------------------------|
| Selected explanatory variable         | \(\beta\) | \(t\) value | \(P\) value | \(\beta\) | \(t\) value | \(P\) value | \(\beta\) | \(t\) value | \(P\) value | \(\beta\) | \(t\) value | \(P\) value |
| Personality Traits                    |                                |                                |                             |                                |                                |
| Extraversion                          | .086                          | 0.870                          | .386                        | -.073                        | -.730                    | .467                        | -.064                        | -.629                    | .530                        | -.049                        | -.464                    | .644 |
| Agreeableness                         | -.058                        | -.693                          | -.490                      | -.088                        | -1.053                    | .294                        | .097                        | 1.118                    | .265                        | .056                        | .634                    | .527 |
| Conscientiousness                     | .155                          | 1.727                          | .086                        | .053                        | 0.578                    | .564                        | .053                        | 0.569                    | .571                        | .013                        | .137                    | .891 |
| Neuroticism                           | .035                          | 0.353                          | .725                        | -.023                        | -.236                    | .814                        | .027                        | 0.266                    | .791                        | .017                        | .164                    | .870 |
| Openness                              | -.127                        | -1.472                          | .143                        | -.078                        | -.890                    | .375                        | .004                        | 0.049                    | .961                        | -.011                        | -.121                    | .904 |
| Work Motivation                       |                                |                                |                             |                                |                                |
| Interest in team collaboration        | -.053                        | -.447                          | .655                        | -.030                        | -.249                    | .804                        | -.005                        | -.041                    | .968                        | -.034                        | -.267                    | .790 |
| Interest in patient support           | -.276                        | -2.603                          | .010                        | -.183                        | -1.715                    | .089                        | -.123                        | -1.116                    | .266                        | -.113                        | -.995                    | .321 |
| Interest in career improvement        | -.118                        | -1.158                          | .249                        | -.239                        | -2.320                    | .022                        | -.306                        | -2.889                    | .005                        | -.203                        | -1.862                    | .065 |
| Interest in risk avoidance            | -.096                        | -1.010                          | .314                        | -.013                        | -.138                    | .891                        | .194                        | 1.963                    | .052                        | .037                        | .369                    | .713 |

\(\beta\) is standardized coefficient. Multiple regression analysis is adjusted for age. Bold is significant (\(P < 0.05\)).

### Table 3. Effects of Personality Traits on the Work Motivation of the Nurses

| Objective variable: Work Motivation | Interest in team collaboration | Interest in patient support | Interest in career improvement | Interest in risk avoidance |
|-------------------------------------|-------------------------------|-----------------------------|--------------------------------|---------------------------|
| Selected explanatory variable       | \(\beta\) | \(t\) value | \(P\) value | \(\beta\) | \(t\) value | \(P\) value | \(\beta\) | \(t\) value | \(P\) value | \(\beta\) | \(t\) value | \(P\) value |
| Personality Traits                  |                                |                                |                             |                                |                                |
| Extraversion                        | .310                          | 3.430                          | .001                        | .142                        | 1.446                    | 0.151                        | .078                        | 0.836                    | .404                        | -.020                        | -.206                    | .837 |
| Agreeableness                       | .188                          | 2.397                          | .018                        | .019                        | 0.221                    | .825                        | .090                        | 1.110                    | .269                        | .057                        | 0.658                    | .511 |
| Conscientiousness                   | .070                          | 0.819                          | .414                        | .126                        | 1.361                    | 0.176                        | .190                        | 2.159                    | .033                        | .141                        | 1.511                    | .133 |
| Neuroticism                         | -.043                        | -.456                          | .649                        | -.161                        | -1.585                    | .115                        | -.075                        | -.773                    | .441                        | -.189                        | -.183                    | .068 |
| Openness                            | .041                          | 0.502                          | .616                        | -.075                        | -.859                    | .392                        | .209                        | 2.509                    | .013                        | -.063                        | -.711                    | .478 |

\(\beta\) is standardized coefficient. Multiple regression analysis is adjusted for age.
and one aspect of curiosity, openness. Conscientiousness and openness are also indirectly related to the development and adjustment of interpersonal relationships and self-capability development through an interest in career improvement. In other words, it can be understood that the development of conscientiousness and openness promotes career development as related to the development and adjustment of interpersonal relationships and self-capability development through an interest in career improvement.

As previously mentioned, conscientiousness is a concept that leads to achievement toward purpose, and motivation may decline due to the loss of the purpose of nursing. There is concern that motivation may decline due to the ambiguity of the role of a nurse [15]. In other words, motivation may decline due to the loss of the original purpose of nursing. This loss of motivation also leads to nurse burnout and higher turnover rates [16]. We therefore believe that education that enables awareness of the purpose of nursing is necessary.

A higher level of openness promotes intrinsic motivation and is associated with greater continuous learning efforts throughout a person’s life [17]. Openness can be understood to be closely related to career development. To foster openness, it is necessary to increase opportunities for education, such as active learning, that draw out the independence and free thinking of nurses.

Interest in patient support had a positive impact on implementation and pursuit of quality nursing. Implementation and pursuit of quality nursing leads to eliciting patient resilience [18], so it is important to improve interest in patients. Pseudo-experiential learning provides an opportunity to gain interest in patients [19], and simulated experiential learning may be effective for education that raises interest in patients.

For individual nurses, it may be necessary to measure their personality traits during employment and monitor their scores on a regular basis. Nurses will be aware of the education they should receive.

All 145 participants were nurses from a hospital in a certain city; therefore, the possibility of selection and sampling bias cannot be excluded. Follow-up studies are required to examine multiple regions. Furthermore, attitudes toward career development may differ between full-time or part-time employees. It is necessary to collect such information in future studies. As a result of multiple regression analysis, all of the adjusted $R^2$ were not high, suggesting that other factors may be associated with each outcome.

**Conclusion**

Extraversion and agreeableness had a direct positive impact on interest in team collaboration, but they did not have indirect impacts on career development. The interest in career improvement was related to conscientiousness as a power toward purpose and curiosity, also called openness, and conscientiousness and openness were indirectly related to the development and adjustment of interpersonal relationships and self-capability development through interest in career improvement. Interest in patient support had a positive impact on the implementation and pursuit of quality nursing.

The findings of this study highlight the need to account for individual differences in personality and motivation to support nurses’ success in their education and in the workplace. Future efforts in nursing education may require reconfirmation of the purpose of nursing, active learning, and simulated experiential education, with a focus on interest in patients. It may also be necessary to measure the personality traits of nurses during employment and to monitor their scores on a regular basis. Nurses will be aware of the education they should receive.

**Acknowledgments**

We are deeply grateful to the nurses who completed the survey in this research. We would also like to thank Editage (www.editage.com) for the manuscript’s English language editing. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

**Conflicts of Interest**

The authors declare that they have no conflict of interest.
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