

The Relationships among Nursing Students' Family Interaction, Personality and Psychological Well-being in the USA

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Received: March 27, 2018; **Published:** May 16, 2018

Abstract

Purpose: The purpose of this study was to examine the relationships among nursing students' family interaction, personality, and their psychological well-being.

Methods: This was a descriptive correlational research design. A convenience sample of 74 nursing students from a mid-west state University was recruited in this study, including 12 male (16.2%) and 62 female (83.8%). The mean age was 24.36 (SD = 7.30). Data was collected using structured questionnaires consisting of Scales regarding Family Interaction, Personality, and Psychological Well-being. Descriptive statistics (mean, SD, range, frequency, and percent), Pearson-Product Moment Correlation and Stepwise Multiple Regression analyses were used to describe the study sample and perform deeper analyses. SPSS version 23 was used to do the data analysis.

Results: There was a statistically significant positive relationship between positive family interaction and positive personality. When the score of positive family interaction increased, the score of positive personality increased. There was a statistically significant reverse relationship between negative family interaction and positive personality. When the score of negative family interaction increased, the score of positive personality decreased. Especially, the inconsistent discipline subscale had statistically significant negative relationships with Personality, Emotional Stability, and Intellect. There was a statistically significant positive relationship between positive family interaction and psychological well-being. When the score of positive family interaction increased, the score of psychological well-being increased. Especially the subscales of Positive Family Interaction including Inductive Reasoning subscale and Communication subscale had statistically significant positive relationships with Psychological Well-being, Environmental mastery, Positive Relations with Others, and Self- Acceptance subscales. There was no significant relationship between negative family interaction and Psychological well-being. There was a statistically significant positive relationship between positive personality and psychological well-being. When the score of positive personality increased, the score of psychological well-being increased. All of the subscales of Personality also had statistically significant positive relationships with subscales of Psychological Well-being. The Stepwise Multiple Regression model variables accounted for 6.2% of the Personality variance in the first model and 12% for the second model. In the first model, Positive Family Interaction was the significant predictor of nursing students' personality ($\beta = 0.249$, $p < 0.05$). When the score of positive family interaction increased, the score of nursing students' positive personality increased. In the second model, Negative Family Interaction was the significant predictor of nursing students' personality ($\beta = -0.250$, $p < 0.05$). When the score of negative family interaction increased, the score of nursing students' positive personality decreased. The Stepwise Multiple Regression model variables accounted for 7% of the Psychological Well-being variance in the model. In the model, Positive Family Interaction was the significant predictor of nursing students' Psychological Well-being ($\beta = 0.265$, $p < 0.05$). When the score of positive family interaction increased, the score of nursing students' psychological well-being increased. The Stepwise Multiple Regression model variables accounted for 36.1% of the Psychological Well-being variance in the model. In the model, Positive Personality was the significant predictor of nursing students' Psychological Well-being ($\beta = 0.601$, $p < 0.001$). When the score of positive personality increased, the score of nursing students' psychological well-being increased.

Conclusions: Family interaction shapes a person's personality. Positive personality increases people's psychological well-being. In this study, family interaction, positive personality, and psychological well-being had statistically significant relationships.

Keywords: Family Interaction; Personality; Psychological Well-Being; Nursing Student

Abbreviation

PWB: Psychological Well-being

Introduction

Nurses' Psychological Well-being and Patients' care

Nurses care for patients in hospitals around the clock and most of them have the responsibility for administering medication, so they have an important role in detecting, reporting and preventing errors [1]. Nurses face many critical situations and easily to have high levels of emotional exhaustion that can increase the risk of suffering from anxiety, depression, and burnout [2]. Compared with nurses who have better health, those who have worse health have 26% to 71% higher likelihood of having medical errors [3]. The nurses' mental health problems and promote their well-being are important issues to be discussed [2].

The process of transition from nursing students to be nurses could be stressful [4]. Hrabe., *et al.* (2017) hosted a 2-day workshop focused on energy management through a comprehensive examination of goals and values in relation to one's spiritual, mental, emotional, and physical development and provides practical strategies to improve self-care [4]. Sixty-nine percent of these new graduate nurses ($n = 61$) consented and participated in the program. There was a significant effect to decrease depressive symptoms that were measured between baseline and 6 months [4]. Spirituality is a protective factor of psychological well-being [5]. When nurses have higher level spirituality, their compassion satisfaction is enhanced and their burnout level is lower. Therefore, spirituality is a cultural competency for nurses that appears imperative to master [5].

Nantsupawat., *et al.* (2016) investigated the effect of nurse burnout on nurse-reported quality of care and patient adverse events and outcomes in Thai hospitals [6]. That is a cross-sectional analysis of data from 2,084 registered nurses working in 94 community hospitals across Thailand. Thirty-two percent of nurses reported high emotional exhaustion, 18% high depersonalization, and 35% low personal accomplishment. In addition, 16% of nurses rated quality of care on their work unit as fair or poor, 5% reported patient falls, 11% reported medication errors, and 14% reported infections. The level of burnout was associated with increased reporting of fair or poor quality of care, patient falls, medication errors, and infections. Every unit of increasing emotional exhaustion score was associated with a 2.63 times rise in reporting fair or poor quality of care, a 30% increase in patient falls, a 47% increase in medication errors, and a 32% increase in infection. Findings clearly indicate that nurse burnout is associated with increased odds of reporting negative patient outcomes. Implementing interventions to reduce nurse burnout is critical to improving patient care in Thai hospitals [6]. High performance work systems is found to increase employees' subjective well-being and decrease burnout. Such well-being-enhancing and burnout-relieving effects are stronger when employees have high employees' organizational based self-esteem [7]. Therefore, nurses' psychological well-being is very important for their quality of care. The following literature review will discuss the relationships between family interaction, personality, and psychological well-being.

Family Interaction and Psychological Well-being

Family interactions have significant relationships with depressive symptoms in children. Children from the disciplined or conflict families were more likely to report depressive symptoms. Children from the nurtured families were least likely to report depressive symptoms [8]. Depression has been called the 'plague' of modern times by the mental health community [8]. People with depressive symptoms are more likely to engage in binge drinking and smoking, so they are more likely to have high blood pressure, high cholesterol, arthritis and asthma [8]. Therefore, a positive family interaction environment that is beneficial for children's mental health is an important issue for health education and health promotion professionals [8]. Perceived support from adult family members was negatively associated with depressive symptoms [9].

The following data is about the prevalence of anxiety, depression, and suicide in Taiwan, Australia, and USA. From the following facts, people can understand the importance of psychological well-being. In Taiwan, suicide has become the second-biggest cause of death of people between the ages of 15 to 24 in 2013 [10]. Total 2,364 males and 1,182 females died by suicide in 2014 in Taiwan including 32% were aged between 25 to 44 and 38% were aged between 45 to 64 [10].

In Australia, suicide remains the leading cause of death for Australians aged between 15 and 44 [11]. On average, 1 in 6 people experience depression at some stage of their lives in Australia and symptoms can range from minor to very severe [12]. In any one year, around 1 million Australian adults have depression, and over 2 million have anxiety [12]. Anxiety is the most common mental condition in Australia. On average, 1 in 4 people will experience anxiety [12].

In the USA, approximately 42,773 Americans commit suicide every year and many of who are college students [13]. Anxiety and depression are important mental health issues for college students in the USA [14]. Forty million U.S. adults suffer from an anxiety disorder, and 75 percent of them experience their first episode of anxiety by age 22 and most of them feel stressed and depressed, so anxiety disorders are one of the most common mental health problems on college campuses [14]. Depression is also a major risk factor for suicide [15-18]. About 30 percent of college students reported feeling "so depressed that it was difficult to function" [19]. Suicide is currently the second most common cause of death among college students aged 25 - 34 in the USA [20].

Häggman-Laitila, *et al.* 2010 used video home training and showed many positive effects on families' health and interaction [21]. The families had reached their goals related to strengthening parenthood, strengthening relationship between the partners, improvement of childcare skills and child-rearing skills. The entire family benefited from the video home training [21]. A negative environmental experience of early childhood has been associated with adult immune dysfunction, insulin resistance, and brain malfunctioning, which can lead to high-risk behaviors, emotional dysregulation, and chronic mental health problems [22].

Poverty can be considered a form of environmental stress. Mental illness in children has been directly attributed to risk factors associated with poverty, and adults with negative childhood experiences, such as growing up in poverty, often raise children in environments that have toxic stress, creating an intergenerational cycle of mental health disorders [23]. These disorders can include lasting struggles with memory [24]. Chronic exposure to stress in early childhood, including relational deprivation, primes a child's brain to be more responsive to subsequent stress throughout life [23-25].

Cumulative life choices and experiences of parents may leave biological traces in their children through epigenetics. The children can pass these traces, which may become biological characteristics after one generation, on to their children [24]. Parents experiencing sustained tension in their couple relationship during and after pregnancy, living in poverty, and having mental health issues may struggle with attunement and attachment and negatively affect the development of their child for several years to come [25,26]. Conversely, parents with a healthy couple relationship are more likely to have children who regulate their emotions, and parents who are sensitive can reduce the effects of poverty on a child's stress physiology [27] and help children develop psychological self-regulation skills [28].

The quality of family interactional relationship affects a child's cognitive capabilities [29]. Nobel Prize winner James Heckman's research on environmental factors that affect children's ability to learn indicates that children who receive frequent emotional nurturing have improved cognitive skills and are more capable learners compared with children raised in emotionally neutral or depriving environments [30]. While maternal nurturing can affect brain and psychosocial development, factors such as social interactions, family dynamics, nutrition, and physical environment can alter gene expression. Depending on the timing and duration of exposure to negative environmental factors, epigenetic changes can result in lifelong mental and physical health issues in individuals and their offspring [24,31]. Therefore, parents and children's relationships shape children's mental health [29].

Children of parents with a mental illness are often found to be at high risk of developing psychological problems themselves [32]. Little is known about the role of family factors in the relation between parental and adolescent mental health [32]. Loon., *et al.* (2014) indicated that interaction between parents with a mental illness and their child was significantly worse compared to parents without a mental illness [32]. The family environment of parents with mental illness was also more negative. Mentally ill parents monitored their adolescents less, which in turn related to more externalizing problems of the adolescents [32]. These findings imply that parental monitoring should get a specific focus of attention in existing interventions designed to prevent adolescents with a mentally ill parent from developing problems [32].

Yeh and Chiao (2013) indicated that when the score of college student parents' inconsistent discipline increased, the score of communication decreased, and the total scores of parents' negative rearing attitudes, the scores of these college students' psychological well-being decreased and the scores of suicidal ideation increased [15]. When college student parents' score of harsh discipline increased, the score of inductive reasoning decreased, and college students' score of psychological well-being decreased, the scores of college students' suicidal ideation increased. The college students' psychological well-being was also significantly associated with their parents' involvement and the total scores of their parents' positive rearing attitudes [15]. Parents' harsh discipline decreased the Australian nursing students' psychological well-being [16].

Personality and Psychological Well-being

Yeh and Chiao (2013) examined the influences of parents' rearing attitude, personality and coping strategies on psychological well-being and suicidal ideation among college students [15]. Total 173 USA college students were recruited from Nursing department and Business department [15]. Psychological well-being was significantly related to the five personality variables, including Confidence, Agreeableness, Conscientiousness, Emotional Stability, Intellect, and Total Personality, while suicidal ideation had significant reversed relationships with conscientiousness, emotional stability, and total scores of personality [15]. Positive personality was a significant predictor of psychological well-being [15]. Negative parent rearing attitude and decreasing emotional stability were significant predictors of suicidal ideation [15].

Yeh, Moxham, Patterson, and Antoniou (2016) examined the relationships between Australian nursing student's anxiety, depression, personality and family interaction with their psychological well-being and suicidal ideation [16]. A sample of 201 nursing students completed the structured questionnaires in an Australian University. Yeh., *et al.* (2016) indicated that when scores related to positive personality and positive family interaction increased, scores of psychological well-being also increased and scores of suicidal ideation decreased [16]. Depression, personality, and positive family interaction were significant predictors of Australian nursing students' psychological well-being. Anxiety, depression, and harsh discipline were significant predictors of Australia nursing students' suicidal ideation [16].

According to the review of literature, nursing students' psychological well-being is an important issue to be discussed, but few studies examine the nursing students' psychological well-being. Therefore, the purpose of this study was to examine the relationships among nursing students' family interaction, personality, and their psychological well-being in the USA.

Theoretical Framework

The Development of Personality and Psychological Well-Being Model, developed by Yeh and Chiao (2013) was used as the framework for this study [15]. This framework indicates that a person's personality is developed by biological temperament, family interaction, and cognitive learning. People with different personalities use different coping strategies and this will cause them have a good psychological well-being or suicidal ideation. During this process, stressors, anxiety, depression, and spiritual well-being will influence the outcome variables [15].

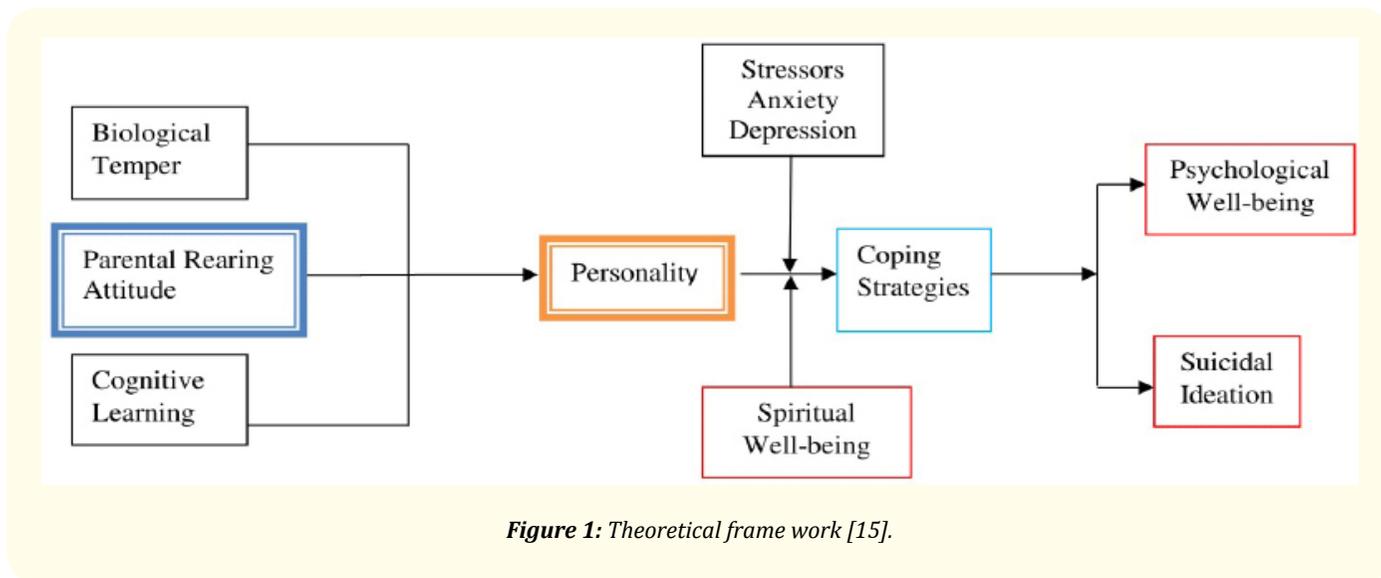


Figure 1: Theoretical frame work [15].

The specific research questions addressed were the following:

1. What were the relationships among nursing students' family interaction, personality, and their psychological well-being?
2. How much nursing students' personality was predicted by family interaction?
3. How much nursing students' psychological well-being was predicted by family interaction and personality?

Methods

Design

A descriptive, correlational research design was used to explore the relationships among nursing students' family interaction, personality and psychological well-being. Data were collected using structured questionnaires.

Data Collection

A convenience sample of 74 nursing students was recruited in this study from a School of Nursing in the Midwest USA. It is voluntary to fill out this questionnaire. If nursing students were willing to participate this study, they were asked to fill out the questionnaires. After they completed the questionnaire, they got a pack of chocolate (about worthy \$2). It took about 20-25 minutes to complete this questionnaire. They could stop to participate this study at any time. If they did not finish the questionnaire, they will not get the pack of chocolate. The investigators collected data from the class rooms.

Instruments

Data were collected using five instruments to measure participants' family interaction, personality, and psychological well-being. All instruments were selected for their reliability and validity.

Family Interaction: The Iowa Family Interaction Rating Scales was used to measure the rearing attitude of participants' parents [33]. This scale was developed by Melby, *et al.* in 1998. There were seven subscales including 29 items [33]. Positive parents' rearing attitudes included the following five subscales: Child Monitoring, Inductive Reasoning, Communication, Positive Reinforcement, and Involvement. Negative parents' rearing attitudes included two subscales: Inconsistent Discipline and Harsh Discipline. The items were scored on a five

point Likert-type scale ranging from (1) never to (5) always. Higher scores of positive parents' rearing attitudes indicated more positive attitude of parents. Higher scores of negative parents' rearing attitudes indicated more negative attitude of parents. The Cronbach's alpha was Positive Parenting: 0.918 and Negative Parenting: 0.76 in this study.

Personality: Personality scale developed by Goldberg in 1992 and 1999 was used to measure participants' personality including five subscales: Confidence, Agreeableness, Conscientiousness, Emotional Stability, and Intellect [34]. There were total 50 items. The items were scored on a five point Likert-type scale ranging from (1) to (5). Higher scores of each subscale indicated more positive personality. The Cronbach's alpha was 0.885 in this study.

Psychological Well-Being Scale (PWBS): Participants' psychological well-being was measured by the 18 item PWBS [35]. Six concepts (autonomy, environmental mastery, purpose in life, personal growth, positive relations with others, and self-acceptance) were assessed by this questionnaire [35]. The items were scored on a six point Likert-type scale ranging from (1) strongly disagree to (6) strongly agree. Higher scores indicate better psychological well-being. The maximum total score possible is 108, and the minimum score possible is 18. Evidence for the validity of the scale was examined by confirmatory factor analyses [35]. In previous research internal consistency reliability for each subscale based on a sample of 321 adults (age ranging from 19.53 to 74.96 years) revealed a high degree of reliability for each subscale with Cronbach's alphas ranging from 0.83 to 0.91 (Ryff 1989). The Cronbach's alpha was 0.783 in this study.

Instruments

The analyses were conducted using the Statistic Package for the Social Sciences (SPSS) PC Version 23.0. Descriptive statistics (mean, SD, range, frequency, and percent) were used to describe the study sample. Pearson-Product Moment Correlation and Stepwise Multiple Regression analyses were used to analyze this study.

Results

Participants' Characteristics

The sample for this study consisted of 74 nursing students from a mid-west state University. The participants' mean age was 24.36 (SD = 7.30; range = 19-53 years) which included 12 (16.2%) males and 62(83.8%) females. The majority of participants were white (n = 63, 85.1%), single (n = 54, 73%), married (n = 17, 23%), believe in Jesus Christ (n = 63, 85.1%), had a part time job (n = 54, 73%), and income below \$1000 (n = 47, 63.5%) (Table 1).

Variable	n	%	M	SD
Gender				
Male	12	16.2		
Female	62	83.8		
Age (19 - 53 years)			24.36	7.30
Anxiety (1 - 8)			3.77	1.96
Depression(0-5)			1.16	1.03
Total Mental Illness Diagnosis				
0	60	81.1		
1	12	16.2		
2	2	2.7		
Anxiety	12	16.2		
Depression	2	2.7		
Mania	0	0		
Substance use	1	1.4		
Mood Disorder	0	0		
Impulse Control	1	1.4		
Suicide	0	0		
Received Depression Treatment	2	2.7		
Education				
High School	5	6.8		
College	63	85.1		
Graduate	6	8.1		
Race				
White	63	85.1		
African	5	6.8		
Asian	3	4.1		
Other	3	4.1		
Marriage				
Married	17	23		
Divorced	3	4.1		
Single	54	73		
Religion				
Believe in Jesus Christ	63	85.1		
Not religious	4	5.4		
Buddhist	2	2.7		
Taoism	1	1.4		
Other	4	5.4		
Children (0-5)			0.45	1.03
Job Status				
Retired	1	1.4		
Full Time	4	5.4		
Part Time	54	73		
Unemployed	15	20.3		
Income per month				
Below \$1000	47	63.5		
\$1000 - 1999	9	12.2		
\$2000 - 2999	10	13.5		
\$3000 - 3999	2	2.7		
\$4000 - 4999	2	2.7		
\$5000 - 5999	1	1.4		
Above \$7000	2	2.7		

Table 1: Social demographic data description of nursing students (N = 74).

Major Variable Description

Nursing students' scores on Positive Family Interaction ranged from 38 to 105. Overall study participants expressed high levels of Positive Family Interaction ($M = 80.81, SD = 14.75$) (Table 2). These Positive Family Interactions included Child Monitoring, Inductive Reasoning, Communication, Positive Reinforcement, and Involvement. Nursing students' scores on Negative Family Interaction ranged from 8 to 36. Overall study participants expressed medium low levels of Negative Family Interaction ($M = 16.26, SD = 4.99$) (Table 2). These Negative Family Interactions included Inconsistent Discipline and Harsh Discipline. Nursing students' scores on positive Personality ranged from 143 to 230. Overall study participants expressed high levels of positive Personality ($M = 182.18, SD = 19.49$). These positive Personalities included Open Active, Agreeableness, Conscientiousness, Emotional Stability, and Intellect (Table 2). Nursing students' scores on Psychological well-being ranged from 64 to 105. Overall study participants expressed high levels of Psychological well-being ($M = 90.49, SD = 8.72$). These Psychological well-being included Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance (Table 2).

Variables	<i>M</i>	<i>SD</i>	Min	Max
Positive Family Interaction	80.81	14.75	38	105
Child Monitoring	44.58	7.28	27	55
Inductive Reasoning	13.57	4.15	4	20
Communication	15.18	3.71	5	20
Positive Reinforcement	3.27	1.32	1	5
Involvement	4.22	1.09	1	5
Negative Family Interaction	16.26	4.99	8	36
Inconsistent Discipline	8.91	3.12	4	16
Harsh Discipline	7.35	2.92	4	20
Personality	182.18	19.49	143	230
Open Active	33.09	7.68	19	49
Agreeableness	40.70	4.97	28	50
Conscientiousness	38.24	5.62	27	50
Emotional Stability	34.07	7.40	16	50
Intellect	36.07	4.90	27	47
Psychological Well-being	90.49	8.72	64	105
Autonomy	14	2.33	8	18
Environmental Mastery	14.22	2.42	8	18
Personal Growth	16.14	2.03	10	18
Positive Relations with Others	15.45	2.13	10	18
Purpose in Life	15.24	2.05	10	18
Self-Acceptance	15.45	2.23	8	18

Table 2: Main Variable Description ($N = 74$).

The Relationships between Family Interaction and Personality

According to table 3 Pearson Correlations, the following Personality variables had statistically significant positive relationships with Positive Family Interaction: total scores of Personality ($r = 0.249, p \leq 0.05$), Agreeableness ($r = 0.272, p \leq 0.05$), and Conscientiousness ($r = 0.307, p \leq 0.01$). Nursing students who had higher scores of Positive Family Interaction had higher scores of Personality, Agreeableness, and Conscientiousness. Child Monitoring had a statistically significant positive relationships with Conscientiousness ($r = 0.272, p \leq 0.05$). Nursing students' family who used Child Monitoring nursing students had higher scores of Conscientiousness. Both of Inductive reasoning and Communication had statistically significant positive relationships with Personality ($r = 0.318, p \leq 0.01$; $r = 0.278, p \leq 0.05$, respectively), Agreeableness ($r = 0.292, p \leq 0.05$; $r = 0.252, p \leq 0.05$, respectively), Conscientiousness ($r = 0.285, p \leq 0.05$; $r = 0.274, p \leq 0.05$, respectively), and Emotional Stability ($r = 0.27, p \leq 0.05$; $r = 0.274, p \leq 0.05$, respectively). Both of Positive Reinforcement and Involvement had statistically significant positive relationships with Agreeableness ($r = 0.245, p \leq 0.05$; $r = 0.235, p \leq 0.05$, respectively). Negative Family interaction had statistically significant reverse relationships with Personality ($r = -0.298, p \leq 0.01$) and Emotional Stability ($r = -0.302, p \leq 0.01$). Nursing students' parents used Inconsistent Discipline that had statistically significant reverse relationships with Personality ($r = -0.369, p \leq 0.01$), Emotional Stability ($r = -0.301, p \leq 0.01$) and Intellect ($r = -0.305, p \leq 0.01$).

Variables	Personality	Open Active	Agreeableness	Conscientiousness	Emotional Stability	Intellect
Positive Family Interaction	0.249*	-0.009	0.272*	0.307**	0.204	0.067
Child Monitoring	0.134	-0.094	0.178	0.284*	0.072	0.066
Inductive Reasoning	0.318**	0.050	0.292*	0.285*	0.270*	0.155
Communication	0.278*	0.053	0.252*	0.274*	0.274*	0.039
Positive Reinforcement	0.162	0.068	0.245*	0.065	0.199	-0.086
Involvement	0.114	0.048	0.235*	0.164	0.071	-0.157
Negative Family Interaction	-0.298**	-0.086	-0.194	-0.224	-0.302**	-0.138
Inconsistent Discipline	-0.369**	-0.151	-0.212	-0.223	-0.301**	-0.305**
Harsh Discipline	-0.114	0.014	-0.105	-0.144	-0.194	0.090

Table 3: Pearson Correlations between Family Interaction and Personality (N = 74).

r value in the box, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

DV: Dependent Variables

IV: Independent Variables

The Relationships between Family Interaction and Psychological well-being

Positive Family Interaction had statistically significant positive relationships with Psychological Well-being ($r = 0.265, p \leq 0.05$), Environmental Mastery ($r = 0.239, p \leq 0.05$), and Positive relationships with others ($r = 0.253, p \leq 0.05$). Nursing students whose parents used Positive Family Interaction had higher scores in Psychological Well-being, Environmental Mastery, and Positive relationships with others. Inductive Reasoning had statistically significant positive relationships with Psychological Well-being ($r = 0.295, p \leq 0.01$), Environmental Mastery ($r = 0.272, p \leq 0.05$), Positive relationships with others ($r = 0.239, p \leq 0.05$), and Self- Acceptance ($r = 0.243, p \leq 0.05$). Communication had statistically significant positive relationships with Psychological Well-being ($r = 0.32, p \leq 0.01$), Environmental Mastery ($r = 0.29, p \leq 0.05$), Positive relationships with others ($r = 0.301, p \leq 0.01$) and Self- Acceptance ($r = 0.247, p \leq 0.05$). Positive Reinforcement had a statistically significant positive relationship with Positive relationships with others ($r = 0.264, p \leq 0.05$) (Table 4).

Variables	Psychological Well-being	Autonomy	Environmental Mastery	Personal Growth	Positive Relations with Others	Purpose in Life	Self-Acceptance
Positive Family Interaction	0.265*	0.095	0.239*	0.106	0.253*	0.144	0.210
Child Monitoring	0.134	0.086	0.123	-0.068	0.150	0.137	0.092
Inductive Reasoning	0.295**	0.069	0.272*	0.220	0.239*	0.127	0.243*
Communication	0.320**	0.090	0.290*	0.201	0.301**	0.137	0.247*
Positive Reinforcement	0.214	0.107	0.205	0.130	0.264*	-0.091	0.215
Involvement	0.224	0.000	0.138	0.216	0.165	0.185	0.203
Negative Family Interaction	-0.175	-0.118	-0.115	-0.002	-0.180	-0.162	-0.113
Inconsistent Discipline	-0.147	-0.104	-0.173	0.050	-0.167	-0.127	-0.047
Harsh Discipline	-0.141	-0.091	-0.011	-0.057	-0.129	-0.141	-0.142

Table 4: Pearson Correlations between Family Interaction and Psychological well-being (N = 74).

r value in the box, * p ≤ 0.05, **p ≤ 0.01, ***p ≤ 0.001

DV: Dependent Variables

IV: Independent Variables

The Relationships between Personality and Psychological well-being

Psychological well-being had statistically significant positive relationships with positive Personality (r = 0.601, p ≤ 0.001) and all subscales of Personality: Open Active (r = 0.346, p ≤ 0.01), Agreeableness (r = 0.416, p ≤ 0.001), Conscientiousness (r = 0.296, p ≤ 0.01), Emotional Stability (r = 0.46, p ≤ 0.001), and Intellect (r = 0.39, p ≤ 0.001) (Table 5). Nursing students who had higher scores of Personality had higher scores of Psychological Well-being. Positive Personality had statistically significant positive relationships with Psychological well-being (r = 0.601, p ≤ 0.001) and some subscales of Psychological well-being: Autonomy (r = 0.331, p ≤ 0.01), Environmental Mastery (r = 0.48, p ≤ 0.001), Personal Growth (r = 0.503, p ≤ 0.001), Positive Relationships with Others (r = 0.463, p ≤ 0.001), and Self-Acceptance (r = 0.441, p ≤ 0.001) (Table 5).

Variables	Personality	Open Active	Agreeableness	Conscientiousness	Emotional Stability	Intellect
Psychological Well-being	0.601***	0.346**	0.416***	0.296**	0.460***	0.390***
Autonomy	0.331**	0.240*	0.069	0.115	0.277*	0.323**
Environmental Mastery	0.480***	0.231*	0.216	0.252*	0.500***	0.284*
Personal Growth	0.503***	0.286*	0.397***	0.188	0.351**	0.404***
Positive Relations with Others	0.463***	0.337**	0.436***	0.245*	0.286*	0.159
Purpose in Life	0.155	-0.05	0.190	0.245*	0.056	0.138
Self-Acceptance	0.441***	0.318**	0.368***	0.135	0.325**	0.233*

Table 5: Pearson Correlations between Personality and Psychological well-being (N = 74).

r value in the box, * p ≤ 0.05, **p ≤ 0.01, ***p ≤ 0.001

DV: Dependent Variables

IV: Independent Variables

Predictors of Nursing Students' Personality

As shown in table 6, the Stepwise Multiple Regression model variables accounted for 6.2% of the Personality variance in the first model and 12% for the second model. In the first model, Positive Family Interaction was the significant predictor of nursing students' personality ($\beta = 0.249, p < 0.05$). When the score of positive family interaction increased, the score of nursing students' positive personality increased. In the second model, Negative Family Interaction was the significant predictor of nursing students' personality ($\beta = -0.250, p < 0.05$). When the score of negative family interaction increased, the score of nursing students' positive personality decreased (Table 6).

	Family Interaction	Personality			
	Variables	β	t	R^2	
Model 1	Positive Family Interaction	0.249	2.178*	0.062	$F(df = 1,72) = 4.745^*$
Model 2	Negative Family Interaction	-0.250	-2.173*	0.120	$F(df = 2,71) = 4.857^{**}$

Table 6: Multiple Regression: Predictors of Nursing Students' Personality by Family Interaction (N = 74).

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Predictors of Nursing Students' Psychological Well-being

As shown in table 7, the Stepwise Multiple Regression model variables accounted for 7% of the Psychological Well-being variance in the model. In the model, Positive Family Interaction was the significant predictor of nursing students' Psychological Well-being ($\beta = 0.265, p < 0.05$). When the score of positive family interaction increased, the score of nursing students' psychological well-being increased (Table 7).

	Family Interaction	Psychological well-being			
	Variables	β	t	R^2	
Model 1	Positive Family Interaction	0.265	2.336*	0.070	$F(df=1,72) = 5.457^*$

Table 7: Multiple Regression: Predictors of Nursing Students' Psychological well-being by Family Interaction (N = 74).

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

As shown in table 8, the Stepwise Multiple Regression model variables accounted for 36.1% of the Psychological Well-being variance in the model. In the model, Positive Personality was the significant predictor of nursing students' Psychological Well-being ($\beta = 0.601, p < 0.001$). When the score of positive personality increased, the score of nursing students' psychological well-being increased (Table 8).

	Personality	Psychological well-being			
	Variables	β	t	R^2	
Model 1	Total Score of Personality	0.601	6.377***	0.361	$F(df=1,72) = 40.668^{***}$

Table 8: Multiple Regression: Predictors of Nursing Students' Psychological well-being by their Personality (N = 74).

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Discussion

The Relationships between Family Interaction and Psychological Well-being

In this study, positive Family Interaction had statistically significant positive relationships with Psychological Well-being, and its subscales: Environmental Mastery and Positive relationships with others. Nursing students whose parents used Positive Family Interaction had higher scores in Psychological Well-being, Environmental Mastery, and Positive relationships with others. The subscales of positive family interaction including Inductive Reasoning and Communication also had statistically significant positive relationships with Psychological Well-being, Environmental Mastery, and Positive relationships with others as well as Self-Acceptance (Table 4). The results are similar to the study of Yeh, Moxham, Patterson, and Antoniou's study in 2016 among Australia nursing students [16]. When scores of positive family interaction increased, scores of psychological well-being also increased and scores of suicidal ideation decreased. Parents' harsh discipline decreased the nursing students' psychological well-being [16]. The possible reason of this result was that Family interactions have significant relationships with depressive symptoms in children. Children from the disciplined or conflict families were more likely to report depressive symptoms. Children from the nurtured families were least likely to report depressive symptoms [8].

The Relationships between Personality and Psychological Well-being

In this study, psychological well-being had statistically significant positive relationships with positive Personality and all subscales of Personality: Open Active, Agreeableness, Conscientiousness, Emotional Stability, and Intellect (Table 5). Nursing students who had higher scores of Personality had higher scores of Psychological Well-being. Positive Personality had statistically significant positive relationships with Psychological well-being and some subscales of Psychological well-being: Autonomy, Environmental Mastery, Personal Growth, Positive Relationships with Others, and Self-Acceptance (Table 5).

The results of this study are similar to the following studies. Yeh and Chiao (2013) examined the influences of parents' rearing attitude, personality and coping strategies on psychological well-being and suicidal ideation among college students [15]. Total 173 USA college students were recruited from Nursing department and Business department. Psychological well-being was significantly related to the five personality variables, including Confidence, Agreeableness, Conscientiousness, Emotional Stability, Intellect, and Total Personality, while suicidal ideation had significant reversed relationships with conscientiousness, emotional stability, and total scores of personality [15].

Yeh, Moxham, Patterson, and Antoniou (2016) examined the relationships between Australian nursing student's anxiety, depression, personality and family interaction with their psychological well-being and suicidal ideation [16]. A sample of 201 nursing students completed the structured questionnaires in an Australian University [16]. Yeh, *et al.* (2016) indicated that when scores related to positive personality increased, scores of psychological well-being also increased and scores of suicidal ideation decreased [16].

The Predictors of Nursing Students' Psychological Well-being in the USA

In this study, positive Family Interaction and positive Personality were the significant predictors of nursing students' Psychological Well-being. When the score of positive family interaction and personality increased, the score of nursing students' psychological well-being increased (Table 7 and 8). The results of this study are similar to the following studies. Yeh, *et al.* (2016) indicated that positive family interaction was a significant predictor of Australian nursing students' psychological well-being [16]. Anxiety, depression, and harsh discipline were significant predictors of Australia nursing students' suicidal ideation [16]. Yeh and Chiao (2013) also indicated that positive personality was a significant predictor of psychological well-being [15]. Negative parent rearing attitude and decreasing emotional stability were significant predictors of suicidal ideation [15]. Therefore, personality and positive family interaction were significant predictors of Australian and USA nursing students' psychological well-being.

Acknowledgement

The authors would like to thank participants' contribution, time and assistance.

Funding

"This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors".

Conflict of Interest

"No conflict of interest has been declared by the author(s)".

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Volume 7 Issue 6 June 2018

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