Research Article

THE NURSE PERSONA: A 16PF PROFILING APPROACH FOR MENTAL HEALTH PROGRAM DEVELOPMENT

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Abstract

Nursing is a challenging and pivotal profession in healthcare. As a result, nurses' mental health is essential not only for their welfare but also for the quality of care they provide and the overall efficiency of the healthcare system. To address this issue, a personality profiling of employed nurses was conducted using the 16-personality factor questionnaire. The respondents were 32% male and 65% female nurses in a public hospital, selected through a structured random sampling technique. The statistical tools employed for analysis are percentage computation, mean distribution, Pearson correlation coefficient, and T-test. The dominant primary personality traits of the respondents were rule consciousness, emotional stability, perfectionism, privateness, vigilance, and warmth. On the other hand, they scored a low average for tension and average but not dominant personalities for liveliness, self-reliance, dominance, sensitivity, abstractedness, and social boldness. These dominant personality factors reflect the positive personality of the nurses; however, some factors like vigilance and privateness contribute to burnout, stress, and anxiety, along with other work-related factors. At the same time, there is a need to improve on other non-dominant personalities. Moreover, there was a significant relationship between personality and gender, indicating a strong to near-perfect correlation. However, there was no significant difference between the genders of male and female nurses and their personality profiles. Hence, nurses' personality profiles are remarkably similar, irrespective of their gender. Therefore, the well-being and mental health programs employed to nurses and other health practitioners may be similar, irrespective of gender. At the same time, personality profiling using the 16PF may serve as a valuable tool for profiling employed nurses and maximizing their contribution to the well-being and mental health of professionals, ultimately contributing to the delivery of quality patient services.

Keywords: Personality, Mental health, Program development, Personality inventory, Anxiety, Burnout, Psychological, 16PF, Nursing, Hospitals

Introduction

Nursing is a demanding and pivotal profession in healthcare [1]. This makes the nursing profession a sought-after job not only in the national setting but also in the global arena, resulting in a shortage of nurses in the country [2]. Hence, nurses' mental health and well-being are integral not only for their own welfare but also for the quality of patient care and the overall efficiency of the healthcare system [3].

One promising avenue for exploring the nurses' mental health is by delving into their personality dimensions [4]. As hypothesized, personality traits serve as a valuable foundation for program development planning [5]. The 16 personality factor questionnaire developed by Dr. Raymond B. Cattell stands out as a well-established and widely used assessment tool offering a nuanced

understanding of an individual's personality across multiple dimensions [6]. The sixteen personality factor model is built upon the five factor model and provides a more intricate and nuanced perspective on personality traits [7]. It explores 16 primary factors and five global factors that offer a richer understanding of individual differences, making it a valuable tool for profiling employed nurses [8]. The specific factors are warmth, emotional stability, dominance, and liveliness to uncover patterns that may influence mental health outcomes [9].

Moreover, previous research in diverse fields has showcased the utility of the 16PF in capturing the intricacies of human personality, such as in predicting the Scale of Accurate Personality Predictions (SAPP) by Di Lullo, distinctive 16PF personality traits of librarians by Williamson and Lounsbury, and employing a cross-sectional study using 16PF in identifying the personalities of excellent nurses by comparing characteristics between excellent and average nurses by Zang, et al. This establishes the 16PF as an ideal instrument for exploring the unique personality profiles of employed nurses [10].

Aims and Objectives

The current study endeavors to leverage the 16 PF to comprehensively profile employed nurses, with the goal of uncovering distinctive personality traits that may influence their well-being and mental health [11]. By examining the correlation between personality dimensions and aspects of mental well-being, this research aims to establish a foundation for developing targeted mental health programs [12]. The significance of this study lies in its potential to inform evidence-based interventions tailored to the specific needs of nurses based on their personality profiles [13]. Recognizing the limitations of a one size fits all approach to mental health programs, this study contributes to the ongoing discussion on personalized healthcare interventions designed to align with the unique personality traits of the employed nurses [14].

Materials and Methods

Methods

There respondents of this study were the new regular nurses who were employed in a public hospital and signed the informed consent to utilize their personality tests stored in the psychological services department [15]. The names of nurses were alphabetically arranged and chosen through systematic random sampling using a fixed interval.

The 16PF assessment tool contains 185 item statements comprising the 16 primary personality factor scales developed by Dr. Raymond B. Cattell. This instrument is widely used for counseling, selection, diagnosis, and planning. In line with this research, the instrument is used for development planning purposes or for creating a mental health program. The 16PF can be administered to individuals aged 16 and older through 82 years old. The test was administered using paper and pencil, but computer scored using software given by the publisher. The instrument being standardized has passed through psychometric properties with an internal consistency reliabilities average of .76, ranging from .68 to .87. The test-retest reliability average is about .80 for two-week intervals and .70 for two-month intervals. Construct validity was also established using the factor-analytic method, which demonstrates that the test measures 16 distinct personality traits. The criterion validity of the 16PF also demonstrated its ability to predict various criterion scores, such as self-esteem and creative potential. Additionally, to demonstrate that the 16PF assesses personality traits, the primary factors are correlated with similar personality constructs measured via other instruments.

After generating the reports, they went through analysis using percentage computation, mean computation, and ranking computation to reveal the dominant personality traits. T-test to analyze the hypothesis asserting no significant difference between the personality profiles of the new nurses when grouped according to their gender. Pearson correlation coefficient to test the hypothesis suggesting no significant relationship between gender and their profile.

Ethical consideration

To uphold ethical considerations in this study, informed consent was sought before accessing the results of their personality tests. Their participation was voluntary, and the highest level of confidentiality was maintained. The institutional ethics committee provided the ethical clearance under REC Code: 2023-04.

Results

Descriptive statistics were employed in this research. The gender distribution of the overall respondents is shown in Table 1. It can be seen from the table that most of the respondents were female (68%), while there were 32% males. This means that the nursing profession is dominated by females. The observed gender gap may stem from the mindset of nursing as a feminine role associated with qualities such as being caring, compassionate, patient, and warm, among others. In a longitudinal study by McLaughlin, et al., the nursing profession was female-dominated due to the nature of nursing and gender biases inherent in nursing education, leading to a higher dropout rate among male nursing students. Similarly, Powers, et al., found that gender bias exists in nursing, questioning the motives and masculinity of male nursing students pursuing the nursing profession. Both studies advocate for promoting gender diversity among professional nursing stakeholders, both nationally and internationally.

Table 1. Gender of the employed nurses.

	Percentage
Male	32
Female	68
Total	100

Personality profiles

The primary and global personality profiles of the nurses were determined through mean and rank computations in Table 2. A gender-neutral analysis of participants was conducted, wherein the mean of the sten score (standard to 10) of the 16PF was obtained, ranked, and interpreted based on the 16PF manual. The standard deviation shows that the scores are narrowly clustered around the mean, indicating a more reliable value. The results show that new nurses' primary profiles were characterized as rule consciousness, emotional stability, and perfectionism. This implies a tendency towards being conforming, conscientious, and dutiful to their work. They have an extent of following moral ideals in the standards of their profession. They also tend to be emotionally balanced, calm, and adaptive. At the same time, they are detail-oriented and have high standards for work or doing things right. Additionally, they also value privateness, or they have the tendency to withhold revealing information or a non-disclosing personality. Another dominant personality trait of the nurses that emerged in the 16PF was vigilance and warmth. Being vigilant suggests that they have the tendency to be cautious and skeptical of others, making them passively aggressive. This indirect aggressive behavior, though they uphold a high standard in their work, may affect their treatment of others and their patients. Positively, they also have the personality of being warm, the tendency to have more interest in people, or the tendency to be caring towards others. All these dominant traits are both positive and negative for them since the nursing profession demands high standards, conscientiousness, and a caring personality; however, the pressure of attaining perfectionism and the personality of vigilance might lead them to stress, anxiety, and burnout, not to mention that the ratio of nurses to patients in the country, especially in a public hospital, is high. Cañadas, et al., posit that personality traits of neuroticism, agreeableness, extraversion, and conscientiousness predict at least two dimensions of burnout syndrome. According to the 16PF manual, the factors of vigilance and privateness being their dominant personality traits suggest a correlation with the NEO personality inventory of neuroticism, which are measures of anxiousness.

Further, van Bogaert, et al., contended that it is prevalent in nursing professions to have high levels of work-related stress, burnout, job dissatisfaction, and poor health. A more in-depth analysis revealed that nurses confronted with substantial workloads in their careers were not only overburdened but were also prone to heightened stress. These demanding workloads expose them to a greater risk of developing adverse mental states like depression, anxiety, and stress, which can have detrimental effects on their professional performance and the quality of patient care. The findings from previous studies and the current study indicate that nurses are predisposed to stress, anxiety, and burnout as influenced by personality traits and the nature of their work environment.

The global factors of personality in the 16PF were also shown in Table 2. These personality factors were the combined primary factors, offering a straightforward report on how they scored in the important personality dimensions. It is revealed that the nurses exhibit high average self-control, average tough-mindedness, average

independence, and average extraversion with low average anxiety. This implies that the nurses can inhibit their impulses, are dutiful, and are conscientious as influenced by their primary factors of being rule-conscious, perfectionists, and emotional stability. They are also tough-minded, which suggests a reserved nature, have difficulty accepting new viewpoints, including emotions, and live on a cognitively structured level. Their low average anxiety is noteworthy since this personality is linked to stress and burnout. As claimed in a systematic review of quantitative studies about nurses, burnout rates are high in nursing professions. The demands expected from them on their job, job control, social support, and exposure to traumatic events are contributors to their burnout, along with several other organizational variables. The findings also corroborate the study by Dall'Ora, et al., which claims that burnout in nursing is influenced by inadequate nursing staffing, a more than 12-hour work shift, low schedule flexibility, time pressure, high job and psychological demands, low task variety, role conflict, low autonomy, poor leadership, a negative team relationship, and job insecurity.

Table 2. Primary personality profiles of the employed nurses.

Personality profiles	Mean	SD	Min	Max	Rank	Interpretation
Primary factors						
Warmth	5.64	2.07	2	10	6	Average
Reasoning	5.38	1.28	2	9	8	Average
Emotional stability	6.62	1.52	4	9	2	High average
Dominance	5.02	1.6	1	8	13	Average
Liveliness	4.74	1.34	1	7	15	Average
Rule–consciousness	6.68	1.13	4	9	1	High average
Social boldness	5.14	1.67	2	9	10	Average
Sensitivity	5.06	1.98	1	10	12	Average
Vigilance	5.9	1.56	3	10	5	Average
Abstractedness	5.08	1.41	3	8	11	Average
Privateness	6.16	1.56	3	9	4	Average
Apprehension	5.46	1.57	3	9	7	Average
Openness to change	5.38	1.31	3	7	8	Average
Self-reliance	4.82	1.66	2	8	14	Average
Perfectionism	6.44	1.25	4	9	3	Average
Tension	3.66	1.67	1	8	16	Low average
Global factors						
Extraversion	5.25	1.57	2.1	9.5	3	Average
Anxiety	4.37	1.78	1.2	8.3	5	Low average
Tough mindedness	5.93	1.39	2.8	8.8	2	Average
Independence	5.15	1.56	1.6	8.2	4	Average
Self-control	6.58	0.95	4.6	8.5	1	High average

Test of significance

A Pearson correlation coefficient was employed to compute the significant relationship between the personality profiles of the nurses and their gender, while a T-test was used to compute their significant difference. The Pearson correlation coefficient shown in Table 3 indicated a significant relationship between both the primary factors of personality traits ($r=0.8716$, $p<0.05$) and the global factors of personality traits ($r=0.9069$, $p<0.05$). This implies that gender plays a crucial factor in personality traits, as shown in both the 16 personality primary factors and the five global personality factors of the 16PF. Further, the coefficient values ($r=0.8716$; $r=0.9069$) indicate a strong to near-perfect correlation between personality profiles and gender. Conversely, the t-test indicates no significant difference between the personality profiles of the nurses when grouped according to their gender in both primary factors of personality traits ($t=0.32$, $p>0.05$) and global factors of personality traits

(t=-0.43, p>0.05). Regarding the measure of the effect of the sample size, Cohen's d was calculated for the primary factors of personality traits (d=0.06) and global factors of personality traits (d=0.18), indicating a very small effect in the sample size with mean results that are very close to being the same. Hence, the personality traits of male and female nurses may not exhibit variations and could be closely similar.

Table 3. Test of significant relationship and difference between personality profiles of the new nurses and their gender.

Personality profile	**r score**	**p-value**	**Significance level**	**Action**
Primary factors	0.8716	0.000011	0.05	Significant relationship
Global factors	0.9069	0.03362	0.05	Significant relationship
	t-value	p-value	Significance level	Action
Primary factors	0.32	0.75	0.05	No significant difference
Global factors	-0.43	0.68	0.05	No significant difference

Discussion

Gender distribution

In examining gender distribution, this study revealed that the nursing profession is dominated by females. This shows a gender gap in the profession, as indicated by the World Health Organization that women constitute almost 70% of health-care workers globally and nearly 90% of the nursing and midwifery workforce, yet only 25% of women hold leadership roles in health. This gender disparity may be attributed to the mindset that nursing is a feminine activity associated with being caring, compassionate, patient, and warm, among others. McLaughlin, et al., longitudinal study supports this trend, highlighting that the nursing profession is female-dominated due to the nature of nursing and the gender bias inherent in nursing education, leading to a higher dropout rate among male nursing students. In like manner, concerted efforts are needed to further understand and address this gender gap.

Personality profiles

The chief aim of the current study was to show the personality profiles of the new nurses. Overall, the dominant personality traits of the participants through the 16PF were rule consciousness, emotional stability, perfectionism, privateness, vigilance, and warmth. This suggests that the new nurses exhibit conscientiousness in their work, a high average professional standard, are emotionally balanced, non-disclosing, cautious, and caring toward others. This implies that they share some personalities with excellent nurses, as posited by Zang, where excellent nurses possess higher social boldness, openness to change, self-reliance, perfectionism, and lower dominance, vigilance, and shrewdness than average nurses. The respondents in the study exhibit certain primary factors of excellent nurses, particularly perfectionism. This means that there is a need to develop the personalities of the respondents in terms of social boldness, self-reliance, and openness to change. At the same time, simultaneous effort is needed to lower the factors of dominance and vigilance.

Another dominant personality trait of the respondents is warmth, which is closely related to empathy, as indicated in the 16PF manual. This implies that the respondents possess the capacity to understand and feel what another person is experiencing. As posited in the study of Wan, nurses' empathy capability can promote the nurse-patient relationship. Similarly, Percy and Richardson underscored the importance of empathy and using therapeutic relationships as ways in which nurses can incorporate care and compassion into their practice.

The dominant personality traits of the respondents of this study suggest a favorable personality alignment with their profession; however, certain dominant factors also lead them to stress, anxiety, and burnout. The traits of vigilance and privateness, as indicated in the 16PF manual, correlate with the NEO personality inventory of neuroticism facets that measure anxiousness. In the studies conducted by de la Fuente-Solana, et al., and Grigorescu, et al., it was claimed that nurses suffering from emotional exhaustion, depersonalization, and negative self-esteem are positively correlated with neuroticism, making them more likely to develop burnout. Even though there are various pieces of research showing the correlation between personality traits and stress, anxiety, and burnout, it is still crucial to

consider environmental factors as contributors to poor well-being and mental health.

Test of significance

The findings suggest a significant relationship between personality traits (primary factor and global factor), indicating a strong to near-perfect correlation between personality traits and gender. This study claims that gender is a crucial factor in personality traits. However, there is no significant difference between the genders of the male and female nurses, as indicated in the t-test. Moreover, when Cohen's d was applied to calculate the effect of sample size, the results revealed a very small effect, indicating a very close or similar personality trait between male and female nurses. Hence, nurses, irrespective of gender, possess similar personalities such as rule consciousness, emotional stability, perfectionism, privateness, vigilance, and warmth, as revealed in their 16PF results. This further implies that mental health program development for nurses may be applied to both males and females.

Conclusion

Results of the study reveal that the dominant personality dimensions among the participants are rule consciousness, emotional stability, perfectionism, privateness, vigilance, and warmth, all of which showcase positive qualities. Nevertheless, it is noteworthy that these factors may contribute to experiences of stress, anxiety, and burnout. The respondents illustrate the effectiveness of the 16PF as an objective tool that is valuable in profiling nurses and other mental health professionals. This strengthened the role of utilizing personality testing in the profiling of employees and assigning them to the roles that best suit their personalities. The personalities of male and female nurses are significantly similar, with gender strongly correlating to their personality traits. This current study may serve as baseline data for developing mental health programs tailored for nurses and other health practitioners who are exposed to traumatic events that are contributors to stress, anxiety, and burnout. The mental health program developed may be utilized universally by nurses, irrespective of gender, since there is no significant difference in their personality traits.

This current study also provides avenues for research focused on monitoring and giving importance to the well-being and mental health of health professionals, along with the development of mental health programs to ensure sound mental health that translates to high-quality patient care. It is also suggested that broad-range sampling and other demographics be explored to identify differences in nurses' personality profiles. Other environmental factors of nurses and other diagnostic assessments may also be included to see a broad correlation between personality factors and environmental factors and instances of poor well-being and mental health.

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