Crafting, Constructing and Developing a Nurses' Professional Identity Scale (NPIS)

Shehnaaz Moola[1,2]

[1] PhD., Department of Health Studies, University of South Africa, South Africa

[2] Nursing Department, King Saud Bin Abdulaziz University for Health Sciences, Jeddah, KSA

Correspondence: Shehnaaz Moola, Nursing Department, King Saud Bin Abdulaziz University for Health Sciences, P.O. Box 9515, Jeddah 21423, KSA.

Abstract

The main objective was to measure the professional identity of nurses and to evaluate the ways to measure and develop the Nurse's Professional Identity Scale (NPIS) as perceived by Saudi student nurses. The study employed a quantitative research design to assess the measurement scale of Nurse's Professional Identity. Data collection was done through a questionnaire from 442 student nurses, who have been recruited through a randomized sampling approach. A factor analysis identified five-factor dimensions within a multi-dimensional structure of 45 items. Factor 1 has been identified as the most important factor on self-presentation as most significant and important to the technique of constructing and forming a professional identity. Factor 2 has accounted for 5.62; Factor 3 has accounted for 5.14; Factor 4 has accounted for 4.29; and Factor 5 has accounted for 4.25. Factor 1 consisted of 16 variables and all items with loadings greater than (>0.3), which deals with self-esteem. It has been evaluated that the nursing professional identity scale can be used to adapt and assess the developing/forming stages of student nurses and the variables needed for constituting a professional identity. Self-presentation, self-image, self-esteem, self-categorization and self-concept are directly associated with certain activities, interventions, and approaches required to be developed.

Keywords: nurses, nursing, students, professional identity

1. Introduction

1.1 Introduction to the Problem

Professional Identity of nurses has not clearly been conceptualized and provided an understanding of a professional role, which is being undertaken by the individual. This study used the Social Identity Theory of Tajfel & Turner (2004) throughout, as the theoretical framework for a nurse's professional identity. Professional identity is a form of social identity and group interaction in a work environment, where people associate and discriminate themselves from several other professional groups. There are multiple practice areas in the field of professional identity (Cardoso et al., 2014). The commitment and occupational choice are the primary attributes of a nurse's personal identity. At the undergraduate level, personal identity might vary and even disintegrate when subjected to the realities and clinical exposure of a nursing career.

Hoeve et al. (2014) pertinently identified that a professional self-identity of a nurse is complex, but not limited to a public image. Jorgenson & Henrikson (2011) stated that narrative forces usually play a major role in the development of an individual within the professional environment. For instance, the concept of nurses regarding their professional identity has been changed with the passage of time. Nurses usually thought themselves mainly as an assistant to the doctor in the mid-twentieth century, within the acute care setting, but now they consider themselves as more active and autonomous in patient care (Cowin et al., 2013).

The main aim of the survey was to establish how nurses form a professional identity by measuring psychometric properties on a scale. It also examined how it shapes attitudes along with behaviour and inspires professional values, when a growing awareness, understanding, and shared experiences exist in group membership. The study has aimed to measure the professional identity of nursing professionals within the academic and clinical settings.

1.2 Relevant Scholarship

Traditional approaches have been critiqued, but recent studies have taken alternative approaches in studying the

unpredictable organizational context (Nichol & Williams, 2014; Adams et al., 2006). It has been evaluated that neither the health facility nor the educational and clinical environments are key players in shaping a professional identity. Attitude and behavior influence the public image of nursing and nurses. Developing a professional identity is acquired through stages of professional socialization (Monrouxe, 2010). As per a study, the individual and group identity can be created through education, learning, and understanding. Nursing disseminates knowledge through language by health sciences research and attempts to build on professional attributes. Despite the emphasis placed on the importance of individual development, the formed identity of a professional, which was shared by others in the same profession becomes the foundation for negotiation and meaning of the role. Negotiation occurs within a dynamic group existence of transformation and evolvement (Willetts, 2013).

Choosing nursing as a career to remain in nursing, and to recommend it to others need much exploration (Hao et al., 2014). In attaining pre-requisite practical skills and knowledge, graduates still have to integrate various types of knowledge into practical settings. Patient-centered care was held in high esteem in the public eye (Hoeve et al., 2014). A measurement scale is defined as measuring psychometric variables by assigning a number on a questionnaire (Hao et al., 2014).

Taking into consideration the development stages of the professional identity, it has been found that majority of the studies stood under at the learning and professional stage. Various internal and external factors are involved with the professional identity (Adams et al., 2006). The training institutions and professional practices should promote a regular preparation for learning which could be seen as a continuous process throughout life (Adams et al., 2006).

Mcleod (2008) has measured the concept of attitude related to self-image and social acceptance. The various attitude measurements focus on cognitive, affective, and behavioral components, and differ from component to component, and make it difficult to measure. Cowin et al. (2013) used a Nurses' Self-Concept Measure for a causal study of a positive professional self-concept and the effects on job satisfaction and retention. The study has tested a hierarchical model of self -concept using the Extended Logistic Model of Rasch.

Hao et al. (2014) developed a professional identity scale for nursing students (PISNS), a five factor model with 17-items; measured 58.9% of the total variance. The findings have concluded that Chinese nurses had a poor self-esteem and self-image due to a lack of public respect. Hoeve, et al. (2014) has explored self-concept in light of the public image, professional identity, and work performance. It has been found that there were significant differences in professional self-concept in educational preparation and professional socialization. It has been indicated that students regarded interpersonal skills, professional skills and being a team player as most significant aspects transitioning into professionals.

2. Method

The quantitative research design has been implemented in the study. A non-probabilistic sampling technique was used for collecting data. Moreover, descriptive statistics, ANOVA, MANOVA, and correlation tests were used to analyze the obtained data. This study was conducted during the period 2014 -2015 at two nursing colleges (for Health Sciences) and a 900-bed general health facility in Saudi Arabia, where student nurses and nurses conducted their clinical training. A Nurses Professional Identity Scale (instrument – NPIS) was constructed and developed to study the evolution of a professional identity as perceived by Saudi student nurses. A randomized sampling approach was used for recruiting participants from the identified population of nursing students. All of the nursing students were included in the research study; however, the rest of the professionals along with experienced nursing professionals were excluded from the investigation process.

2.1 Sampling Procedures

Translation of the instrument into Arabic was done by a peer researcher to further facilitate comprehension of the instrument, as English was not the first language of the respondents. Junior students were expected to face language difficulty as compared to senior students while attempting the questionnaire. Two techniques were used for translating the English version of the instrument into Arabic as suggested in the previous literature (Claro et al., 2012; Gjersing et al., 2010; WHO, 2015). The instrument was independently translated into Arabic by two bilingual researchers, who were faculty members at a college of nursing. Both these translations were compiled into a single translation by a third researcher, who checked for Arabic accuracy. Students were having issues with the sentence structures, grammar and categorization of the tools that have impacted the responses of the students.

The appropriate version was then translated into English by an independent research bilingual translator. The final version was assessed by a faculty member for accuracy by comparing the English translated version with the original instrument. Slight modifications were made to assure clarity and capturing the meaning of all items that were included in the final Arabic version. Once approved, the final Arabic instrument was used for pilot testing

with 30 nursing students. Cronbach's alpha test applied for the Arabic version was 0.89 indicating the tool as a reliable instrument for data collection.

A self-developed structured questionnaire was formulated by the study. The dimensions and initial item pool were generated based on the expert reviews provided by Willets and Clarke (2014), a literature review as well as expert reviews. Various dimensions of a professional identity were followed by a multidimensional structure. The questionnaire was submitted for pre-testing and revision.

2.2 Data Collection

A self-developed structured questionnaire, using the Social Identity Theory, was used (Tajfel & Turner, 1979). An Arabic version of the questionnaire was delivered to the students, who voluntarily participated in the study. The completed questionnaires were returned to the researcher. The sample size used in the study was 442 nursing students. The questionnaire was divided into two parts, which mainly include socio-demographics and measurement scale. The socio-demographical data of the participants mainly included age, marital status, number of children, educational status, and streams I or II. The second part of the questionnaire was comprised of a measurement scale, which was developed with 45 items and for five dimensions. The respondents received standardized instructions to complete the questionnaires to reduce the extent of any bias. Each questionnaire under took 20 minutes to be completed. Data collection was done over a four week period from 442 respondents respectively. The recruited students voluntarily agreed to be a part of the study and signed the consent document. Students, who were not interested in the study, did not sign the consent document and were excluded.

Student nurses included in the participation were students doing the four-year Baccalaureate program and included a selection of Junior, Senior and Intern nurses from Streams 1 and 2. The College of Nursing offers two undergraduate (Baccalaureate) Programs in Nursing Science: the first being stream 1; enrolling high school graduates from level 1 to level 8. Stream 2 included university graduates of Chemistry, Biochemistry, Science, Physics or Mathematics, who choose Nursing as a second career; they include level zero to level five. This program extends over a period of 4 years. A fundamental program preceded the two programs and the purpose was to develop and graduate safe and competent nurse professionals.

The theoretical foundations of this study derived its focus from the Social Identity Theory (SIT), of Tajfel & Turner (2004) and Tajfel & Turner, (1979) The (SIT) theory and a literature review guided the development of the questionnaire, of which the constructs derived are formed in dimensions, within a multidimensional structure.

2.3 Data Analysis

Ten nursing graduates from the College of Nursing including, Streams 1 and 2 were not part of the actual study. The original tool included 52 items with a 5 point Likert scale from strongly agree to strongly disagree. Descriptive (frequencies, means and standard deviations), as well as the ANOVA and MANOVA tests, were performed to determine how the demographical data and each dimension contributed towards professional identity formation (construct validity) and compared junior, senior and intern students. Factor and a reliability analysis was performed to test the content validity, internal consistency and reliability of the questionnaire.

SPSS version 20 was utilized to assess the collected findings. Descriptive analysis along with MANOVA, ANOVA, and Hotelling's T^2 was done to retrieve findings from the data. The rationale behind using SPSS was to ensure the statistically valid outcomes through the collected data. Moreover, the reliability of the data was also signified through SPSS software. The level of significance was set at $p<0.05$ and the cutoff point for the scales were 3. The current Nurses Professional Identity Scale contains 45 variables with 5 pre-determined dimensions that were based on the Social Identity Theory of Tajfel & Turner (2004) and Tajfel & Turner, (1979). The five dimensions had narrative responses to the items, which asked student nurses to identify variables, across 5 factors on a nurse professional identity scale. A 4-point Likert scale was used to structure the questionnaire. It was from strongly agree-1; agree-2; disagree-3 and strongly disagree -4 was used. The Nurses Professional Identity Scale (NPIS) as a preliminary examination of the original 52 item scale underwent an initial reliability analysis to determine the internal consistency of the items. Variables, which were addressed in this study, mainly included self-presentation, self-image, self- esteem, self-categorization and self-concept.

The Cronbach's alpha measured the internal reliability of the scale, which was 0.7 across all 52 variables and for 5 categories excluding the category containing the demographic information. Items with coefficients of less than 0.7 were removed from the questionnaire. The category groupings were done following the Exploratory Factor analysis. The method used for this study was the Principal Component factor analysis with Varimax Rotation as an initial step to create the groupings of the variables into a factor structure with 45 variables. The aim was to define the least number of factors required for explaining the largest variation in the dataset.

The Kaisser's stopping rule is based on the average of the Eigenvalues of > 1 suggested that 13 factors be extracted, having Eigenvalues > 1. The scree plot is based on the principal of discontinuity and a sharp drop in the percentage of explained variance indicated the appropriate termination point. Polit & Beck (2008) have highlighted the plot numbers of factors in the model and indicated that 5 Factors are sufficient. Component Factor Analysis was used for the factor extraction.

A common factor analysis was performed on the data, using a Principal Axis Factor model, with a similar rotation used for the Principal Component model. The aim was to identify (latent) unobserved structured variables that govern dependencies between the various questions asked. Cronbach's Coefficient of internal reliability on the Common Factor Model was calculated across all 45 remaining variables (7 variables were deleted) due to the common factor model. Each factor scored separately, as follows: Factor 1- 0.9; Factor 2 -0.84; Factor 3- 0.75; Factor 4- 0.82 and Factor 5- 0.76. The overall total score for all factors was $\alpha=0.907$. The factors that were analyzed by inter-factor correlations between items and factors 'belonging'; indicated content validity (Polit & Beck, 2008). According to the SAS documentation; "the purpose of correspondence analysis is to plot scores that show the relationships among the categories" (Lebart et al., 1984). Data analysis was done on 442 student nurses and was targeted at:

- Testing the questionnaire for reliability and validity (pre-test and after data collection)
- The evolution of a professional identity as perceived by Saudi student nurses

3. Results

The Cronbach's Alpha Coefficient was used to measure the internal reliability of the Nurses Professional Identity Scale (NPIS). An initial examination of the original version of the questionnaire i.e. all 52 items, produced an overall reliability coefficient of 0.91, which is within acceptable limits. A common factor analysis using a principal axis factoring model with a similar rotation method has been used for the principal component model. It identified variables that had factor loadings of < 0.3 and which loaded onto other factors with similar magnitude were removed, in attempt to clean up the results.

Loadings with an absolute value of 0.40 or higher are often used as a cutoff point. Smaller values may be accepted if it makes sense to do so (Polit & Beck, 2012). The results of the factor analysis produced a five-factor solution. Each factor explained the percentage of variance for the rotation sum of squared loadings. Factor 1 was the most important factor since it accounted for 10.23 of the variance. Factor 2 accounted for 5.62; Factor 3 accounted for 5.14; Factor 4 accounted for 4.29 and Factor 5 accounted for 4.25. Factor 1 consisted of 16 variables and all items with loadings greater than (>0.3), which deals with Self-Presentation and labelled as how 'I present myself as' being competent and professional.

The second Factor accounted for 5.62 of the variance and consisted of 12 variables of Self-Image and was labelled as 'I view myself as' and included items describing 'being equally important to the doctor' and 'Being in an admirable profession'. The third Factor consisted of 7 variables of Self-Esteem and labelled 'I believe that' accounted for 5.14 of the variance and items, which loaded the highest are 'an equal colleague of the doctor' and 'my role as a future nurse enhances my self-esteem.' The fourth factor comprised 6 variables of Self-Categorization and accounted for 4.29 of the variance and labelled 'I feel I belong'. The items that loaded the highest in this factor were 'having chosen the nursing profession as a career' and 'being valued by society'. The fifth Factor accounted for 4.25 of the variance and was composed of 4 variables of Self-Concept and was labelled as 'I think of myself as'. The items which loaded the highest on this factor included 'being a part of the nursing profession', 'a part of a group and society', 'a professional nurse' and 'an individual self and unique to others'.

The responses on the remaining 45 items of the NPIS indicated a coefficient reliability overall for the five factors α 0.91 and each of the factors: Factor 1 $\alpha=0.9$; Factor 2 $\alpha=0.84$; Factor 3 $\alpha=0.8$; Factor 4 $\alpha=0.72$ and Factor 5 $\alpha=0.63$. The results of the factor analysis with the loadings of the five factors are presented in Table 1.

Table 1. Rotated factor loadings of the NPIS Scale is summarized as follows

Factors	Factor 1	Factor2	Factor3	Factor 4	Factor 5
Behaving in upholding the image of nursing	0.73829	0.00473	-0.02566	-0.00653	0.06940
Striving towards attaining competence	0.72800	0.04403	-0.12901	-0.07981	0.14306
Upholding the name of my educational institute	0.70063	0.06096	-0.10615	-0.08540	0.11200
Carrying out my nursing role with responsibility and	0.69103	0.07982	-0.11437	-0.15747	0.15904

accountability

Working within policy and procedure	0.60695	-0.03948	-0.02807	0.04193	0.09526
Belong to the nursing culture	0.56427	0.10473	-0.05725	0.22741	-0.05695
Protect the status and interests of my group as nurses	0.54779	0.08487	0.05097	0.09378	0.07319
Have an equal part in belonging to a group of nurses	0.52453	0.12818	−0.01771	0.30146	−0.01293
Identify myself with a group of nurses	0.48345	−0.02177	0.07896	0.13565	−0.04650
Carrying out the nursing role with dedication and integrity	0.46610	0.28307	−0.09068	−0.04197	0.15607
Maintaining patient rights	0.45623	0.30399	−0.05903	−0.15965	0.17472
Be identified as a nurse	0.43570	0.26506	−0.00396	0.39060	−0.04884
Not feel excluded from a group of nurses	0.42065	0.05787	0.07634	0.10922	0.00199
Behaving like a professional nurse	0.40929	0.24573	−0.09622	−0.10582	0.24040
Practicing my skills on a manikin as if it were a real live patient, which enhances my competence and gives me confidence in dealing with a live patient	0.38258	0.18255	0.04866	−0.08706	0.02393
Be guided by role models in forming professional behavior and attitude	0.37813	0.11483	0.07342	−0.08466	0.11005
Equally important to the doctor	−0.06361	0.66428	−0.07529	−0.04076	−0.03556
My role as a future nurse enhances my self-esteem	0.06180	0.61292	−0.06555	0.26933	−0.05757
Defining myself as a nurse enhances my self - esteem	−0.01565	0.60379	−0.06458	0.35316	−0.05284
An equal colleague of the doctor	0.01305	0.54135	−0.02018	0.04094	0.01584
Being in an admirable nursing profession	−0.02494	0.53785	0.04624	0.16358	−0.06753
The further I advance in years of study the more it improves my self-esteem and confidence	0.10445	0.46769	−0.08265	−0.01622	0.09837
I have adopted the norms, behavior and attitudes of the nursing profession	0.14427	0.44950	0.06111	0.11624	0.08240
I have all the qualities of a nurse	0.03897	0.44055	−0.00264	0.05949	0.15333
I am a person of self−worth	0.02228	0.43672	−0.12465	−0.13016	0.25520
Willing to work hard, with responsibility and accountability	0.22957	0.39993	−0.12314	−0.04541	0.13529
Fit into the nursing profession	0.30611	0.38182	−0.12289	0.32749	−0.08023
I see myself as part of my nursing friends	0.23003	0.38114	0.15631	0.13868	0.11616
My self−esteem is affected when society perceives me as the doctors helper	−0.03218	0.01853	0.75541	−0.09790	0.01092
My self−esteem is affected when society perceives nursing as having a low education	−0.05108	−0.03752	0.74937	−0.21091	0.02159
Critical thoughts affect my self-esteem	−0.04891	0.01047	0.66369	−0.02255	−0.03007
I compare myself to the out group (other professions)	−0.03987	−0.04910	0.59097	−0.04973	0.02121
Being poorly paid as a nurse	0.00758	−0.04364	0.39519	0.08756	0.00253
Evaluate my self-esteem by what others say	0.02056	0.26981	0.39373	0.01035	0.02086
Being influenced by my culture in defining myself	0.14289	−0.06737	0.38531	0.05932	0.07283
Having chosen the nursing profession as a career	−0.08517	0.00778	0.00996	0.63955	0.07510
Being valued by society	0.05129	−0.08935	−0.01748	0.50845	0.00913
As wearing my uniform with pride	−0.03137	0.13301	−0.03115	0.49835	0.27885
As remaining in nursing after graduation	−0.08786	0.03492	−0.05395	0.48723	0.15580
Being a good advocate for nursing	−0.06226	0.08085	0.02849	0.41800	0.33783

Identify myself as a nurse even when society perceives nursing negatively	0.32502	0.31535	−0.11544	0.36559	−0.02897
A part of the Nursing Profession	−0.06478	0.00354	0.06214	0.18933	0.69212
A part of a group and of society	0.03722	−0.07889	0.00401	−0.00588	0.67465
A Professional Nurse	−0.07914	0.03556	0.06675	0.15434	0.66344
An individual Self and unique to others	−0.01100	−0.11897	0.02081	−0.02283	0.55466

All variables that had factor loadings smaller than 0.3 and that were loaded onto other factors (with similar magnitude), were removed in the attempt to clean up the results and aid with interpretation. The following seven questions were consequently removed: 'having entered nursing to go into medicine later'; 'having a good appearance'; being part of the multidisciplinary team; being influenced by my religion in defining myself; 'the doctors helper, by ordering the nurse'; wearing a nurses uniform and 'identify myself with the religion of my colleagues'.

After factor analyses, the score was calculated for each student by obtaining the means for all variables on each factor. The results identified that the factors, suggested by the common factor model, have acceptable levels of reliability and a Goodness-of- Fit (> 0.9) (Jorgenson & Henrikson, 2011). This aspect indicated a good fit in adaptation to the Social Identity Theory (SIT). The aggregate scores for the five factors were created. The mean aggregate scores for F1=3.7; F2=3.5; F3=2.5; F4=3.5 Multi Analyses of Variance (MANOVA) indicated statistical significance at a 10% level (Hotelling, Lawley trace $T2 = 30$. $p=0.09$). The univariate test was used to establish where the difference among each of the five dimensions may lie, compared to the median of 2, having used a 4 point Likert Scale; this is summarized in Table 2.

Table 2. A summary of the Cell means, standard deviations and univariate F-tests results

Factor	v	Mean	Median	Std. dev	Min	Max
Mean Factor l Score	442	3.660111	3.769231	0.357956	2.15384	4
Mean Factor 2 Score	442	3.539079	3.636364	0.427341	1.81818	4
Mean Factor 3 Score	442	2.511635	2.428571	0.670252	1	4
Men Factor4 Score	442	3.461538	3.5	0.427104	1	4
Mean Factor5 Score	442	3.609163	3.75	0.447455	2	4

Students perceived that they can carry out the nursing role with dedication and integrity by presenting themselves and portraying a professional code of conduct, being competent, responsible, and accountable, guided by role models. It also aids in protecting the status of the group, and the feeling of belonging was imperative in developing a professional identity. The Kaisser's stopping rule is based on the average of the value of the Eigenvalues of > 1 suggests that 13 factors be extracted, having Eigenvalues > 1 and is presented as follows in table 3:

Table 3. Eigenvalues

	Eigenvalue	Difference	Proportion	Cumulative
1	12.0438961	8.6575815	0.2316	0.2316
2	3.3863145	0.2332489	0.0651	0.2967
3	3.1530656	0.8410919	0.0606	03574
4	2.3119737	0.5600000	0.0445	0.4018
5	1.7519736	0.1693968	0.0337	0.4355
6	1.5825768	0.1114742	0.0304	0.4660
7	1.4711026	1.4711026	0.0283	0.4942
8	1.2902450	0.0750448	0.0248	0.5191
9	1.2152002	0.0446112	0.0234	0.5424

10	1.1705890	0.0214949	0.0225	0.5649
11	1.1490941	0.0643731	0.0221	0.5870
12	11.0847210	0.0714625	0.0209	0.6079
13	1.0132585	0.0410598	0.0195	0.6274
14	0.9721988	0.0548447	0.0187	0.6461
15	0.9173540	0.0563420	0.0176	0.6637
16	0.8610120	0.0293707	0.0166	0.6803
17	0.8316413	0.0306950	0.0160	0.6963
18	0.8009463	0.0314651	0.0154	0.7117
19	0.7694812	0.0300352	0.0148	0.7265
20	0.7394460	0.0180541	0.0142	0.7407
21	0.7213920	0.0388451	0.0139	0.7546
22	0.682546	0.0119485	0.0131	0.7677
23	0.6705984	0.0307102	0.0129	0.7806
24	0.6398882	0.0281976	0.0123	0.7929
25	0.6116906	0.0117060	0.0118	0.8047
26	0.5999847	0.0130003	0.0115	0.8162
27	0.5869844	0.0296468	0.0113	0.8275
28	0.5573376	0.0126585	0.0107	0.8382
29	0.5446791	0.0321322	0.0105	0.8487
30	0.5125469	0.0081540	0.0099	0.8585

The scree plot is based on the "Principal of discontinuity and a sharp drop in the percentage of explained variance indicates the appropriate termination point" (Polit & Beck, 2012) and is indicated in figure 1. The plot of numbers of factors in the model indicated that 5 Factors are sufficient. Inter-factor correlation coefficients between the five factors were also calculated. The inter-factor correlations are those with correlations greater than 0.2 and bounded by (-1 and 1) i.e. between Factors 1 and 2; Factors 1 and 4; Factors 2 and 4; and Factors 2 and 5. The results of the inter-correlation test is summarized in Table 4.

Table 4. The inter-correlations of the five factor dimensions

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.0000	0.45690	-0.04824	0.14026	0.25574
Factor 2	0.45690	1.0000	-0.12387	0.27745	0.23507
Factor 3	-0.04824	-0.12387	1.0000	0.00093	0.03992
Factor 4	0.14026	0.27745	0.0093	1.00000	0.19788
Factor 5	0.25574	0.23507	0.03992	0.19788	1.00000

The analysis of variance (ANOVA) was carried out to compare the mean scores. The Tukey's student range was used for the multiple means, for factor 1 of the different marital status levels, at a 5% level of significance n=72 married with a mean of 3.5 and n=370, who were single with a mean score of 3.5. The mean of the mean scores 25-30 yrs. old disagreed more with variables in F2 and F4 more than with respondents 19-24 years.

Respondents having 1-2 children disagreed on an average more with variables in F4 than those who have no children. Since, all p-values are less than 0.05, the null hypothesis was rejected and concluded that the study level had a significant overall effect on the 5 mean factor scores at a 5% level of significance and implied that the mean factor scores differ significantly for different study levels and confirms the univariate results. The

multidimensional scaling results can be seen in Figure 1. The Multiple correspondence analysis plots indicate how the different levels of the demographic information and how the different levels interact with each other. The analyses revealed that singles and those having no children lie closer (Liebart, et. al., 1984).
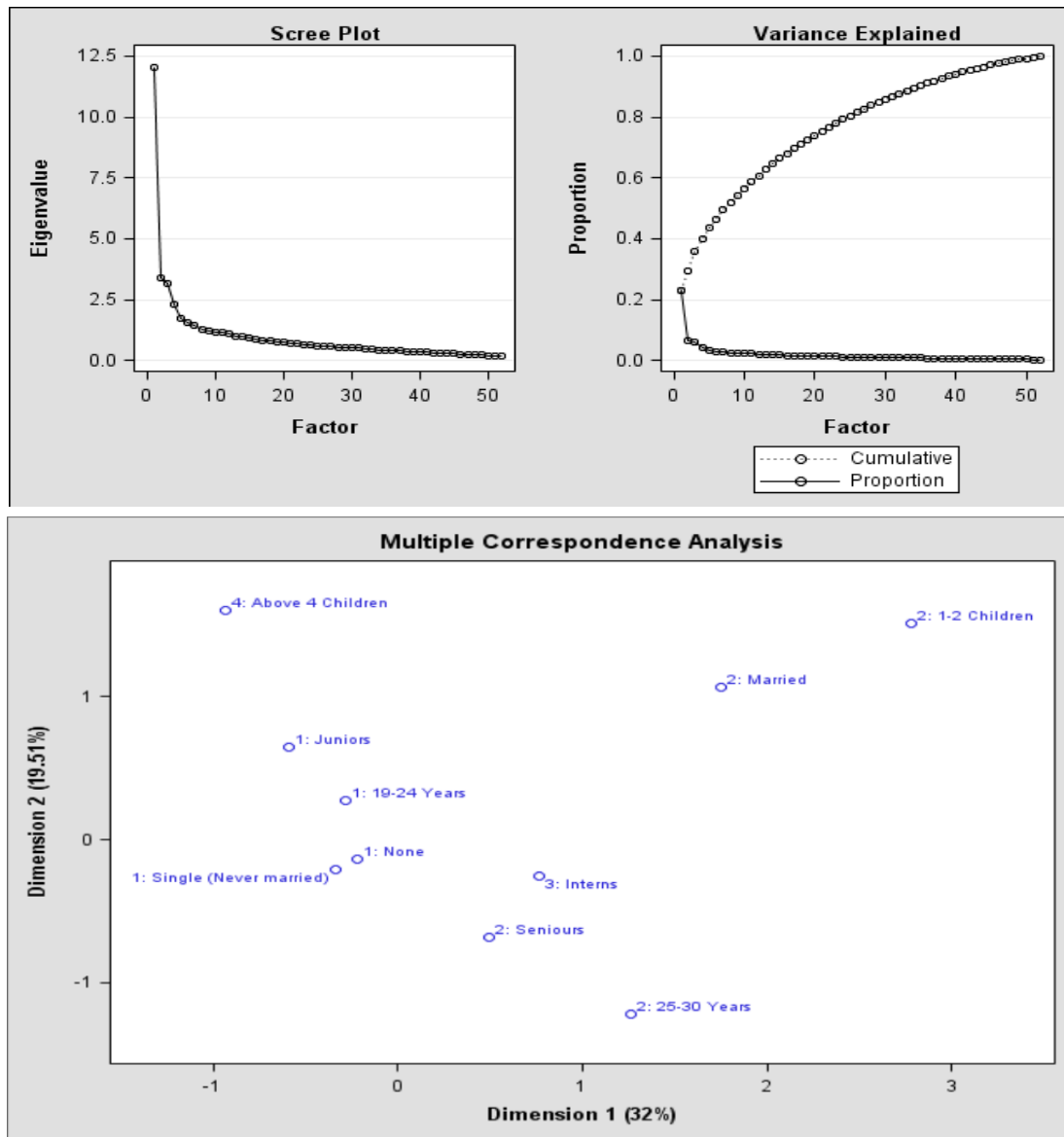

Figure 1. The distribution of the eigenvalues and the variance on a scree plot. The multiple correspondence analysis of the demographic data

4. Discussion

The major objective of the study was to measure Nurses Professional Identity as perceived by Saudi Student Nurses. Current results indicated that student nurses perceived factor 1,on self-presentation as most significant to the process of constructing and forming a professional identity. Individuals move from interpersonal to intergroup levels and assessed three aspects: how students see themselves and others, how students perceived the image of the group by society, and when society thinks appropriately about a person (Tajfel & Turner, 2004). Factor 2 was related to self-image and scored as second. The current results indicated that most of the students disagreed on an average more with the variables in factor 2 than younger students of 19-24 years. It may be suggested that students on an entry-level were likely to answer positively. On the other hand, the atmosphere at group level with the students of 19-24 years led to a positive self-esteem at group level enhancing a collective self-image. Social identity theorists proposed that there are high and low identifiers within a group; low identifiers discriminate and

exit the group eventually. A statistically significant difference resulted between the mean scores in regards to factor 3 on self-esteem. From the social identity perspective, nurses have motivated a shared self-esteem within the group, which motivated a shared self-image of the nursing profession. The mean of respondents having 1-2 children disagreed more with variables in factor 4 in regards to self-categorization than respondents, who had no children. The results identified no significant differences between the mean scores for the different marital status level at a 5% level of significance of factor 4 on self-categorization. From the Social Identity Perspective, nurses have motivated a shared self-esteem within the group, which motivated a shared self-image of the nursing profession. Juniors and seniors are still in the process of self-evaluating their experiences over time. The SIT group level concept of Social Self-Esteem demonstrates the positive idea that individuals strive for positive self-esteem as group members rather than as individuals.

Further studies were needed to establish the relationship between the strength of professional identity and the bearing of professional development on students' beliefs and attitudes. The study conducted by Hean et al. (2009) has cautioned that including identity questions in measurement tools beside stereotype ratings could make professional identity more salient to students and most likely influence students' response to both identity and stereotype questions. They perceived doctors as academically strong and nurses as interpersonal team players. The Nurses Professional Values Scale adapted by Weis & Shank (2009) reported a reduced model fit of (<0.90), when a common methods bias was incorporated in the study (Cowin, et al. 2013). In accordance to Cowin et al. (2013), most measures demonstrated poor psychometric properties or model fits, than was reported. A doctoral dissertation of Tan et al. (2016) focused on the development of comprehensive professional identity framework to recognize how the problem-based learning contributed to the development of the students. The main findings can be used to promote the professional identity development based on the recommendation that problem-based learning has to incorporate the experience within the profession. The NPIS scale factor has been further explained. Rotated factor loadings of the NPIS Scale have been summarized in table 1.

Previous measurement instruments on professional identity indicated that a tool for measuring the developmental stages and Psycho-Social variables of nursing students were fragmented and unclear. This study crafted, developed and formed a Nurse Professional Identity Scale (NPIS) and identified five factors: Self-presentation, Self-Image, Self-Esteem, Self-Categorization, and Self-Concept. They comprised variables in developing a professional identity from the Social Identity Theory, a literature, expert reviews and student responses. With the high reliability and validity, the NPIS could be used as a measurement tool in nursing education to evaluate the developing and forming stages and variables that constitute a professional identity. Educational institutions should assess student readiness for nursing by pre-nursing attitude and comportment and in revising educational content in curriculums and clinical environments for developing student nurses during and post course completion. The study elaborated that the hidden curriculum plays a crucial role in the development of students' attitudes. It is evident that the management of any institution also plays an essential role in influencing a positive, interactive environment made by the ambience inside the academic and clinical institution. Therefore, it can be said that the hidden curriculum would be helpful in students' transition to a professional role.

4.1 Recommendations

Given the current weaknesses of the NPIS, some recommendations can be drawn from this study. The NPIS warrants further exploration and testing to improve its weaknesses, which may include other samples in a wider context of male student nurses, as well as conduct comparative studies in other countries, wider population groups, cultures, and religions. The recommendations are merely linked with the developed objectives in regards to the study. The study revealed that the relationship between the strength of professional identity and the bearing of professional development on students' beliefs and attitudes is yet to be investigated; therefore, future studies could include questions regarding identity, attitude towards nursing, personal and professional outcomes expected to 'belong' in the nursing profession.

4.2 Nursing Implications

Collegial relationships have been identified as a significant influence on the experience of student nurses, 'sense of belonging', and fundamental to their active and participative learning. Tajfel & Turner (2004) indicated that waiting until the final years may not be suitable or likely to maximize the potential for active and purposeful clinical learning. These arguments should be of particular interest to higher education, nurse managers, and clinical authorities, who design undergraduate nursing programs, curriculums, and budgetary constraints.

4.3 Research Implications

Results from this study indicated that beneath the categories and sub-categories of self-presentation, self- image

self-esteem, self-categorization and self-concept lays a range of activities, interventions, and approaches that can be identified through an integrated exploration of management centrally. This study identified a range of factors that may result in identifying a sense of belonging, considering factors for pre-entry, preparation and admission, induction and transition support, curriculum development, social commitment, student support, monitoring, and educational experiences.

4.4 Educational Implications

According to the present study, the educational organization has a huge impact on the attitudes, values, self-esteem, self-image and self-concept in the behavior of students in forming a professional identity and on the overall sense of belonging. Collaboration with health care workers, departments, and universities should consider the role of cross-disciplinary forums in facilitating debate of issues. Curriculum development should be redefined and incorporate group teaching activities, peer assisted learning, seminar discussions, team building events, and role playing within inter-professional relations. Similar studies have shown that nurses develop their social identity and nursing roles through the roles of other healthcare professionals.

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Competing Interests Statement

The author declares that there is no conflict of interests regarding the publication of this paper.

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